Local actions to improve the sustainable construction in Italy

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ABSTRACT: Evolution of environmental sensitivity and spreading of the consciousness of a socially sustainable common acting, economically and technologically, supported by the acknowledgment of a few European and domestic laws, led to definitions of a few local normative tools for the preliminary definition and control of building activity in energy and environment vision. The current experimentations highlight as to make sure that the sustainable building becomes a diffuse and constant practice it is necessary, by the local governments, a deep revision of the methodologies up to today adopted as usual general procedures and in the editing of the urban and implementing planning tools.

1 INTRODUCTION

“Buildings and the built environment are the defining elements of the urban environment. They give a town and city its character and landmarks that create a sense of place and identity, and can make towns and cities attractive places where people like to live and work”. (COM(2004)60 final). The local governments of Italian Regions, Provinces and Cities laboriously and starting from the nineties have begun to take conscience of the necessity of promoting environmental policies turned to the improvement of living conditions of citizens and to the mitigation of the building and productive activities effect on the urban ecosystem, often already compromised.

Evolution of environmental sensitivity and spreading of the consciousness of a socially sustainable common acting, economically and technologically, supported by the acknowledgment of a few European and domestic laws, led to definitions of a few local normative tools for the preliminary definition and control of building activity in energy and environment vision.

These normative tools, accepting national indications above all in terms of energy performance of buildings and therefore on energy management of the building activities, are going over the traditional approach to the direction of building activity based on the static safety check of the healthiness, of the analytical control of dimensional parameters.

Local regulation (building regulations, technical rules, regional guidelines, etc.) aim to lead individual choices to collective interests, which can find either obstacle or agreement in the individual actions.

Taking into consideration that the environmental load of the building factor on the global environmental balance of human activities, that 80% of European citizens live in urban territory spending around 90% of their time inside buildings, it gets across as the inclusion of issues pertaining sustainable construction represent a recall to the public and private clients structures to the reply to a new more structured and mature demand system expressed by the citizens, both in implicit and clear way.

Sustainability proposes itself as value added to local government actions, but also as economic surplus in setting-up the market exchange of a building.
The new requirement framework outlined with respect to building activities, related to construction of both residential buildings and edifices for the tertiary industry, express a request for quality connected to the transformation of the buildings utilisation model. In particular this renewal is more perceivable in the residence where the traditional utilisation model has been deeply put under discussion by many factors; the new working behaviours, the presence of the working activities in domestic location, the internal cohabitation of spaces of the traditional residential activities with those of spare time and recreation, the presence of a significant share of sophisticated IT technologies until some year ago foreign to the domestic environment have deeply changed and made more complex the guide requirement system for the building design.

Where previously the environment healthiness had to be and could be only ensured through the building orientation control and the indoor air quality check, today it must be evaluated also depending on density and on distribution of the equipments networks inside the building.

Even if this kind of controls of building environmental impact is a definitely a positive action, the poor coordination at a national level of the different initiatives can cause some inconvenience in terms of harmonization of promoted measures and of driven effect control, causing also a certain disorientation between the sector operators.

1.1  Action levels

Levels of actions of the policies oriented to the sustainability in construction are essentially three: regional, provincial and municipal; these three action levels reproduce levels of management of territory administration and building activities.

Regional governments give indications of behaviour of general interest and technical sector specifications, for the sectors of their specific pertinence (social housing, health, education, etc), Provinces have a very important role in the policies of specific sectors especially on house and on education, while Municipalities give building technical indications turned to the realization of the whole building stock, independently of the destination, and exercise also the control function during realization and inspection.

Actions proposed by various bodies are appropriate to their fields and intervention levels in the management of the building activity.

Normative actions undertaken from several administrations represent all actions aimed at the promotion of a culture and of a diffuse practice in sustainable construction; the sustainable approach requires in fact a concrete and deep change in practices and in behaviours of all the operators of the building process, in urban planning, in new public and private constructions and in the building refurbishment operations.

In this process of innovation of planning and accomplishing behaviours, Public Administrations and, in particular, Local Government, to which is entrusted the direction and control role in the process of territory transformation, must become promoters and virtuous behaviour model in a sustainable vision.

