



EWB/ Eco Web Town

Magazine of Sustainable Design

Edizione SCUT, Università Chieti-Pescara

Registrazione al tribunale di Pescara n° 9/2011 del 07/04/2011

ISSN: 2039-2656

READINGS

Documents / Guidelines / Directives / planning Acts

The certification of environmental sustainability, from building to neighborhood projects, *by Edoardo Zanchini*

In the coming years it will be important to pay attention to sustainability certification, not only for the increasing importance that it is assuming, especially in construction and energy, but because of a progressive enlargement of interest in interventions that go beyond single buildings. Moreover, the number of cities and urban transformations that propose themselves as the new frontier of sustainability are constantly increasing. The list could be long and now concerns interventions that are not confined to Northern Europe (Freiburg, Malmoe, Stockholm) because one can find examples in the United Arab Emirates (Masdar city) as well as in China (Dezhou), and each experience offers a particular idea of neighbourhood sustainability. The most interesting field of application for research on the question of sustainable design is in cities. It aims at understanding how to respond to increasingly complex problems related to environmental management, supply and consumption of resources, pollution and soil consumption. For this reason it is important to study the ways in which the most interesting and widely used certification systems evaluate sustainability when it is not limited to the construction of single new buildings, but concerns integrated interventions and a wider environmental context.

The first reference to study is the LEED brand (which stands for *The Leadership in Energy and Environmental Design*), the best known system of classification and certification of sustainability for buildings at an international level. A first draft was proposed in the United States in 1998 by the U.S. Green Building Council (USGBC). The success of LEED, with more than 14.000 certified buildings and its application in more than 30 countries (the Italian branch opened in 2010), is increasing and so far has been applied especially on commercial buildings, offices and public buildings. The system uses scores and thematic categories, updated periodically, making it possible to apply it to any type of building and, in 2009, it widened its focus beyond single buildings by establishing a specific certification system called *LEED for neighborhood development*. An environmental organization, the Natural Resources Defense Council, and the Congress for the New Urbanism, an organization that promotes sustainable and livable urban communities were involved in processing the new brand, and managing the certification system. A second certification system that assumed an approach not limited to the sustainability of single buildings has been proposed by *CasaClima*, an Agency of the Province of Bolzano, that since 2005 has taken on the role as an independent certifier of the energy performance of buildings. The role of the agency as it was created was linked to the territory of the Province – where it was established in 2004, anticipating European Directives, that all new constructions must meet a minimum class C energy performance, the minimum in 2011 was raised to class B. Because of the success of the system, with international awards and over 3000 buildings certified, in recent years it has expanded beyond the territory of the Province, with experts and *CasaClima* certifiers operating throughout Italy and in several municipalities that have chosen the system as a reference for evaluating the energy performances of buildings. One of the interesting aspects of the certification system is found in the increasing precision of the definition of performance categories (in standards, in the use of renewable and natural materials, in the use of green roofs and water recovery, etc...), but also looking at the overall sustainability of pre-existing or restructured buildings. In January a new certification system was presented, *CasaClima Habitat*, that the Agency would like to make into a sustainability certification not only of single buildings but of the whole environmental contexts (awarding it with sort of quality seal). As happens with LEED, the system is independent and voluntary, and aims to be a path of practicable measures, that can be reported and monitored to guarantee all stakeholders. The evaluation criteria of sustainability are organized around three main areas: nature (ecology), life (socio-cultural) and transparency (economic aspects).

