

Boosting Research for a Smart and Carbon Neutral Built Environment with Digital Twins – **SmartWins**



D²EPC platform demonstration

Stavros Koltsios, CERTH

CERTH SmartWins Training Sessions: Day3

23 April 2024

Thessaloniki



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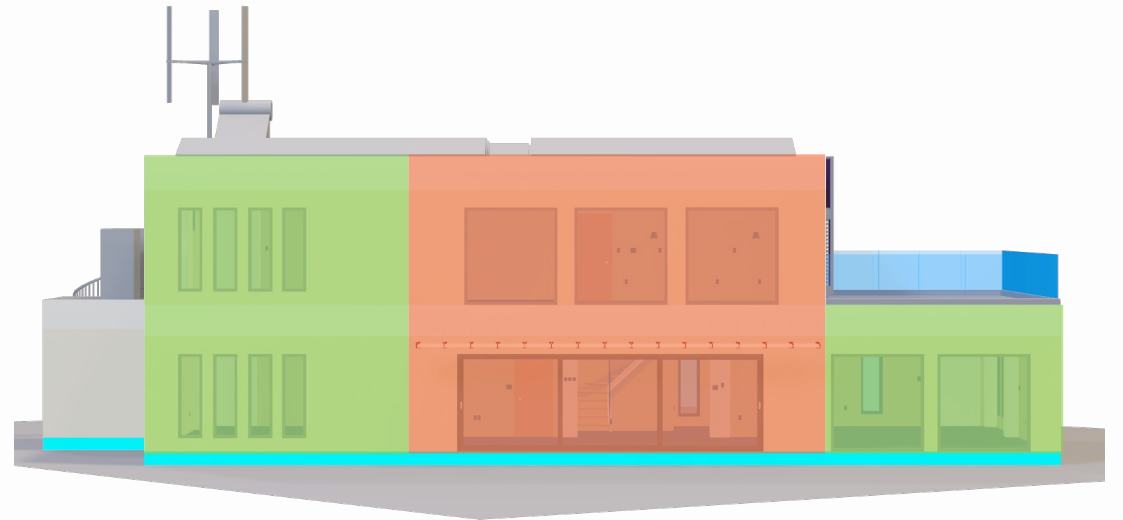


InZEB Smart Home DIH



nZEB SmartHome DIH

- **1st** Smart near-Zero Energy Building in Greece
- Total floor area: 320 m²
- Uses
 - Residential
 - Offices
 - Un-occupied space



Building Envelope

Insulation

16cm mineral rockwool to vertical walls

10cm XPS to the roof and ground floor



Building Envelope

Openings:

