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**“Intelligent” Primary School
Project in Italy**

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“Intelligent” Primary School Project in Italy

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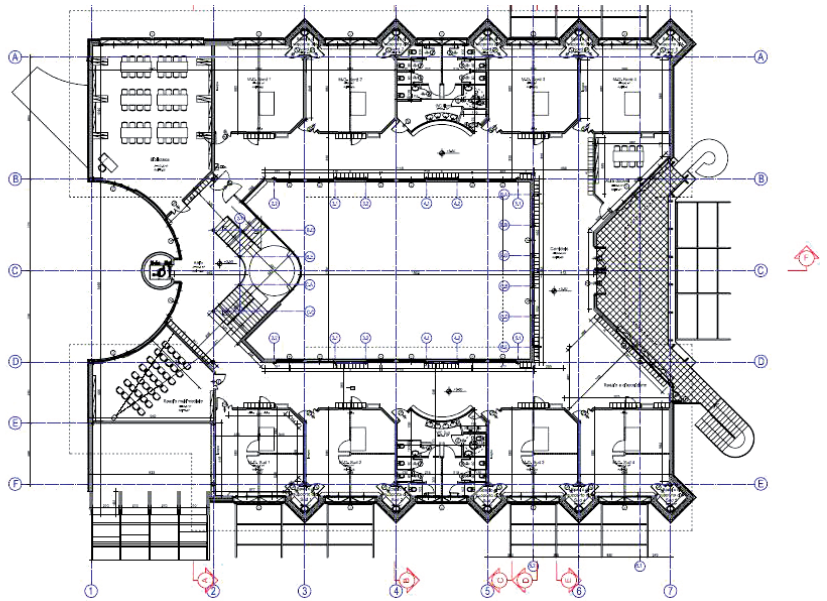
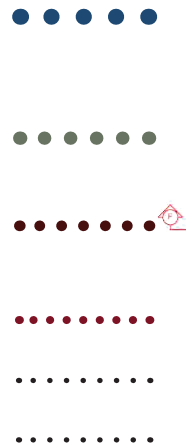
Construction work is about to begin on a new “intelligent” primary school for 300 students (later to be expanded for 600) in the Municipality of Solaro in the province of Milan. This is the first primary school building in Italy designed according to the principles of the “intelligent school” as defined by the Centre for Educational Innovation and Experimentation of Milan (CISEM). The building received the 2006 EUROSOLAR Prize.



- Area of the first segment (12 learning modules for 300 students): 2 624 m² gross floor area
- Area per student: 8.7 m²
- Projected overall cost: EUR 1 916 473
- Cost per m² of gross floor area: EUR 730
- Beginning of work: 2007
- Completion of work: 2008
- Design by Giorgio Ponti and co-ordination by Ettore Zambelli, BEST (*Università Politecnico di Milano, Italy*)
- Overall project manager: Marina Di Rienzo

The characteristics of “intelligent” educational architecture can be summarised as follows:

1. Flexibility.
2. Multi-purpose capability.
3. Community use.
4. Inspirational and symbolic setting.
5. Design that promotes innovative learning, is age-appropriate and caters to students with special needs.
6. Sustainability (environmental impact, energy saving, bio-architecture, comfort).
7. New technology and computer-integrated building (CIB).
8. Cost effectiveness.
9. Safe and secure environment.
10. Active disaster management.



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In this project, particular attention is given to flexibility and energy saving. Flexibility is ensured through the use of multi-purpose learning modules that can be adapted for use as classrooms, laboratories and/or specialised areas simply by opening or closing ordinary doors. In this system, even the connecting elements potentially become learning areas that can be easily combined with other areas at different times of the day. In line with the theory that the environment can serve as a pedagogical tool, energy saving has been integrated into the architecture visibly and into the education process.

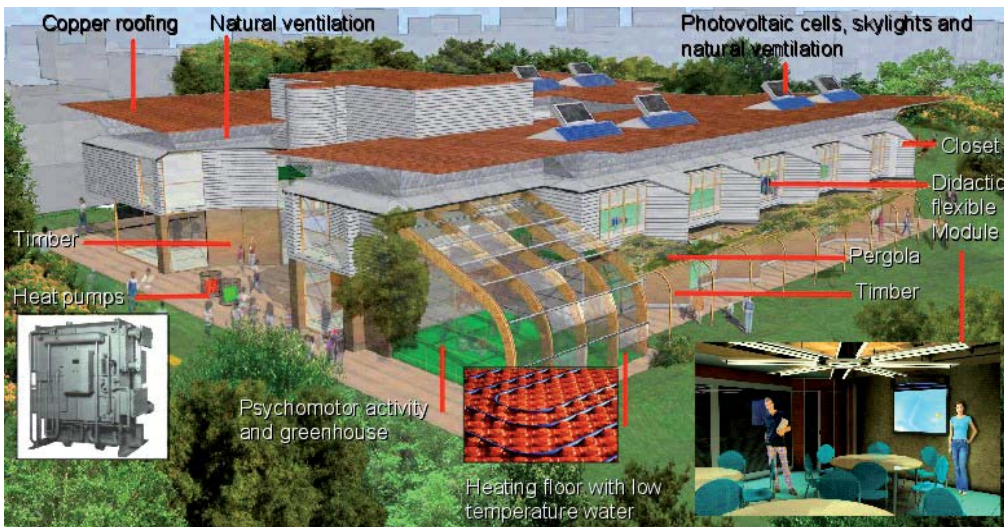
Because of this emphasis on energy saving, the European Association for Renewable Energy awarded the project the 2006 EUROSOLAR First Prize in Category E, solar architecture and urban development (www.eurosolaritalia.org). The criterion for this category is "consistent and systematic experimentation in seeking an architectural language capable of integrating bioclimatic and solar technologies in a low environmental impact strategy".

The most important aspects of the project from an energy standpoint are the following:

- High thermal insulation achieved mainly through dry-mounted multilayer panels.
- Ventilated copper roofing (for electromagnetic insulation).
- Solar chimneys.
- Facility designed with CIB.
- Ground water heat pumps.
- No emissions into the air (the building has no boiler).
- Underfloor heating/cooling with low-temperature water.
- Photovoltaic panels (on the solar chimneys) providing electric power to the heat pumps.

The picture below shows some of these important features.

This project is the result of a joint venture between the Municipality of Solaro, CISEM and the Polytechnic University of Milan, whose Department of Building Environment Science and Technology (BEST) was responsible for the design.



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