



PV integration in buildings

A real-world application

ePIZ BIPV Facade Cladding System with integrated insulation

Claudio Pirotta
Stefano Magaddino

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GRUPPO ZECCA

Zecca Prefabbricati SPA

Real Estate

PIZ SRL

Hydroelectric energy

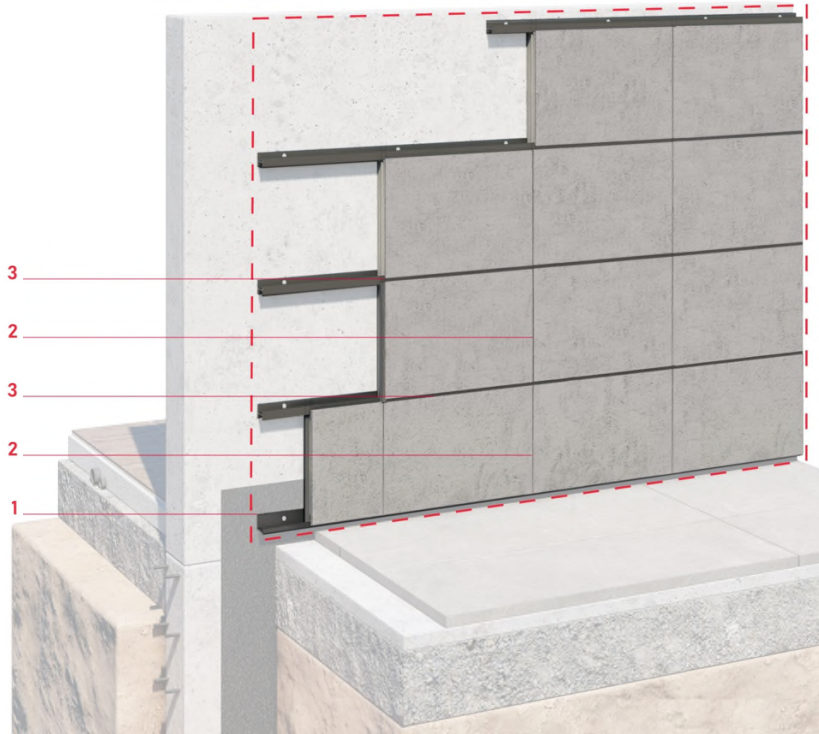
Photovoltaic energy



Cosio Valtellino (SO) - IT



P I Z cladding systems



1. Aluminum profile - 2. Vertical joint - 3. Horizontal joint

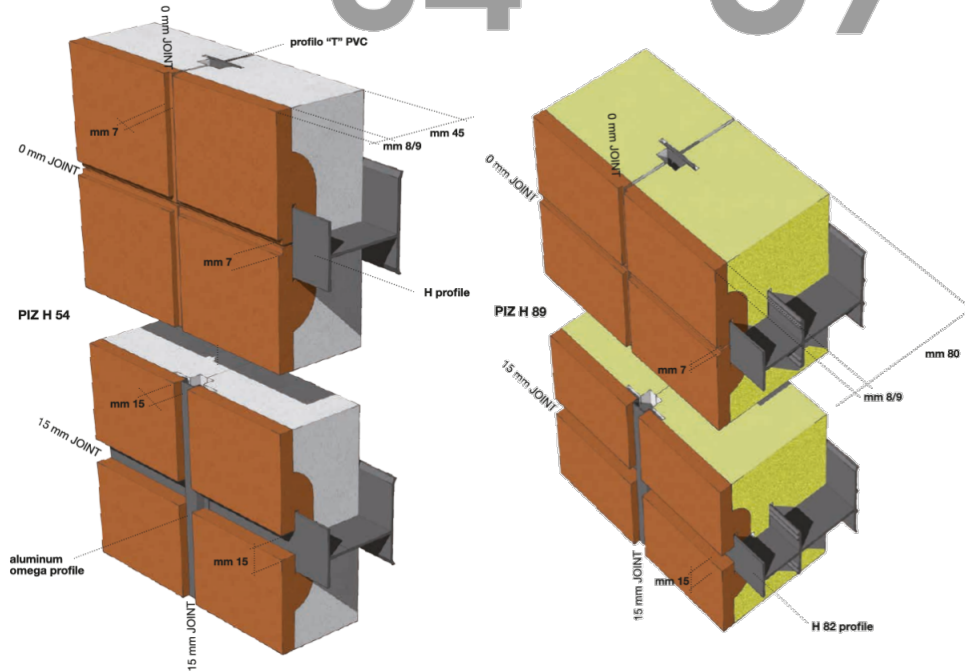


PIZ cladding systems

Piz systems

PIZ STANDARD 54

PIZ H 89
ROCK METABID

