

Cost-effective and innovative solar energy integration in stock and new buildings
- how to generate revenue with your building façade and roof

Fast roof integration – structures.

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The logo for Schweizer, featuring the word 'Schweizer' in a bold, black, sans-serif font, enclosed within a blue rectangular border that has a slight 3D effect.

Solar Roof Integration Frame: Solrif® BIPV Roof System from Schweizer

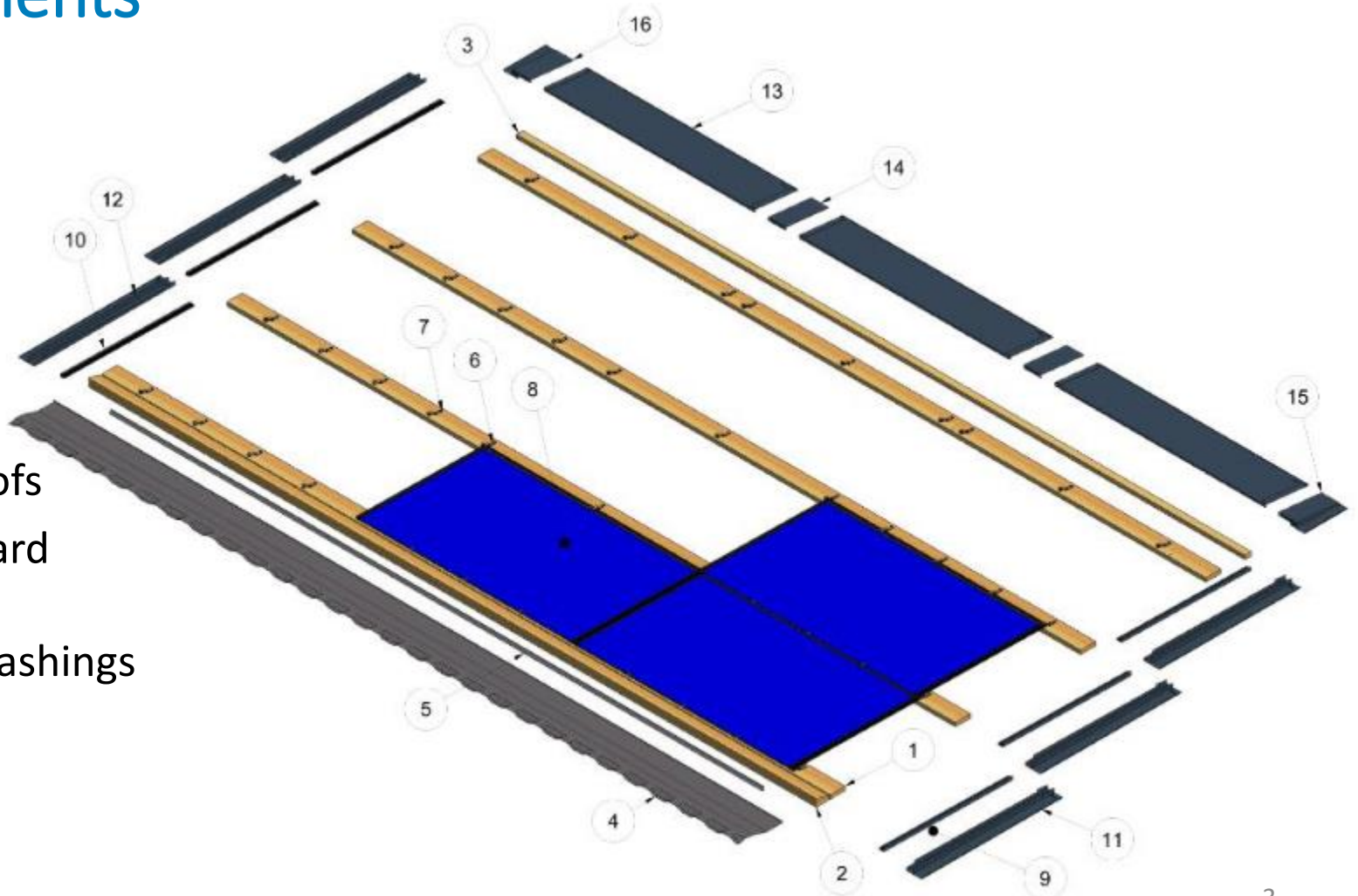
Topics

- System and Components, Features, Application
- Cost-efficiency
- Planning - Part Roof vs Full Roof
- Installation and Operation
- Achievements in BIPVBOOST
- Examples
- Takeaways



System and Components

- Roof substructure
- Solrif® Modules
- Clamps
- Standard flashing for tile roofs
- Complex shapes with standard flashings are possible
- No limits with customized flashings



