

Integration af VELUX ovenlysvinduer i PV tage

- Husk dagslys og frisk luft

2 oktober 2012

Lars Krag sig Højgaard

Vi producerer...



Vore produkter – løsninger...



Vore kunder køber...





Solbyen

Brædstrup 1996

VELUX®

Projekterne i Solbyen blev udført med standard inddækninger.

+ : De blev de mest viste og fotograferede projekter af de i alt 30 i Solbyen.

- : Meget besværligt at løsne et element efterfølgende.



Sol-300

Brædstrup 1999



Sol-300 blev udført med inddækninger uden omhagekant. Solcelle-elementet kan herved let lægges ned og løftes op igen ved service (madkasseprincip). Pæn sammenbygning af vinduer, solfangere og solceller.

Der blev brugt en lille inverter på hvert modul.

+ : Mest fremviste projekt blandt de 300.

Inverter på hvert modul betyder at hvert anlæg ikke skal dimensioneres til at passe med en central inverter.

- : De små invertorer havde meget dårlig holdbarhed og er udskiftet med central inverter.



Børnehave Fredericia 1999



Samme princip som Sol-300.

+ : Dynamisk dukkehus som kunne forklare energi for børnene.

- : Invertere gav elektrisk støj som gjorde det umuligt at høre radio.



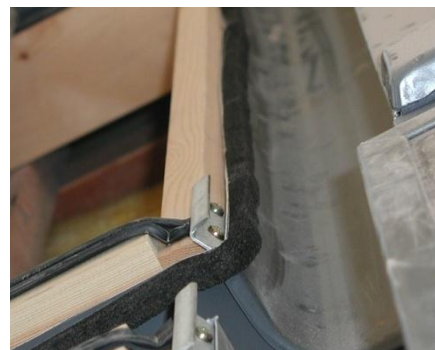
Harsefeld 2002



Samme princip som i Sol-300 dog med forbedret vandtæthed med skumpakning og vandnæse i U-renden så der kunne indbygges i tag uden undertag.

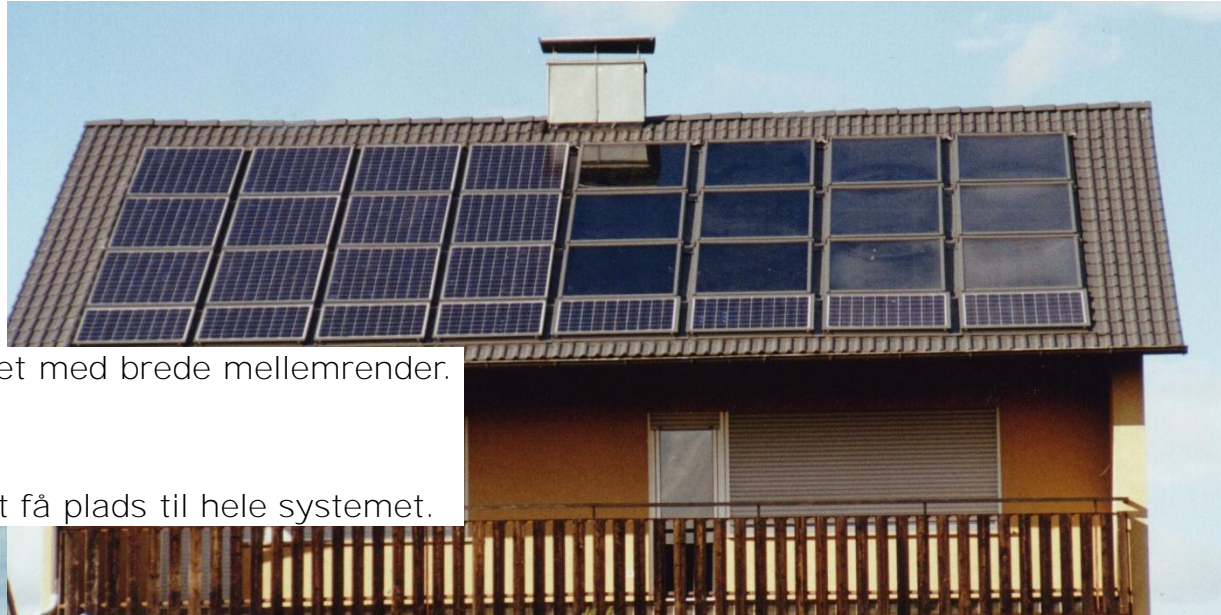
+ : Vinduerne placeret i forhold til PV for pæneste resultat.

