Integrated Photovoltaic Conference

25 – 26 November 2025
Chamber of Commerce
Florence, Italy

Stefan Dewallef

Solteh NV

Achievements and challenges for BIPV from the point of view of a European Manufacturer

Organised by
etaflorence renewableenergies

PRODUCTION OF BUILDING MATERIALS WITH A PLUS

issol® MANUFACTURED IN GENK BELGIUM

with a touch of soltech

The Future Is Bright, With A Touch Of Soltech

Content

Let’s evaluate the achievements in BIPV
over the last 35 years

like if it would have been a research project

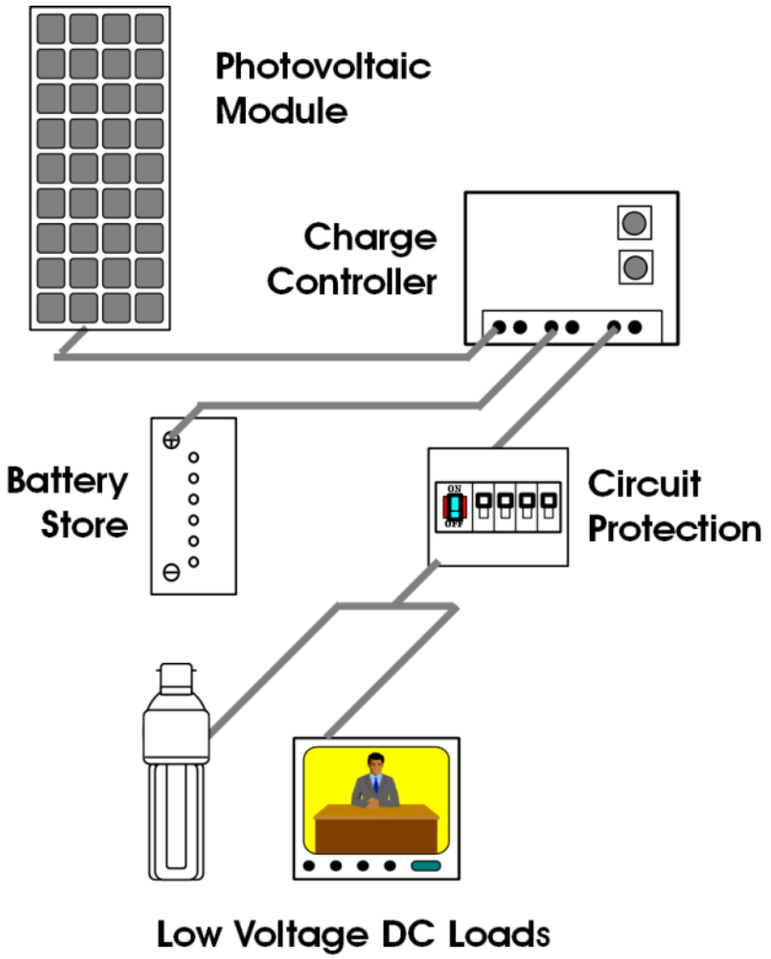
looking at it from the point of view of a BIPV-manufacturer

WP1	Base technologies (BI)PV
WP2	BIPV products: validation/certification
WP3	Production facilities BIPV
WP4	Demonstrators BIPV
WP5	Market growth BIPV (valorization)

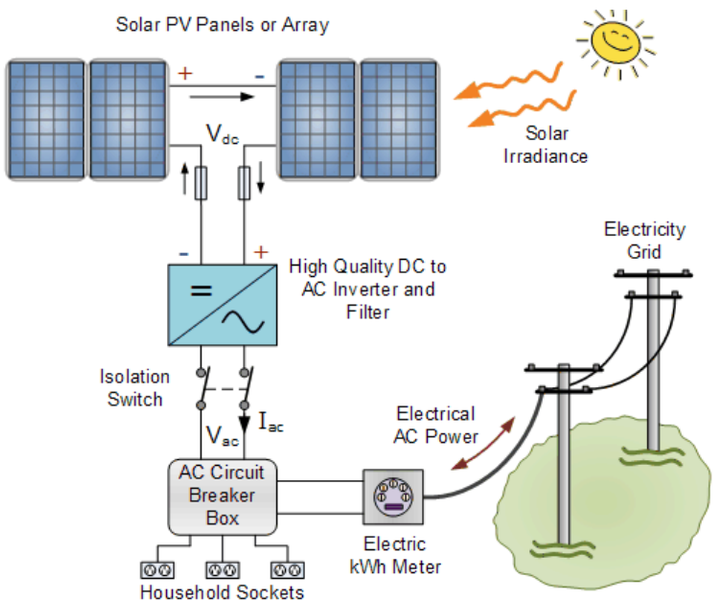
WP1 Base technologies (BI)PV

Deliverable 1.1	DONE	Solar cell technologies are available
	ONGOING	Back-Contact cells (aesthetics) availability / dependency / standardization
Deliverable 1.2	DONE	Interconnection and encapsulation processes
	DONE	Electrical system components are available
	ONGOING	Adapted electronics for BIPV
Deliverable 1.3	DONE	Colors / shapes / reflectance/ glass types /…
	ONGOING	Anti soling / fire/ performance optimization / ‘Bowed’ glasses
Deliverable 1.4	ONGOING	Recycling methods

Reminder: PV originally for autonomous applications



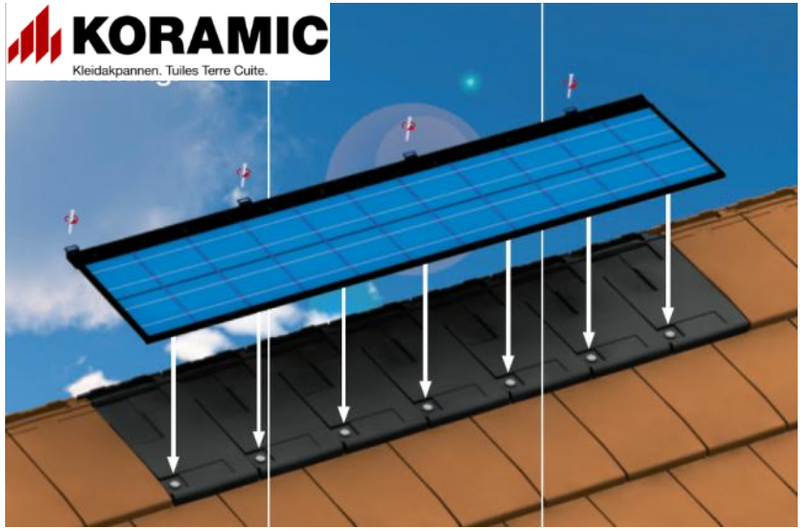
Next phase : Grid connection on top and power plants