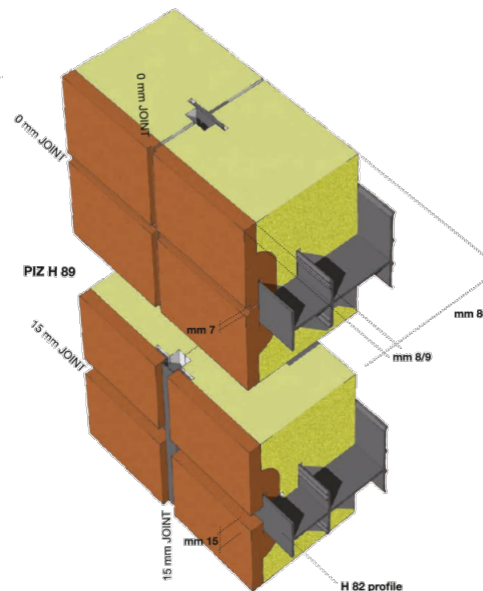
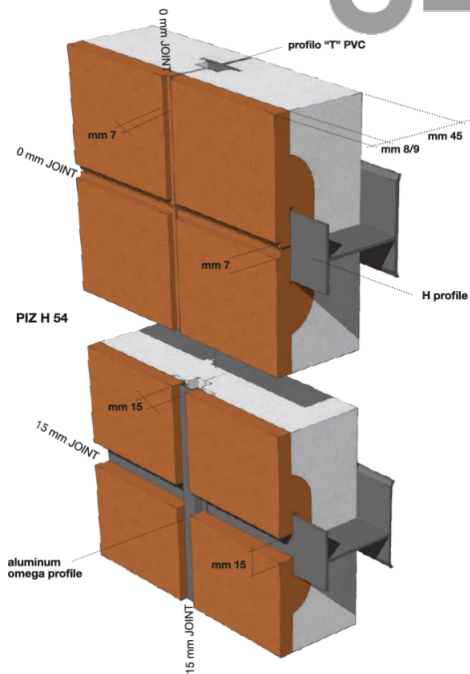


PIZ cladding systems

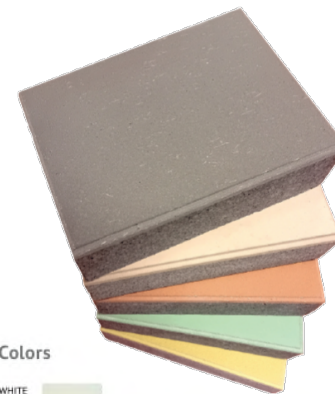
Piz systems

PIZ STANDARD 54

PIZ H 89
ROCK METABID



Colors



Colors

WHITE					
YELLOW	0	1	2	3	4
COTTO	0	1	2	3	4
BROWN	0	1	2	3	4
ORANGE	0	1	2	3	4
RED	0	1	2	3	4
BLU	0	1	2	3	4
GREEN	0	1	2	3	4
GREY	0	1	2	3	4
			SUPER BLACK	3	4

Finishes

SMOOTH

ROUGH

GROOVE

MATERIQUE



Some case of building with **P I Z** cladding system

Residential tower | Milano (IT)



School | Jumont (FR)



Office building | Chile



Hotel | Cardiff (Wales)

