Development of innovative lightweight and highly insulating energy efficient components and associated enabling materials for cost-effective retrofitting and new construction of curtain wall facades

EENSULATE

Deep Renovation Joint Workshop
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ENERGY PERFORMANCE AND INDOOR COMFORT MONITORING METHODOLOGY

The aim is to monitor comfort and energy indicators (lighting, cooling energy demand, etc.) and optimise them in function of the potential variables as light intensity and IR radiation, heat flux, temperature and humidity, open/close status of the window. Experimental data required are:

- Environmental parameters;
- Glass reflectance and transmittance and their dependence on temperature;
- Indoor parameters (comfort, energy indicators).
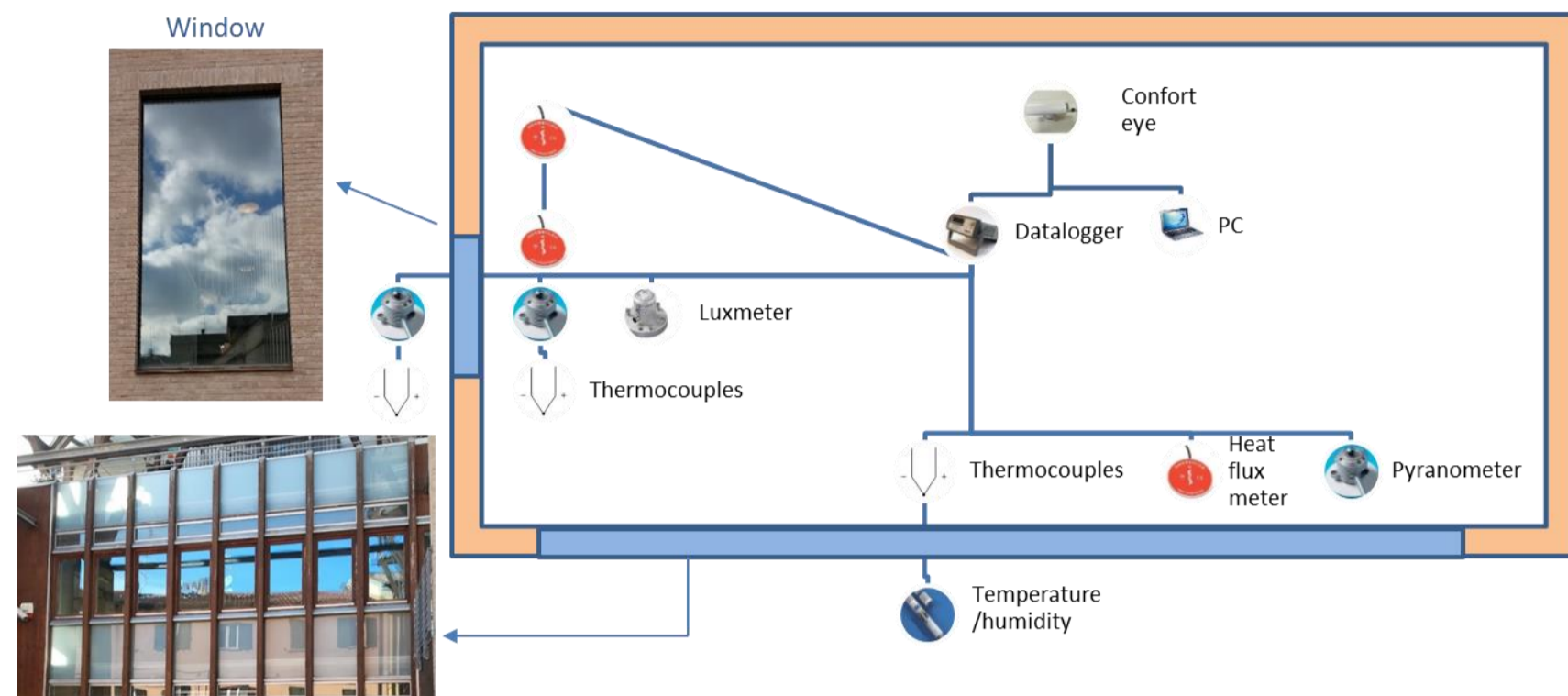
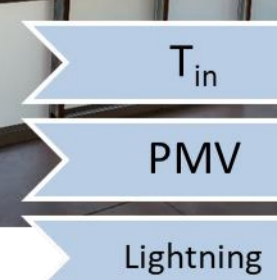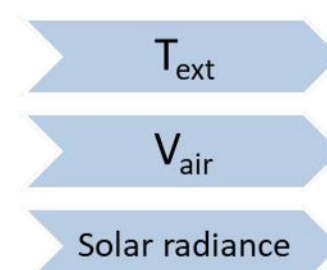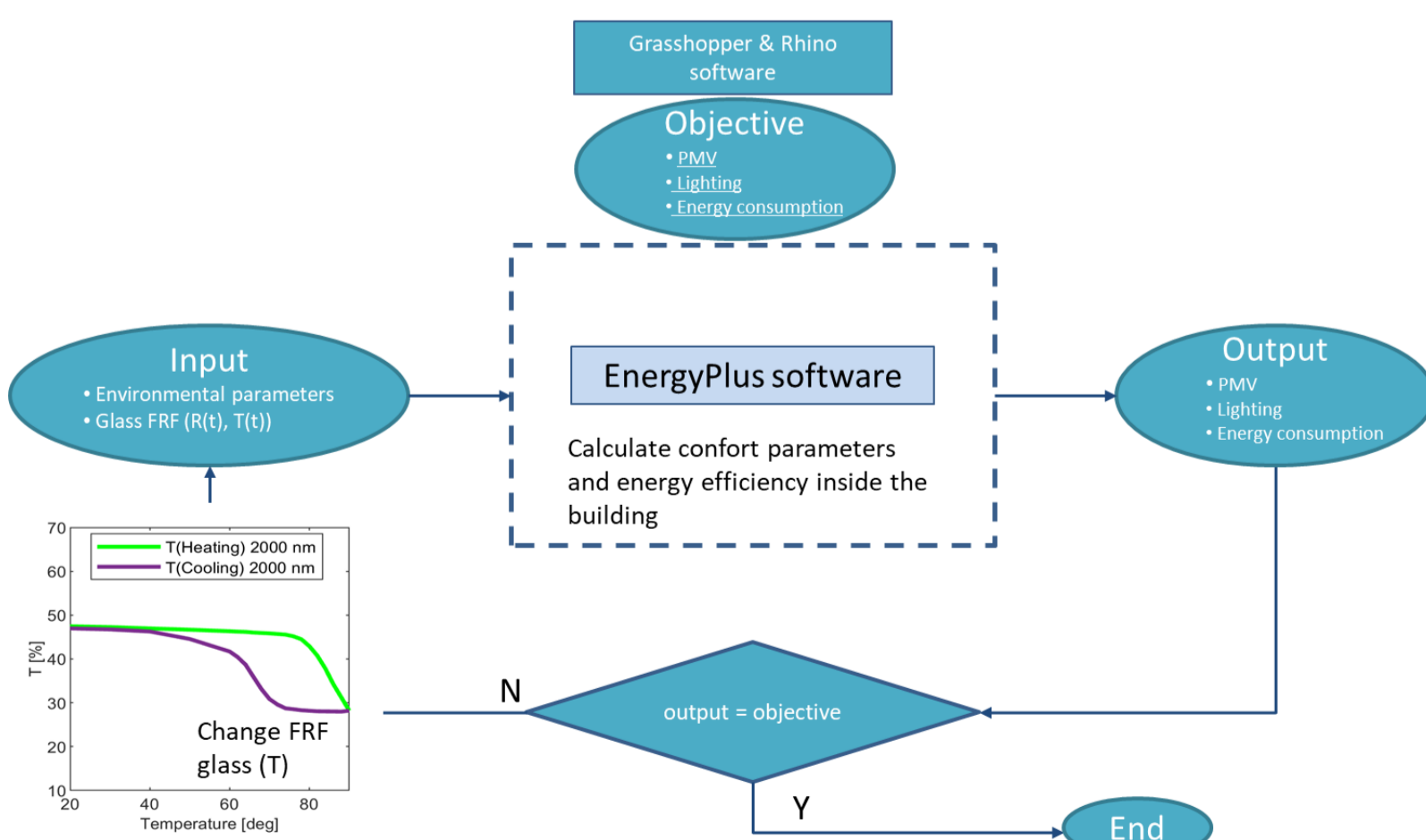## DEMO BUILDING - SAN GIOVANNI LIBRARY – PESARO (ITALY)

Hosted by the ancient monastery of the Frati Minori Osservanti, once annexed to the church of San Giovanni Battista (one of Pesaro's most beautiful architectural works) and planned by the Della Rovere family's architect Girolamo Genga, the library San Giovanni is an example where the historical (the façade facing the access street) and contemporary architecture elements coexists. Those elements are a large windowed eyelet for the lightening of the public spaces and a curtain walling façade in the building main entrance.

DYNAMIC OPTIMISATION OF THE BUILDING THERMO-ACOUSTICS PERFORMANCES AND THERMAL COMFORT

Comfort and energy parameters optimization in function of outdoor conditions by acting on the glass FRF.
The optimization will be performed on the basis of numerical data obtained from building energy simulation on a virtual mock-up by:
- Simulation of indoor comfort in typical different EU climates
- Numerical evaluation of the link between switching temperature and indoor temperature and sensitivity analysis

Acknowledgments