EU-building Brussels

Plant 20MWp Nakhchivan

Development of standardized BIPV



© Aerspire

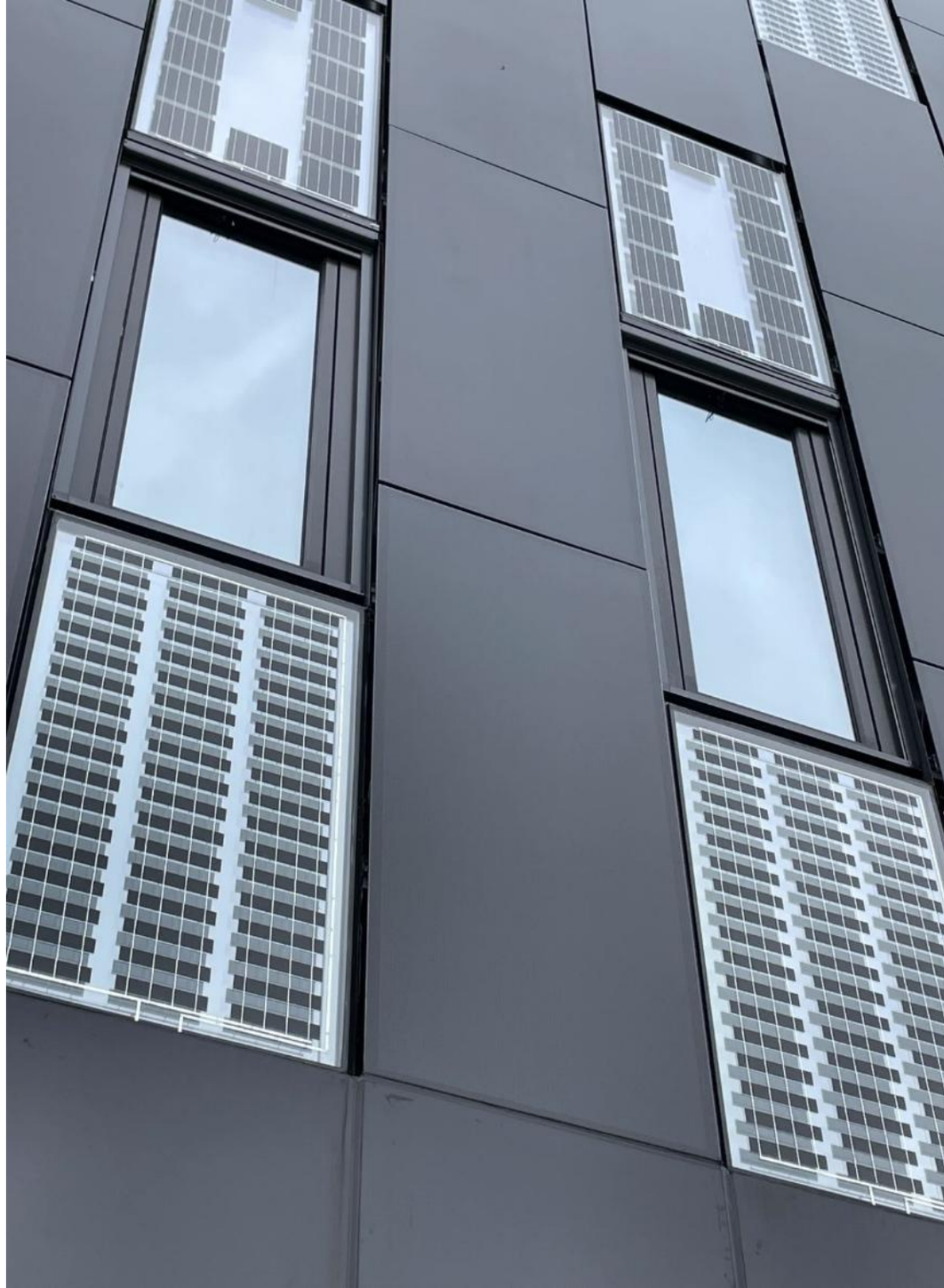
Kamp C
Belgium, 2006
Semi -Transparant
Back-contact solar cells

De Kring (2024)
Genk, Belgium
Apartments
Application: balustrade (ISSOL (fat) stripe)
Drieskens&Dubois architecten
Install.company

