TIMEPAC Academy

Session 6

BIM models to generate, validate and exploit EPC data

Presenter: Ane Ferreiro – CYPE

29 February 2024

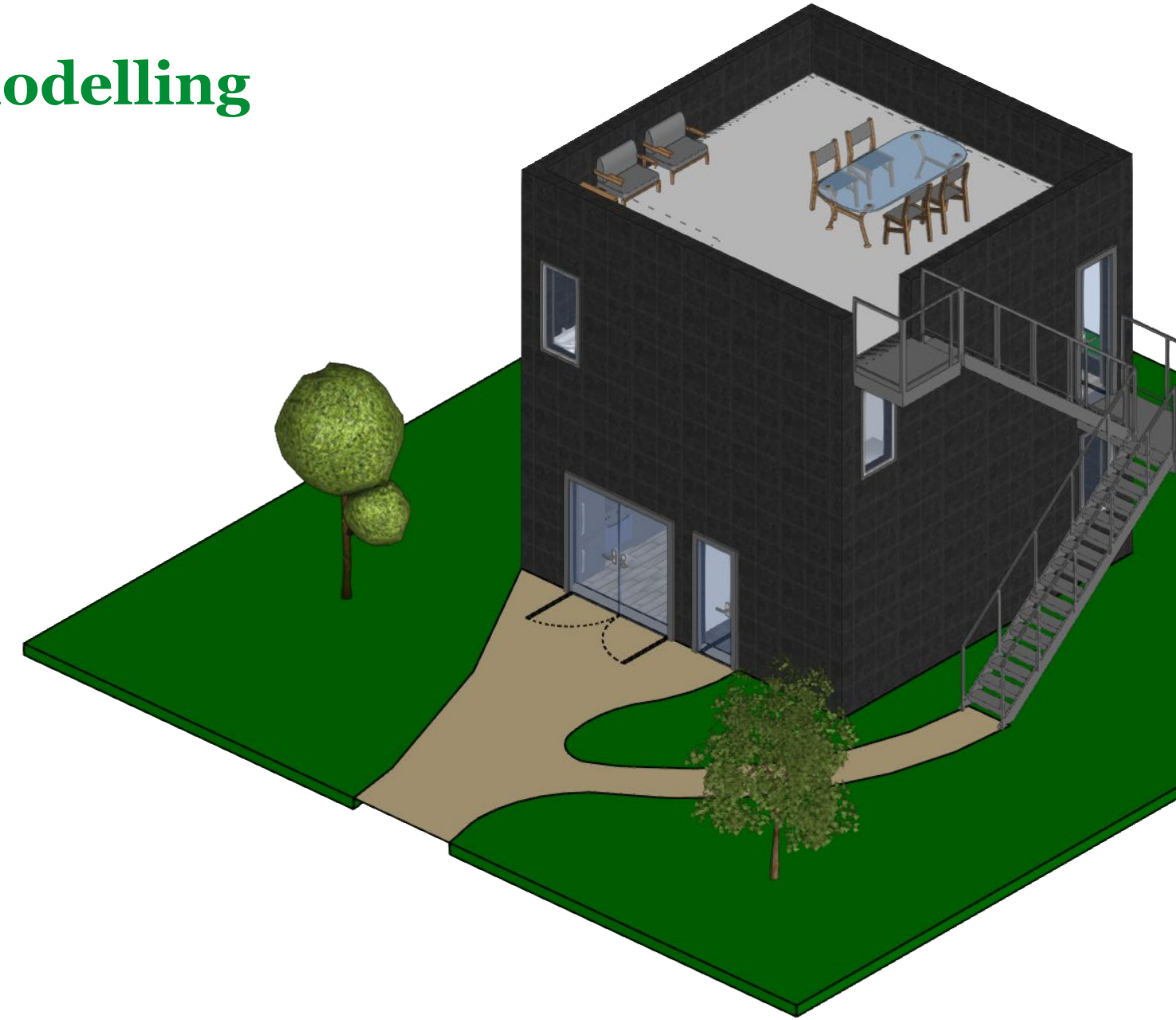
Jožef Stefan Institute | EIHP Energy Institute Hrvoje Požar | laSalle RAMON LLULL UNIVERSITY | Politecnico di Torino 1859 | cype

