

POLITECNICO DI TORINO
SECOND SCHOOL OF ARCHITECTURE
Master of Science in Architecture for Sustainability
Honors theses

Integrated design of the building-installation system: unattainable hope or concrete possibility?

by Edoardo Giorgi

Tutor: Chiara Aghemo

The aim of this dissertation is to analyze the actual level of integration achieved by architectural design, studying the complications that can occur while realizing a project that is intended for a final integration of the system building plant.

In the first part of this thesis, we've chosen to use the technique of interviewing, to hear directly from the project managers what their point of view on this matter is, describing it by the direct experience of specialists of different age groups, that are working in the field of architectural and plant design.

We formulated a series of questions and sent them to many professionals, that made it possible to meet in person and discuss all the themes that were presented by the questions.

Most of the interviewed are engineers with different knowledge, not only field-wise, but mainly for the different amount of time of expertise that each of them has. Two architects were also interviewed though, in order to obtain more points of view and different opinions.

The primary objective of the interview was to manage to pinpoint a group of problems and controversies regarding the integration of the plant design to the buildings, but also to analyze the potential of certain technologies to be used, examining and inspecting examples that worked out perfectly to others that didn't work out so well.

On the other hand, in the second part of the dissertation we analyzed eleven buildings, chosen by year of construction, level of integration achieved, themes discussed in the interviews and level of success/failure of the project.

Conclusions

After all the analysis of the themes discussed above, we could conclude that the reason for the lack of success in the matter of saving energy in a building won't always be attributable to a missed collaboration between the professional figures involved, to the materials and technologies chosen, to errors in the installation phase, but from what came out from the analysis of the buildings, in many occasions bad management by the users can really make the difference.

It's important for the building to have a handbook and that the tenants know what their behavior has to do with saving energy.

Regarding the integration process between the material that constitute the soul of the projects, the protocols of environmental certification are really important since somehow they require a certain direction of collaboration to be followed, with systemic verifications during every step of the project. The buildings that are conceived with studio project characterized by dialogue, confrontation and collaboration between the different figures involved, usually result to be not too problematic in matter of mechanical functions and shell. It's then up to the tenants, also in this circumstances, to behave according to the instructions and the directions decided by the projects managers.

The analysis fulfilled on the examples that we chose as substantial studying matters, regarding the theme building-plant, most definitely brought out the huge difficulty to obtain data for the real energy use of the buildings; in fact, for every analyzed building we got the energetic requirement according to the energetic certification, but in very few cases we had the opportunity to achieve from the building tenants real data on the actual usage of energy.

For further information, e-mail:

Edoardo Giorgi: edogiorgi@hotmail.it