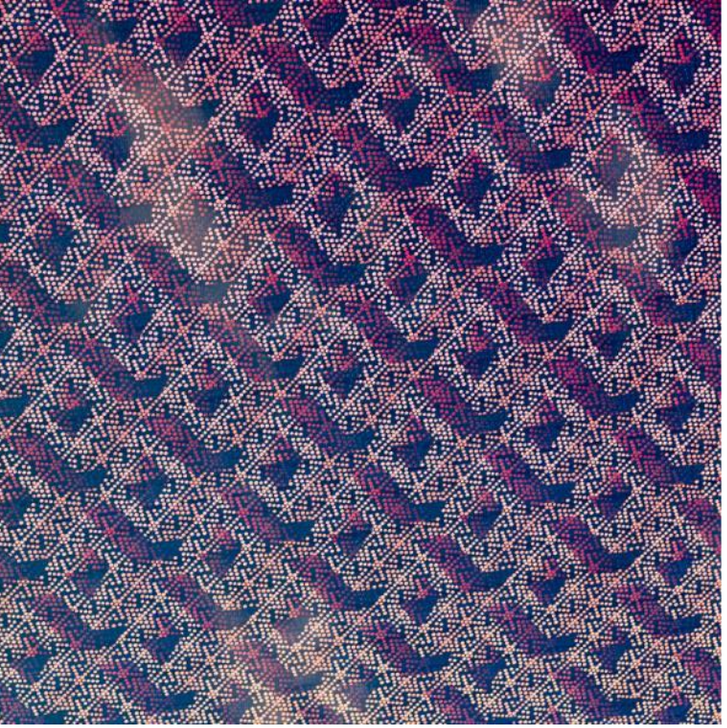
EnergyX
Seoul, South Korea

Application: BIPV
Architect: KEPKOES, KEPCO Industries

AGC Energy X HQ



Ecuvillens Project
Switzerland
Application: terracotta integrated roof tiles



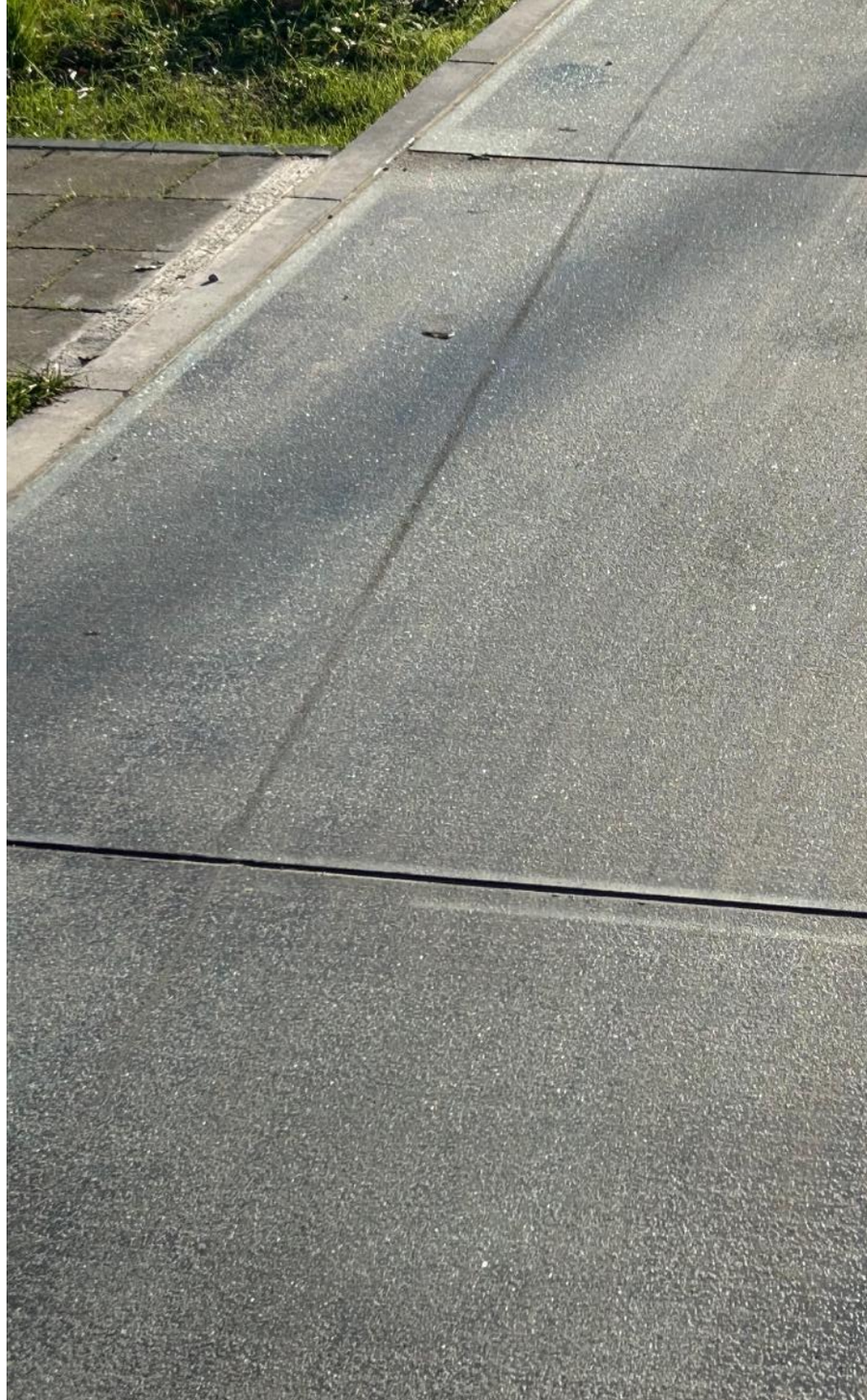
ISSOL® Fresco

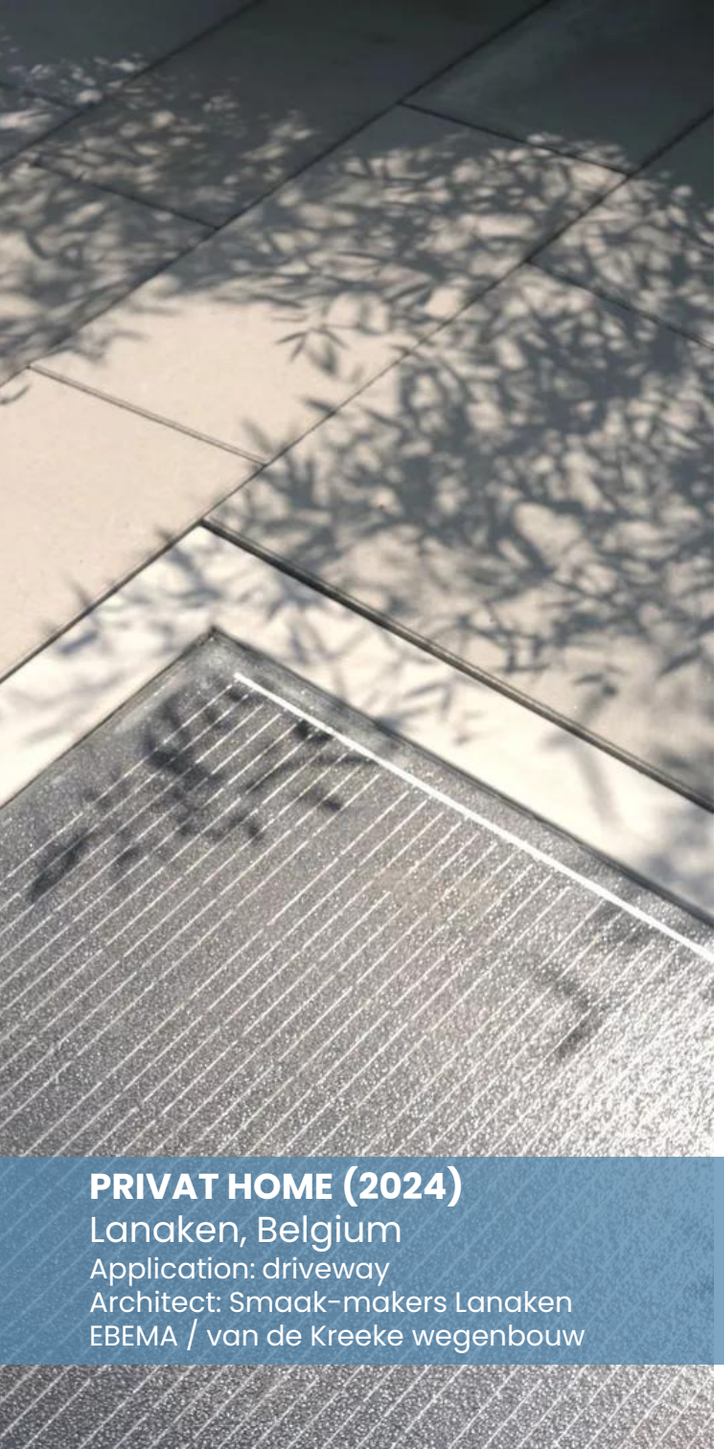
Nuhma (2025)
Hasselt, Belgium
Office building
Application: Façade; communication (ISSOL Fresco)
MAMU Architects
Hegge