Features and Advantages

- Replacement for roof tiles - savings for new construction and roof renovation
- Easy installation with standard flashing system – especially for part roofs
- Better stability than roof top installations (snow load – up to 11kN/m²)
- Suitable or module width between 1000 mm to 1820 mm
- No risks of tile breakage or costly adaptations of roof with metal tiles
- Better aesthetics than with roof top installations

Scuola universitaria professionale della Svizzera italiana

SUPSI

L161

Schneelast Factsheet PV Module

Allgemeines

Modell	PV zsunstar biuno
Typ	Indach PV-Modul System
Hersteller	ZZ Wancor
Adresse	Eichwatt 1 CH-8105 Regensdorf
Tel.	+41 44 871 32 32
Email	info@zzwancor.ch
Internet	www.zzwancor.ch
Testjahr	2018
Zertifikat Nr.	SPF-SUPSI-18-161-SNOW

Schneelastprüfung nach SPF SUPSI Prüfvorschrift 46, Version 2.0
SPF-SUPSI Schneelast Zertifizierungsvorschrift, Version 1.0

PV Modul und Montagesystem

PV Modul	M48-220 Glas-Glas Modul mit Spezialrahmen Aussemasse: 1423 x 1025 mm Glasstärken 2 mm / 2 mm Monokristallines Silizium
Montage	(1) Sparrenabstand ≤70cm (2) Lattung (30x100mm), Teilung 900 mm (3) Lattung (30x50mm), Teilung 457 mm (4) Montagehaken, 4 Stück (5) seitliche Montageprofile, passend für den Spezialrahmen der Module (6) Unterstützungskeile, 2 Stück pro Modul

Einsatzgrenzen Schneelast – Dachneigung

Flach: 0° - 30°
(geprüft bei 20°)

s_{R,d} = 13 kN/m²

Normal: 30° - 60°
(geprüft bei 45°)

s_{R,d} = 13 kN/m²

Steil / Fassade: 60° ~ 90°
(geprüft bei 65°)

s_{R,d} = -- kN/m²

s_{R,d} entspricht der Belastbarkeit angegeben als horizontale Schneelast auf dem Boden (kN/m²).
Die zu berücksichtigende Schneelast auf eine Anlage muss anhand der SIA261 berechnet und mit den angegebenen Einsatzgrenzen abgeglichen werden.

