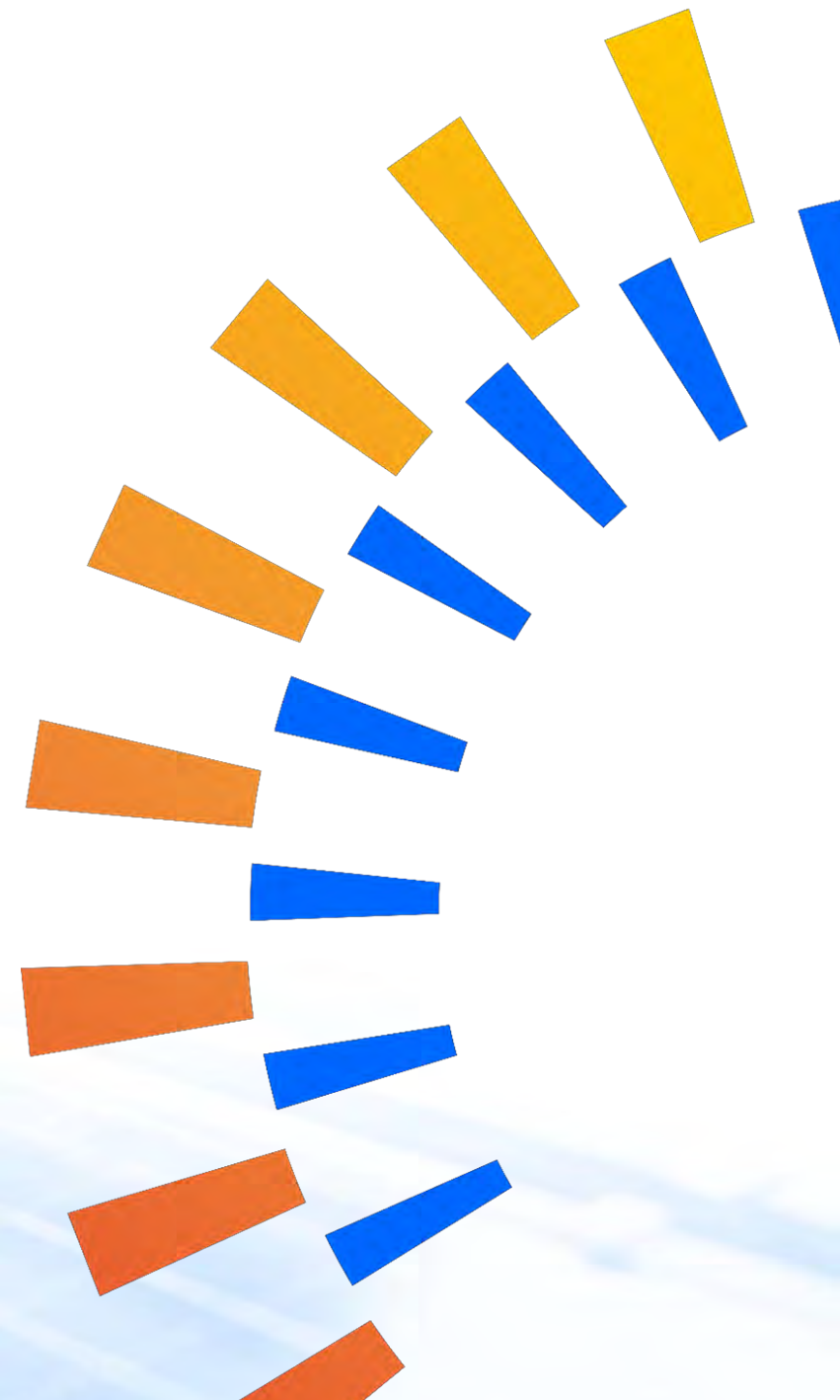


# Introduction to Freesuns, BIPV for Heritage Buildings and overview of HE SPhinx



**FREESUNS**  
SOLAR  ROOFS

John Morello  
CTO & Co-Founder



## Freesuns Story – Started 2016



Our home **before** – we needed a new roof for our mid-century, modern home in Switzerland. We wanted a solar solution, but solar panels would have ruined the architectural aesthetic.