Triple glazed windows

Double glazed windows



Technical Systems



Technical Systems

2 Heat pumps

Ground floor

First floor

Solar Thermal Collector

For DHW

Building applied PV

9.56 kWp

Building integrated PV

0,85 kWp

Wind Turbine

1,75 kVA

Battery Storage System

4,6 kWh



Technical Systems

2 Heat pumps
Ground floor
First floor

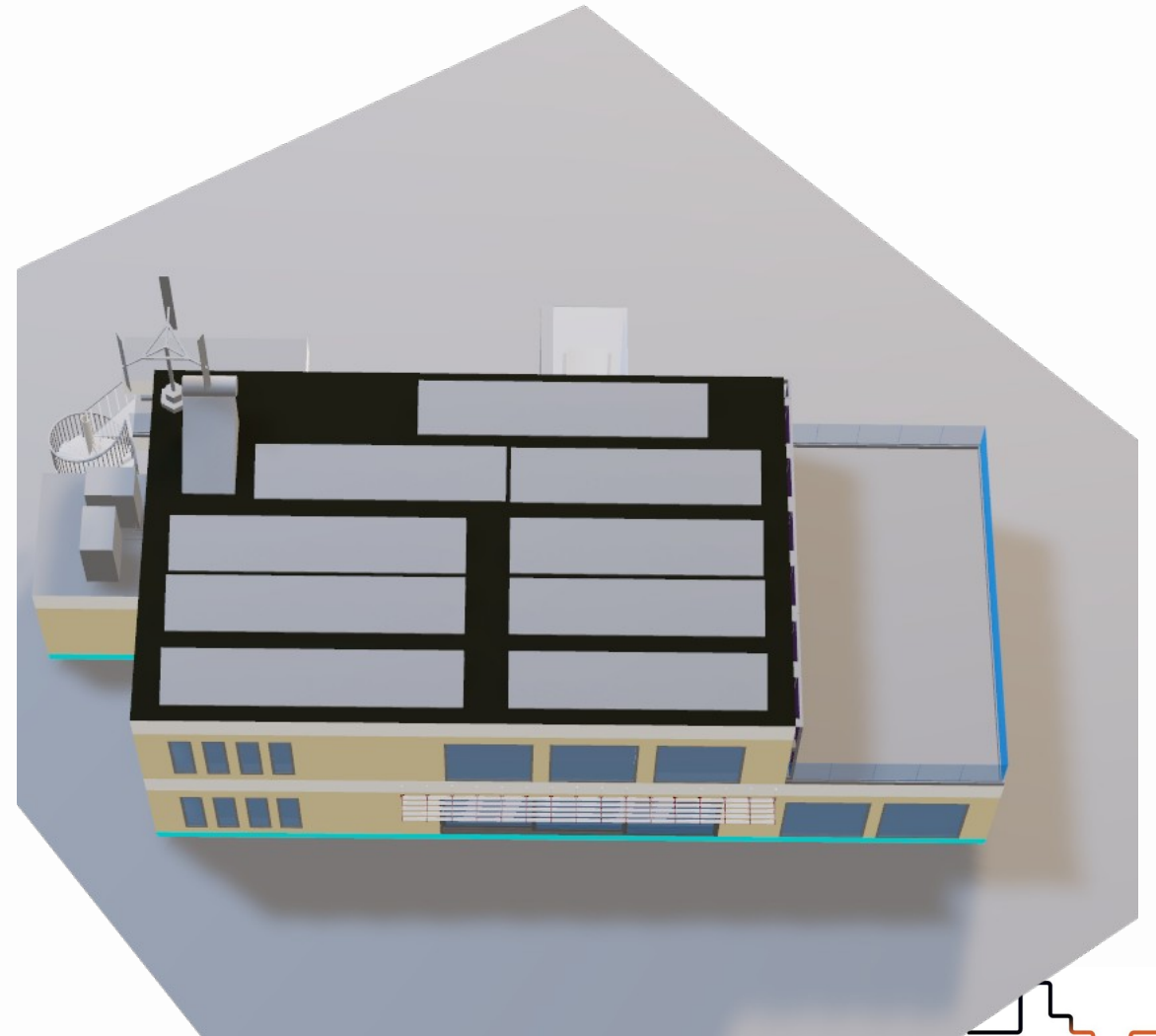
Solar Thermal Collector
For DHW

Building applied PV
9.56 kWp

Building integrated PV