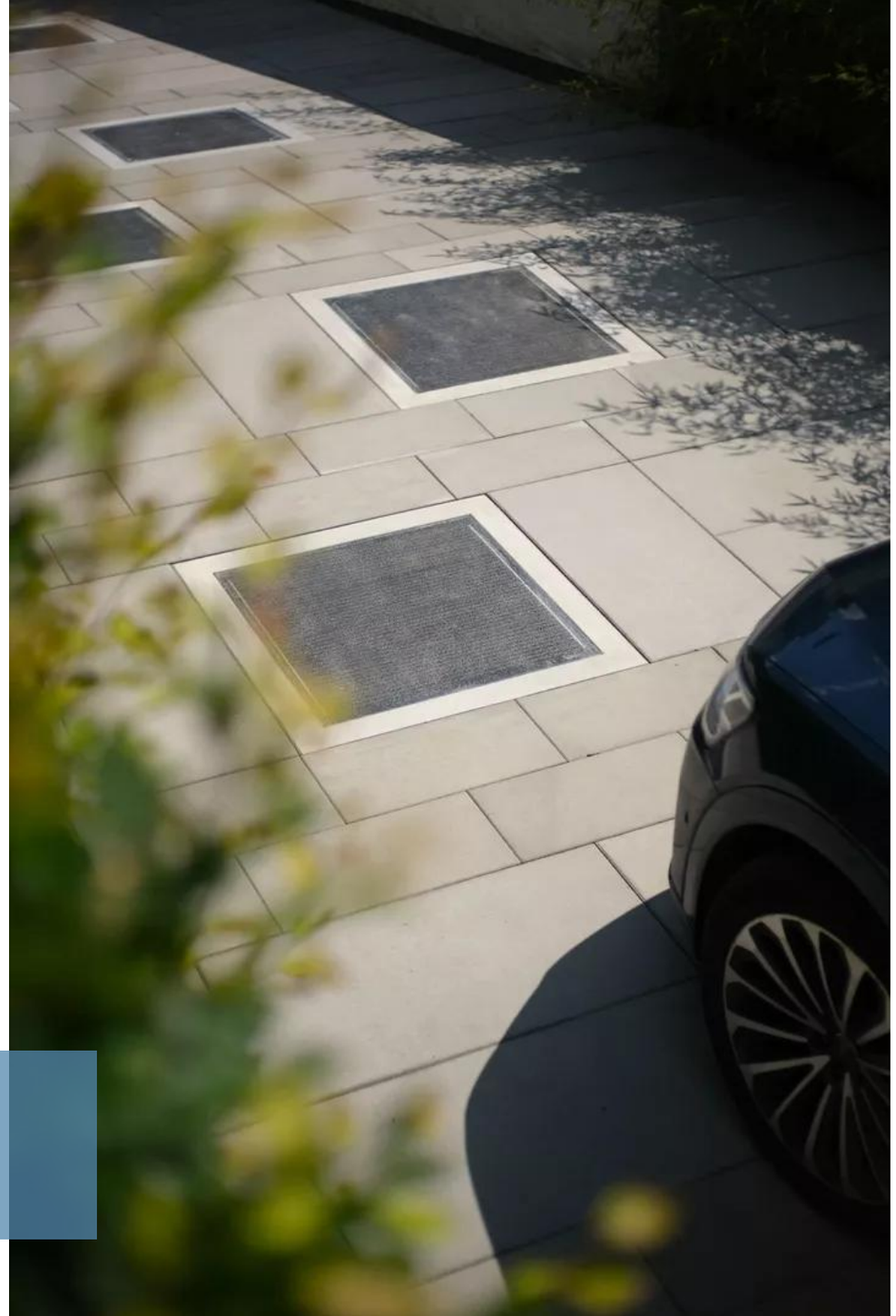
Perpignan SNCF Train Station (2010)
Perpignan, France
Shopping Galery
Canopy semi-transparent
© L35 Arquitectos
Photo: Laurent Lacombe

UITHOF tramlijn UTRECHT (2025)
Shelter
Application: canopy (ISSOL SQUARE)
advies- en ingenieursbureau Movares
EPSILON

Eindeloze Horizon – Bike path (2025)
Genk, Belgium
Application: Bike Path
Ginny Vos - SOLTECH
Van de Kreeke wegenbouw







PRIVAT HOME (2024)
Lanaken, Belgium
Application: driveway
Architect: Smaak-makers Lanaken
EBEMA / van de Kreeke wegenbouw

WP2 BIPV products: validation/certification

Deliverable 2.1	DONE	Certifications as PV
Deliverable 2.2	DONE	Certification as building element
		Safety glass – resistance loads - …
	ONGOING	Fire resistance in a building environment

Certified

www.tuv.com
TÜVRheinland®
ID.: 0000025822

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.: 0686646

Initial certification date: 26 March 2024

Valid: 26 March 2024 – 25 March 2027

This is to certify that the management system of
SOLTECH
Thor Park 8080, 3600 Genk, Belgium

has been found to conform to the Quality Management System standard:
ISO 9001:2015

This certificate is valid for the following scope:
The development, applied innovation and manufacturing of Integrated PhotoVoltaics (IPV).

PV TEST CERTIFICATE

CERTIFICATE:
ELIOCERT ID20210712

REPORT N°:
20210401-200045 AGC-RAP-01

LICENSE HOLDER:
AGC Glass Europe
Avenue Jean Monnet, 4
1348 Louvain-la-Neuve
Belgique

MODULE TYPE/ PRODUCT :
SunEwat (BOM « Gare de Rabat »)

MANUFACTURING PLAN :
SOLTECH
Grijpenlaan, 18
3300 Tienen
Belgique

TRADEMARK:
AGC

BASIS OF QUALIFICIFICATION :
This certificate establishes that the products were tested according to the standards detailed below :

IEC 61215 - Design qualification and type approval of photovoltaic modules (First edition - 2016-03)
Part 1 : Test requirements
Part 1-1: Special requirements for testing of crystalline silicon photovoltaic modules
Part 2: Test procedures

IEC 61730 - Photovoltaic modules safety qualification (First edition - 2016-08)
Part 1: Requirements for construction
Part 2: Requirements for testing

IEC TS 62915 - Photovoltaic modules - Type approval, design and safety qualification - Retesting

ELIOCERT ID20210712

APPLICATION CLASS :	A	SAFETY CLASS:	II
MAXIMUM SYSTEM VOLTAGE :	1000 VDC	CERTIFICATE VALIDITY PERIOD * :	13/07/2026

* The certificate validity is linked to a valid Eliosys annual factory inspection certificate for the associated manufacturing plants.