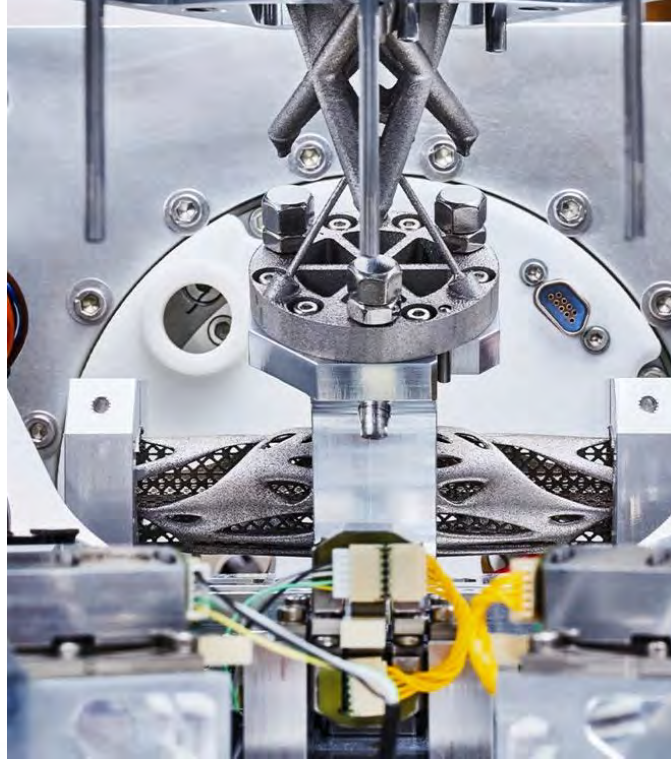
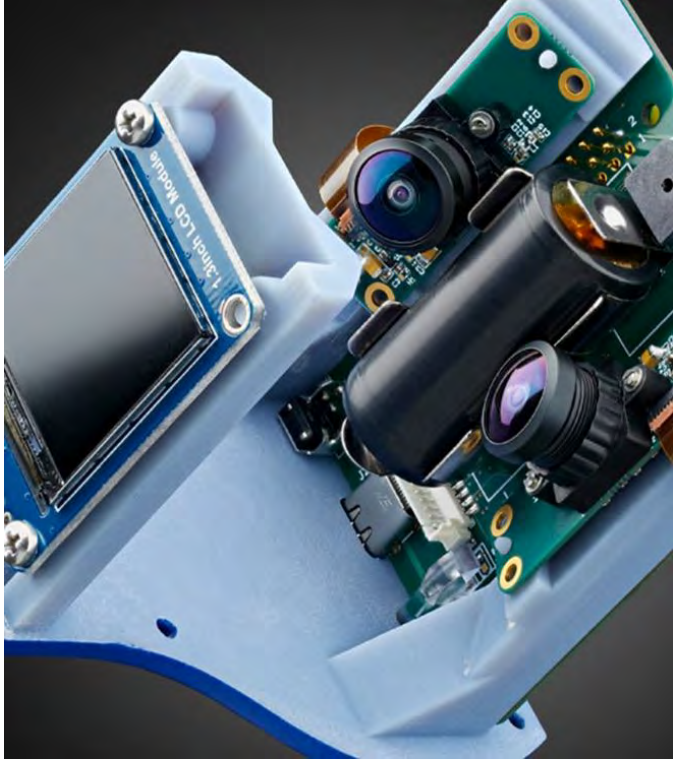
Our home **after** - we designed and implemented our own Solar Tiles. The result was so impressive that Freesuns was born.

Founders: John Morello and Deborah Learoyd.

# 1<sup>st</sup> Roof Completed 2016 – 20kWp



# R&D Collaboration with CSEM commenced early 2017



# FREESUNS SOLAR TILE RANGE

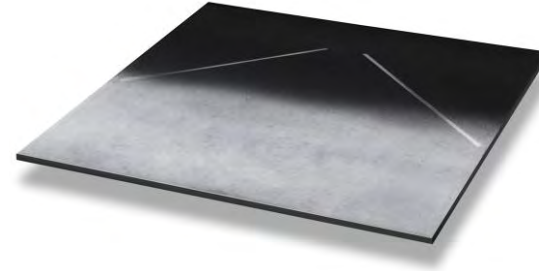
Solaris™  
CLASSIC



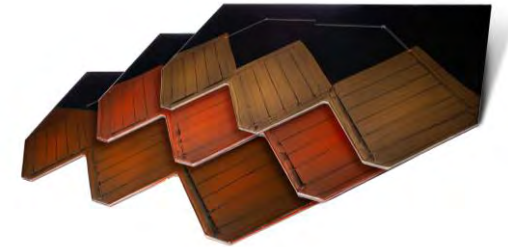
Solaris™  
PREMIUM BLACK



Solaris™  
HERITAGE



Solaris™  
VDIAMOND TERRACOTTA



**Why choose a  
Freesuns solar roof ?**

**Powerful**

Highest solar cell coverage for complex roof surfaces.

**Design**

End to end delivery design, installation, commissioning, connection & certification.

**Beautiful**

Outstanding architectural integration to ensure stunning aesthetics.

**Financial**

Turn your roof into an income-generating asset that pays for itself.



# FRESUNS SOLVES COMPLEX DESIGN

## ☀️ POWERFUL

Maximum PV coverage for complex shaped roofs due to precut edge tiles

## ☀️ BEAUTIFUL

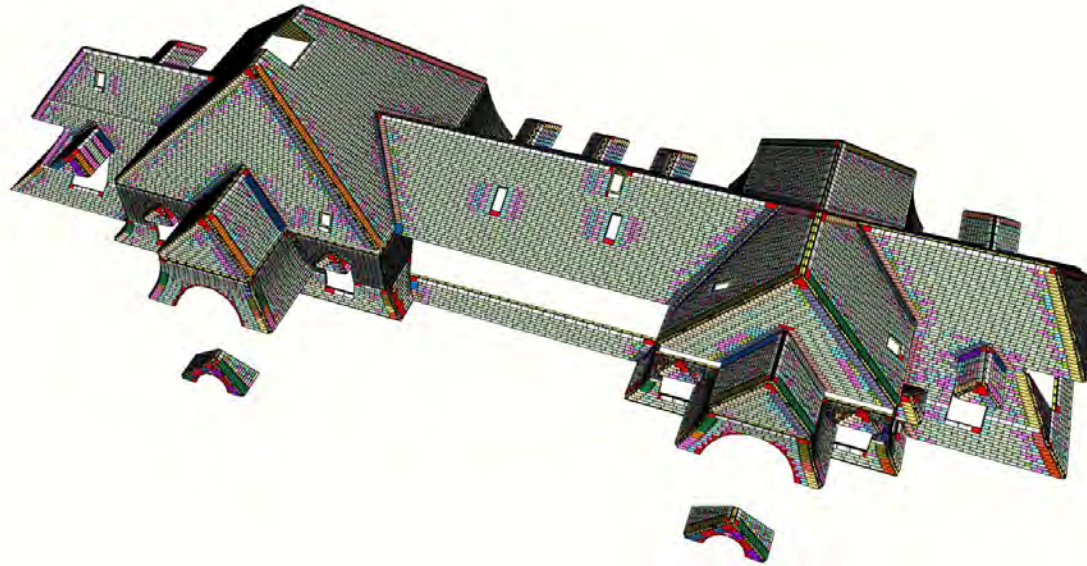
Traditional roof tile appearance like slate and terracotta