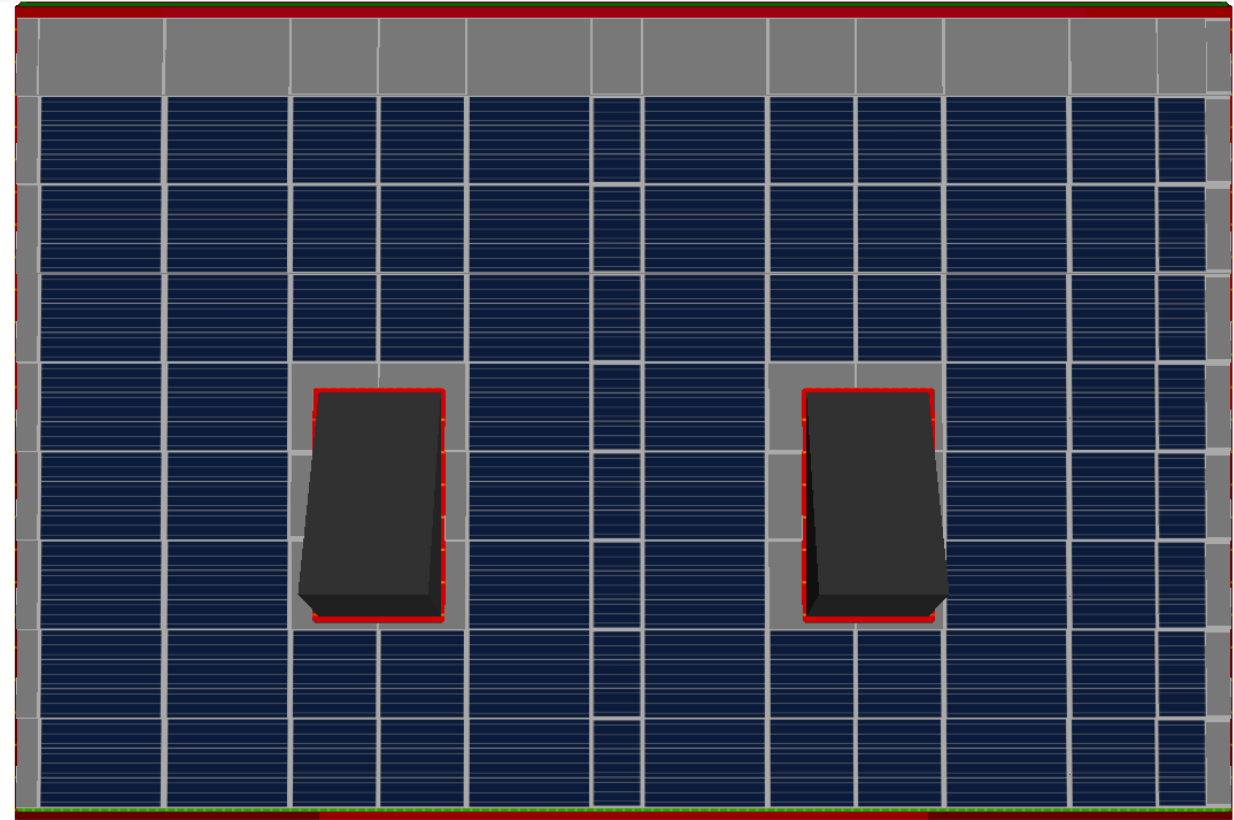
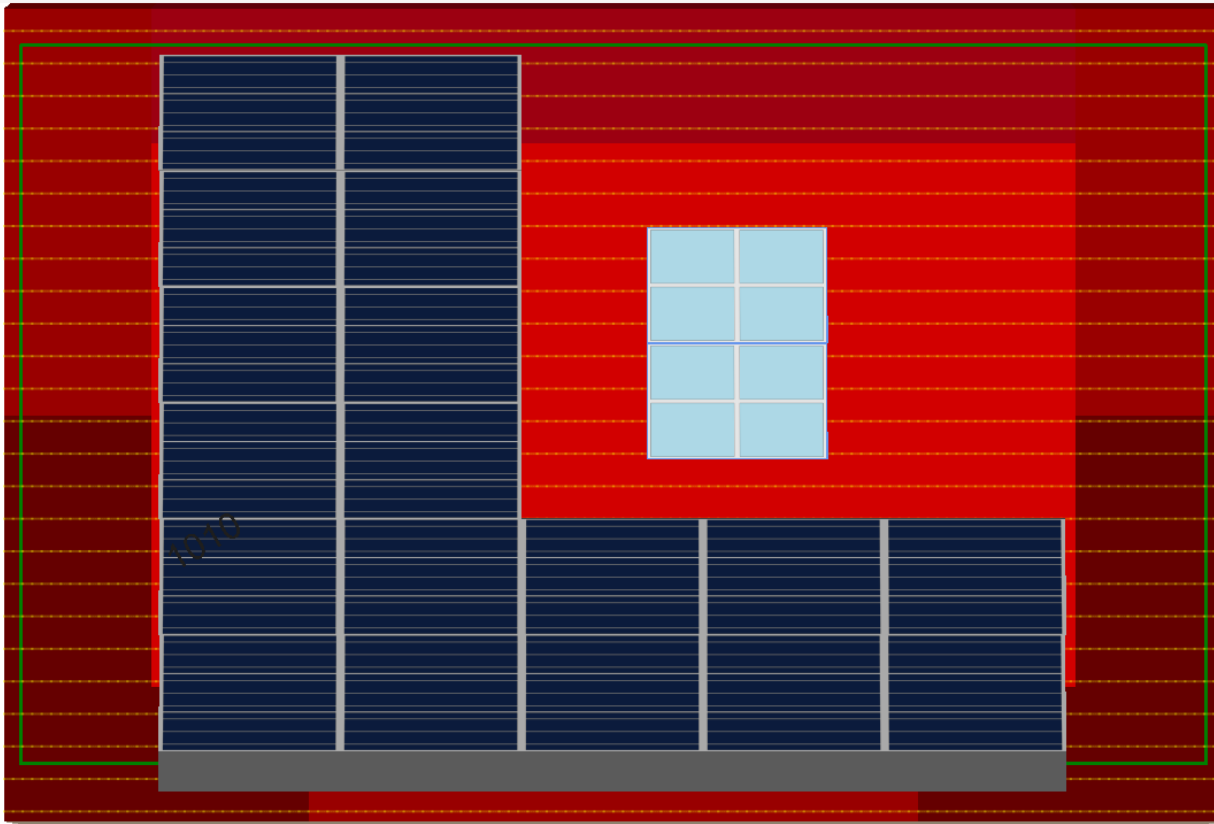
SPF Testing, Institut für Solartechnik SPF, Hochschule für Technik Rapperswil HSR, CH-8640 Rapperswil, Switzerland
Swiss PV Module Test Centre, Scuola universitaria professionale della Svizzera italiana, CH-6814 Lamone, Switzerland
L161 www.spf.ch www.isaac.supsi.ch Seite 1/1

