



A1 Fire-resistant cover board for (solar-integrated) roof systems

FM 4470 & FM 4478 Approved

Product description: AllShield BarrierSheet® is a high-performance, light weight, non-combustible fire barrier (A1) designed to be installed as a cover board beneath new mechanically fixed roofing membranes for roofs with or without PV panel arrays. The product is composed of a multi-mineral, inorganic compound mixture laminated into a flexible, durable sheet. The BarrierSheet is engineered to **block vertical fire propagation** through the roof assembly by cutting off thermal transfer and energy access to underlying insulation and/or roofing materials.

Working principle: The BarrierSheet® limits fire spread by blocking the supply of additional fuel and thermal energy beneath the PV system. When a fire starts in a PV panel or the roofing membrane itself (TPO, PVC, EPDM or bitumen), only a very limited amount of combustible material is available, typically a narrow edge of around 2 mm. This creates a ring-shaped flame front, like a grassland fire. As this front expands, the available energy decreases and the fire naturally extinguishes, especially in the case of self-extinguishing membranes. The underlying insulation and BarrierSheet does not contribute to combustion, effectively preventing escalation. Only if the initial fire is strong enough to ignite multiple panels on its own will the fire spread within the PV system. Beyond the bounds of the array, the fire will once again extinguish due to lack of energy.

Uses: AllShield BarrierSheet® is intended for use as a cover board on existing roofing membranes (e.g. TPO, PVC, EPDM, Bitumen) as a retrofit solution or on top of a new insulation below a new mechanically fixed waterproof roofing membrane with or without PV systems for new commercial or industrial flat roof installations where fire containment is critical.

Important note:

BarrierSheet® is not designed to replace structural roof layers or waterproofing membranes.

EAN:

- (GTIN): 8720844077014



Certifications and tests:

- FM 4470 approved
- FM 4478 approved
- A1 certified by Efectis
- NEN 7250:2021 (under review) fire tested
- ZAG Slovenian National Building and Civil Engineering Institute
- Broof(t1) by Efectis/WarringtonFire



Characteristics / Advantages:

- Thin profile and lightweight for easy integration
- UV-stable and flexible for installation under PV mounting structures
- Contributes to limiting fire size
- keeps fires self-contained
- reduced weight compared to other cover board solutions and mineral wool, making a lighter construction of buildings possible, improving Bream score



Product information:

- **Chemical base:** Inorganic mineral blend
- **Top surface finish:** Non-woven top layer
- **Underside finish:** Non-textured facing

Fire resistant:

- **CEN/TS 1187:2012:** Broof(t1) (PIR+PVC/TPO/MODBIT)
- **EN ISO 1716:2018 / EN ISO 1182:2010:** A1



Dimensions:

- **Length:** 200cm (±78.74 inch)
- **Width: (from September 2026)** 100cm (±32.80 inch),
- **Thickness:** 0,25cm ± 10% (1/10 Inch, 0.098 inch ± 10%)
- **Weight:** 3,0kg/m² ± 10% (0.62 lbs./Sqft ± 10%)

Packaging:

- **Palletized,** wrapped in weather-resistant film
- **Pallet dimensions:** 1.00m x 2.00m (±78,74 x 32,80 inch)
- **Pallet quantity:** 100x stuks (100 pieces)
- **Weight per pallet:** ± 650kg (±1,433 lbs)
- **Square meters/pallet:** 200m² (from September 2026) (±2,152.78 Sqft)

Color: Light grey (underside)
off-white natural mineral (inside),
off-white (top)

Storage conditions: Store indoors in original, unopened packaging. If outdoor storage is unavoidable, elevate pallets and fully cover with waterproof sheeting. Wet or damaged material must not be installed until dry. Weigh down the BarrierSheet on the pallets with paver blocks to prevent BarrierSheet being carried away due to wind

Technical information:

Property	Value	Standard/Test Method
Reaction to fire	Class A1 / Non-combustible	EN ISO 1716:2018 & 1182:2010
Thermal conductivity (λ)	± 0.6 W/mK	standard material indication
Puncture strength	70-100N	Internal test ASTM D5602 (Shimpo MF-100)
Water vapor permeability	μ = 30-40/ Vapor open	standard material indication
Operating temperature range	-30 °C to +80 °C	Internal test method
Hot asphalt application	Up to 232°C.	Retention roof application projects

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Installation Guidelines – AllShield BarrierSheet®

Take into consideration and follow the local building code and Safety regulations for roof work.