0,85 kWp

Wind Turbine
1,75 kVA

Battery Storage System
4,6 kWh



Technical Systems

2 Heat pumps

Ground floor

First floor

Solar Thermal Collector

For DHW

Building applied PV

9.56 kWp

Building integrated PV

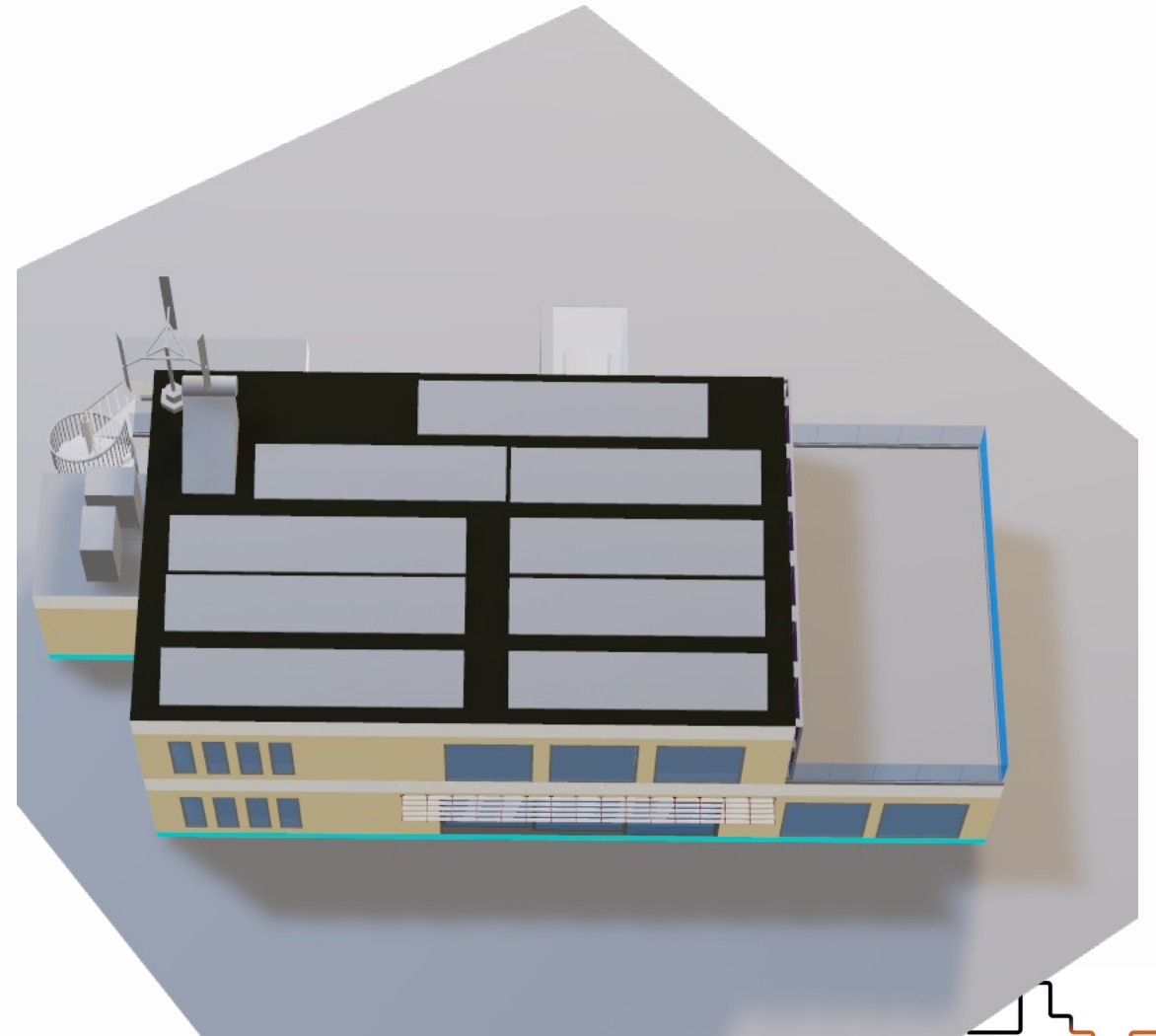
0,85 kWp

Wind Turbine

1,75 kVA

Battery Storage System

4,6 kWh



Technical Systems

2 Heat pumps

Ground floor

First floor

Solar Thermal Collector

For DHW

Building applied PV

9.56 kWp

Building integrated PV

