POLITECNICO DI TORINO
FIRST SCHOOL OF ARCHITECTURE
Master of Science in Architecture (Construction)
Honors theses

Design experimentation for sustainable construction: Competition for the new School of Albino

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A first *research work* affronted the double theme of sustainability and competition, as a form of architecture and engineering commission services:

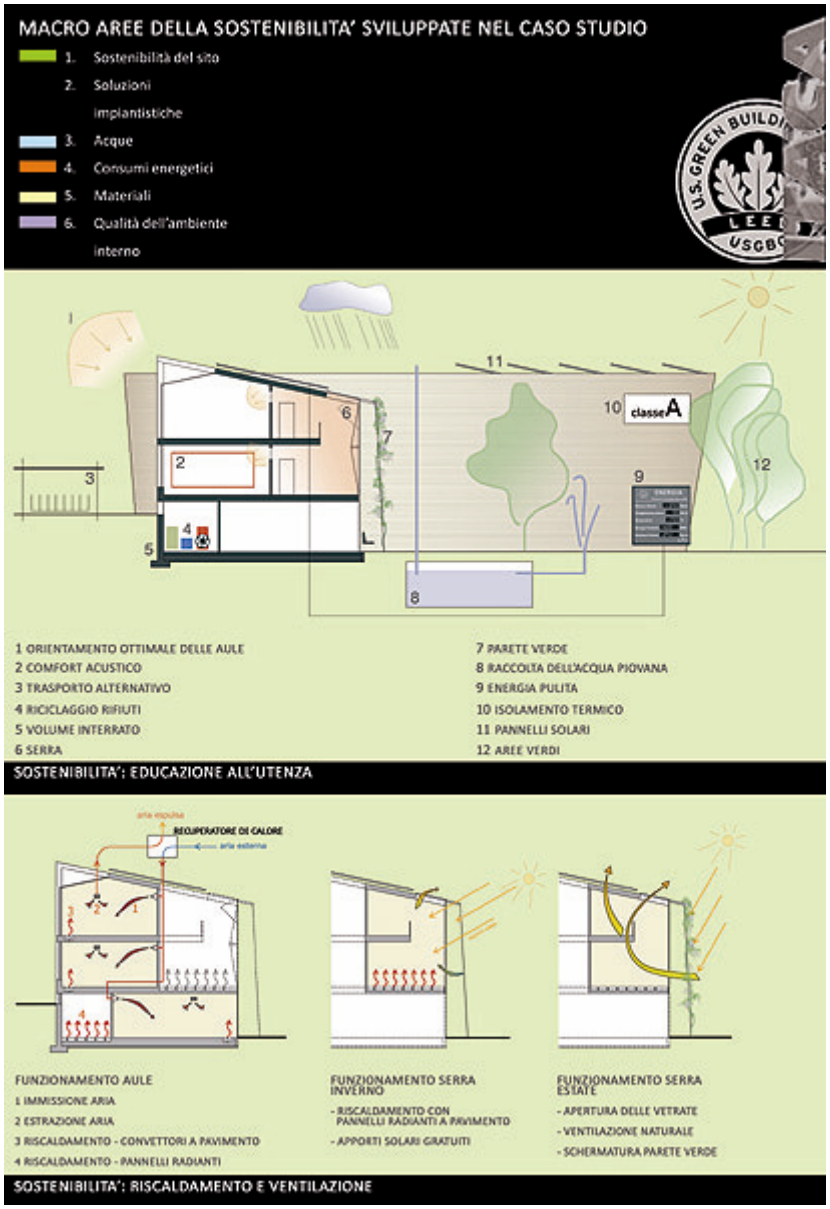
- *Energetic – environmental sustainability* : analysis of Italian situation concerned to constructions and normative developments, to standards of law and also to guides of good practices in sustainable constructions.
- *Proceedings of competition:* estimation of basis rules, valuation of people involved in judging committee and professionals admitted to competition.
- *Sustainability compared to competition*: study and critical reading of 11 Design Competition developed in Italy concerning new constructions.

This work gave me the knowledge of the requests type asked by public institutions in the last 5 years and the supposable diffusion level of sustainable concepts in common learning. I also understood evaluation methods of sustainability and people ability for judgment in this sector.

A direct experience was achieved with the participation to the *Competition for the new School of Albino* (BG), together with qualify professionals.
In study case flew together the *best-practices of sustainability*. It also became a significant opportunity to test team work and understand how face up to concrete, functional, legislative, technology and economic problems, coherently with real times of Competition. It represented a practical situation for investigate the concept of sustainable construction by the comparison with structure and contents of Rating Systems.