Substrate preparation:

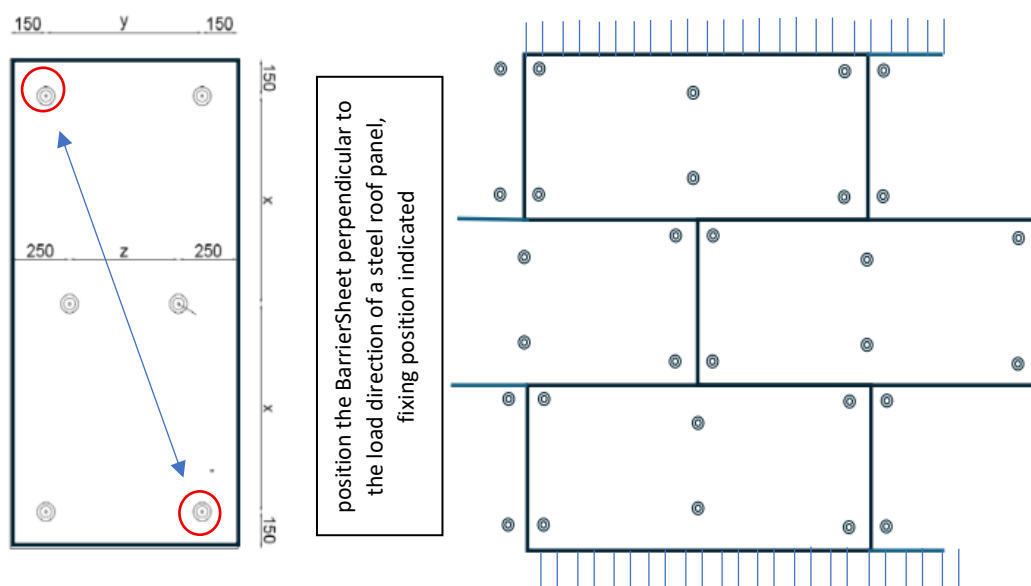
The substrate must be clean, smooth, and free from debris, sharp edges, moisture, water, and oil. Uneven or soft insulation must be levelled before application.

Application	Method of Placement	Specific Notes
New construction or retrofitted	Install BarrierSheet® butt-jointed (tight against each other, no gaps).	Apply in staggered bond pattern. Lay boards flat, without deflection.

Method	Application	Specific Notes
Mechanical	Screws with stress plates (e.g. Ø 70 mm) or tules.	Minimal 2 fixings per board (temporary) or according to wind uplift calculation. Screws flush with the surface, not overdriven. Final roofing membrane to be fixed as per manufacturer's guidelines

Fixing pattern of fasteners (example):

To be calculated by structural engineer per project based upon wind load, height, substructure, location.



Installation must be performed by trained professionals.

Only approved contractors with experience in membrane-based roofing systems should apply AllShield BarrierSheet®.

Cold weather handling

For installation at temperatures below +5 °C, follow national safety and installation regulations regarding handling, storage and installation. Always refer to the product label and packaging instructions for safe use.



Installation of PIR Insulation New and refurbished roofs:

Follow the manufacturer's installation instructions, considering the wind load and roof design. Use high-compressive-strength PIR boards with aluminum foil facings, suitable for mechanical fastening. Where required, install a vapor control layer according to the roof design. The insulation must provide full support for BarrierSheet® to prevent deflection or point loading.

Installation of BarrierSheet on an existing roof

The BarrierSheet® is used as a fire protective layer under photovoltaic installations on existing or new flat roofs. The sheet creates a thermal and fire separation between the PV installation and the underlying roof construction. The BarrierSheet® is not a waterproofing layer and always forms part of a complete roof build-up.

Preparation of the existing roof

Before installation the existing roof must be inspected for structural suitability and general condition. For renovation projects, the existing roof does not need to be watertight, as a new waterproof roof membrane will be installed as part of the renovation. Key preparation steps include:

- verifying that the roof structure is suitable for the new roof build-up and the PV installation
- removing loose debris, gravel and organic material
- inspecting roof details such as upstands, penetrations and skylights

In renovation projects the existing roof generally functions as the substrate for the new roof assembly.

Positioning and fixing of the BarrierSheet®

installation direction

- The BarrierSheet® must be installed in accordance with the following layout principles:
- The BarrierSheet® must be installed perpendicular to the load-bearing direction of the steel deck.
- Use a staggered bond pattern.
- Sheets must be laid cold, edge-to-edge, without overlap.
- Joints must be dry, tight and flat, with no visible gaps.
- Sheets should be placed carefully to maintain a continuous protective layer under the PV installation.

Fixing materials

The BarrierSheet® must always be mechanically fixed.