Overwale 5 bus 5
9000 Gent
T 09 220 84 31
info@dewerkplekarchitecten.be
www.dewerkplekarchitecten.be

Sterpunt Inclusief Ondernemen
de werkplekarchitecten

In het kader van het ESF project Exclusief Inclusief, geef ik SOLTECH NV, Thorpark 8080 b0001,
3600 Genk

toestemming aan Sterpunt Inclusief Ondernemen vzw voor het gebruik van de contactgegevens van het bedrijf bij het opstellen van het Actiebewijs en zo toegang te krijgen tot de communicatiemiddelen van Sterpunt Inclusief Ondernemen vzw.

bcrc inisma

Institut Interuniversitaire des Silicates, Sols et Matériaux
Laboratoire de Recherches et d'Essais
Association sans but lucratif

Avenue Gouverneur Cornez, 4
B-7000 MONS (Belgium)
Tél. (065)40.34.34
Fax (065)34.80.05

T.V.A. : BE 0413.106.271
RC MONS : 130.828 - Enregistrement : 08/02/01

www.bcrc.be

BELAC
N° d'accréditation : 32-Test
selon ISO 17025

TEST REPORT : N° 2010B SEC 10523-1

Including 4 pages
Page 1/4

Standard of tests:

- **NF EN 13501-1: 2018 –** Fire classification of construction products and building elements- Part 1 : Classification using data from reaction to fire tests
- **NF EN ISO 11925-2: 2020 –** Reaction to fire tests – Ignitability of products subjected to direct impingement of flame
- **NF EN 13823: 2020 +A1 : 2022 –** Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by a single burning item

Reaction to fire classification obtained in the official Procès Verbal	**B-s1, d0**

Nieuwbouw
Kantoor
Nieuwbouw (of hiermee gelijkgesteld)
Niet residentieel EPN
Bijeenkomst hoge bezetting, kantoor
4003.19 m³
/

Nieuw gecreëerd beschermd volume:
Verbouwd beschermd volume:

	U-waarden en/of R-waarden	K-peil / S-peil	E-peil	Ventilatie	Over-verhitting	Netto energie-behoefte voor verwarming	Hoeveelheid hernieuwbare energie	Installaties
Eis	☑	/	52	☑	☐	/	20.00	☐
Bereikte prestatie	/	/	-4	/	/	/	207.35	/
Conformiteit	voldoet	/	voldoet	voldoet	/	/	voldoet	/

Het jaarlijks primair energieverbruik per eenheid vloeroppervlakte -12.14 kWh/m²

De EPB-eenheid voldoet aan de eisen voor een BEN-gebouw.

BEN staat voor bijna-energieneutraal. Bouwen volgens de BEN-principes wordt vanaf 2021 de standaard voor
www.energiesparen.be/BEN.

MINISTERY OF DEFENSE
Paris, France
Public Building
Roof
ANMA – Nicolas Michelin et Associés

WTC Zin (2021)
Brussels, Belgium
Government Office Tower
Façade, Canopy
Jaspers-Eyers & Partners
Befimmo-51N4E

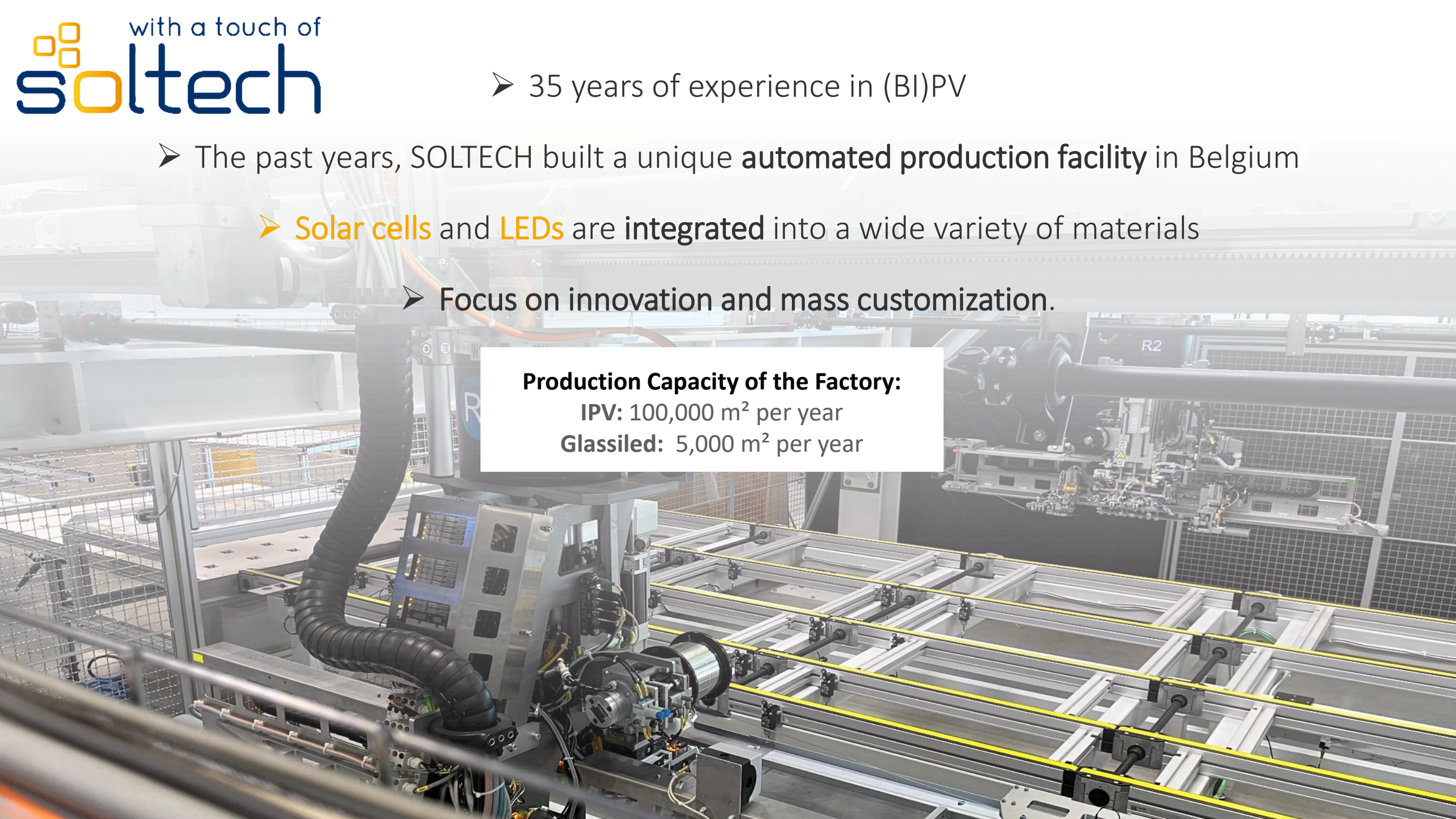
BOLD
Amsterdam, The Netherlands (2020)
Residential Tower
Application: Façade,
OZ Architects
© Valentijn Kortekaas