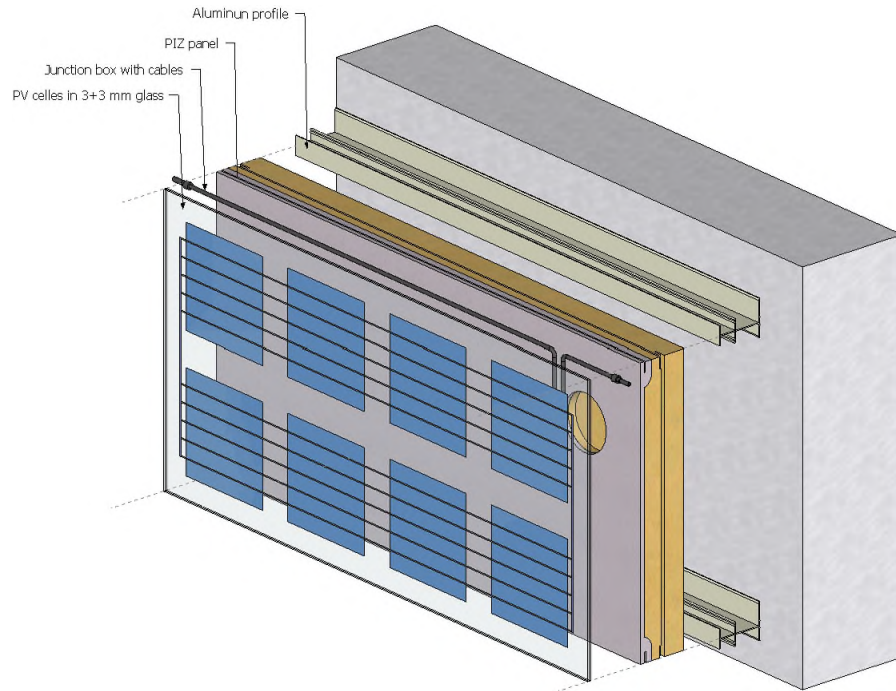


Waste-to-energy-plant | Parma (IT)

