neZEH
NEARLY ZERO ENERGY HOTELS

Capital Matera

SUSTAINABLE AND COMPETITIVE HOTELS THROUGH ENERGY INNOVATION

Nearly Zero Energy Hotels 2015

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CAPITAL MATERA - ZERO ENERGY RESORT

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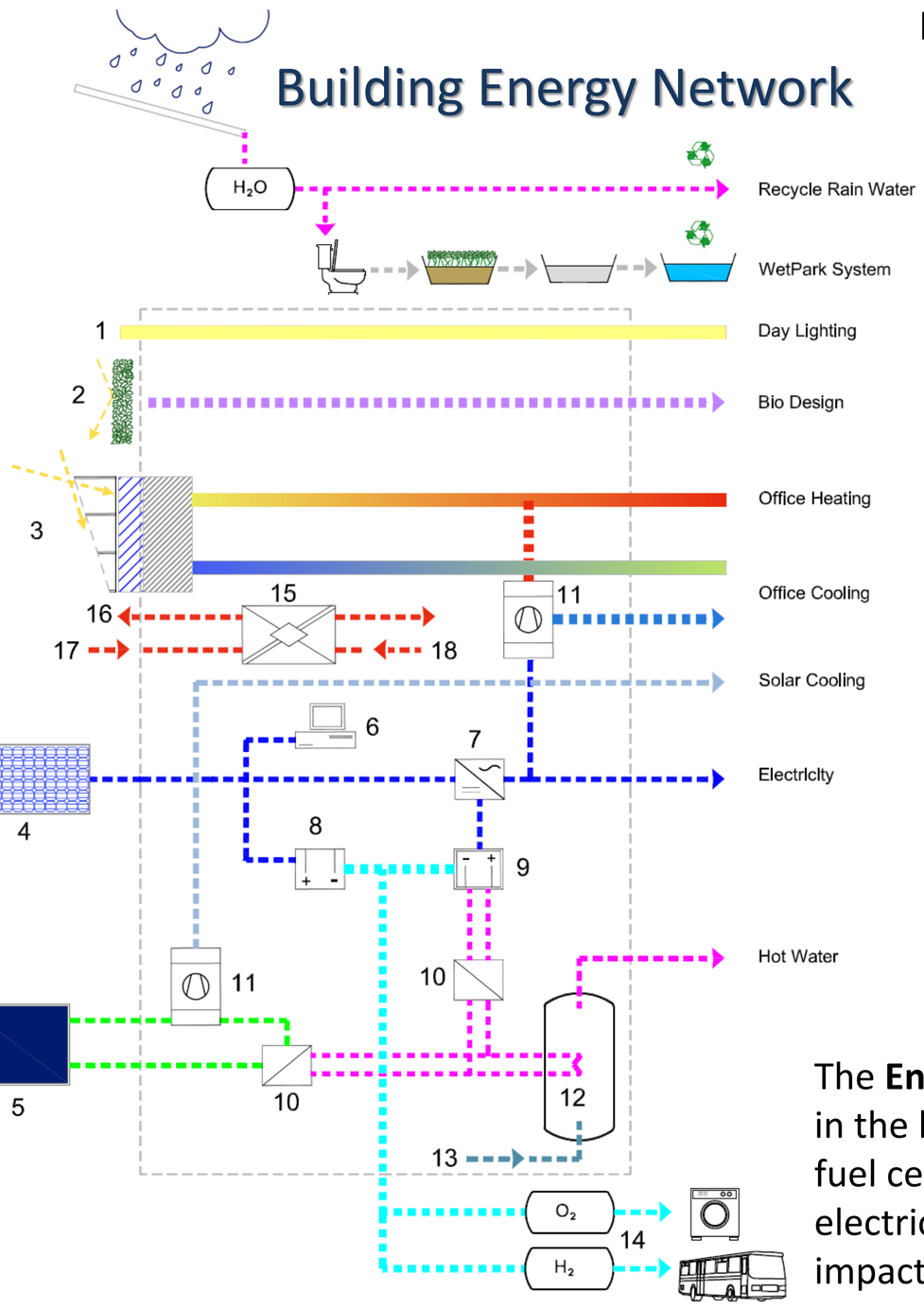
Zero Energy Resort concerns the creation of a *real interactive laboratory* where the placement of landscape and climate, *bioclimatic architecture*, the most modern and *innovative technologies* apply and blend to form a replicable model and implemented on the basis of features site and surrounding area in a sustainable development framework.