WP3 Production facilities BIPV

Deliverable 3.1	DONE	Digital design / characterization
Deliverable 3.2	DONE	Automated production of customized products

with a touch of soltech

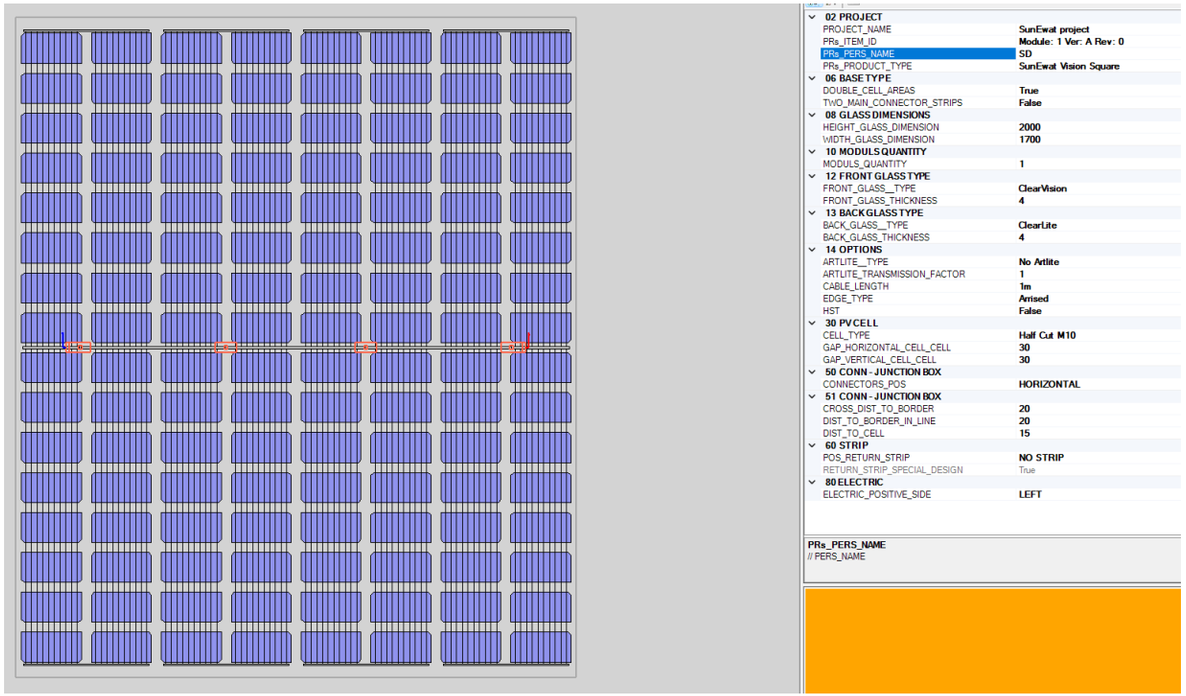
- 35 years of experience in (BI)PV
- The past years, SOLTECH built a unique **automated production facility** in Belgium
- Solar cells and LEDs are **integrated** into a wide variety of materials
- Focus on innovation and mass customization.

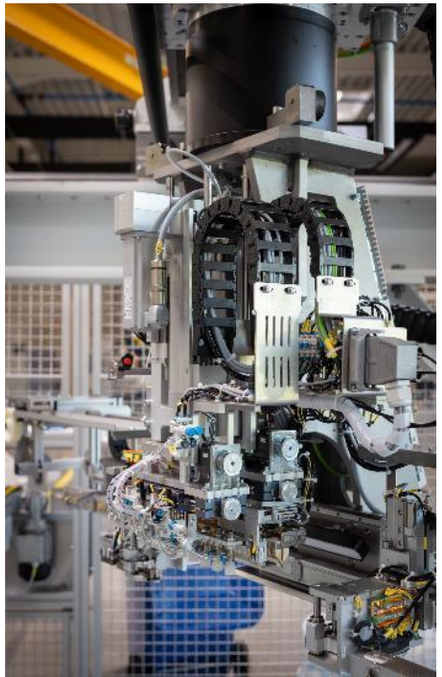


Production Capacity of the Factory:
IPV: 100,000 m² per year
Glassiled: 5,000 m² per year

AUTOMATION: INDUSTRY 4.0 IN ACTION

- **World's first** fully autonomous, end-to-end IPV production line.
- Powered by **.IDF design files** for complete design freedom.
- **Mass customization**: any panel size, solar cell layout, …
- **Industry 4.0 manufacturing** — precision, speed, and consistency.