The research about *Green Building Rating Systems*, the reading and analysis of the contents, represented an important study time and an acquisition of interesting notions for the design phase. Especially I analyzed the Italian system *ITACA (ITACA, Roma, 2004)* and the US system *LEED 2009 for SCHOOLS (USGBC, 2008)*.

Naturally, in competition times, it wasn't possible achieve a design that could be certify with one of these Rating Systems. That question requires an advanced design level (compared with an executive level).
The requests in ITACA and LEED however became *an instrument to realize a sustainable building*, with characters that overstep standards of law, looking towards a largest meaning of sustainability.
The reply to Competition requests and our design purposes of sustainability (schematized in 6 key-area) were expressed by a technical report and some drafts.

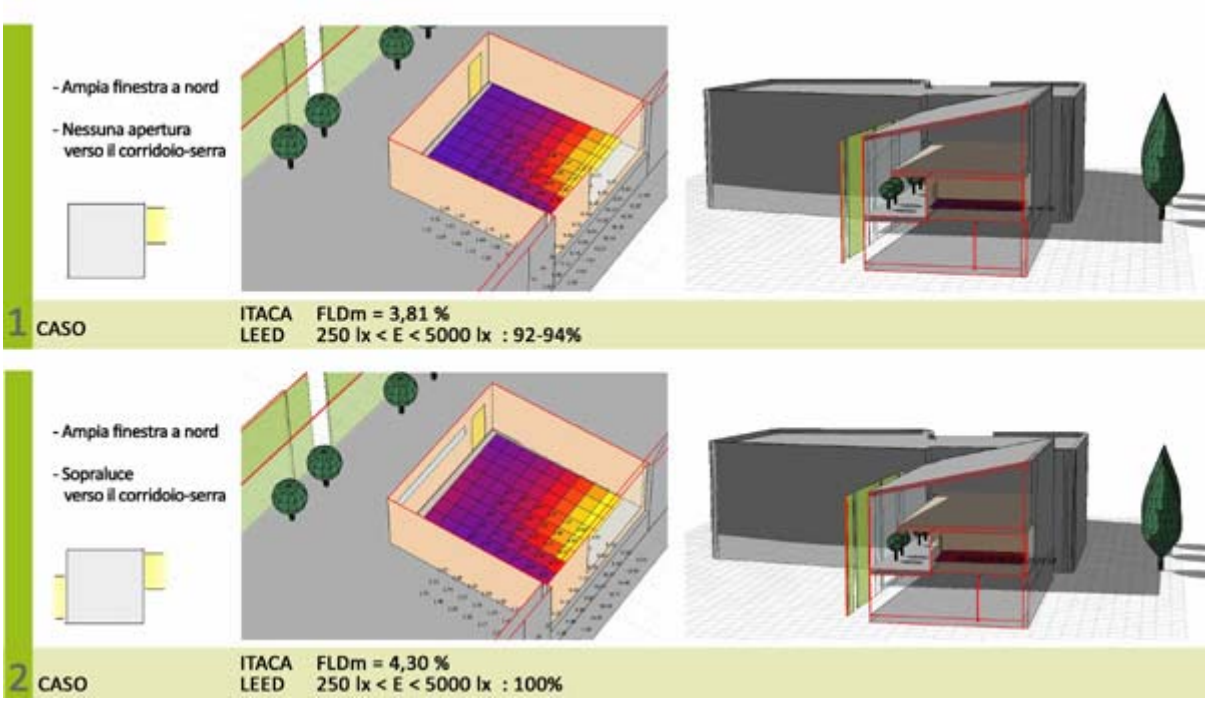


Scheme of some strategies of sustainability adopted in design

The design phase let me understand how the first design ideas about volume, orientation and distribution develop some *“strong” choices of sustainability* join to a concept, so choices that hardly mutate in succeeding phases.
They create a robust base that defines the design approach, in which sustainability mustn’t be a simple result, but a guide always present.
After that we developed choices about *technologies* and *materials*, verified by numeric simulations or simple described, in relation with competition times, resources and level of investigation required.

General plan, view of nursery school interior court

Finally I affronted the *research about the theme of daylight* in an exemplar classroom of designed elementary school. The calculations have a treble objective: verify the choices carried out during the Competition in terms of visual comfort; compare the approach on same theme by two different Rating Systems; make valuations with two manner, manually and by software (Ecotect), and underline strengths and differences.



Demonstrative schemes about the theme of daylight

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