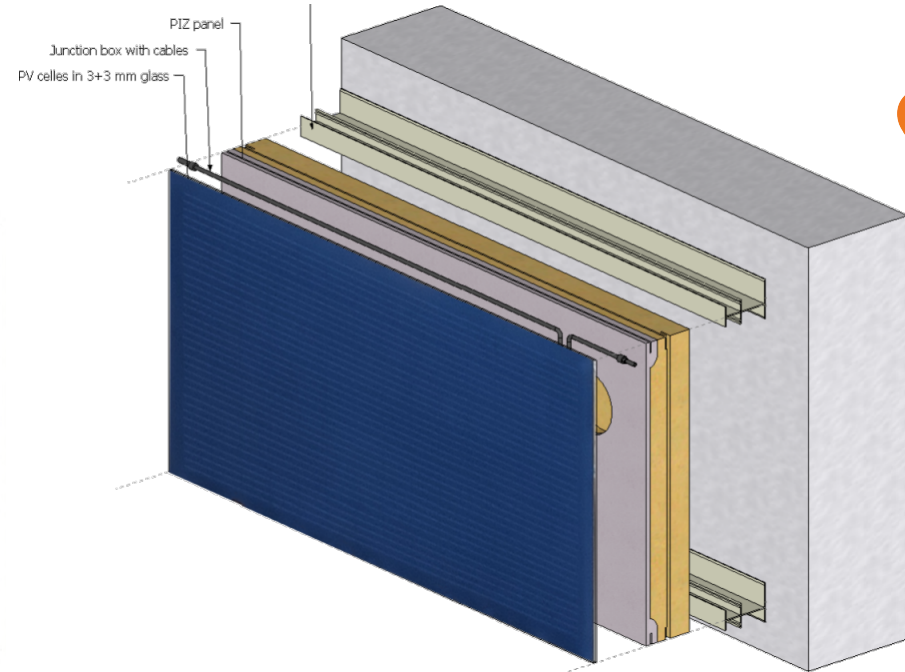


ePIZ cladding system

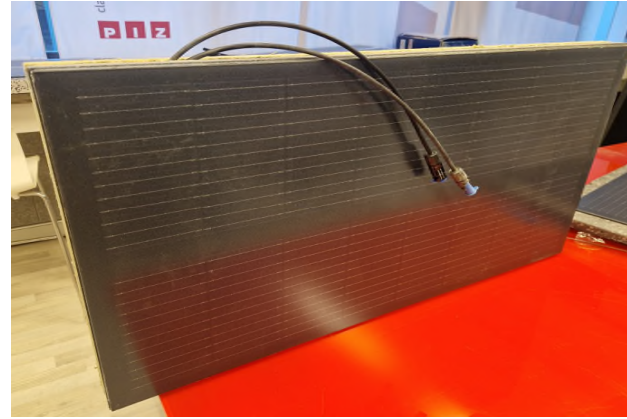
Transparent glass-glass PV



Colored glass-glass PV

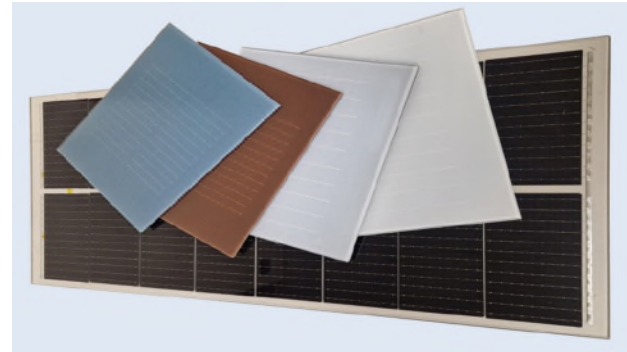


ePIZ panels



Some technical data:

- Energy production up to 180 W/m²
- Thermal resistance up to 2,1 m²K/W
- Sound reduction up to 13 dB
- Cladding system weight of 35-45 kg/m²



Tests performed (EAD 040914-00-0404 - Veture kits)

Main test performed:



Impact resistance tests



Wind suction test



SBI and ignitability tests



Outdoor tests

Tests performed | Impact resistance test (ISO 7892)

Hard-body impact resistance



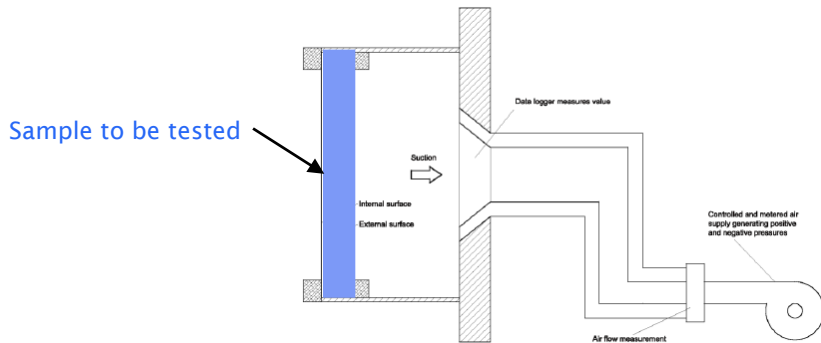
Soft-body impact resistance



Result: Category III

Tests performed | Wind suction resistance test

Wind suction apparatus scheme



Position of deformation meters

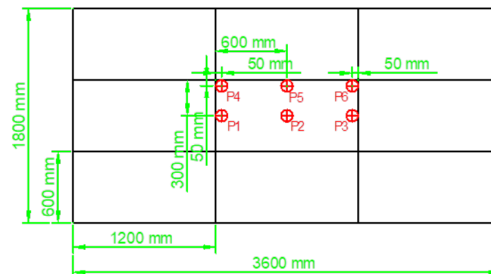
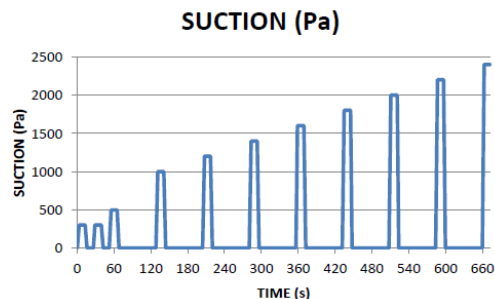