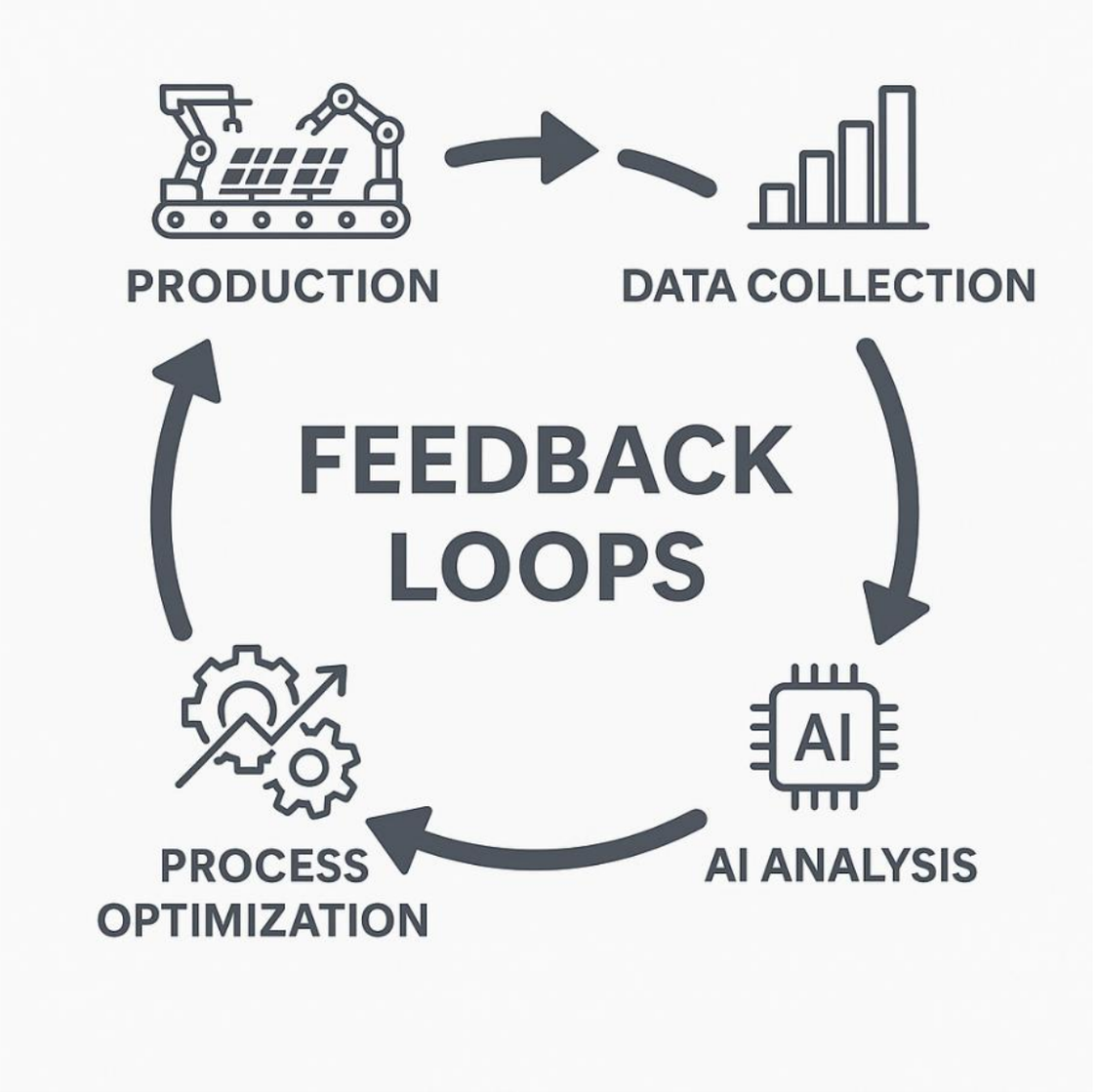




ONGOING

FEEDBACK LOOPS: THE SMART FACTORY

- SOLTECH evolves its fully automated facility into a **self-sustaining smart factory**
- The factory becomes **self-correcting and self-optimizing**
- **Real-time production data** feeds into AI-driven control systems
- **Automatic adaptation** based on data insights
- Results: **higher quality, shorter lead times, continuous optimization cycle**



WP4 Demonstrators BIPV

Deliverable 4.1

DONE
ONGOING

Pioneer projects all over Europe
Subsidized research projects
with demonstrators
with new technologies
Increase / Seamless

with a touch of soltech

Funded by the European Union's Horizon Europe, Innovation Actions programme under grant agreement No 101136112. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

Increase

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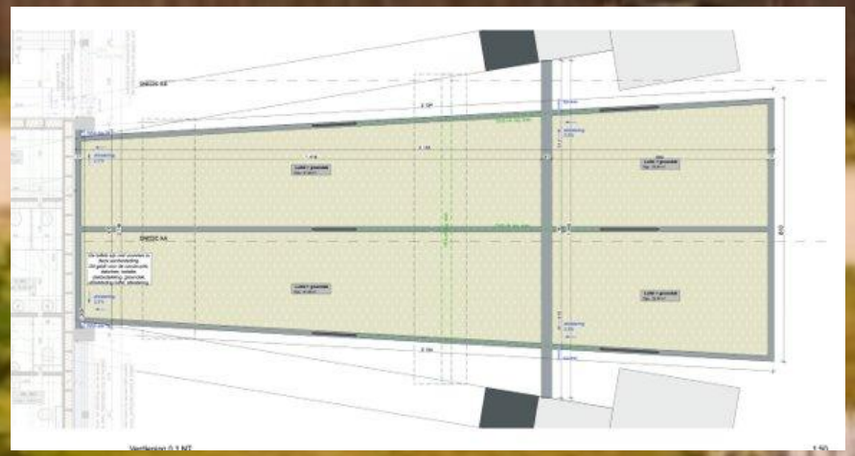
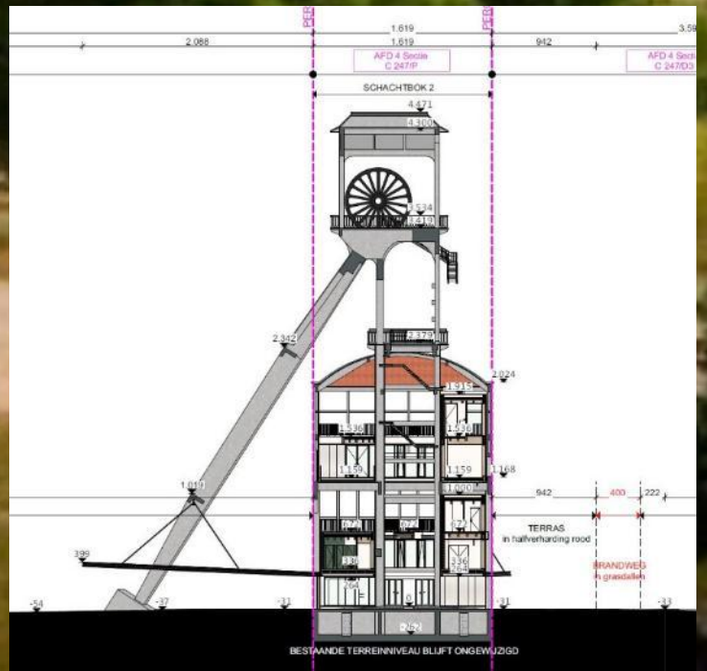
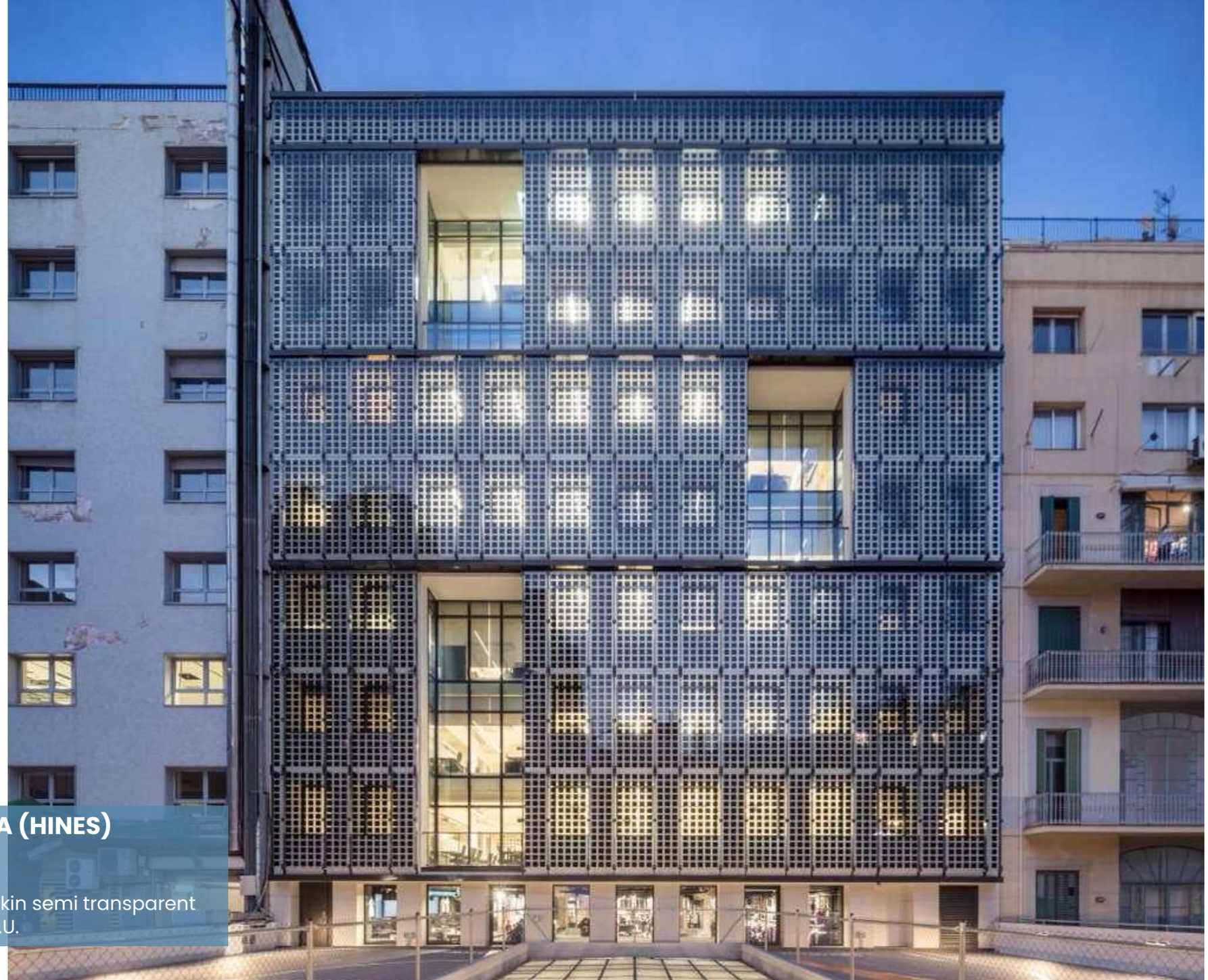