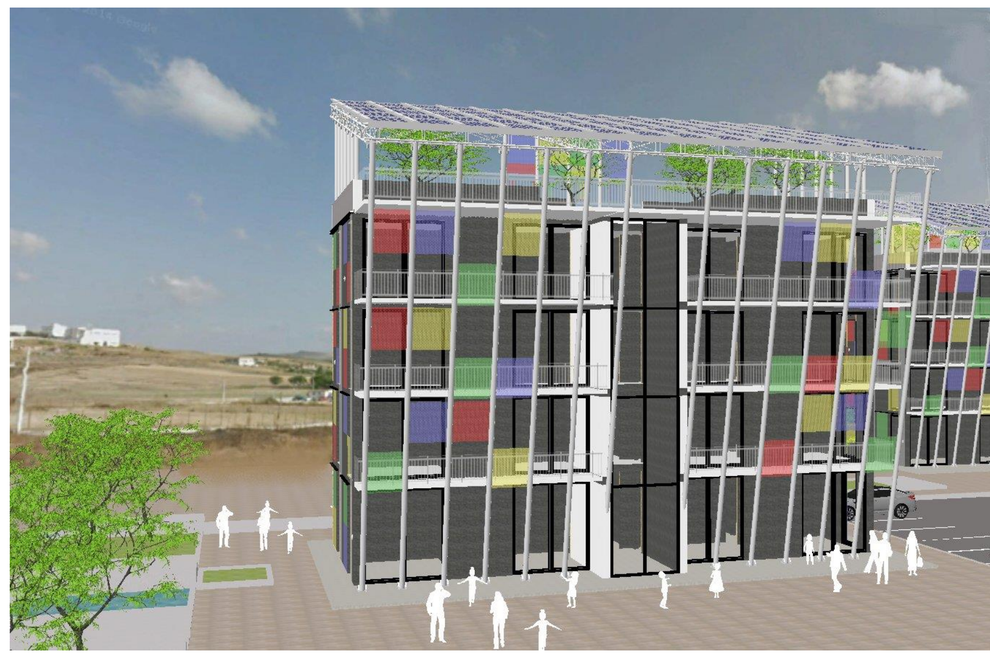
Plants: The building as a real living organism and technologically advanced; interaction of heat pumps to produce hot water and simultaneously the forced draft of cold air from the heat pump system ventilation and recovery of the building. Innovative features will focus on the use of oxygen by electrolysis for washing, as well as hydrogen (H2) for extensive use in civil, hotel and industrial and sustainable mobility.



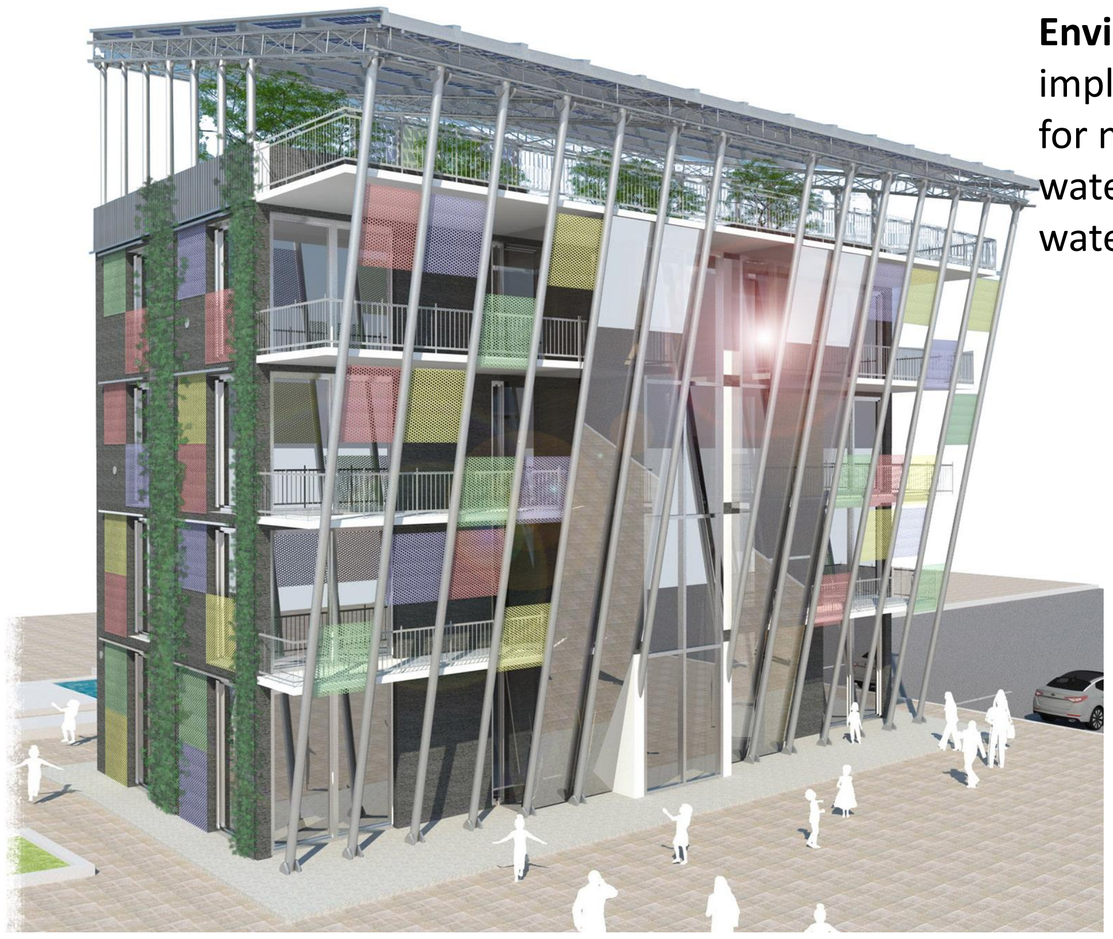
Light
Air
Electricity
Hydrogen / Oxigen
Water
Heat transfer fluid
Solar Cooling
Bio Design