## ☀️ SUSTAINABLE

Generate maximum clean energy and a return on investment



# Large Scale Heritage - College Des Parcs - Neuchatel



Collège des parcs Detailed Design



## FREESUNS ROOFER TOOL - AI

- ☼ Proprietary software to automate roof design
- ☼ Facilitates complex solutions by automating tile layout
- ☼ Supports Freesuns and roofing partners with engineering

# College Des Parcs – 2024

**FREE**SUNS  
SOLAR  ROOFS

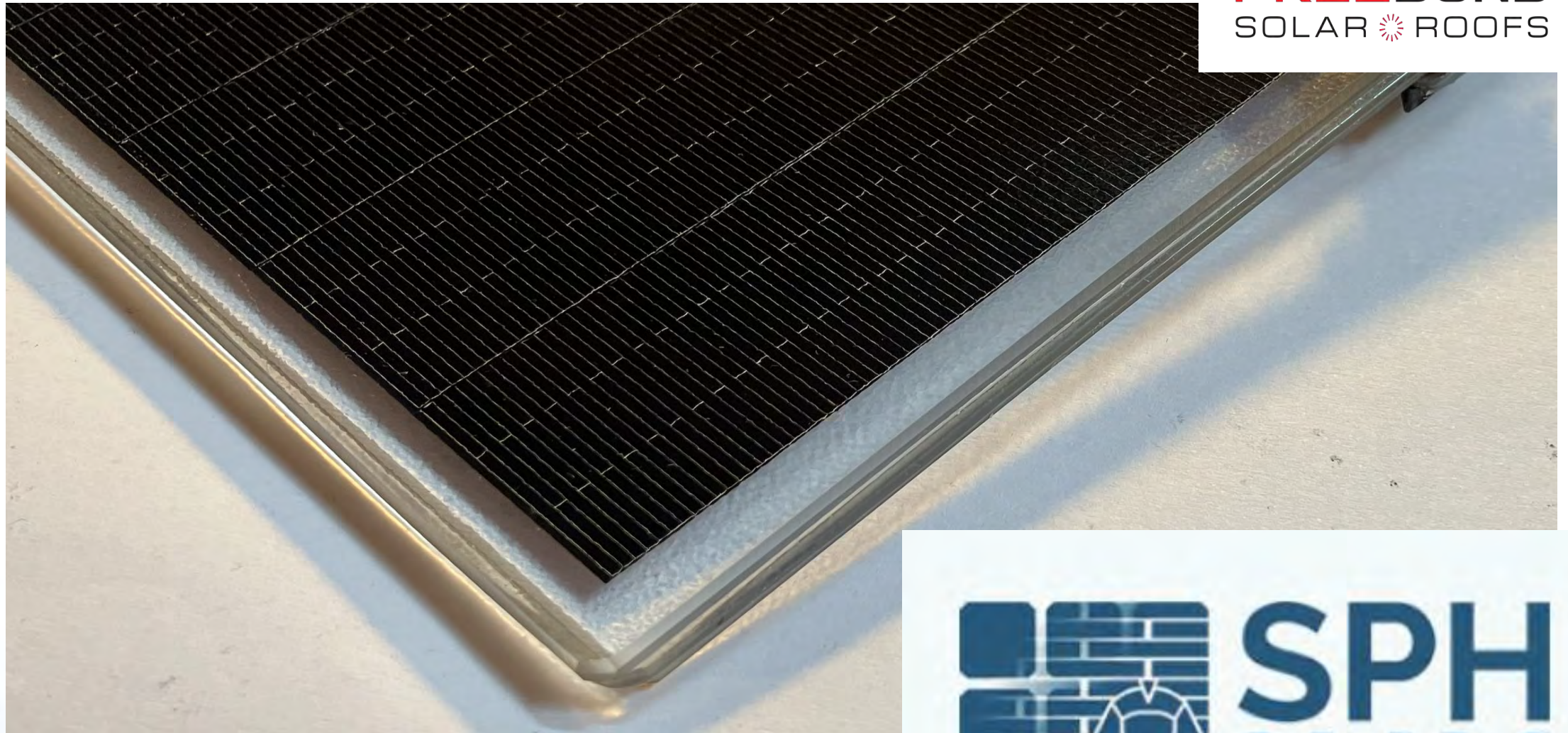








# HE-SPHINX – MATRIX SHINGLING



Website <http://sphinxproject.eu>



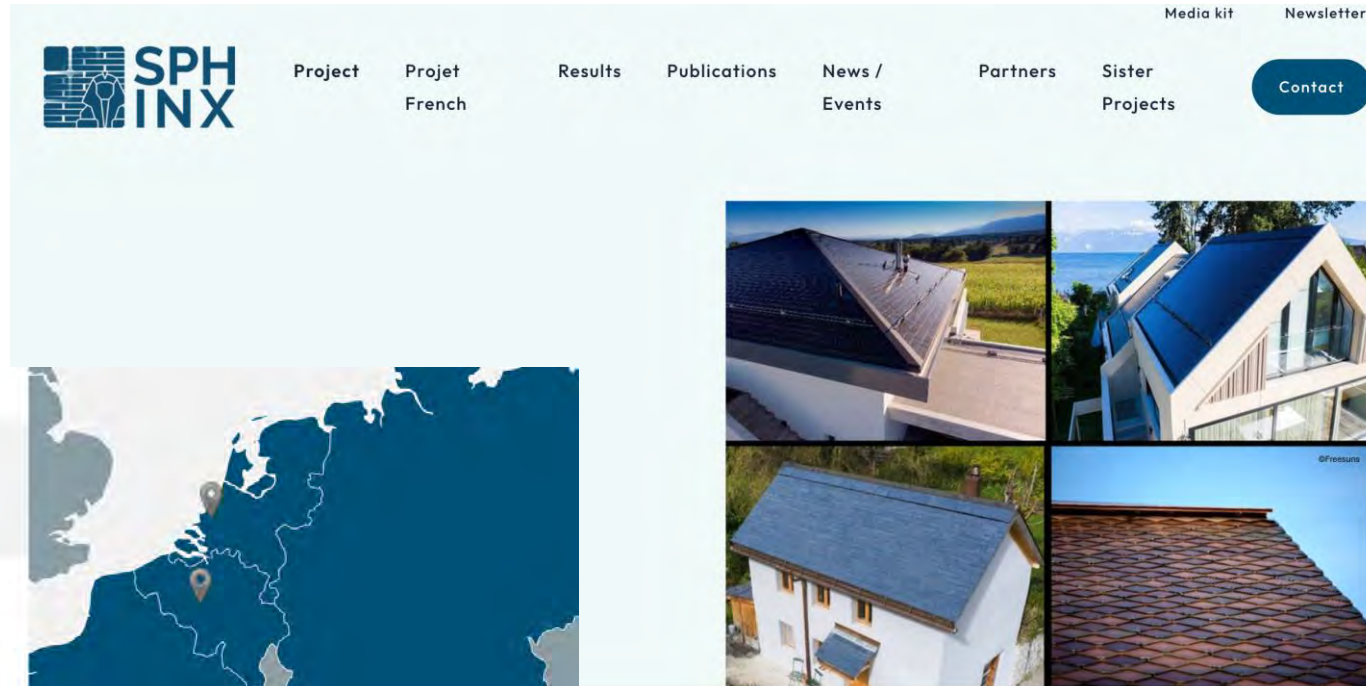