Cost-efficiency

Costs	Solrif®	Roof top
Module frame and framing	22.00 €/m ²	5.25 €/m ²
Mounting parts	5.60 €/m ²	14.00 €/m ²
Flashing parts	7.75 €/m ²	0.00 €/m ²
Roofing	0 €/m ²	25.00 €/m ²
Total	35.35 €/m²	44.25 €/m²

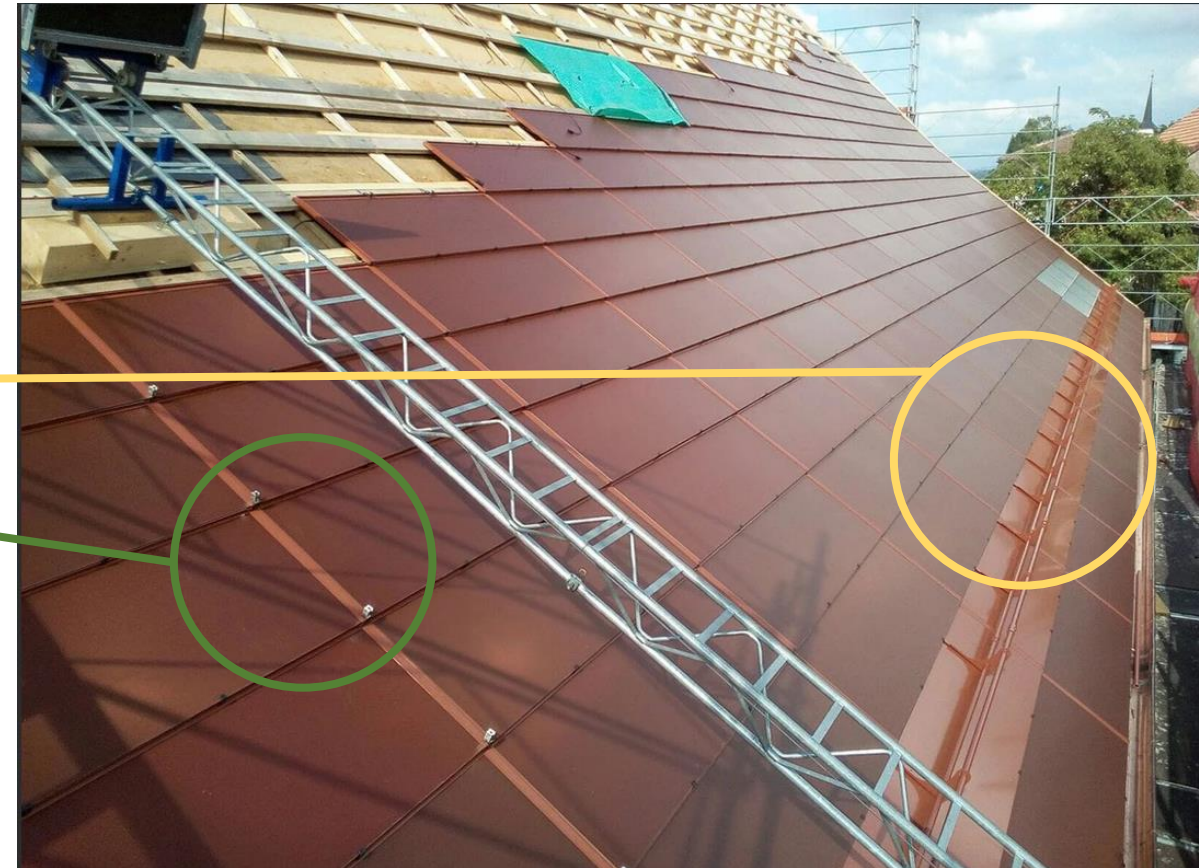
→ BIPV roof solution is more cost effective for new construction and new roofs (based on standard modules)

Planning - Part Roof vs Full Roof



Installation and Operation

- Example with coloured modules to comply with heritage protection specifications
- Snow guard
- Holder for lightning protection
- For service, each module can be detached individually from the field