Photo of the sample during the test



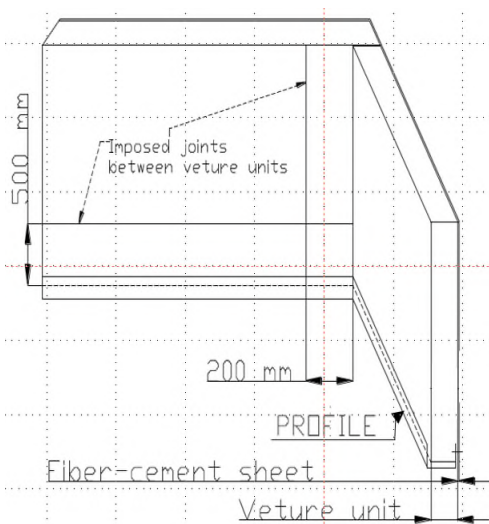
Example of wind suction test procedure



Maximum suction resistance: 3600 Pa (360 daN/m²)

Tests performed | SBI and ignitability tests

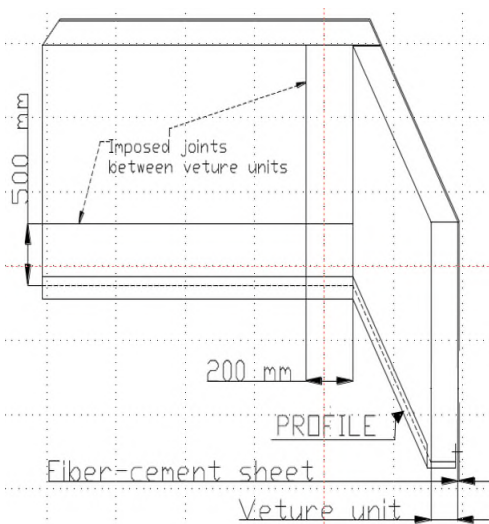
SBI Test (EN 13823:2020+A1:2022)



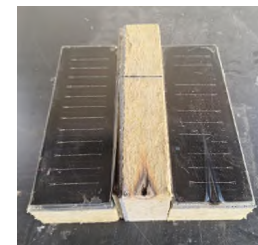
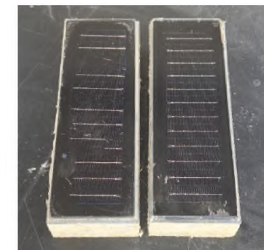
Reaction to Fire Classification: **B-s1, d0**

Tests performed | SBI and ignitability tests

SBI Test (EN 13823:2020+A1:2022)



Ignitability test (EN ISO 11925-2:2020)