Le Carreau du Temple
Paris, France
Application: BIPV
Architect: Jean-François Milou

GARE MARITIME
Brussels, Belgium
Office and food market
Application: façade semi-transparant
Extensa Group
Neutelings Riedijk Architecten
© Sarah Blee - Filip Dujardin



PASEO DE GRACIA (HINES)
Barcelona, Spain
Food court
Application: Second Skin semi transparent
Tecalum Sistemes S.L.U.

CITÉ MUSICALE DE L'ÎLE SEGUIN(2016)
Paris, France
Iconic Building
Façade
TCE Solar and Bouygues Constructions
Shigeru Ban

Quatuor
Brussels, Belgium

Application: Louvres
Architect: Jaspers-Eyers Architects

WP5 Market growth BIPV

Deliverable 5.1	DONE	Creation of market demand
Deliverable 5.2	ONGOING	Implementation at large scale

Biggest challenges: **Project engineering capacity**
Education / formation building partners

TIMELINE OF SOLAR PANEL REQUIREMENTS EU

2026
New public buildings → mandatory solar energy installation, unless technically/economically not feasible.
2027
All new buildings (including residential) → mandatory solar panels.
2028–2029
Large existing non-residential buildings (offices, shops, industry) → Member States must gradually require roofs to be equipped during renovation or system replacement.
2030
All large non-residential buildings → solar panels mandatory, even without renovation, unless demonstrably unsuitable.
After 2030 (step by step)
Extension to smaller non-residential buildings according to national schemes.
No explicit obligation for existing residential buildings, but Member States may include it.

Year	Building Type	Obligation for Solar Panels
2026	New government buildings	yes
2027	All new buildings (including residential)	yes
2028 +	Large non-residential buildings during renovation	yes
2030	All large non-residential roofs	yes
> 2030	Smaller non-residential buildings	Yes, phased
-	Existing buildings	No EU obligation

BOTTA SOLAR
Brussels, Belgium
Office
Application: Façade,
Ney & Partners / Sunsoak Design
Stefano Immo

TOUR DUO (2021)
Paris, France
Office, Hotel, Retail
Façade
Ateliers Jean-Nouvel

CoStar
Richmond, Virginia

TOUR MOHAMMED VI
Rabat, Maroc
Office and Residential Tower
Application: façade
Besix
Rafael de la Hoz

TOUR Triangle
Paris
Mixed use
Under construction (2025- 2026)
Application: shading elements
©Besix

BRUSK (2025)
Brugge, Belgium
MUSEUM I Art Hall
Application: Roof
Robbrecht and Daem Architects and Olivier Salens Architects
In collaboration with SUNSOAK DESIGN
CIT BLATON I Star Construct

- Collaboration with designer Jean-Didier Steenackers (Sunsoak Design)
- ISSOL® engineered unique **BIPV glass slates**
- Very fast sampling process was required
    - A lot of stakeholders involved
    - Small first samples (iterations)
    - Bigger mock-up
    - Small test roof in situ
    - Fixation clamps design project specific
- Result: power-generating glass elements in **dark green cathedral glass**

> *Designed to echo the textures and tones of the surrounding architecture, the solar cells are subtly visible as small black squares within the glass, resulting in a refined, layered aesthetic. Technically sophisticated – visually striking.*

“The architect specifically asked us for a solution that would resonate with the old buildings in the area. With this cathedral glass, we’ve created something that helps define the building’s identity.”
— Bas van de Kreeke, CEO ISSOL®

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with a touch of soltech

SOLTECH | With a touch of SOLTECH

ISSOL® | MANUFACTURED IN GENK BELGIUM

ISSOL® – We turn anything into a solar panel

Thank you!

This is an initiative of

Seamless-PV

Co-funded by the European Union

Grant N°101096126. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

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