# HE-SPHINX – MATRIX SHINGLING BIPV

**Objectives** The SPHINX project aims to bring back to Europe fabrication and supply chain for solar roof and façade tiles.

1  
Design and validate Matrix Shingled BIPV

2  
Commission Automate Pilot Line F-ISE Freiburg

3  
Install 5 Demonstrators – manufacture x 5000 Freesuns Matrix Shingled Solar Roof & Facade Tiles – CH on the F-ISE Pilot Line located Freiburg, DE



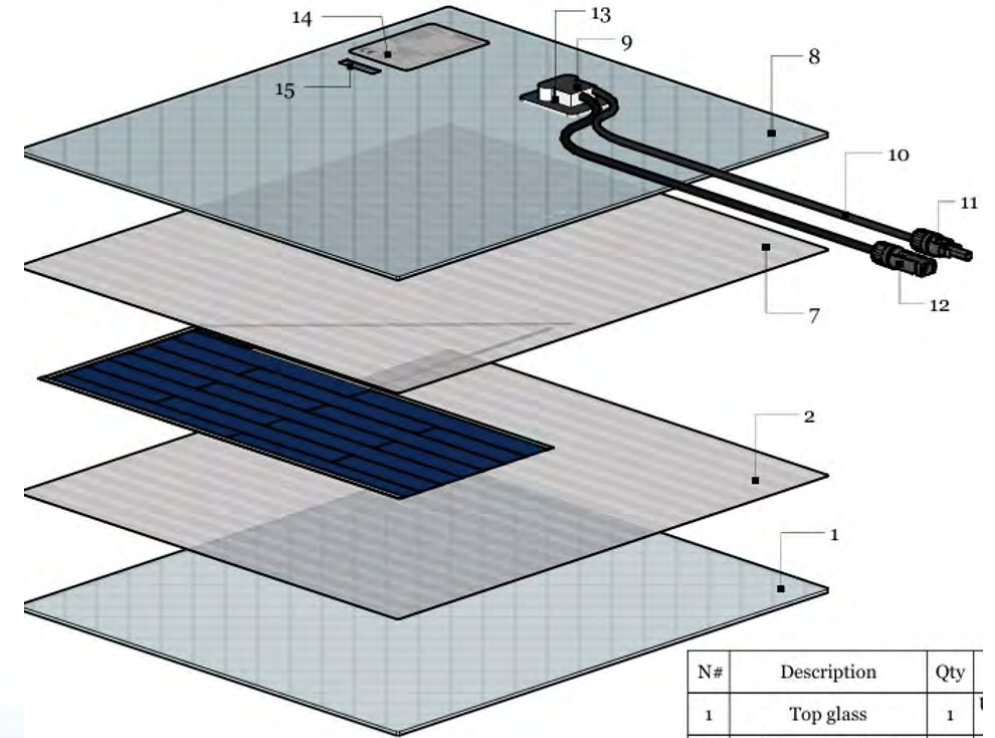
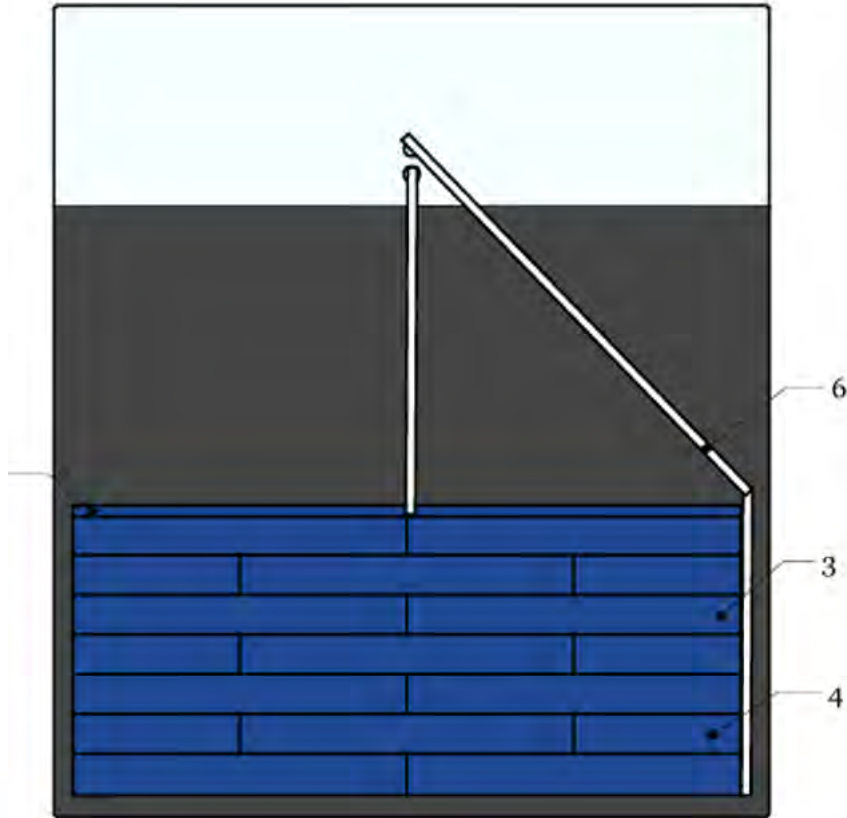
- CEA
- CSEM
- EPFL
- Etway
- Fraunhofer ISE
- Freesuns
- Heliup
- M10 Industries
- SOPREMA
- Uniresearch
- Voltec