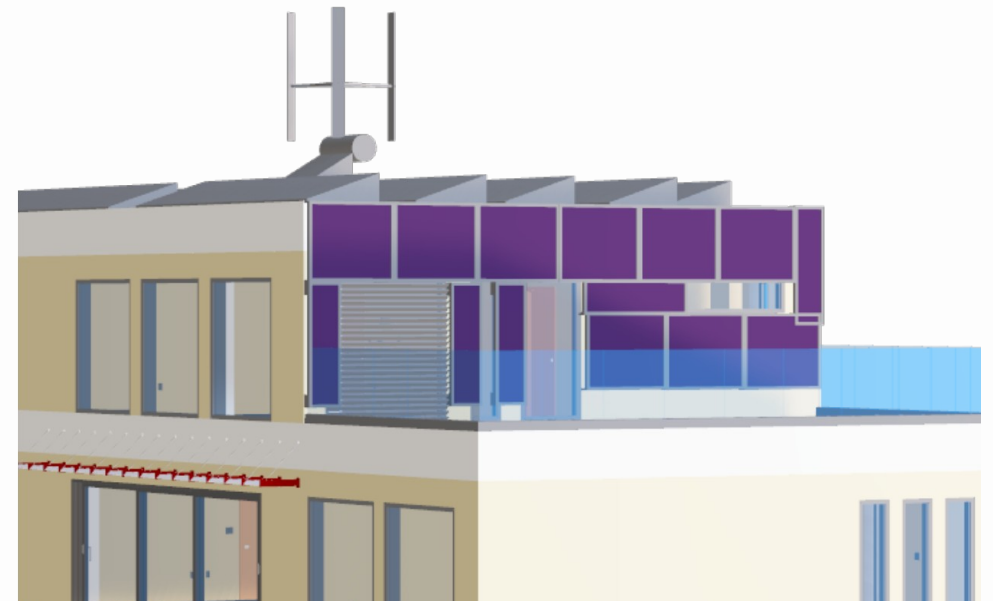
0,85 kWp

Wind Turbine

1,75 kVA

Battery Storage System

4,6 kWh



Technical Systems

2 Heat pumps

Ground floor

First floor

Solar Thermal Collector

For DHW

Building applied PV

9.56 kWp

Building integrated PV

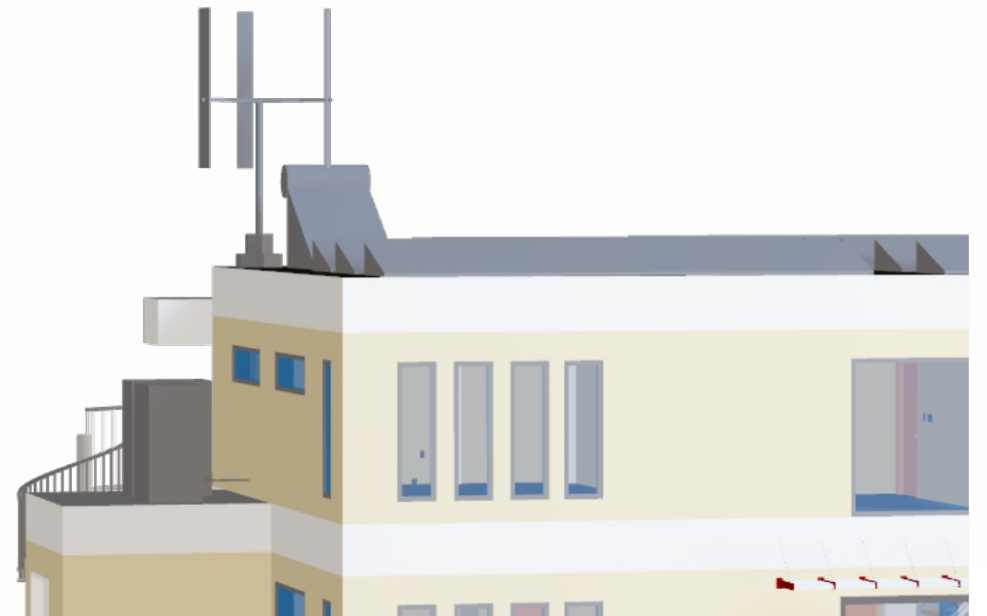
0,85 kWp

Wind Turbine

1,75 kVA

Battery Storage System

4,6 kWh



Technical Systems

2 Heat pumps

Ground floor

First floor

Solar Thermal Collector

For DHW