Building information modelling

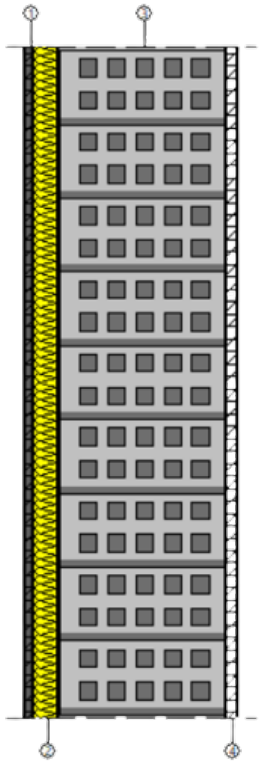
A **tool** and a **methodology** for the AEC sector.

BIM is a key component of the development of the **digital twin** of a building

BIM is a valuable asset during the entire **life-cycle** of the building.

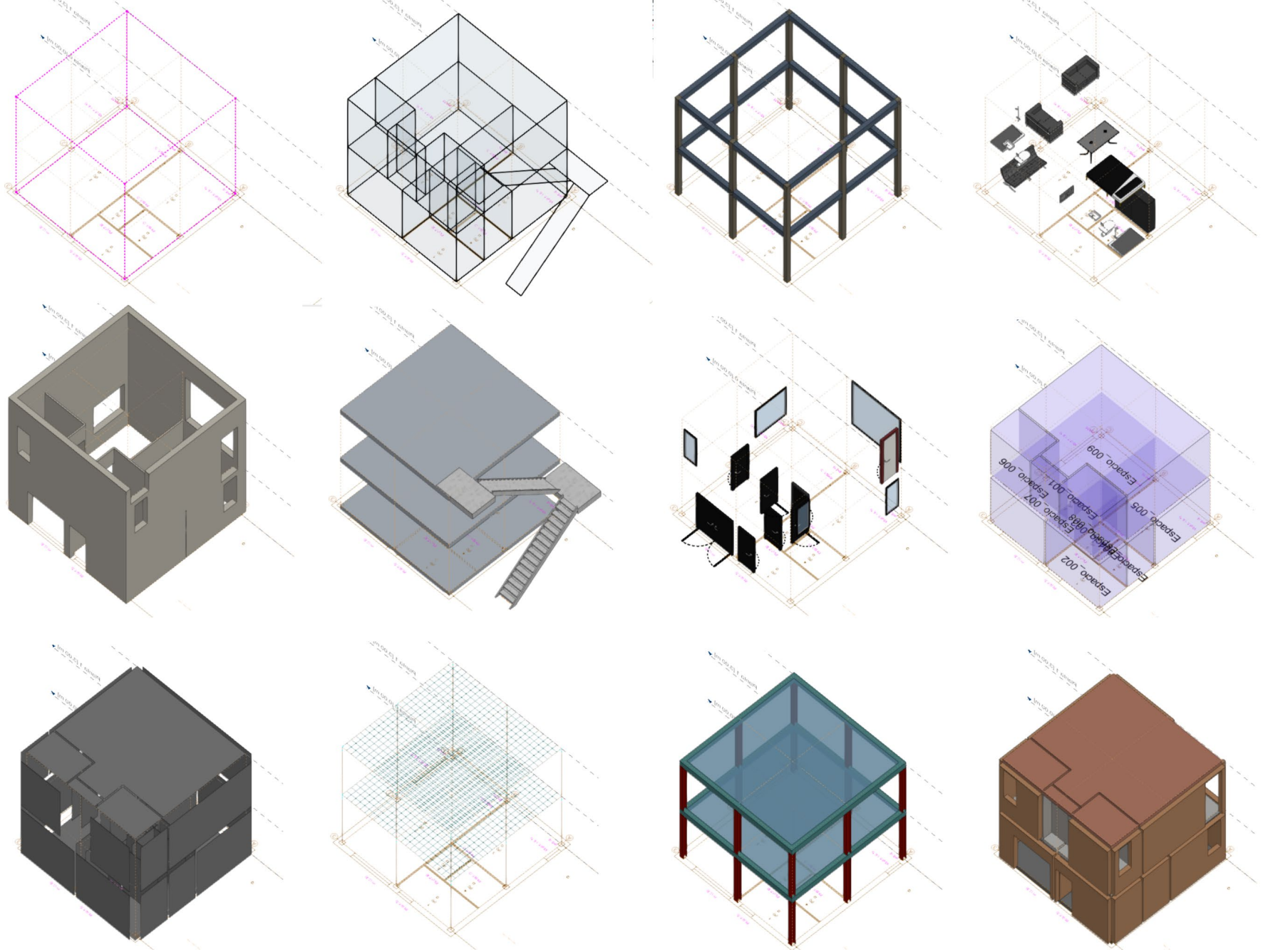


BIM models are composed of a **3D geometry with data about the physical characteristics.**