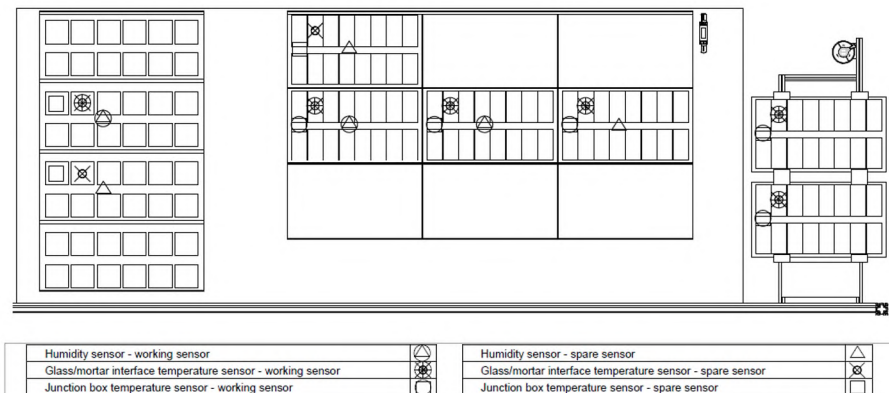


Source: Tecnalia

Reaction to Fire Classification: **B-s1, d0**

Test performed | Outdoor test

Sensors layout



Source: SUPSI

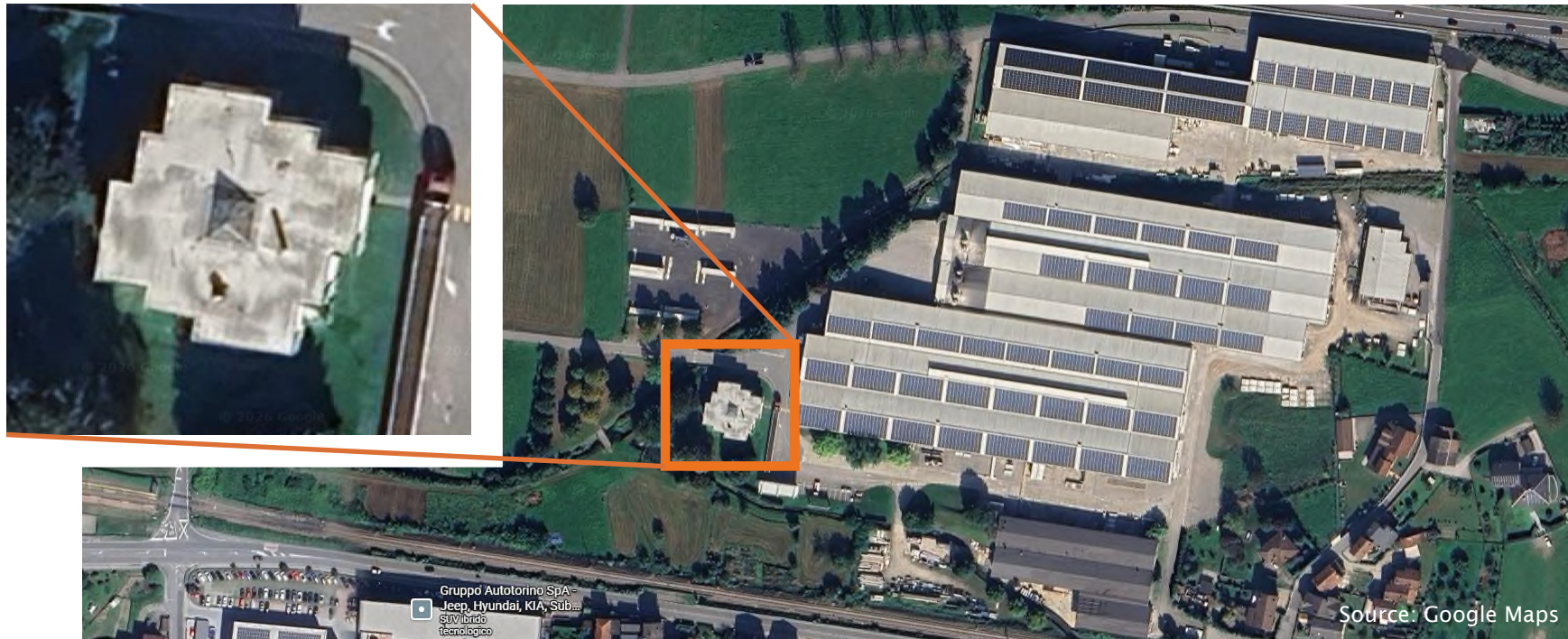
Mock up



Source: SUPSI

Case 1. Gruppo ZECCA office (Cosio Valtellino - IT)

Site location



Case 1. Gruppo ZECCA office (Cosio Valtellino - IT)

Building before the works



Photo



Case 1. Gruppo ZECCA office (Cosio Valtellino - IT)

Building before the works



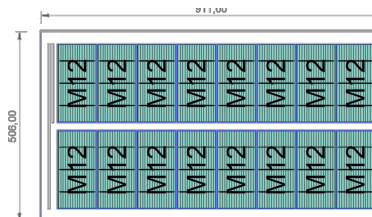
Photo

Design

Elevation



e-PIZ Panels with dark grey PV glass



Nominal power: 70Wp (166Wp/m²)

Total power: 20kWp

Case 1. Gruppo ZECCA office (Cosio Valtellino - IT)

Design

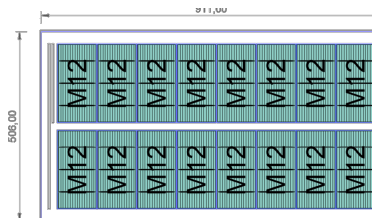


Render

Elevation



e-PIZ Panels with dark grey PV glass



Nominal power: 70Wp (166Wp/m²)