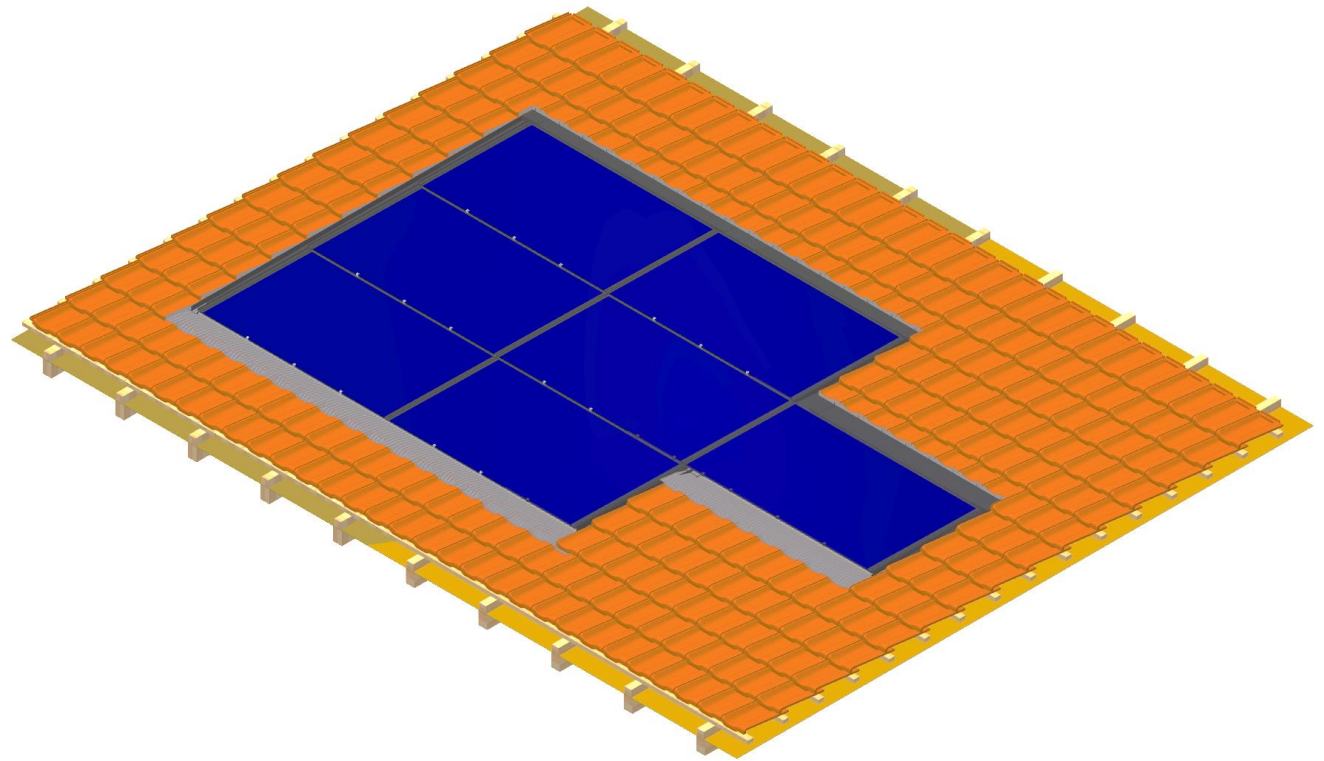
Achievements within BIPVBOOST

- Standard flashings to clay tiles for complex field shapes
- Full roof construction details available for download from Solrif® website
- Free online planning tool extended with module family feature
- Mounting gauge for fast module installation
- Velux roof window integration
- Direct laminated CIGS PV modules on metal substrate

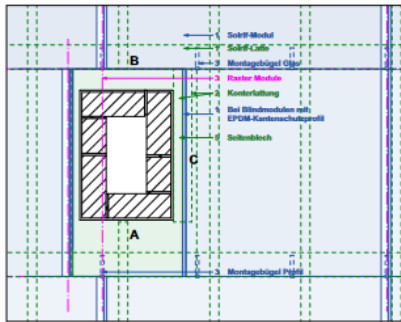
Standard flashings to clay tiles for complex field shapes

Module dimensions

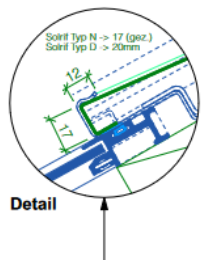
- Width: 1000 mm to
- Height: 400 mm to 1200 mm



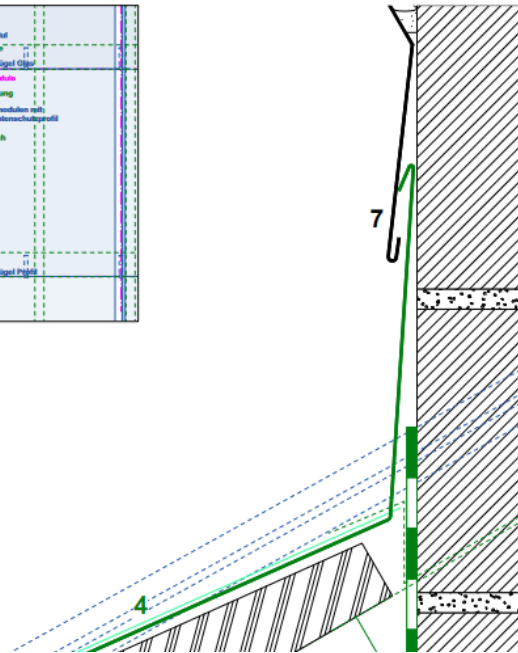
Full roof construction details available for download from Solrif® website