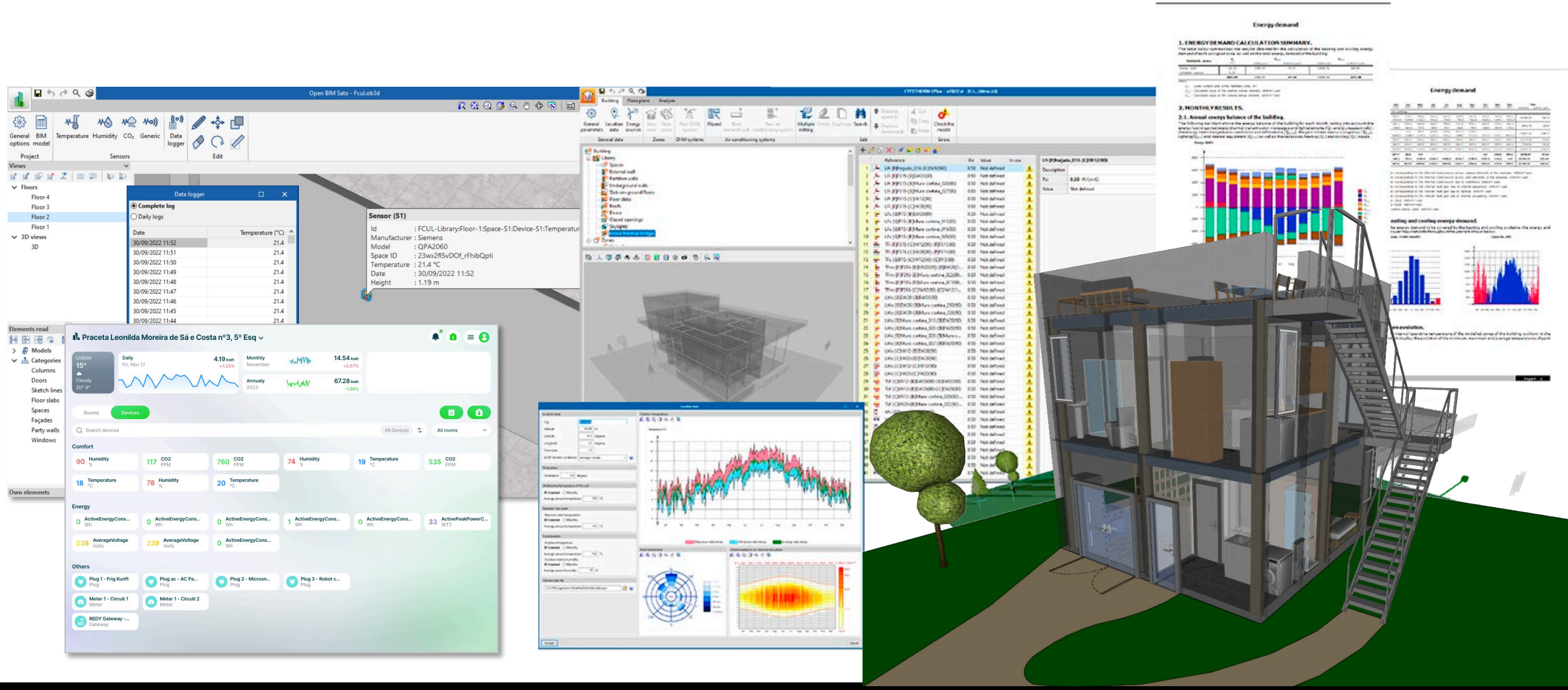
Wall		
Reference	Wall_014	
Level	L1	
Layer	Arch_Walls-2	
Description	Concrete brick wall	
Properties		
Height	3.00	m
Thickness	0.25	m
Category	External façade	

