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



## D^2EPC platform demonstration

Stavros Koltsios, CERTH

CERTH SmartWins Training Sessions: Day3 23 April 2024 Thessaloniki



This project has received funding from the European Union's Horizon research and innovation programme under grant agreement No 101078997



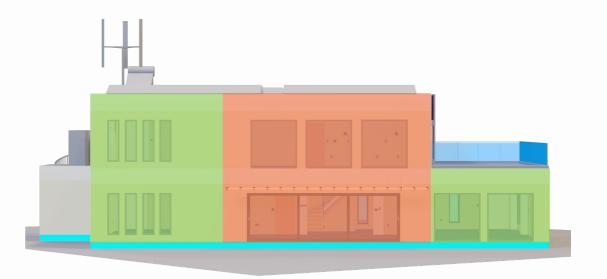
#### InZEB Smart Home DIH





#### nZEB SmartHome DIH

- 1*st* 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

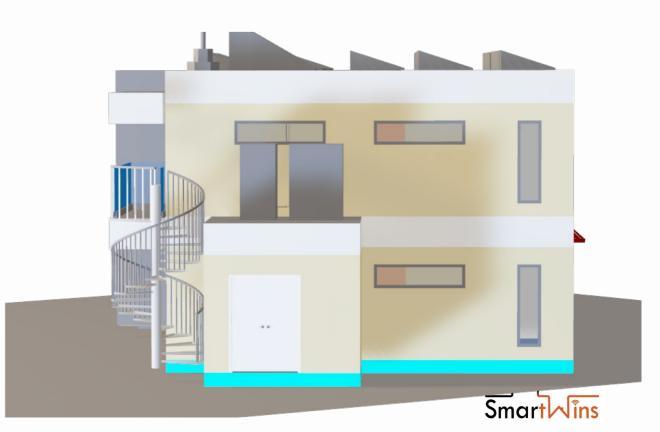
Openings: Triple glazed windows Double glazed windows



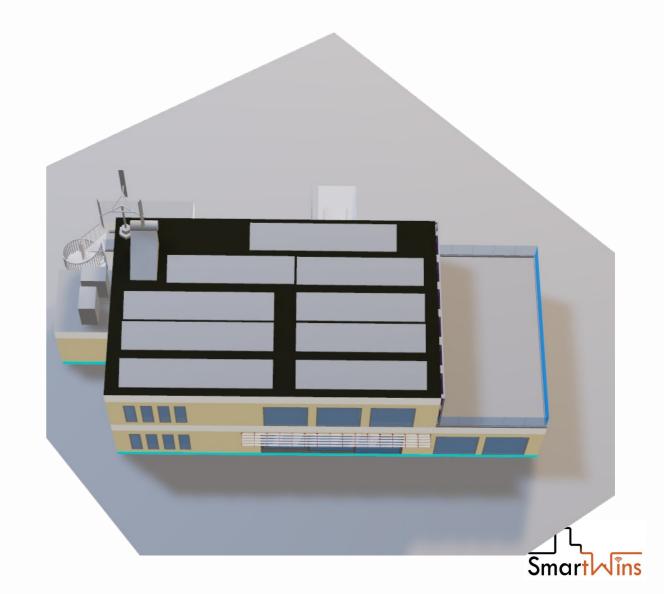




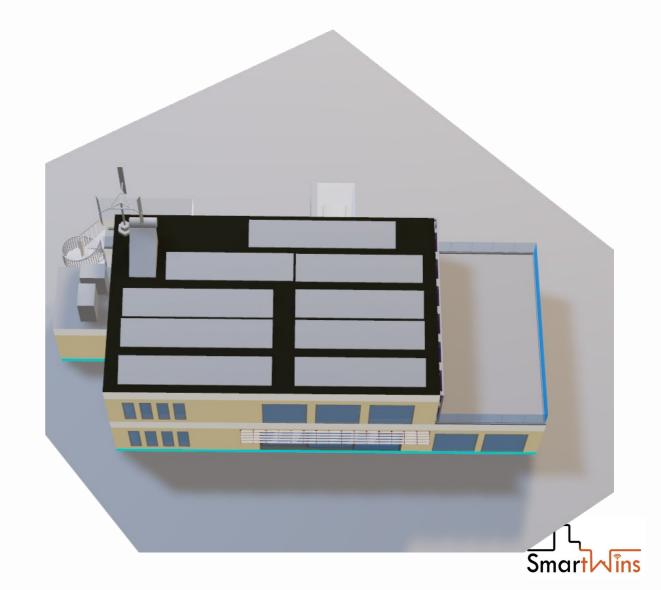
2 Heat pumps Ground floor First floor



Solar Thermal Collector For DHW



Building applied PV 9.56 kWp

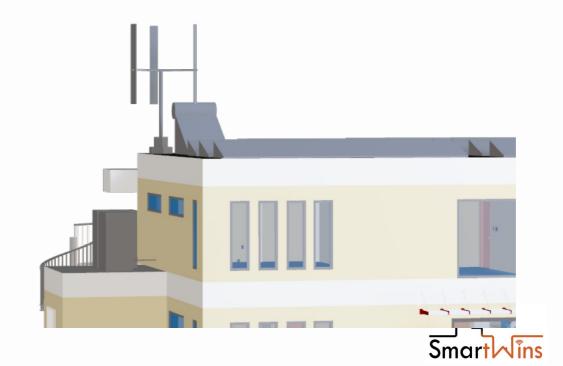


Building integrated PV 0,85 kWp

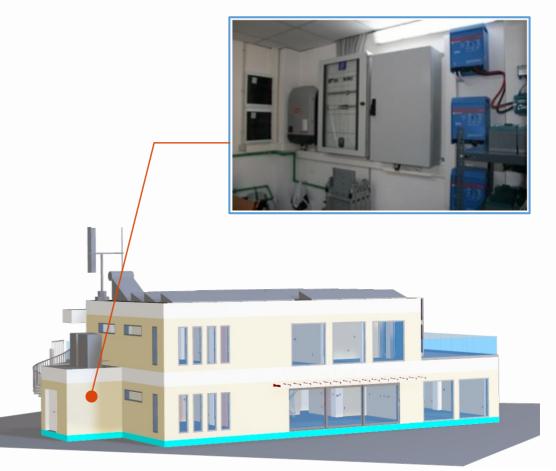




Wind Turbine 1,75 kVA

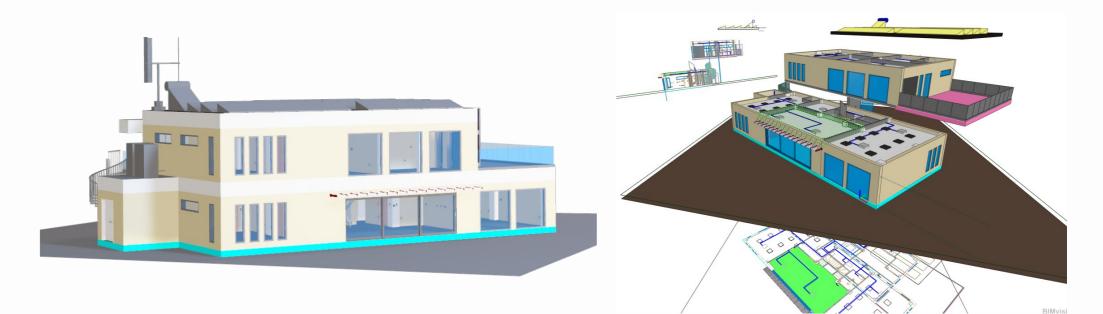


Battery Storage System 4,6 kWh





### Building Information Model





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**Project Partners** 









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