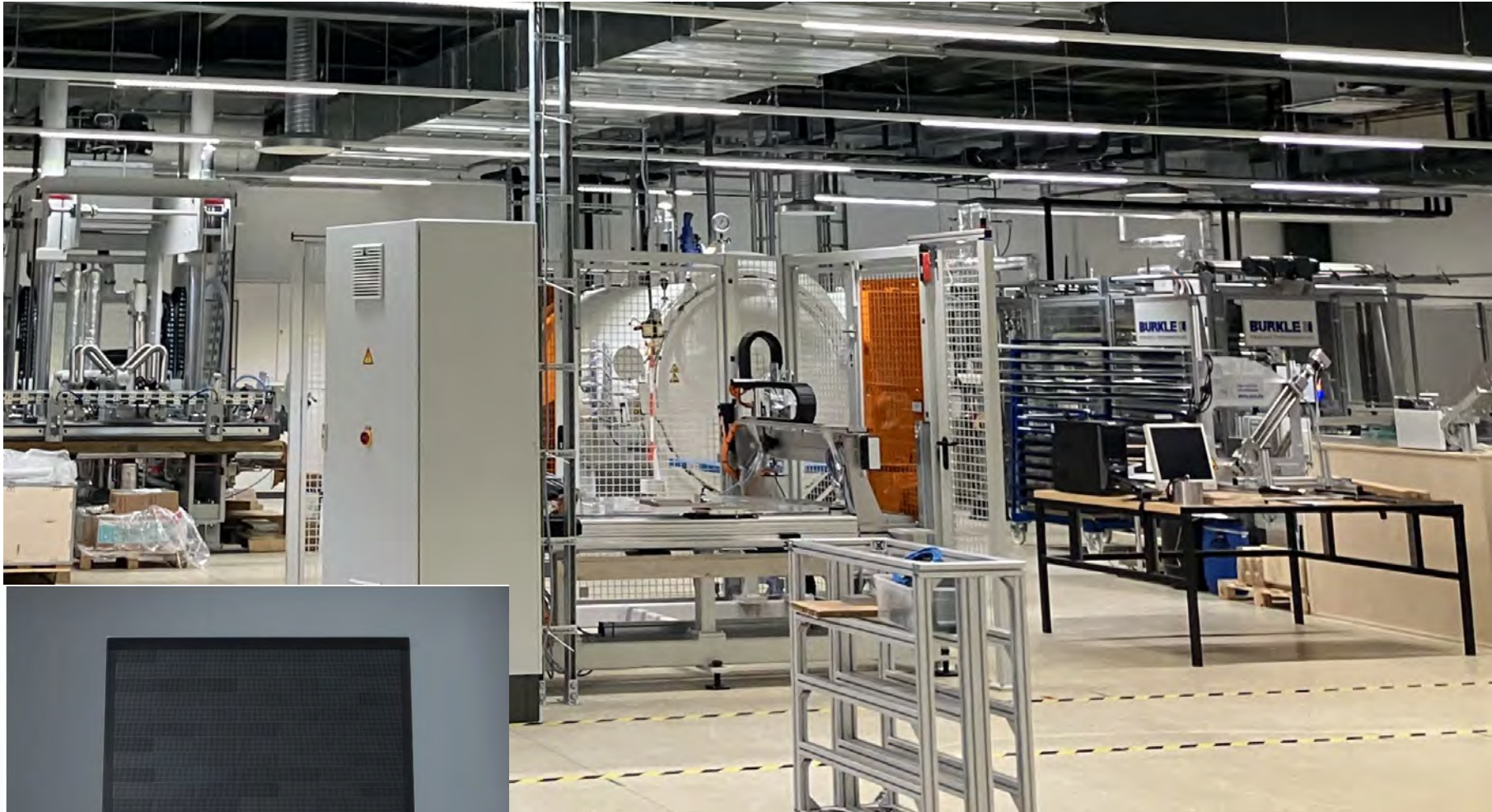
Acronym: SPHINX  
 Duration: 36 months  
 Start date: 1-11-2023  
 Total costs: €8,936,233  
 EC Funding: €5,247,990  
 CH Funding: €2,185,513