To local governments is entrusted the task to identify the best practice to be submitted to the building operators for the realization of their construction initiatives. This kind of actions requires a big planning effort by the local governments, called to test new ways of prefiguration of the behaviours of process actors, being obliged to go away from the traditional building rule prescriptive-generalist usually without those contents performance kind, useful also to the efficiency and effectiveness check of some proposed planning solutions or of some technical solutions put in practice from the executors.

1.2  Evolution of a territory and towns government culture. Exemplary cases.

Strategic role in the building sector cultural renewal is played by Regional government. Its work on definition of guidelines on control and government of construction activity contains in fact all the features of the total strategic approach which allows, in the subsequent action levels, to fine-tune a policy of integrated approach to the man-made environment transformation from a sustainable point of view.
It is important to point out that in almost every case the introduction of a system of rules of promotion of indications or prescriptions on the construction sustainability has not overturned the traditional structure of sector regulation.

In many cases the introduction of sustainability criteria or best practices oriented to the realization of sustainable buildings supports indications and traditional prescriptions defining a new quality profile, more complex and effective in terms of environmental impact, wealth of users and reduction of the energy use.

The document of the Emilia Romagna region which defines criteria for editing of building code to be used by the Municipalities of his territory is paradigmatic of this type of behavior. In this case the building activity regulation is based on the building conformity to two requirements families, one that is the binding family of requirements, the Compulsory requirements, the other that is the voluntary family, the Suggested requirements later updated in contents and aims and changed in Voluntary requirements, concerning wealth and usability of construction works.

This requirements package aims to improve the life quality of the users according to the ecosystem receptive capacity, to the possibility of natural resources renewal and to the balance between anthropic systems and natural systems. Information related to interactions between building and environment to reduce the not renewable energy consumption and for the CO2 emission reduction in atmosphere are taken in great consideration.

The structure given to the orientation action of the Region prefigures a hierarchical articulation of the instructions given on the building activity; compulsory requirements give directions on safety, stability and healthiness of buildings and on way to meet general requirements of energy saving, acoustic isolation on the space usability. The voluntary requirements define an area of performance surplus value of the buildings; these define directions on damaging discharge, superficial humidity, artificial lighting, air temperature and speed, acoustic isolation and wiring installation. The suggested voluntary requirements define an additional quality of the building product, which the administration makes attracting from an economic point of view for the promoter through discounts on the urbanization burdens.

The line traced by the Emilia Romagna Region has been followed also by other administrations which have always articulated their regulation activities distinguishing between compulsory prescriptions and rewarding indications always identifying the environmental quality and the sustainability of the interventions among the rewarded behaviors, however consolidating the perception of "value added" for the environmental sustainability of constructions.

Recent rules on buildings energy performance, implementation of 2002/91/CE directive, and consequent effects on the management of building activities, will probably compete in creating a consciousness also of the economic value added given by the best energy performance of the building; this side effect could work as lever to trigger a virtuous behavior also at level of compounds and not only of single building, involving not only the energy consumptions evaluation, but also evaluation on comfort of the users, production of harmful substances and waste, and on the rationalization of water resources use.

This is the case of the Municipality of Rome which in 2006 has given off a measure which supplemented with the its building rule with specific directions for the realization and promotion of environmental improvement intervention, for the use of alternative energies focusing on solar energy, for the use of optimum materials, components and adequate systems to reach levels of thermal isolation and thermal building covering inertia, as well as assuring the deep soil permeability also in urban area. The way chosen by the Municipality of Rome has not been the way of the voluntary compliance to these indication, but the one of forcing to specific prescription, therefore turning to quantitative and not performance indications.

This regulation follows the indications already contained in the technical rules of new general town planning scheme (Piano Regolatore Generale), with which those have been included between the acceptable intervention categories of bio-energetic improvement (MBE), that is the set of interventions turned to improve the bioclimatic performances of man-induced elements. These interventions include the climatic regulation and protection or acoustic recovery of the buildings, according to principles of bio-architecture, preservation of deep soil permeability, use of natural and renewable energy sources, waste and meteoric water recovery for irrigation uses, soil fertilization or hygienic services, use of lasting and maintenanceable building materials, use of the green with aim of microclimatic regulation and protection from the acoustic and atmos-
pheric pollution. To this measure the Municipality has associated a rewarding system of incentive to encourage private promoters to take charge of these actions, granting a surplus of cubature to compensate any additional investment to set up their realization.

