



Transnational comparison of instruments according to ecological evaluation of public buildings in Alpine Regions

REFERENCE CONTEXT

In the Alpine Regions are actually used different systems for environmental building certification. The origin and scope of the labels is various and the approach to building assessment is not homogeneous. The most significant certification systems have been compared with the objective was to understand commonalities and differences between the labels in the way to identify what are the needs to facilitate a future harmonization at European level.

The building assessment systems included in the study are: Protocollo Itaca Regione Piemonte (Italy), Leed Italia (Italy), Casaclima Nature (Italy), DGNB (Germany), BDM (France), HQE (France), Total Quality Building (Austria), Minergie P-Eco (Switzerland). The comparison elements have been: users, physical boundaries, time boundaries, building uses, structure of the assessment systems, key criteria, certification process, relationship with the legislation.

COMPARISON RESULTS

Users

For all the certification systems the users are the main stakeholders of the building sector: designers, consultants, construction companies, investors, public authorities, consumers/end users, researchers. The only exception is the Protocollo ITACA Regione Piemonte that is at moment used only in the context of policies aimed to provide incentives for sustainable buildings.

Physical boundaries

Most of the certification systems take in account in the assessment both the building and the site. The only exception is Casaclima Nature that focuses the evaluation only on the building. The criteria related to the site assess aspects like transport and services proximity, the ecological value of land the use, the urban density.

Time boundaries

The time boundary of the analyzed systems is usually from the pre-design to the as built phase.

In the pre-design phase the issues related to the quality of location selection are considered. The only assessment system that doesn't include criteria related to the site is Casaclima Nature that is focused only to the building.

For the majority of the assessment systems, the certification process is concluded at the as-built phase, the moment where the building is constructed but still not operative. Some assessment systems (for instance BDM and HQE) include criteria related to the environmental impact of the construction site. All the assessment systems are applicable to buildings that are renovated.

Building uses

All the systems allow to assess residential buildings, office buildings and schools. The only exception is Protocollo ITACA Regione Piemonte. It was conceived to be applied in the context of funding programs for social houses and so it doesn't allow to assess office buildings. Some systems can be applied also to retail buildings, Industrial buildings, Hotels.



Structure of the assessment systems

Most of the systems are organized on three hierarchic levels: issues, categories of criteria and criteria. The mean number of issues at top level is 5. Generally these issues are dealing with: quality of site, energy, water, materials, indoor comfort. The mean number of issues at middle level ranges from 7 to 19, the exception is HQE. The number of criteria at low level ranges from 5 (Casaclima Nature) to 235 (Minergie ECO). The large number of criteria in the HQE and Minergie ECO systems depends on the methodology at the base of the systems. Both are organized as prescriptive check lists. Excluding BDM, all the other systems are performance based. The environmental and social issues are the most present in the assessment systems. Only DGNB and Total Quality include pure economic criteria.

Key criteria

Selecting and grouping the ten most important criteria in each system (on the base of their weight), the 85% of them deal with environment. The distribution of criteria among the different sustainability issues is: energy 37%, materials 20%, water 9%, site 9%, comfort 6%, process 6%, service 5%, waste 5%, economy 3%. More than the 50% of the key criteria are dealing with energy and construction materials, that results to be the two most important issues. The most important criterion is usually energy related.

Certification process

In the majority of certification systems, the certificate is issued by a certification body. In the case of BDM and Casaclima Nature it is the certification owner that issues the certificate and validates the technical documentation. The output of the certification process is usually a label.

Legislation

In general, all the assessment systems are strongly linked to the national technical standards. LEED Italia is related to both Italian standards (UNI) and ASHRAE. All the systems are basically voluntary. The exceptions are Protocollo ITACA and LEED ITALIA that are mandatory in some incentive policies of the Piedmont Region and Province of Trento.

MAIN RESULTS

The transnational comparison has underlined the absence of a common approach to building assessment and the impossibility to compare the ratings produced by the different tools. The scenario appears very confused. The main critical issue that emerged from the study are the substantial technical differences between the assessment systems: structure of the framework, assessment methods (coexistence of performance based and strategy based tools), issues included, normalisation and scoring systems. On the other hand, there is a convergence regarding the potential users, the physical and time boundaries, the building uses that are possible to assess. These differences are not facilitating the wide diffusion of assessment systems at the European level. Common public policies and common market actions would need a common reference certification.

The first steps toward a possible and necessary harmonization of the assessment systems should be to define common principles regarding building sustainability certification and to agree about a core of common criteria and indicators that would allow a comparison between the performances of buildings certified with different labels. The European regions have the opportunity to play a key role to facilitate a harmonization of certification systems. To reach this objective it would be necessary to implement a common platform between the European regions with the objective to follow in the definition of a common approach to environmental building certification and to promote the harmonization of certification systems.