- : Logistisk mareridt for håndværkerne med 30 kasser med inddækninger.



Pfeuffer Bayern 2002

VELUX®



Samme princip som i Sol-300. Indbygget med brede mellemrender.
Store S10 moduler blev benyttet.

+ : Maksimal udnyttelse af tagets areal.

- : Besværligt at flytte solfangerne for at få plads til hele systemet.



Sol 2000A

Haderslev 2004



SolarWorlds standard system blev benyttet. Specialtilpassede inddækninger muliggjorde vandtæt indbygning.

+: M06 vinduer passede fint i systemet.

-: Nødvendigt at flytte et af de eksisterende vinduer.



Ingen aktiviteter indtil 2011, hvor projektet starter igen

VELUX®

- ▶ Stigende PV salg - relevans
- ▶ Æstetiske udfordringer med integration af VO og PV i taget
- ▶ PV inspirerede ovenlys løsninger på vej



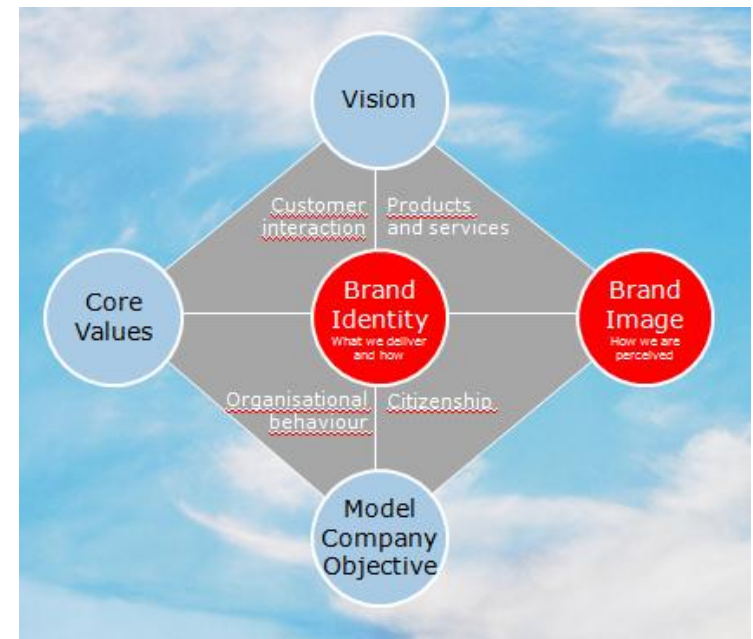
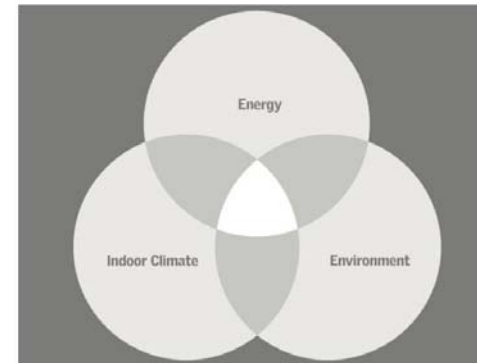
Strategy

A solution to integrate VRW with PV is wanted in order to:

- ▶ Secure relevance
- ▶ Increase the market
 - ▶ Energy solutions
- ▶ Support the VELUX Brand Strategy
 - ▶ Sustainable
 - ▶ Inventive