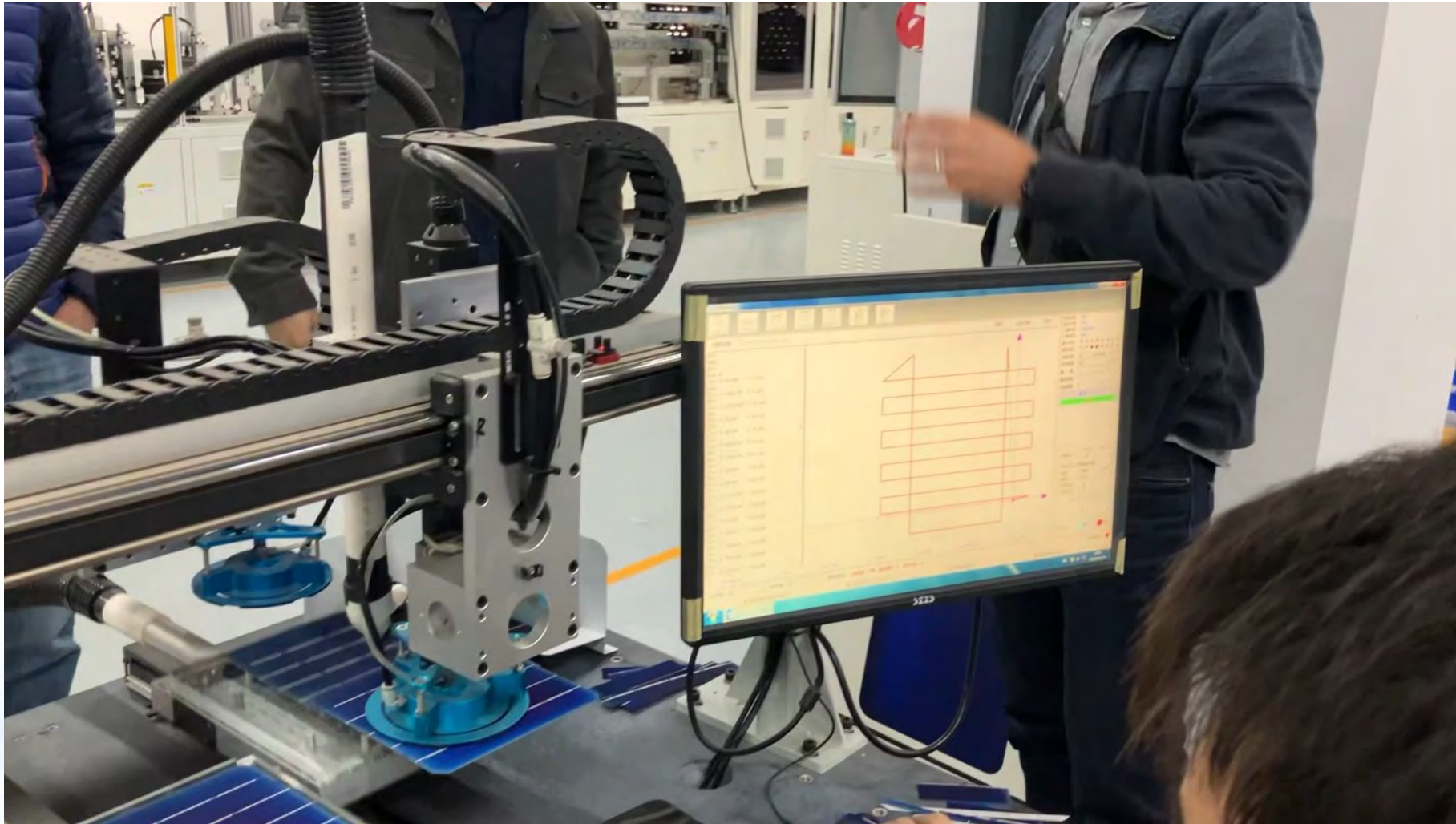


# HE – SPHINX – Matrix Shingled Solar Roof Tile



N#	Description	Qty
1	Top glass	1
2	Top encapsulant	1
3	Large wafer	11
4	Small wafer	6
5	Bridge Connector	2
6	Busbar ribbon	1
7	Bottom encapsulant	2
8	Bottom glass	1
9	Junction box	1
10	Power cable	2
11	MC4 male connector	1
12	MC4 female connector	1
13	Silicone glue	1
14	Silver label	1
15	Barcode label	1