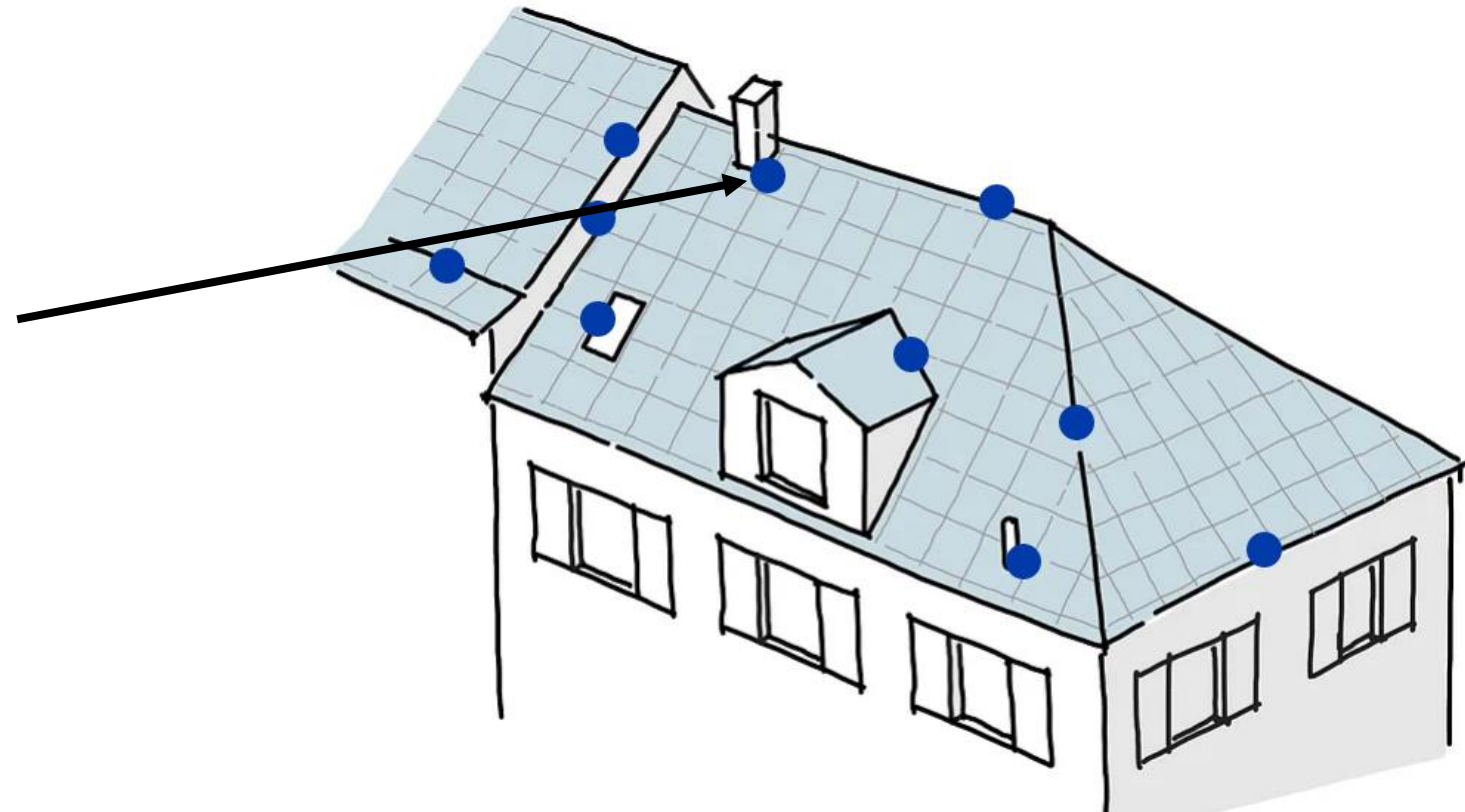
Dachaufsicht 1:20



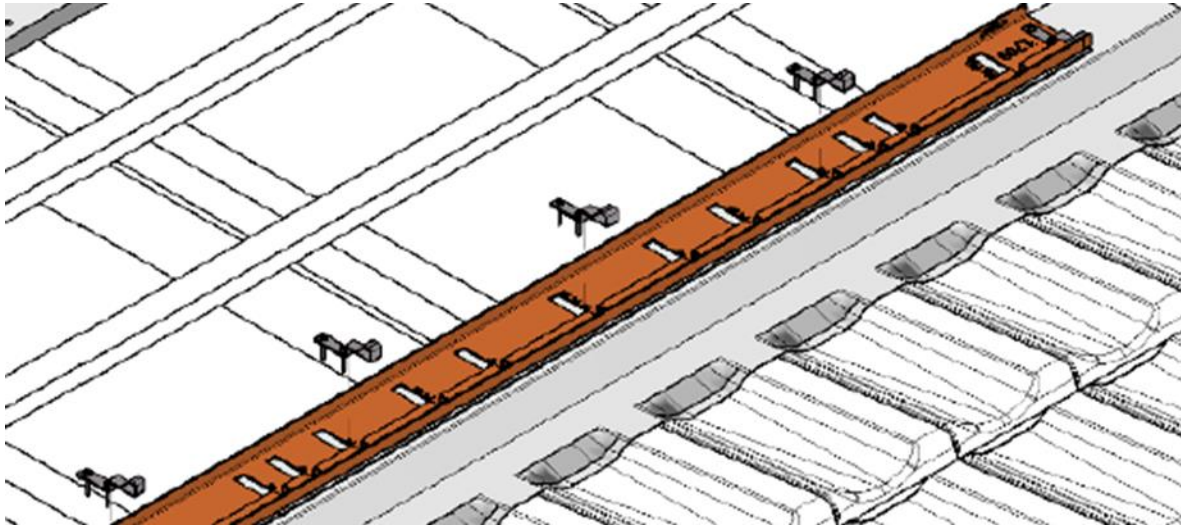
Detail



Download Data-formats: PDF and DXF



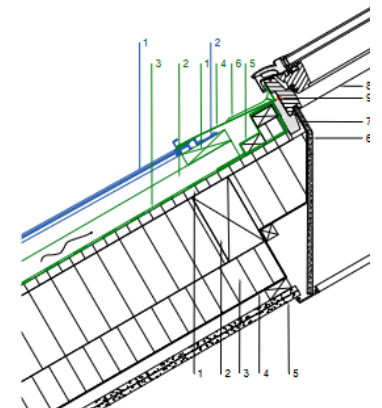