The Active House vision

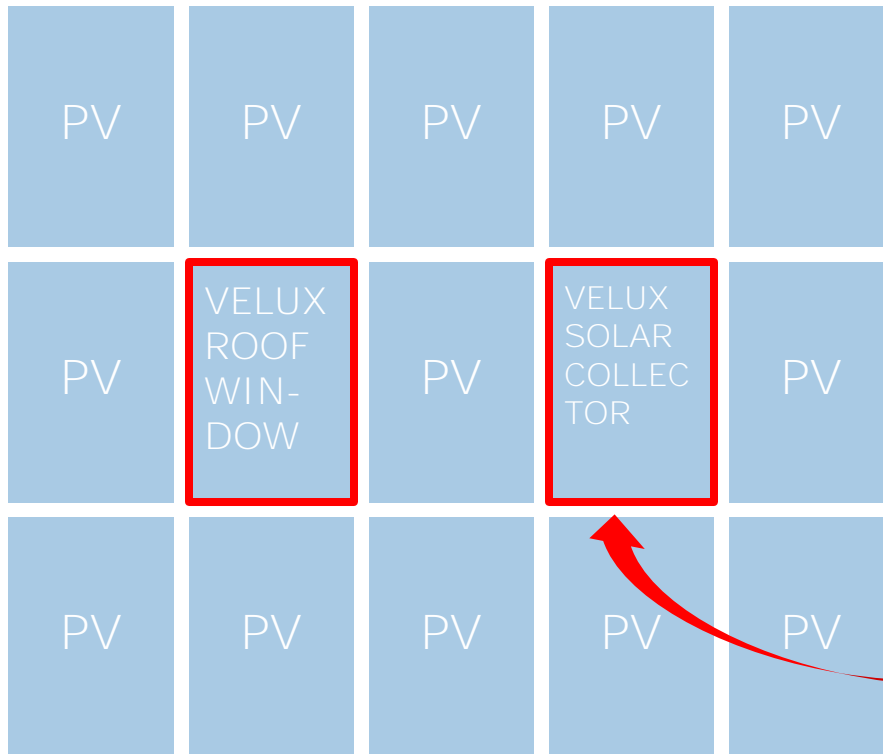


INTEGRATION



VELUX ROOF WINDOWS AND PV MODULES

Task: How do we obtain an aesthetically optimized integration in the roof and a solution for both new build and renovation?



We aim to achieve:

- ▶ A modular solution – “grid”
- ▶ Flush installation (aesthetics)
- ▶ Integration of VELUX roof windows into PV module systems
- ▶ VELUX “Flashing”

“Energy roof”

The PV market – rapid changes...

- ▶ EU targets for reduction of CO₂ and increasing use of renewables
- ▶ Feed-in tariffs and subsidies being reduced or aborted (hits especially power plants)
- ▶ Prices for PV systems decreasing
- ▶ Over capacity: Demand in 2012 enough for about 24 GW while production capacity is about 50 GW
- ▶ PV-panels consist about 65% of cost for system installation
 - ▶ Price decrease in 2011 approx. 40% - further decline in 2012 and expectedly also in 2013
- ▶ Electricity prices in Europe increasing
 - ▶ On average + 4.6 % p.a. since 2009 according to Eurostat
- ▶ Chinese producers taking market share in Europe
 - ▶ Western European producers suffers financially – difficult to choose the right partner.
- ▶ PV suppliers experience:
 - ▶ Negative EBIT due to significant price drops (-30 pct.) and impairment charges
 - ▶ Significant restructuring of production set-up (relocate to low cost countries + sale of upstream activities)
 - ▶ Loss of trust with investors – significant drop in share prices

VELUX og PV - Project scope

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Method

- ▶ Co-operation with few selected PV suppliers on finding a solution for integration of V22 VRW to PV in the sloped roof
- ▶ Focus on RIPV (roof integrated solution)
- ▶ Solutions for bitumen sheets also possible but marginal market

Pro

- ▶ Fast implementation
- ▶ Relatively limited investment
- ▶ Fast knowledge gain on the PV-market
- ▶ Use of PV suppliers distribution channels – limited resources for SCo

Con

- ▶ Many different solutions are deselected
- ▶ Dependability on single PV suppliers – in a turbulent market
- ▶ PV suppliers have low market coverage
- ▶ Deselection of the largest segment – the op- top