Total power: 20kWp

Case 1. Gruppo ZECCA office

Installation of ePIZ cladding system



Case 1. Gruppo ZECCA office

Building after works



Case 1. Gruppo ZECCA office

Building before and after installation of ePIZ



Before works



After works

Case 2. New warehouse (Pavia - IT)

Building before works



North and west elevations



South elevation (right side)



South elevation (left side)

Case 2. New warehouse (Pavia - IT)

Building before works and BIPV design



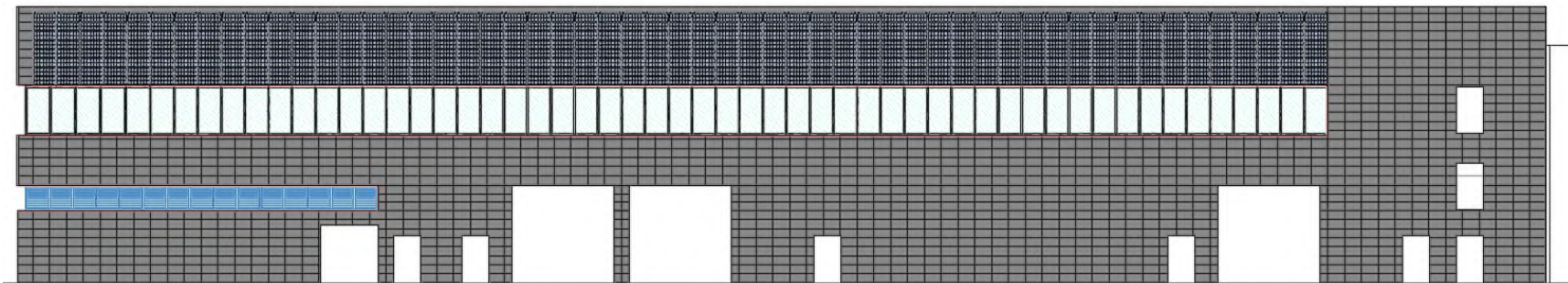
North and west elevations



South elevation (right side)



South elevation (left side)



Design south elevation

Case 2. New warehouse (Pavia)

Building during and after the installation of PIZ and ePIZ cladding systems



Case 3. Residential house (Morbegno - IT)

Building before the works

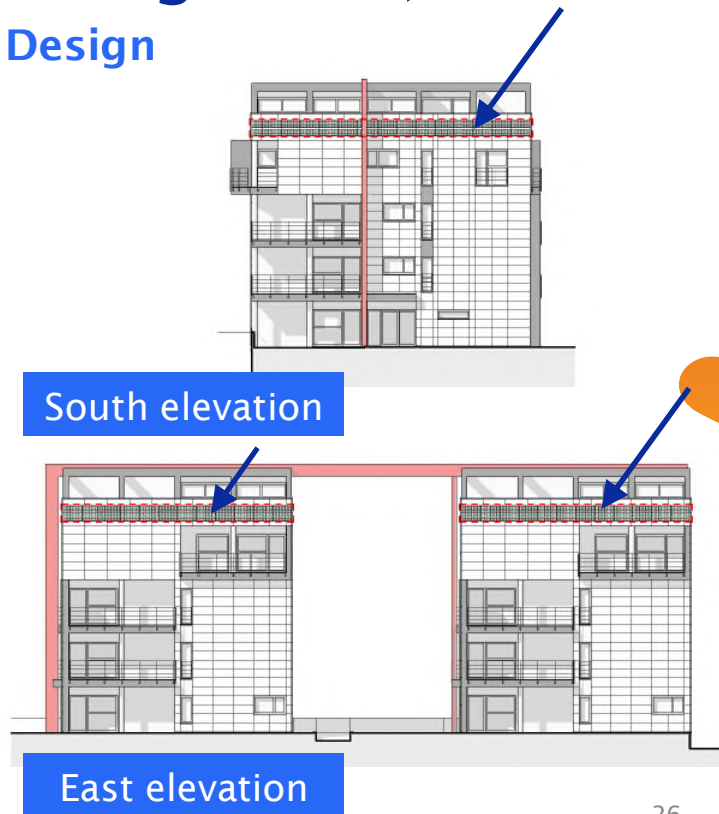


Case 3. Residential house (Morbegno - IT)