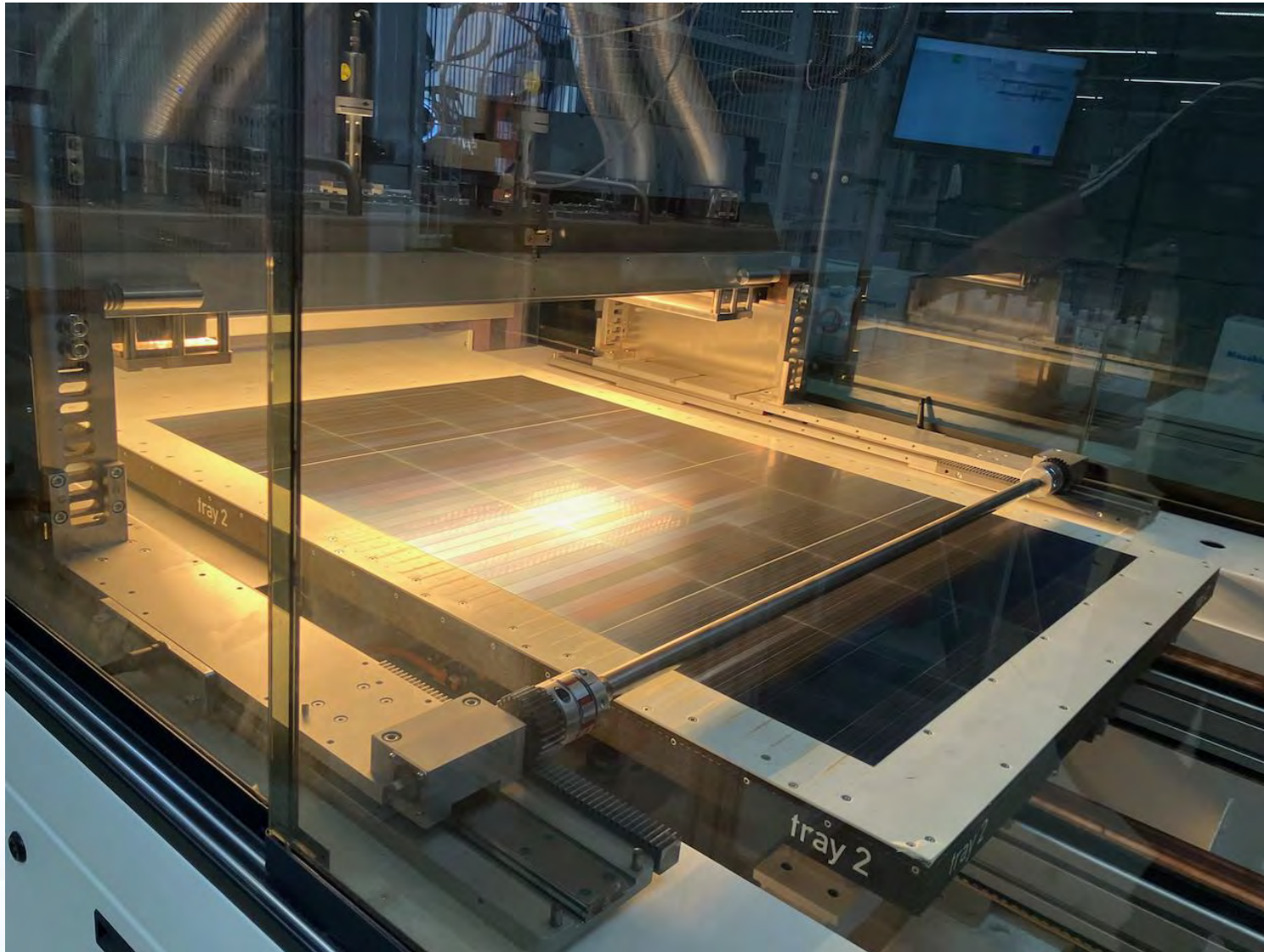






# HE – SPHINX – Pilot Line F-ISE Freiburg, DE

**FREE SUNS**  
SOLAR  ROOFS



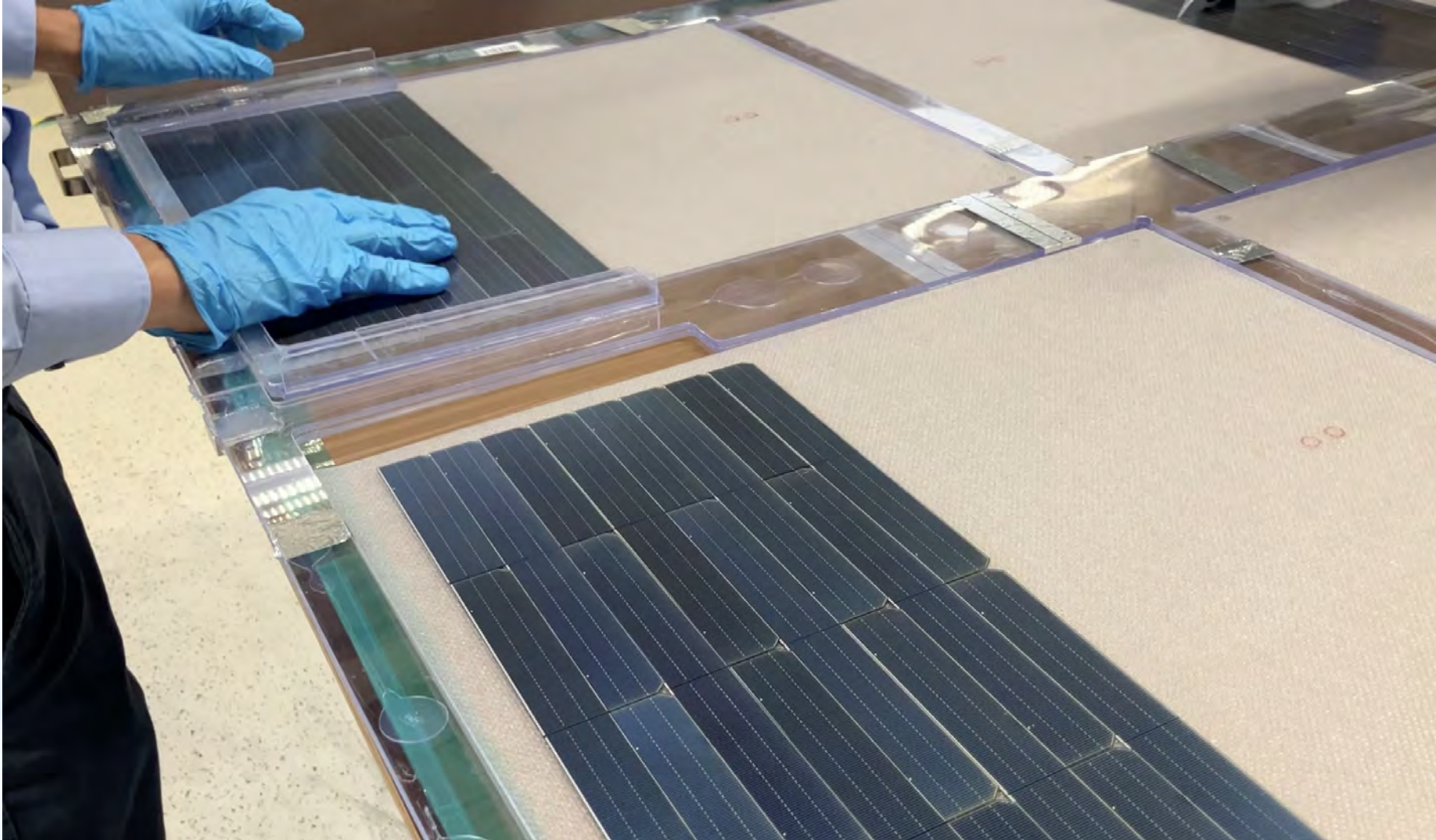
**SPH  
INX**

# HE – SPHINX – Pilot Line F-ISE Freiburg, DE

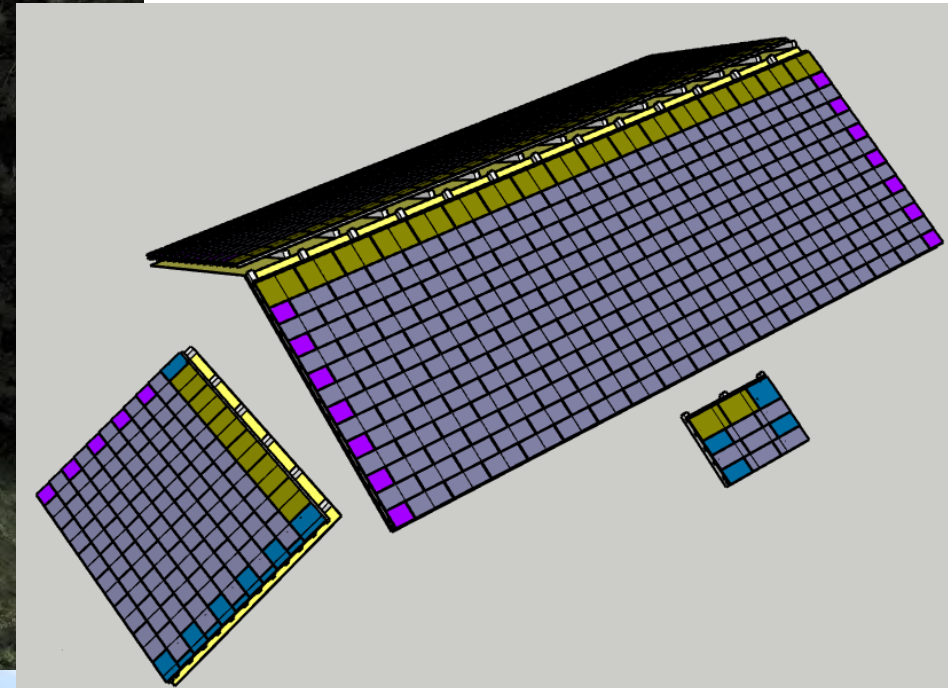
**FREE SUNS**  
SOLAR  ROOFS



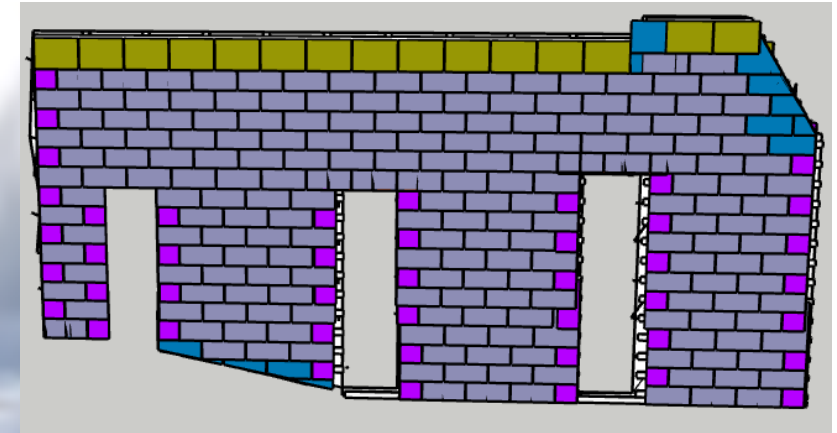
**SPH  
INX**



# Demonstrator - Heritage Roof



# Demonstrator – Terracotta Facade



# A STUNNING SOLAR ROOF THAT PAYS FOR ITSELF

100% PV solar tiles  
Producing 30 MWh of clean energy pa  
Saving 12 tons of CO<sub>2</sub> emissions pa  
ROI of 6% pa

**THANK YOU**  
**QUESTIONS?**



# Thank you!

This is an initiative of



**Co-funded by  
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Research and Innovation SERI**