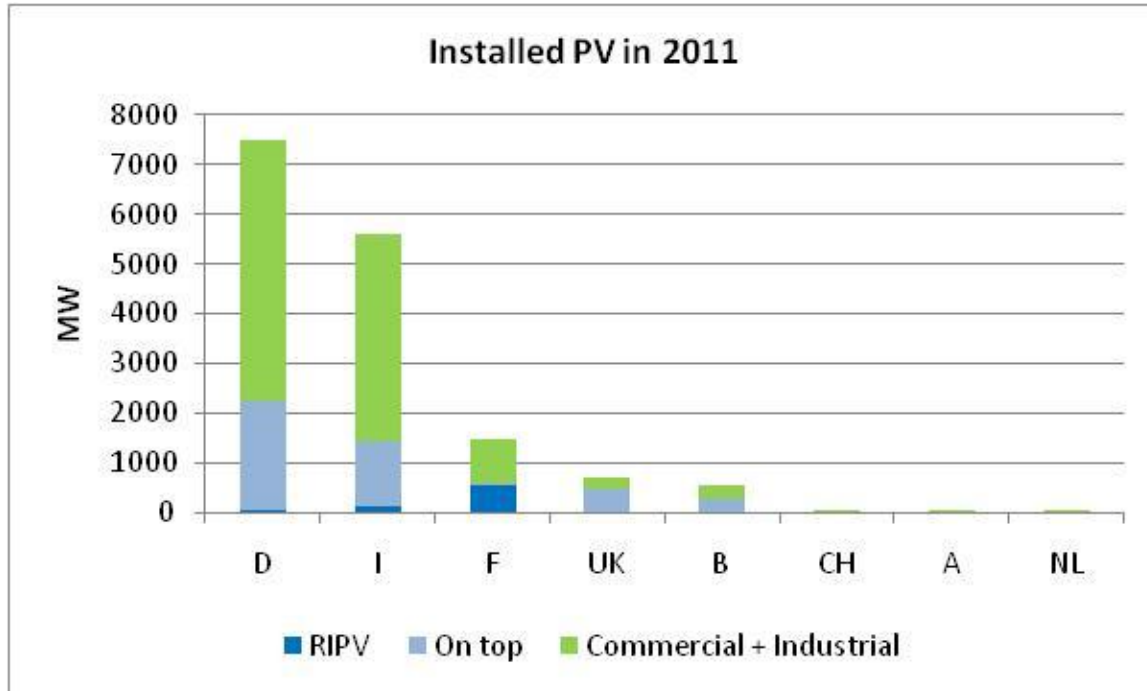
Parkbohusene

Solar World – on-top installation

VELUX®



Share of residential (RIPV + On top)



Kilde: EPIA + Photon + Interview with Solar World, Schott Solar, Saint-Gobain Solar

Note: No statistics available for PV installation according to age of roof



RIPV :

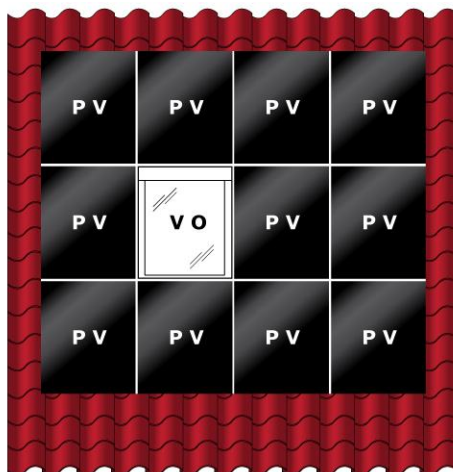
- ▶ In general low rate (1-5%) except France > 90%
- ▶ Electrician /solateur is the primary contact to the end-user
- ▶ Tendency for roofers to take market share
- ▶ Most important USP: Price, Quality, yield, brand

Tendency towards increasing RIPV rate driven by a.o.:

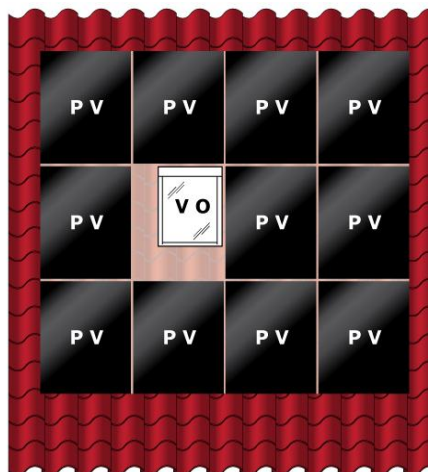
- ▶ PV suppliers increased focus on the residential segment
- ▶ Lower system costs
- ▶ Increased focus on aesthetics
- ▶ Adjustment of tariffs (e.g. Germany)
- ▶ Availability of RIPV solutions (fx VELUX)
- ▶ E-storage available prices
- ▶ Regulations