Layers		
1 -	Cement, sand	1.00 cm
2 -	I01 - 25 mm insulation board	3.00 cm
3 -	M03 - 200 mm LW concrete block	20.00 cm
4 -	Gypsum insulating plaster	1.00 cm
	Total thickness	25.00 cm



BIM for an enhanced EPC

- Energy simulation of buildings
- Sensor data assessment



Energy simulation of buildings

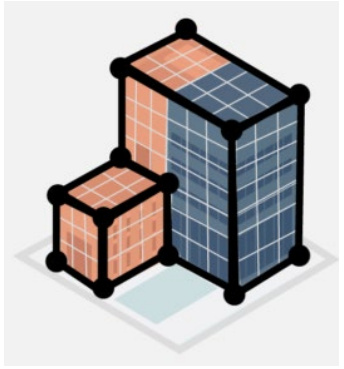
Concepts

ARCHITECTURAL MODEL

✓Walls, slabs, windows…
✓ Model composed by solids

VS

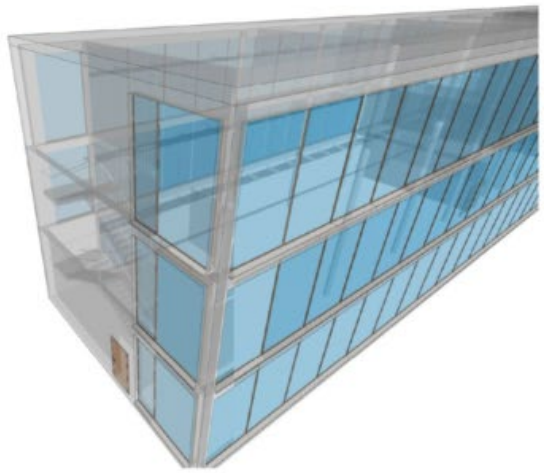
ANALYTICAL MODEL



✓Surfaces, edges, adjacencies…
✓ Model composed by simplified geometries

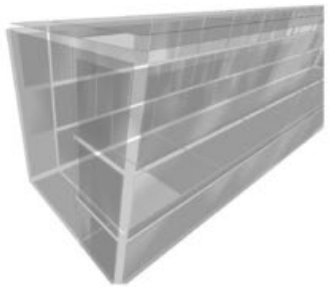
Energy simulation of buildings

Concepts

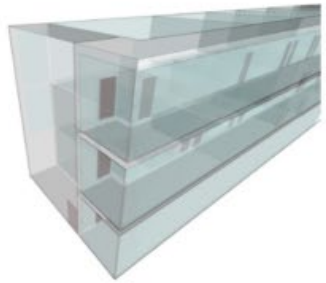


ARCHITECTURAL MODEL

ANALYTICAL MODEL
External Surfaces



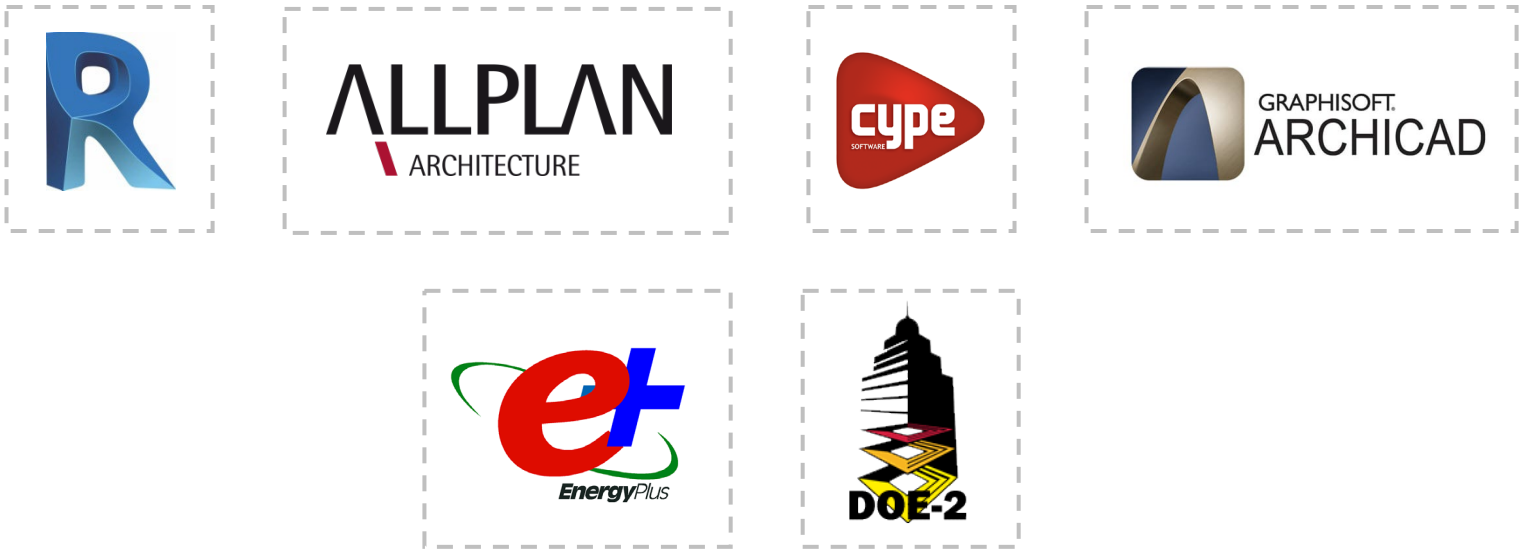
ANALYTICAL MODEL
Internal Surfaces



ANALYTICAL MODEL
Edges

