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**Schweizer**

## ***SOLRIF - Photovoltaic Roof Integration***

***The smart solution from Schweizer***



Solar Energy Systems

Solar Collectors • Photovoltaic • Transparent Insulation

## Using SOLRIF to Integrate PV Systems into Sloped Roofs

### **What is SOLRIF?**

„*Solar Roof Integration Frame*“ is a profile system of extruded aluminum for framing PV laminates. The system is suitable for laminates of any size up to a surface area of approximately 1.5 m<sup>2</sup>.



PV laminates framed with SOLRIF are integrated into sloped roofs (of an incline greater than 10°) in place of tiles, slate, etc. Standard PV laminates can thus be easily integrated into a sloped roof. The illustration to the left shows how the elements interlock.

### **What is the Point of Integrating PV Systems into Sloped Roofs?**

Additional advantages of in-roof systems

- A solution that satisfies architectural and aesthetic demands
- Less insurance costs, as the system is part of the building
- Save on roofing costs during construction or renovation

Disadvantages of on-roof installation on sloped roofs

- Difficult maintenance of existing roof
- Junction lines and boxes exposed to inclement weather
- Additional metallic substructure increases energy payback time

### **Additional Advantages of SOLRIF**

- No residue-caused reduction in efficiency, thanks to barrier-free module edge: snow slides off markedly sooner than is the case with conventionally framed modules.
- By the use of standard laminates SOLRIF makes a salutary integrated solution feasible.
- Swift and economical installation method.
- Modules can be removed or changed individually during maintenance or repair.

## Technical Aspects

### ***How are SOLRIF-framed PV modules fastened?***

SOLRIF modules are fastened on to lathing by means of specially constructed metal clamps within the framing structure. Two interlocking frame profiles are fit into a clamp on the lower side and fastened at the upper edge to the next module row. A detailed installation instruction manual is found in the chapter on planning tips and data.

### ***What do the flashings look like?***

Normally a roofer carries out the flashing work in accordance with local roofing practice as well as with the specific situation. We can provide you with sample solutions documented in Switzerland and the Netherlands.



### ***How watertight is SOLRIF?***

SOLRIF is dependably watertight, comparable to tiles. We recommend impermeable roof deck protection sheet with defined drainage in exposed areas.

### ***How much wind can SOLRIF withstand?***

The installation system is designed for wind suction comparable to the area weight for tiles and thus sufficient for most uses. For especially exposed areas the needs must be determined and the clamps fitted in accordance.

### ***Voltage regulation and lightning protection with SOLRIF***

Should lightning strike, a sufficient electrical connection between modules is ensured by large interlocking frames. It is thus possible to employ conventional lightning protection.

In case of increased demands of voltage regulation in order to secure the safety of persons the modules can be easily connected. Usually, however, there is no ready access to slanted roofs, thus making this precaution unnecessary.

### ***Solar profits with in-roof installation***

SOLRIF has minimal installation depth and thereby assures optimal ventilation. In comparison to on-roof installation, the difference in energy output is slight, as long as the cross section for natural ventilation is similar.

## **Commercial Aspects and Logistics**

### ***How is SOLRIF available?***

The frame profiles are cut to size – either as plain aluminum or powder coated in color –, classified as “building components” and shipped along with all necessary connecting elements from Ernst Schweizer AG, CH-Hedingen (Switzerland). The powder coating is carried out in our own energy-optimized paint workshop with solvent-free powder lacquer.

The terms of delivery total approximately fifteen workdays subsequent to confirmation of order, plus transport time ex factory in Hedingen, Switzerland.

### ***Who frames the PV laminates?***

Framing the laminates with SOLRIF is a relatively simple task for a skilled worker.

Framing consists of screwing the profiles to corner pieces and then gluing the laminate into the groove with silicone adhesive <sup>1)</sup>. While framing you should plan on an average of twelve work minutes per laminate. In the case of larger numbers of laminates to be framed this estimate will include the time of preparation. Detailed instructions can be given on demand. You only need a dry and fairly clean area with sufficient space for allowing the glued laminates to dry.

If desired we can direct you through this stage on location.

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<sup>1)</sup> Karo FD-Plast Silicon with a pneumatical dispenser is recommended.

In case you prefer not to carry out this stage by yourself, please contact your PV supplier. Perhaps they will be able to deliver your laminates pre-framed with SOLRIF. The work involved during framing with SOLRIF is comparable to that of framing conventional modules. Don't be discouraged if your supplier has not yet heard of SOLRIF. Together we will certainly find a solution!



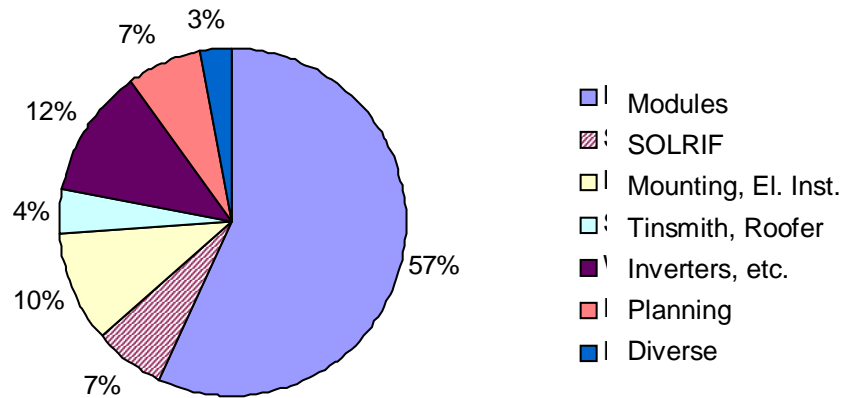
The picture shows a team framing PV laminates.

***What does SOLRIF cost?***

You will find a SOLRIF price table for certain leading brands of laminates, adjusted accordingly, under "Standard Prices". Please make use of the enclosed form to ask for a binding offer. The prices are ex factory in Hedingen, Switzerland. Export and freight charges will be charged to you directly by the carrier, should you have us organize the delivery. You can also send for the goods with a carrier of your choosing.

***What do in-roof PV systems using SOLRIF cost?***

The graph to the right shows typical shares of various costs arising for a larger system (several 10 kWpeak).



SOLRIF frames themselves, preparatory roof work and the

actual installation, including wiring and sealing add up together to a mere 21% of the total costs. The low rate can be attributed, for the most part, to the cost-reduction potential of SOLRIF.

### ***How to order SOLRIF***

Send us your inquiry by email or by filling out the enclosed order form and faxing it to us. We will send you a binding offer. This offer can be adjusted, if necessary. If you should find our offer acceptable, we would gladly finalize the contract. By return we will send you an acknowledgement of order, which kindly is to be checked before finalizing and returning to us. The terms of delivery begin upon receipt of your finalization.