Recommended fixings include:

- metal self-tapping screws with SP70 stress plates (Ø 70 mm)
- examples include systems from SFS Guardian or Eurofast, or other locally available FM Approved fixings

The screw length must:

- comply with the fixing manufacturer's requirements
- ensure full penetration through the steel deck for complete mechanical anchorage



Fixing pattern, no winduplift requirements due to mechanically fixed single ply roof membrane

A minimum fixing pattern is required to keep the sheets stable during installation.

- minimum 2 fixings per sheet to prevent movement due to foot traffic
- unless otherwise defined by the project engineer or structural calculations
- The final fixing pattern must always comply with:
- roof uplift calculations
- project specific engineering requirements

Inspection during installation

After installation the following checks should be carried out:

- all panels must lie flat
- joints must be tight and continuous
- no stress, deformation or buckling should be visible

Cutting method for the BarrierSheet®

The BarrierSheet® can be easily cut on site using standard hand tools.

The recommended cutting method is:

- Score the top layer of the sheet with a sharp utility knife.
- Fold the sheet along the scored line.
- Cut through the remaining bottom layer to complete the cut.

This method produces clean cuts and significantly reduces wear on the knife blade. Cutting directly through the entire sheet in one movement should be avoided, as the material can quickly dull the blade.

Cutting and safety precautions

When cutting the BarrierSheet® on site, the following safety guidelines must be observed.

The use of rotating saws or cutting machines should be avoided, as these tools generate excessive amounts of dust.

Manual cutting with a knife is recommended.

During cutting and handling of the material, installers are advised to use appropriate personal protective equipment (PPE), including protection for:

- respiratory system
- eyes
- hands
- skin



Proper use of PPE and controlled cutting methods help minimize dust exposure and improves safety during installation.

Moisture protection during installation

To protect the BarrierSheet® during installation:

- apply only as many sheets as can be covered with roofing membrane on the same day
- protect uncovered areas during work breaks from rain
- do not install wet material; allow it to dry before installation if exposed to moisture
- protect sheets during storage against weather conditions



New waterproof roof membrane

After installation of the BarrierSheet® a new waterproof roof membrane must be installed.

The top layer of the roof must:

- be mechanically fixed
- be installed according to the manufacturer's installation guidelines
- comply with wind uplift calculations and the applicable wind zone

For renovation projects an additional rule applies:

The type of roof membrane must match the existing roof system.

Examples:

- existing bitumen roof → new bitumen finishing layer
- existing PVC roof → new PVC finishing layer
- existing TPO roof → new TPO finishing layer

This prevents material incompatibility and ensures long-term durability of the roof.

Existing insulation

In case EPS (Expanded Polystyrene) insulation is present below the existing roofing membrane, the application of an additional PIR insulation layer of 30 mm, or more if the R-value of the roof needs to be upgraded, beneath the BarrierSheet may be considered. This additional PIR layer can contribute to reducing heat transfer towards the existing roof construction.

Fire break zone around the pv field

If only part of the roof is equipped with photovoltaic panels, the BarrierSheet® must extend beyond the PV field. A perimeter zone of approximately 1.80 to 2.00 meters around the PV installation should be covered with BarrierSheet®. This perimeter zone helps limit potential fire spread from the PV installation to adjacent roof areas.

Before execution, this requirement should always be confirmed with the building's insurance company, as insurers may apply project specific requirements for PV installations on roofs.

Installation of the pv system

Once the new roof membrane has been installed, the photovoltaic system can be installed.

The BarrierSheet® is then positioned:

- below the PV installation
- above the existing roof construction
- below the new waterproof membrane

This creates a roof assembly that is more resistant to the increased thermal load and potential fire development associated with rooftop PV systems.

Ecology, health and safety:

This product is classified as an article under REACH Regulation (EC) No 1907/2006. It contains no SVHCs (Substances of Very High Concern) above 0.1% and does not require a Safety Data Sheet.



LEGAL INFORMATION

The information provided here, including any recommendations regarding the use and application of AllShield Coatings products, is based on our current knowledge and experience. This information applies under the condition that the products are properly stored, processed, and applied in accordance with the guidelines of AllShield Coatings and under normal conditions.

Since building situations, materials, and substrates may vary significantly, AllShield Coatings cannot guarantee that the information or recommendations provided are fully applicable in every case. Other than the statutory warranty against hidden defects, no guarantee is given for suitability or fitness for a particular purpose. Nor can any liability be derived from this information.

It is the responsibility of the user to carry out practical tests to verify whether the product is suitable for the intended application and conditions. AllShield Coatings reserves the right to modify its products without prior notice. Liability for damages resulting from use that does not comply with our guidelines is expressly excluded.

*The intellectual property rights of third parties must always be respected. All deliveries and orders are subject to the current **General Terms and Conditions of Sale and Delivery** of AllShield Coatings. Always consult the most recent version of the product documentation, available on our website or upon request.*

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