Scenarios on the roof

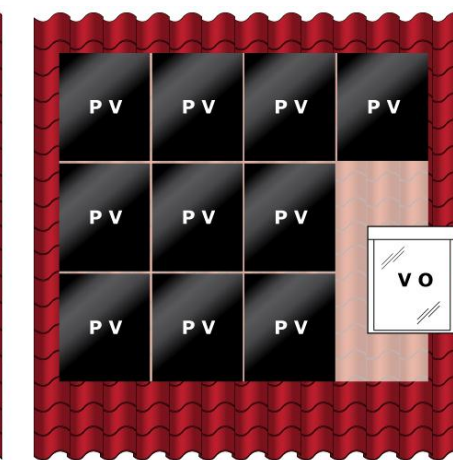
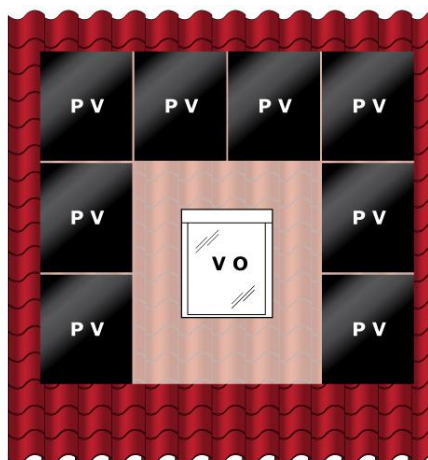
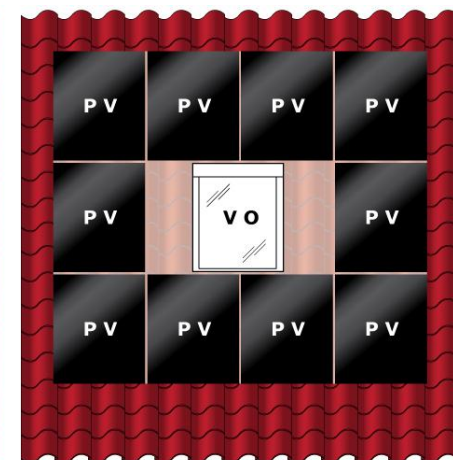
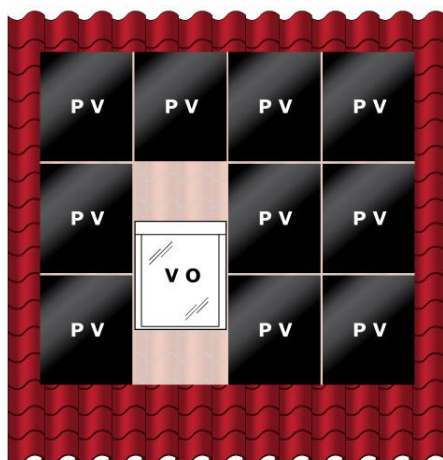
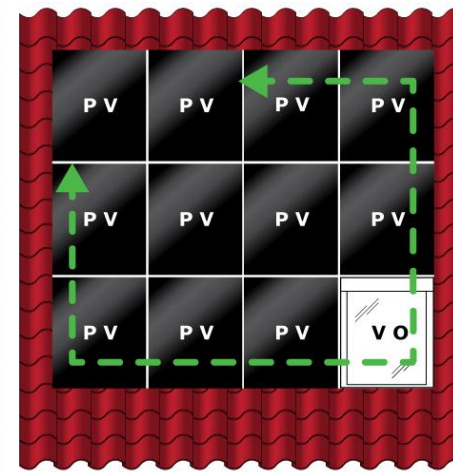
Scenario 1



Scenario 2



Scenario 3



Scenario 4

Scenario 5

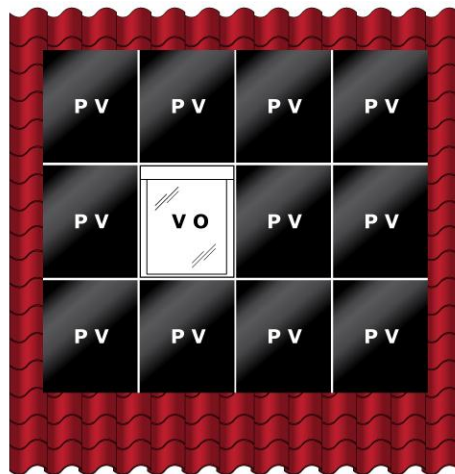
Scenario 6

Scenario 7

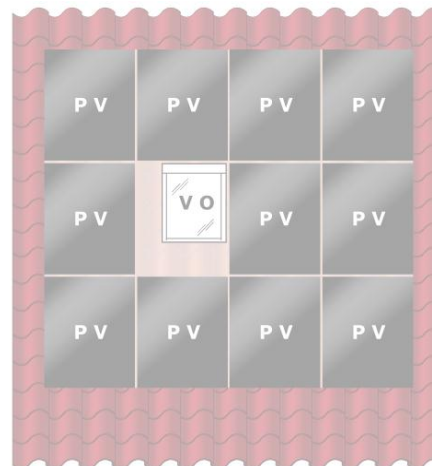
Scenarios on the roof

Focus:

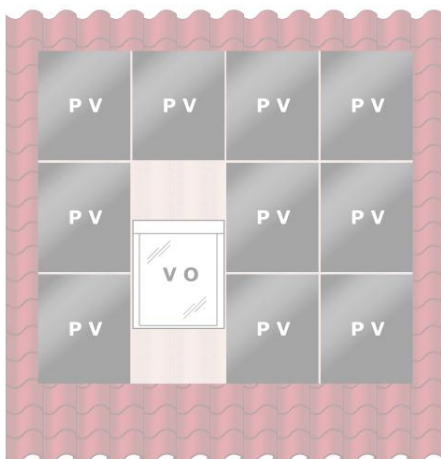
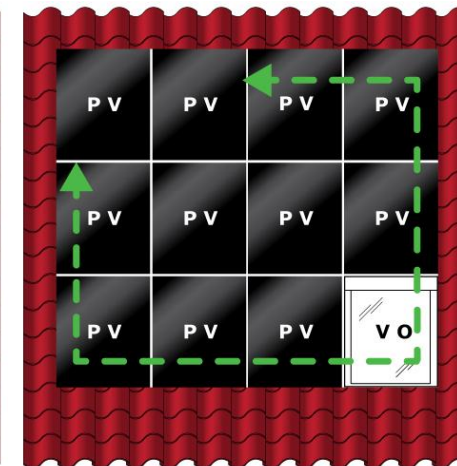
Scenario 1



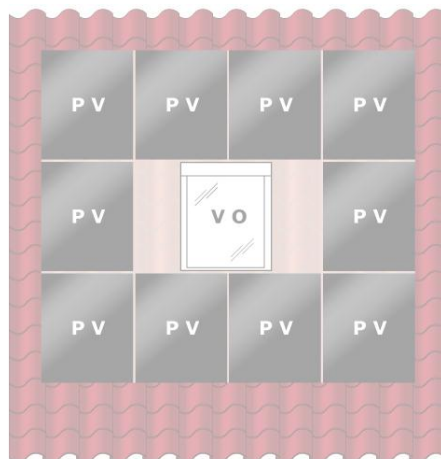
Scenario 2



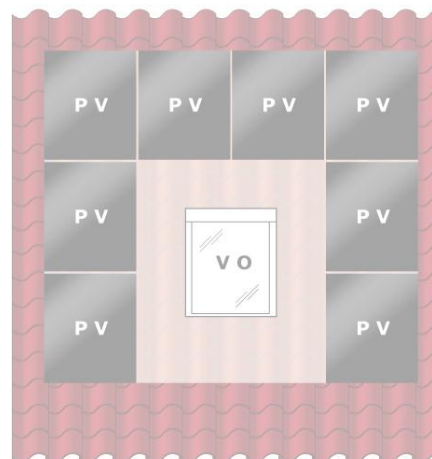
Scenario 3



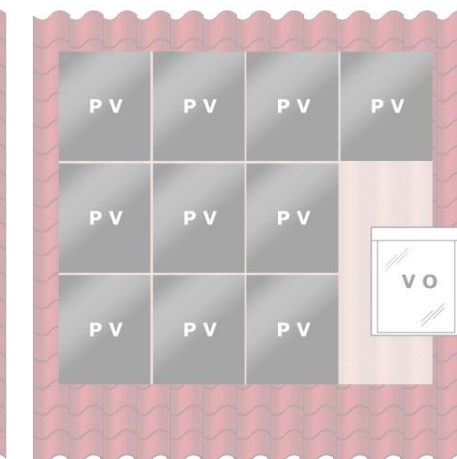
Scenario 4



Scenario 5



Scenario 6



Scenario 7

VELUX and PV



VELUX og PV



VELUX & Schott Solar InDaX – København 2012



VELUX and PV



System-Komponenten

SCHOTT
solar

+

VELUX®

=

INDAX190
Eindeckrahmen für Modulfeld

VELUX Dachfenster
Spezieller
Eindeckrahmen

attraktive
PV-Dachfenster-
integration



VELUX and PV



Intersolar 13–15 June 2012; V22 GGU and Schott InDaX



Schott Solar has sold the InDax RIPV concept/product line to Monier:

MONIER GROUP ACQUIRES
TECHNOLOGY FOR INDAX SOLAR
PRODUCTS FROM SCHOTT SOLAR

- FURTHER STRENGTHENING OF ROOF-INTEGRATION EXPERTISE
- AGREEMENT ALLOWS MONIER TO TAP INTO NEW DISTRIBUTION CHANNELS
- CUSTOMERS WILL CONTINUE TO RECEIVE PREMIUM IN-ROOF SYSTEM IN FUTURE

MONDAY 20, AUGUST 2012



Muligheder for samarbejde...



Monday 20, August 2012



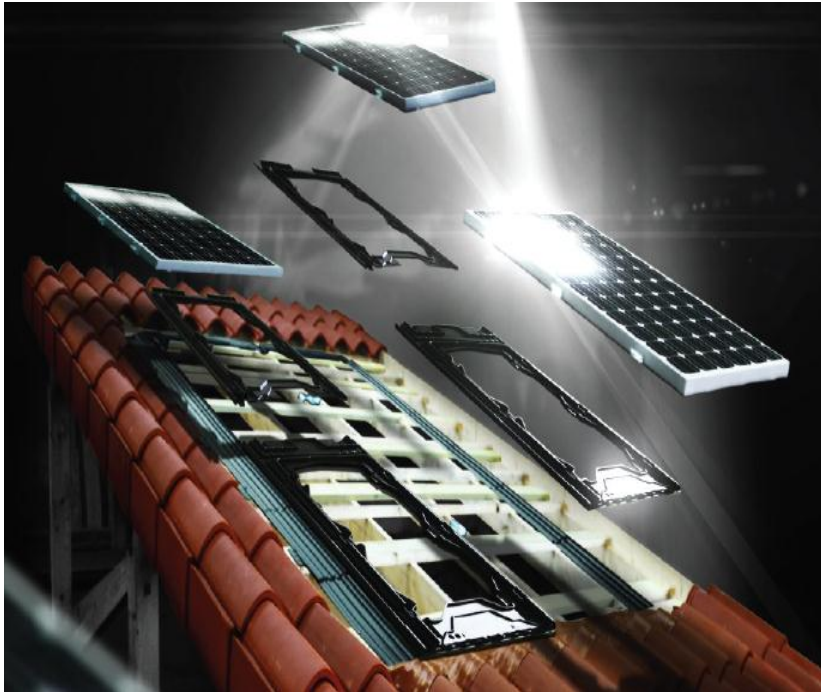
**MONIER GROUP ACQUIRES
TECHNOLOGY FOR INDAX SOLAR
PRODUCTS FROM SCHOTT SOLAR**



COMPONENTS COMPLETE A ROOF

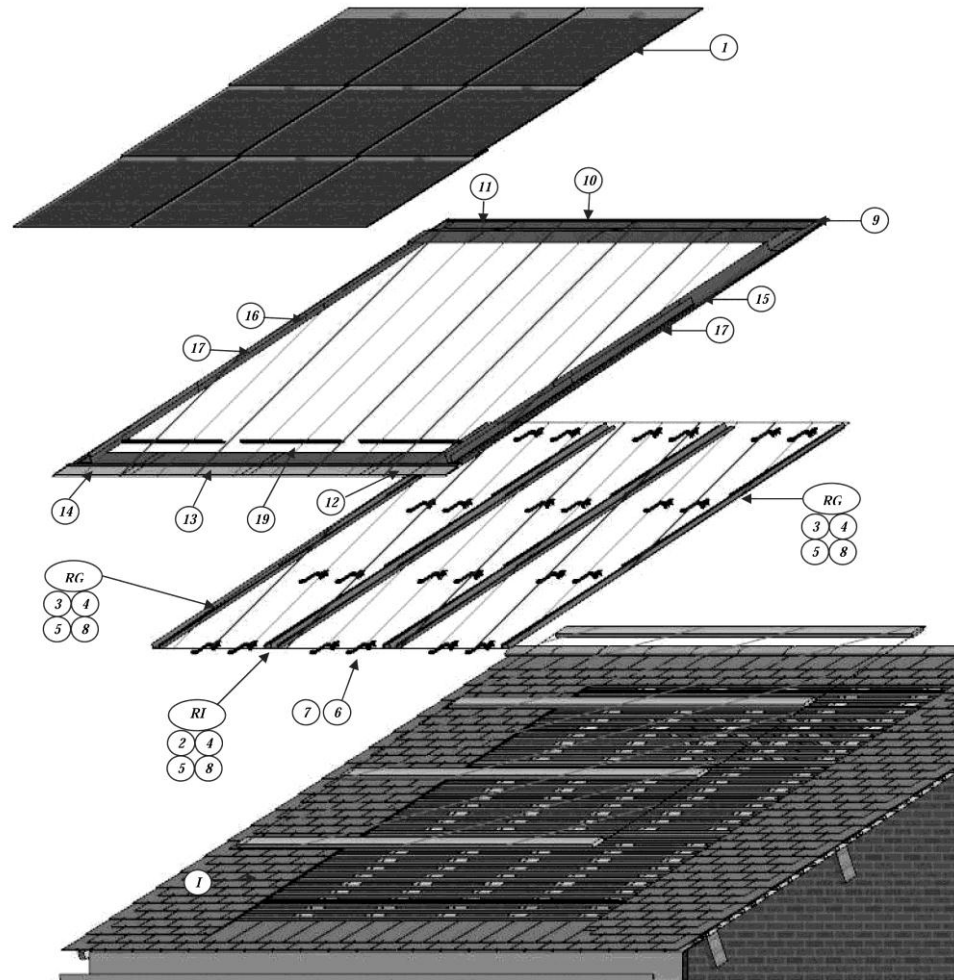


Muligheder for samarbejde...



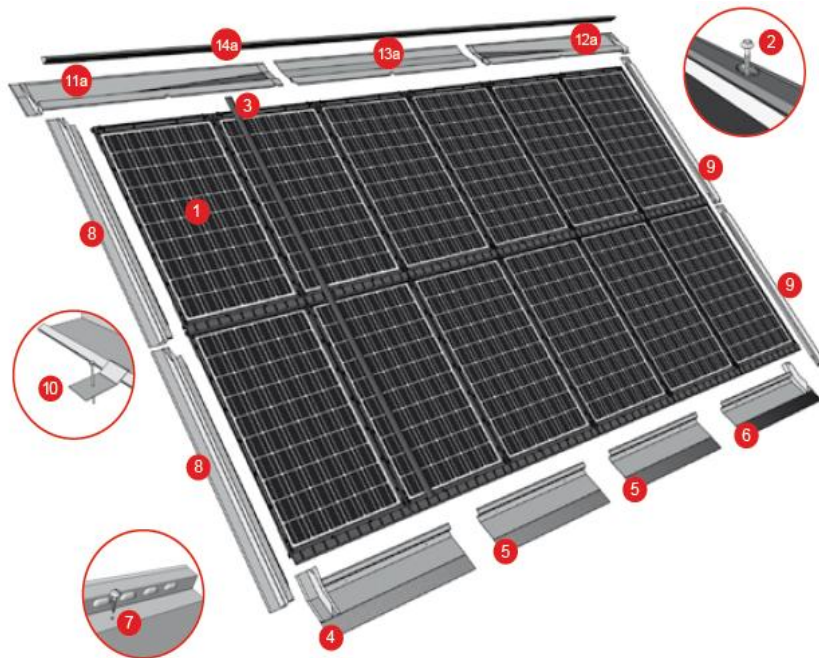
A screenshot of the IRFTS website. The header includes the logo 'IRFTS SOLAR SOLUTIONS' and navigation links for 'Home', 'IRFTS', 'Our products', and 'Our distributors'. The main content area features the text 'EASY ROOF SINGLE FRAME new solution MODEL "A-2"' and 'For 72 cells module (5") - 1580*808 (PORTRAIT)'. A yellow circular badge with 'NEW' written around the perimeter and 'IRFTS' in the center is positioned to the left of a large image of the solar frame assembly. The background of the website is a blue sky with light clouds.

Muligheder for samarbejde...



Saint Gobain Solar Sunlap

Muligheder for samarbejde...



Solon SOLitaire

Tak for jeres opmærksomhed...

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