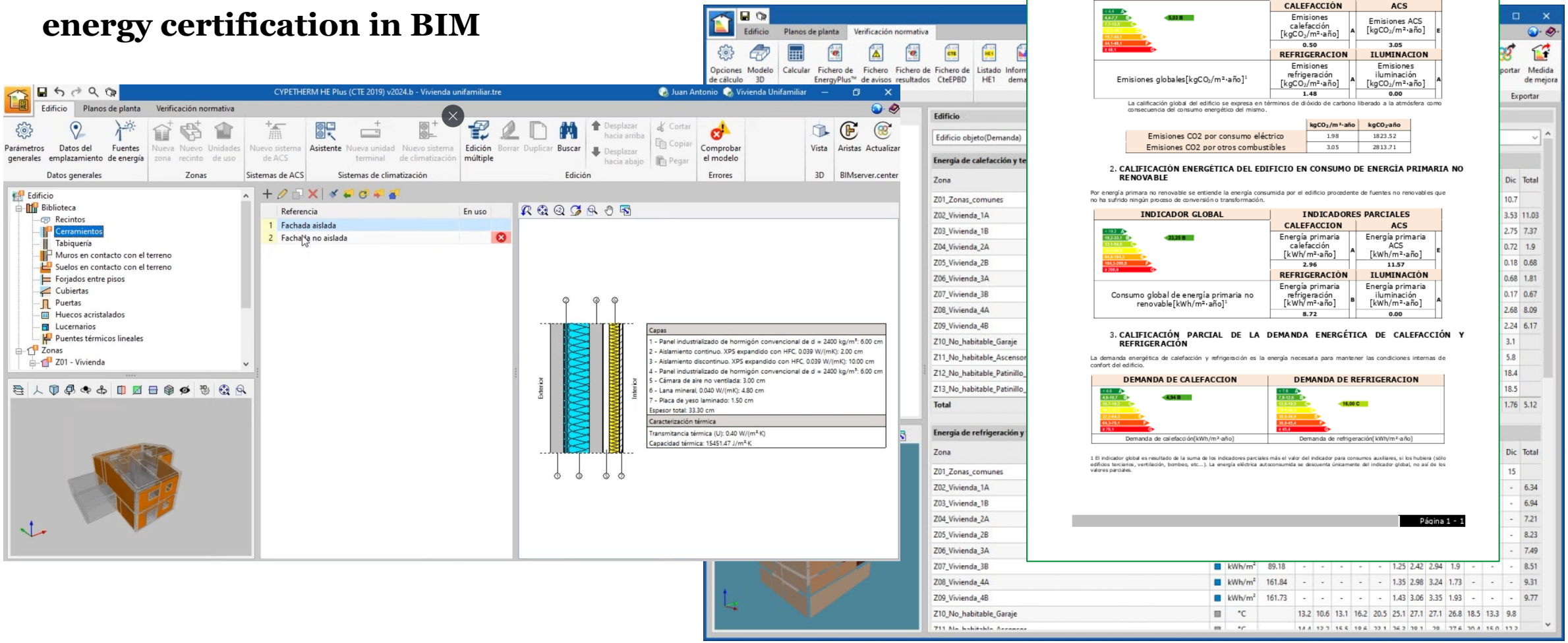
Energy simulation of buildings

Interoperability

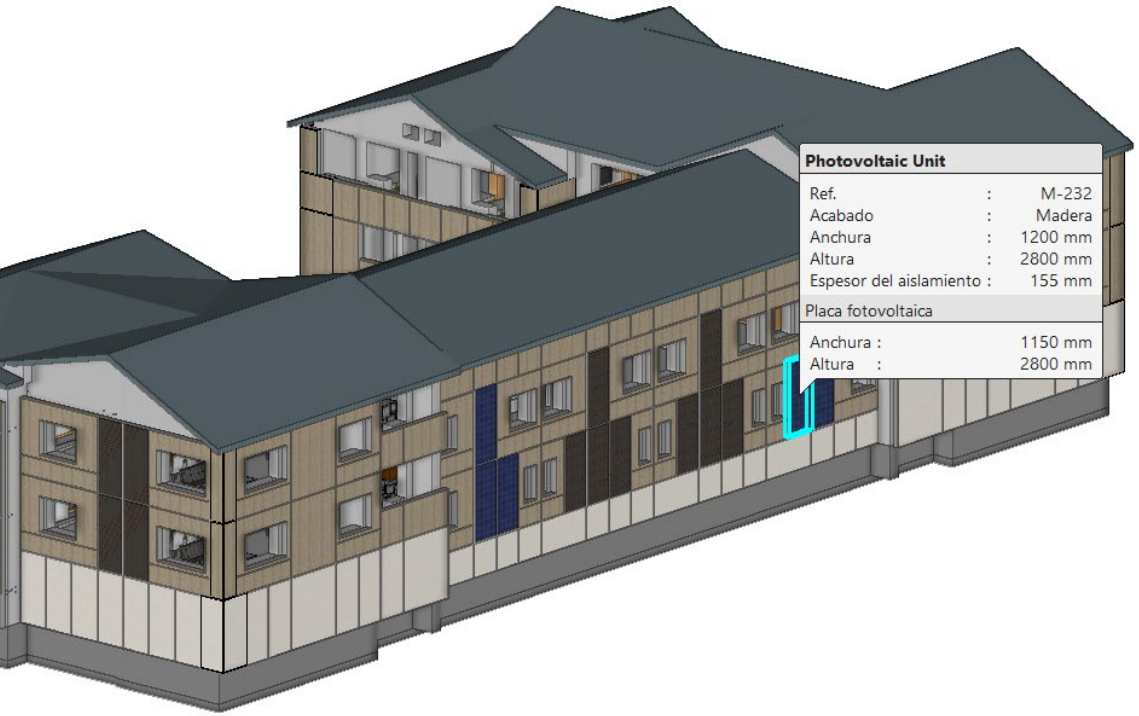


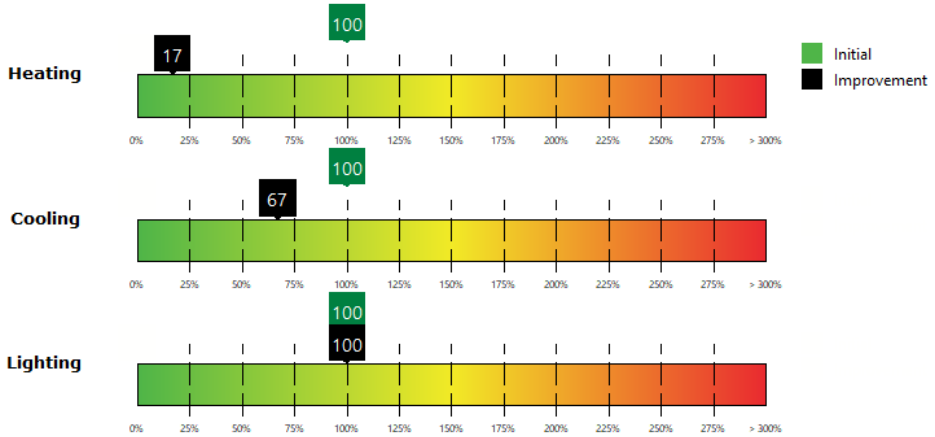
Energy certification of buildings

Software tools for energy certification in BIM



Speed up building renovations



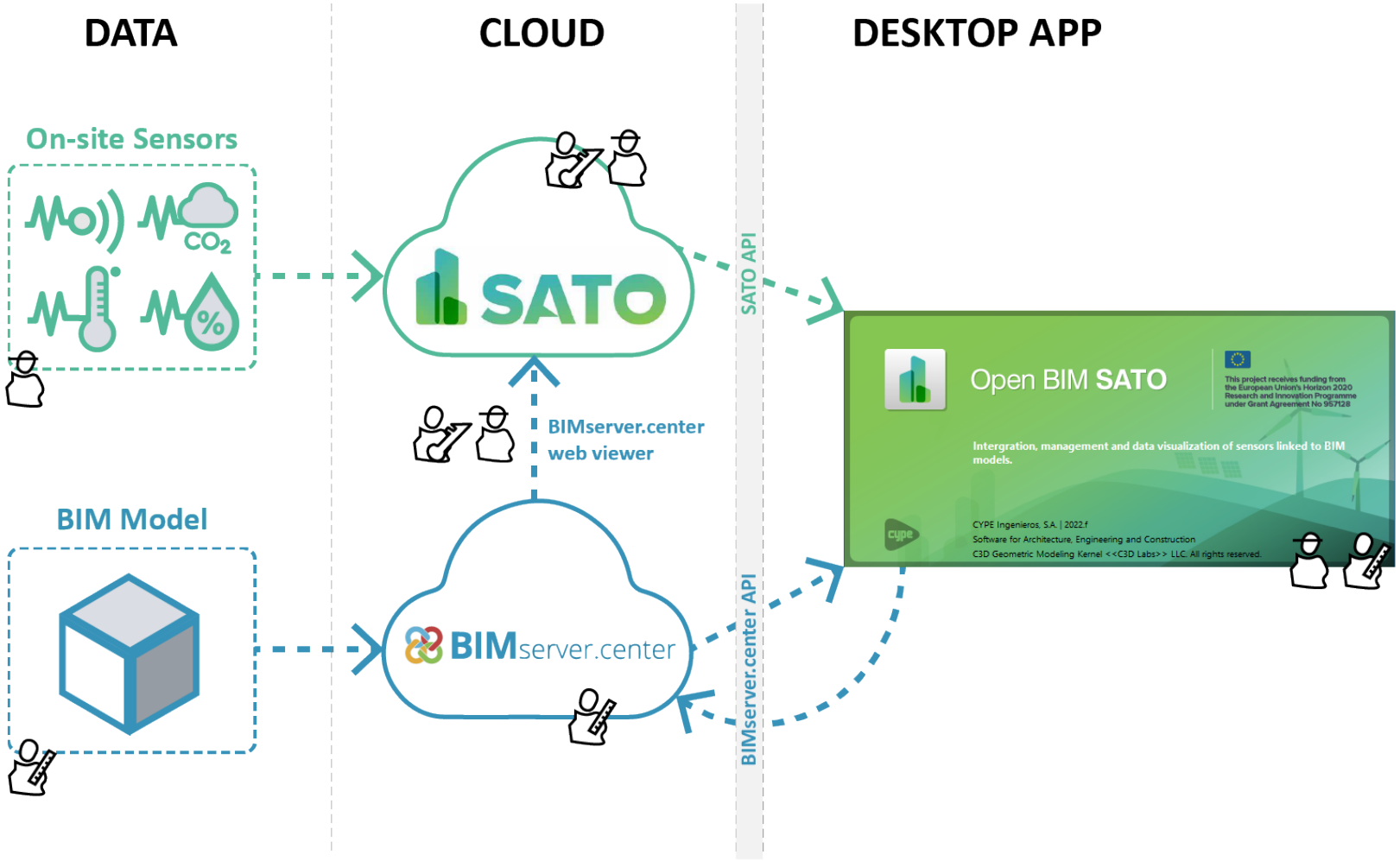


Surface(Initial): 441.10 m²
Surface(Improvement): 441.10 m²

Annual energy savings

Installations	Annual consumption of non-renewable primary energy					Annual energy cost		
	Initial		Improvement		Difference	Initial	Improvement	Difference
	kWh/m²·year	%	kWh/m²·year	%	kWh/m²·year	€/m²·year	€/m²·year	€/m²·year
Heating	18.45	20.47	3.11	5.01	15.34	1.51	0.27	1.23
Cooling	38.60	42.83	25.90	41.72	12.70	3.36	2.25	1.11
Lighting	33.07	36.70	33.07	53.27	0.00	2.88	2.88	0.00
Total	**90.12**	**100.00**	**62.08**	**100.00**	**28.04**	**7.74**	**5.40**	**2.34**