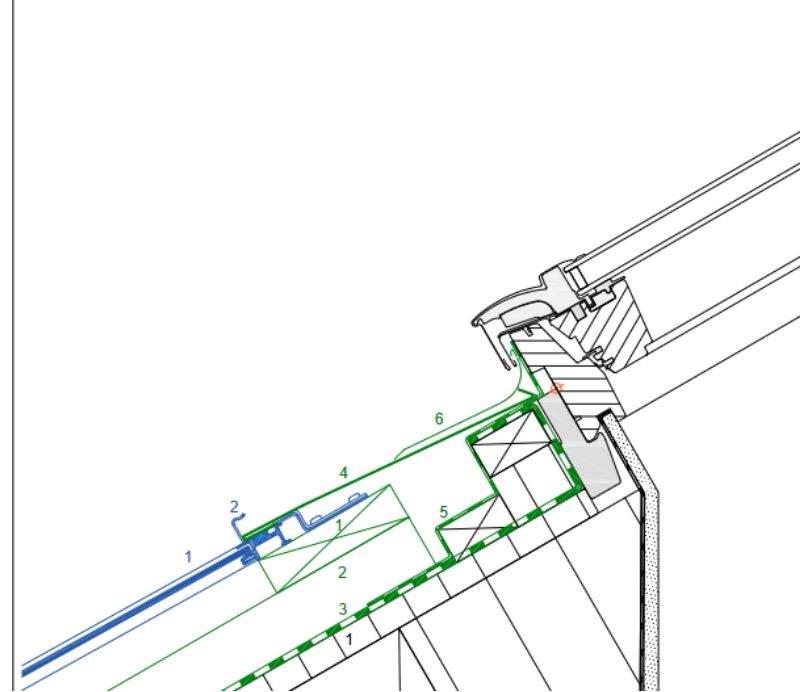
Mounting gauge for fast module installation



Velux roof window integration



Schnitt D



Detail 1:10

Solrif Sortiment:

- 1 Solrif-Modul
- 2 Montagebügel Profil

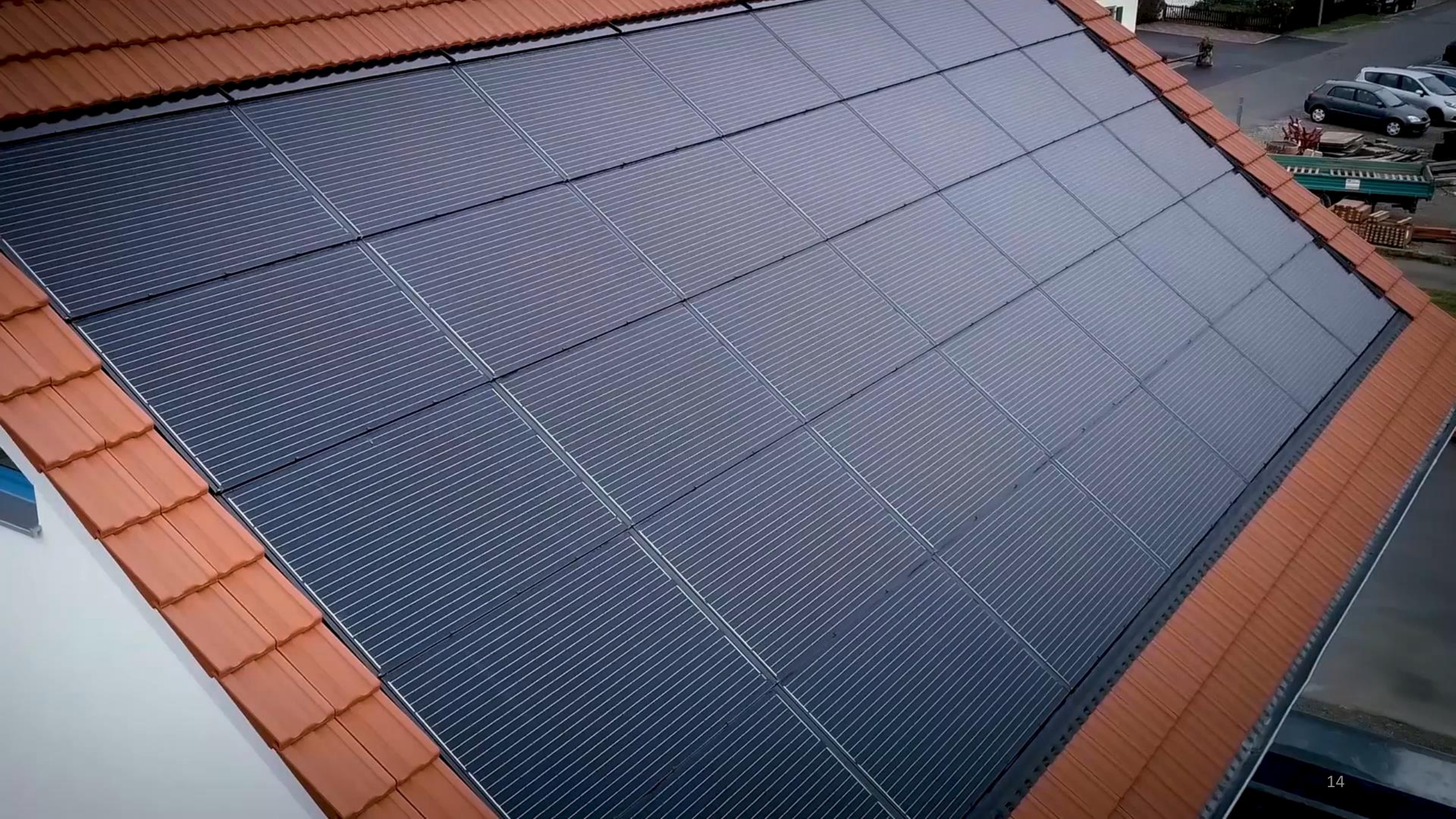
Systemtechnische Elemente:

- 1 Solrif-Latte in Holz geschraubt, mind. 120 x 30 mm; Festigkeitsklasse C24 nach EN 338
- 2 Konterlattung (entsprechend den Richtlinien) / Durchl
- 3 Unterdach (in Abhängigkeit der Dachneigung, entspr. Richtlinien); Temperaturbeständigkeit der Folie mind.
- 4 unteres Anschlussblech abgekantet
- 5 Unterdachschürze (Velux)
- 6 Eindeckrahmen unterer Teil (Velux, EDS)

Direct laminated CIGS PV modules on metal substrate

- BIPVBOOST Demosite No. 3 in Belgium
- East-West roofs
- Full roof integration
- Two module dimensions for improved layout
- Roof windows
- Dummy modules







Takeaways

- Solar roofs are the future of sloped roofs.
- Solrif® offers complete and part roof BIPV solutions.
- Solrif® is an «open» BIPV roof system with offerings from several European PV-module manufacturers.
- A versatile planning tool is online available (<https://prosolrif.solar>).
- Thanks to the EU BIPVBOOST project we improved Solrif® and it's application.

Thank you

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The information reflects only the project's view and the Commission is not responsible for any use that may be made of the information it contains.

Further Information

Please check:

- www.solrif.com
- www.prosolrif.solar
- www.bipvboost.com