Building before the works



Design



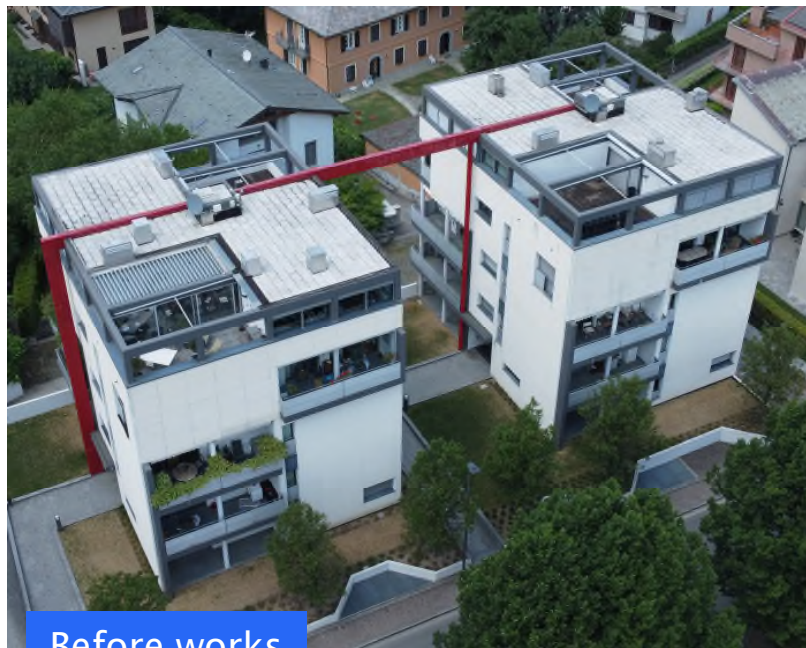
Case 3. Residential house

Building after the installation of ePIZ

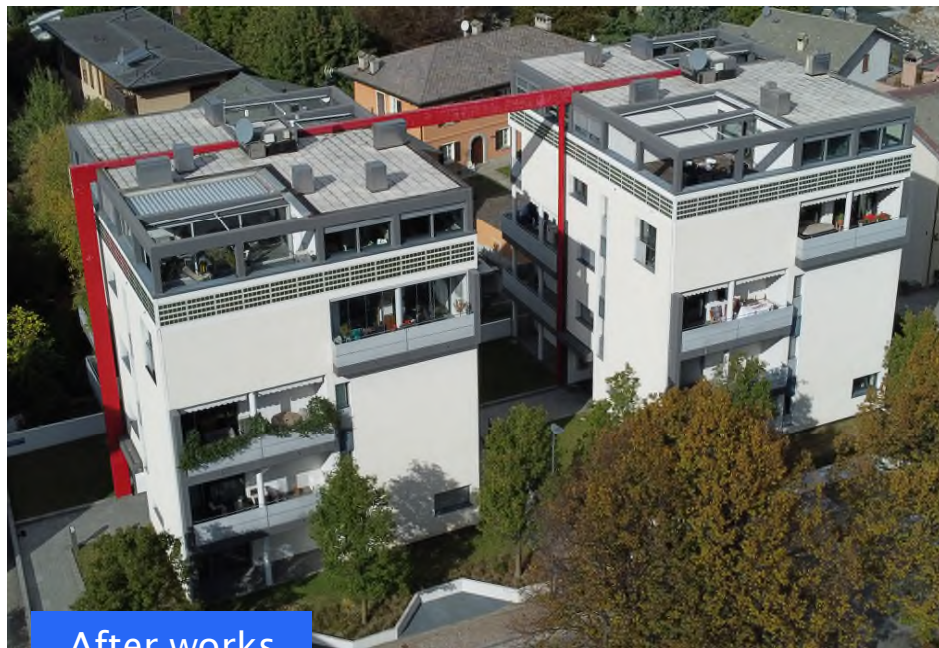


Case 3. Residential house

Building before and after the installation of ePIZ



Before works



After works



Thank you!



seamless-pv.eu



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info@seamless-pv.eu



BRANKA