Sensor data assessment



Sensor data assessment

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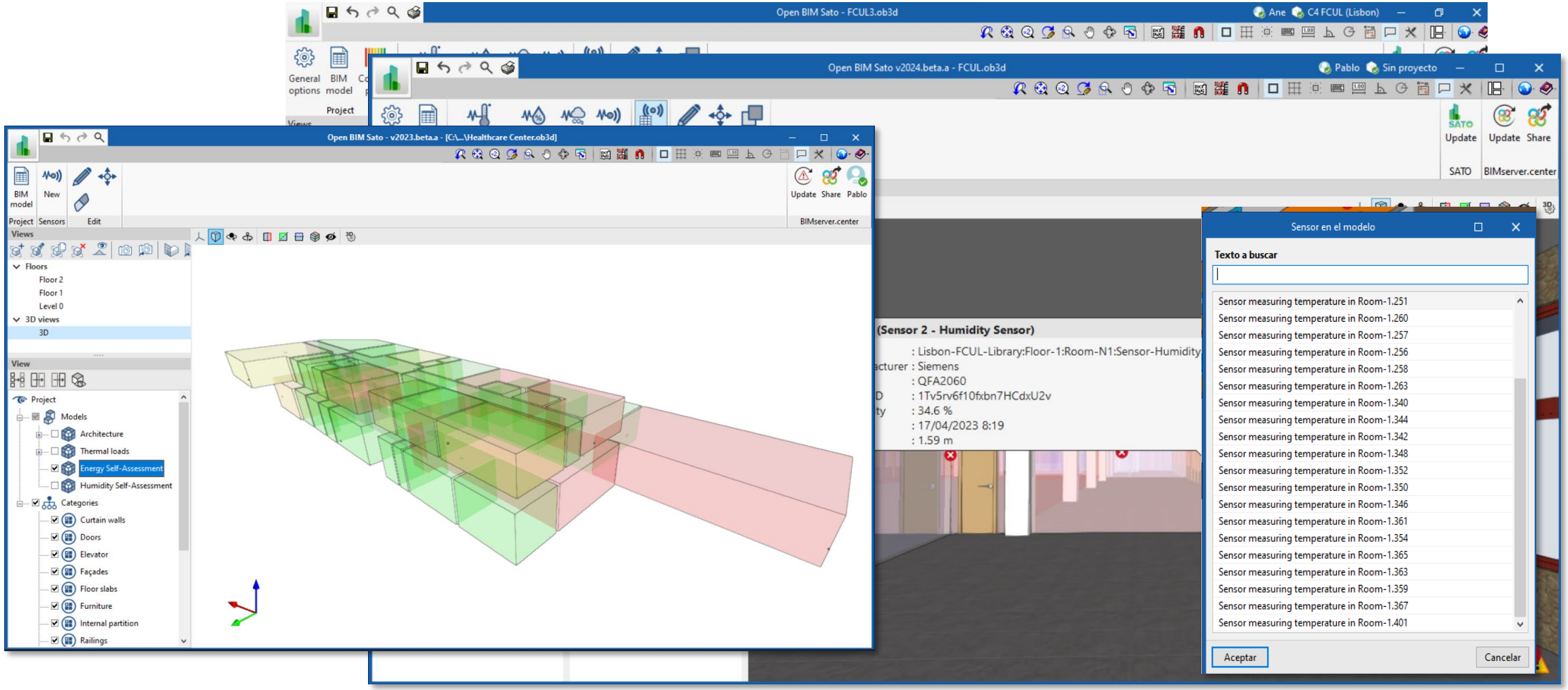

TIMEPAC The new EPC for Europe

If you would like more information, please visit www.timepac.eu or contact us at

ane.ferreiro@cype.com

Thanks for your attention!

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101033819