1 - Day lighting
2 - Bio Design / Green Roof & Facade
3 - Facade Design & mass
4 - PV Modules
5 - Solar Collectors
6 - Measurement and Process Management
7 - Inverter
8 - Electrolyser
9 - Fuel Cells
10 - Heat Exchanger
11 - Heat Pump
12 - Hot Water Tank
13 - Cold Water
14 - Gas Storage Tanks
15 - Ventilation Heat Recovery
16 - Air Outlet
17 - Outdoor Air
18 - Exhaust Air

The **Energy Storage** will be exploited in the less sunny periods through the fuel cells for the production of electrical energy with nearly zero impact.

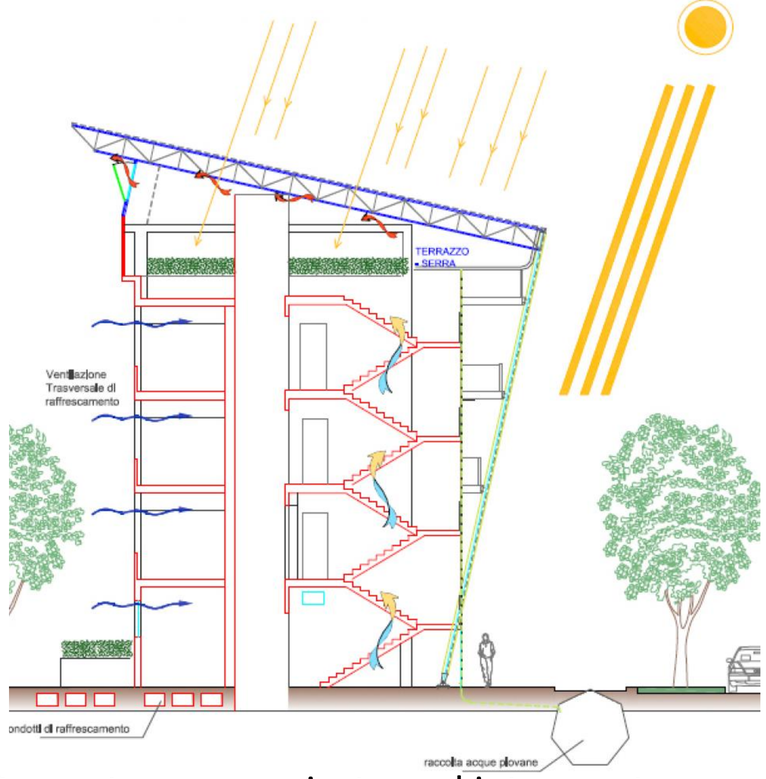


Building Envelope : *mass* to expand the phase difference of the *thermal wave summer*; grids, projections and parts of the façade sloping green or contribute to the *bioclimatic function* along with a careful analysis of *external microclimate* such as *prevailing winds and solar gains*; *recycled aluminum, panels of hemp and cellular glass for the isolation* in addition to wood and natural aggregates complement the concept of environmentally sustainable functionality.
Materials and workers on site selected to allow a local implementation in limited geographical area.



Environmental Sustainability implemented with wastewater collection for non-potable uses, phyto evaporated water purification system for sustainable water management.

Energy production will be concentrated on the cover but the solar photovoltaic technology will be used such as "glass-to-glass“ to allow the spread of natural light on the roof of the building with the possibility of setting up vegetable gardens in terrace.



Building Automation: a simple *software* to communicate and interrogate any of the architectural element and put it at the service of comfort hygrothermal indoor, the highest efficiency and environmental sustainability