Building applied PV

9.56 kWp

Building integrated PV

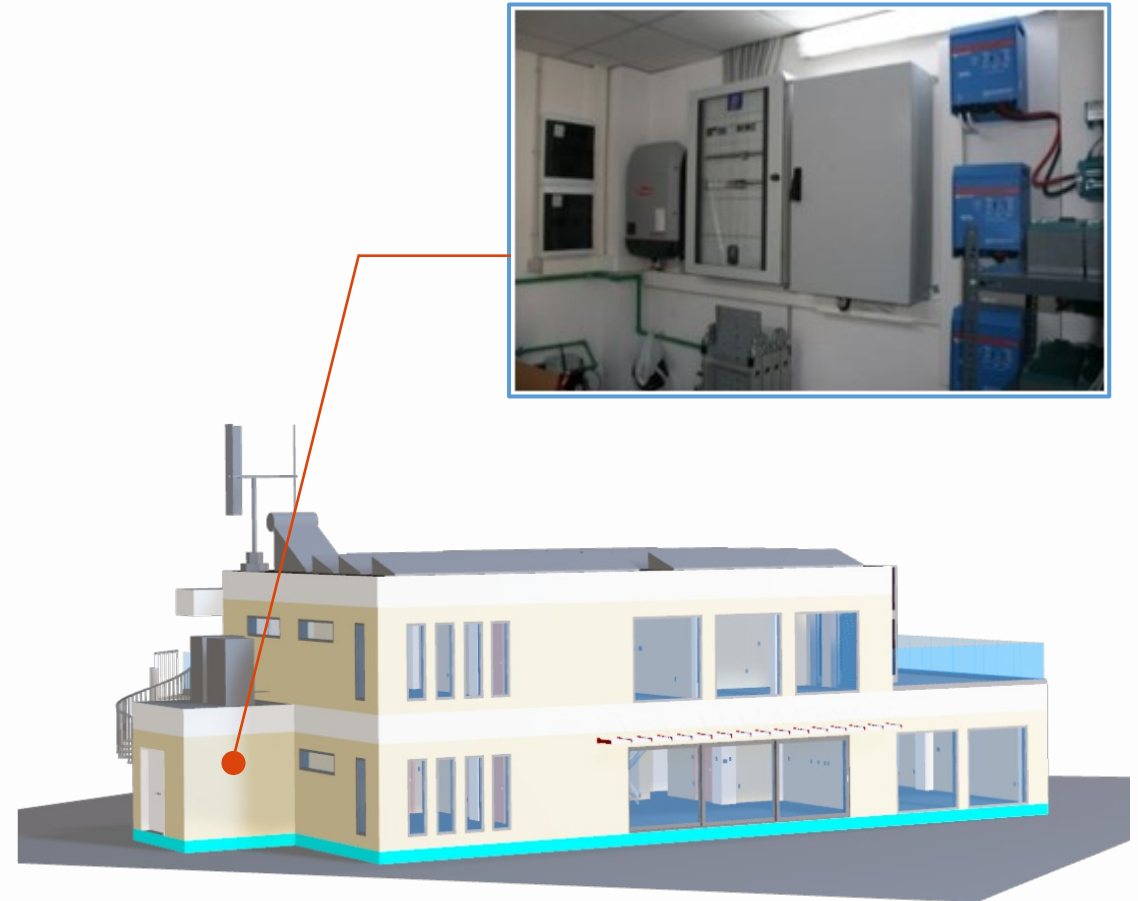
0,85 kWp

Wind Turbine

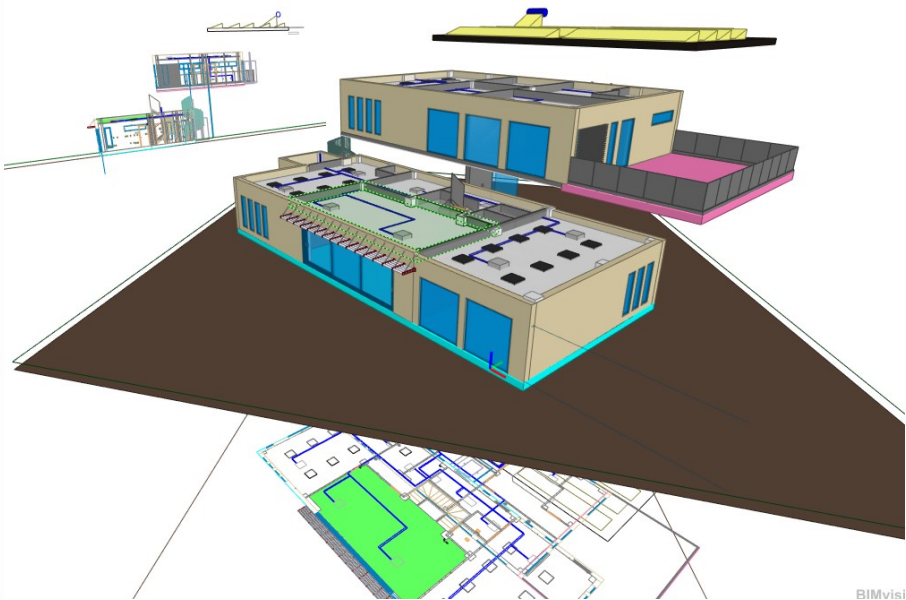
1,75 kVA

Battery Storage System

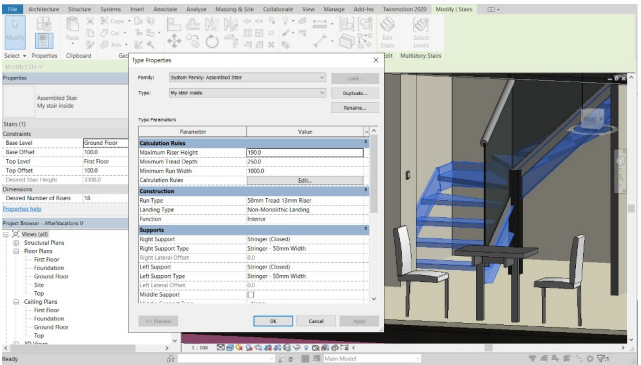
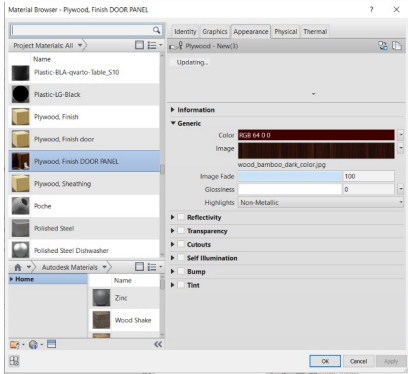
4,6 kWh



Building Information Model



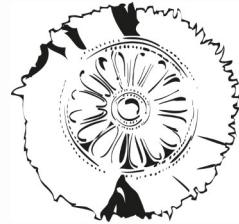
BIMvisi





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Project Partners



POLITECNICO
MILANO 1863