In recent years the spread of certification systems in the building industry, like the *Itaca* brand or the one proposed by ICMQ, has contributed to the growth of a culture in a technical field and in a market, such as

construction, where innovations always travel slowly. The increasing success of these brands comes from two basic factors. The first, more related to the housing market, is tied to the acknowledgment from many operators that being able to present a certificate that guarantees the sustainability and performance of buildings gives a competitive advantage. This is demonstrated by the marketing of real estate with class A certificates in major Italian cities. The second is related to the continuing pressure from the European Union to improve energy efficiency in buildings and the eventual obligation to certify all houses, both for new interventions that will have to become self-sufficient on energy needs from 2021 onwards, and for existing buildings where it will help people understand the importance of knowing and improving the energy class of the apartments in which they live. The certification systems proposed by LEED and *CasaClima* are still at their beginnings, the first application experiences are starting now and, as has happened with buildings, it will help to correct mistakes and improve efficiency. It is interesting to look at the layout these systems are proposing for evaluating the sustainability of an intervention and the issues chosen, in particular from the point of view of research and the debate they can open. To obtain *LEED certification for Neighborhood Development* you must follow a path that goes through the various stages of design and construction, and then receive a score that can allow a simple certification or a more valuable one (silver, gold, platinum). The maximum score achievable is 106 and the checklist is divided into three main areas (*Smart location & linkage* 30 points, *Neighborhood Pattern & Design* 39 points, *Green construction & Technology* 31 points) plus a factor related to innovation capacity (6 points). There has been much debate and criticism regarding the choice of these criteria and the weight assigned to each of them. As happened for the certification of buildings many people question the weighting criteria and how some issues were counted as compared to others, especially as happens with energy, where today different solutions can be used to quantify effectiveness. Only by applying the system at the scale of an urban area, with all its complexities, will one observe the limitations in the allocation of weights. The brand *CasaClima habitat* also provides a route to certification and offers a catalog of criteria as a reference. It is built around the three main themes mentioned above. The difference with LEED is in the fewer parameters taken into account. These are collected into categories, but in each of these there is a certain minimum standard which must be reached. This approach seems a better guarantee than the possibility of achieving a certification by focusing on some factors rather than an overall good performance, but even for the Habitat brand it is important to verify the effectiveness of some proposed requirements. A first application is scheduled for an intervention in the town of Maiolati Spontini, in the Province of Ancona, and it will be interesting to verify some of these aspects. For energy issues Habitat brand uses the one applied by CasaClima for single building certifications, applying the minimum classes in which, however they consider orientation and position of buildings inside the lot and the contribution of daylight and ventilation systems and the role of renewable sources or high-efficiency appliances in their weightings, otherwise single existing buildings might find it impossible to reach some minimum levels of certification. For other issues they explain how they will take into consideration and assess criteria, but without setting quantitative parameters. This approach looks at design choices, building materials and their life cycle (recovery and reuse), waste management and sustainable mobility, planning and recycling of water resources, home comfort (acoustic, thermal-hygrometric and brightness), accessibility and safety within the spaces, quality of interior and exterior spaces for socialization, attention to the environmental context and the use of local materials. A peculiarity is in the criteria established for evaluating the transparency and communication with people who will buy and will use the spaces. Criteria were established to evaluate the economical sustainability of the investment criteria regarding the durability of materials, flexibility and adaptability of spaces. Meanwhile to ensure transparency in the selling, criteria establish: when the intervention program took place; costs of investment and of the utilities and even a commitment to information and participation on the topics of environmental management within the spaces, for those who will live in the buildings.

The approaches proposed by these two certification systems are interesting as they allow us to consider choices regarding sustainability. Despite their limitations, at least they allow us to guide the discussion on the quality of interventions in a direction that permits us to compare choices and solutions. If these brands have the same success they had with buildings it will be possible to create a dialogue with other approaches to the theme of sustainable design of cities on a new basis, because they will become transparent and verifiable, and even criticizable. There is no doubt that other models or research proposed in recent years are perhaps better investigated and take into account other aspects of sustainability – such as the French *Approche Environnemental de l'Urbanisme* or the certification of environmental quality proposed by the association HQE. We are at the beginning of a field of research that will widen, also because of the problems in urban areas where the challenge lies in creating areas, comparing approaches and testing different experiences whether they come from universities and research institutions, private organizations or designers.

Eco Web Town, N° 1 , Ottobre 2011