Another kind of methodological approach, that moreover corresponds to an intermediate territory government action level, is what has been realised by a few provinces. The case of the Province of Lecco is representative of this approach. The province has elaborated a package of "Guidelines for the promotion of the sustainable development in the territory government tools and in the building regulations", which starting from the local energy programming describe the recourse to tools and strategies aimed to the promotion of sustainability in territorial, urban and construction planning.

The description of best practices aiming to show to local governments how to behave for the Sustainability Promotion on the territory is part and parcel of these guidelines, describing in particular the measures of accompanying which many administrations have already implemented successfully; also in this case, incentive measures of different kind are taken into considerations.

Indication to set local Building Rule is given in this case according to actions/requirements guide of which the application is stated as compulsory or voluntary and described in performance terms to make the application easier by the various administrations.

This is very nimble document and appropriate to be used by the administrations, being built in a very effective way; the identified action levels are only seven and their implementation is delegated to the Municipalities which will undertake the indications. Action levels concern site analysis, soil use and outside environment quality, internal environment quality, materials and technologies, coherent use of climatic and energy resources, rational use of water resources, quality of management.

Another interesting experience is the one of the Itaca protocol for the evaluation of energy and environmental quality of a building. This document is the result of the action taken by a national workgroup composed by representatives of all the Regions, in which APAT (Agency for environment protection and technical services) has also taken part, established in January 2002 at the office of Itaca (National association for the innovation and the transparency of the contracts and for the environmental compatibility).

The result of the workgroup activity is a protocol of shared work which allows to attribute an eco-sustainability score to a building, but above all, with the protocol adoption a shared unambiguous method of assessment of constructions sustainability has been uniquely defined.

The protocol is composed by seventy cards of evaluation, one for each environmental compatibility requirement. Cards include informative element, such as normative and technical references and the weight to be given to any requirement. The reference matrix is GBTool. Building environmental cross-compliance evaluation criteria used by the system have been structured and codified in areas of evaluation, which in their turn are composed by many performance sub-requirements. Also the score attribution system is borrowed by GBTool, but with the possibility, for every administration, of customize the weight of every individual requirement to fit it to its local needs.

Many administrations are already referring to this document, between the other ones the Tuscany Region which has put beside this methodology adopted for the draft of the "Guidelines for the sustainable construction in Tuscany" also a " Basic list of materials for sustainable construction", document which represents a support tool for designers and administrations for the conscious choice of technical solutions for the building realization.

The case of the City of Torino probably represents an evolution of this operative culture. The City of Torino, in addition to having recently rewritten his Building Code (2004-2006), has faced for the realization of the structures necessary for the winter Olimpyc Games of 2006, a big investment phase on planning and control on building activity both for residential buildings and for facilities and infrastructures. This preliminary planning engagement has produced, between the other, series of tools which have been useful to design and realization control of these works; between these tools is to be considered in particular “Strategic Environmental Evaluation (Vas) of the intervention planning for the Winter Torino Olympic Games 2006", which in addition of providing general indications for the phases of activation of the Olympic Program has formulated prescriptions for the processing of the projects of the Olympic works, and the "Guidelines for sustainability in project, in building and in management of the Olympic villages and Multimedia".
These documents represent some tools of strategic programming specific for this activity and not documents of general interest for the City, but given the level of effects and size of the works on the municipal territory, they are an important precedent in town building practice. Many of the indications elaborated in these documents have been then taken by the regulations issued later by the Municipality, in particular indications concerning energy management.

"Guidelines for sustainability in project, in building and in management of the Olympic villages and Multimedia" issued from Environment Park in cooperation with experts of the Polytechnic of Torino, are an operating tool, addressed both to subjects in charge of the management of the Olympic program and to the Olympic Villages works planners. The structure of the guidelines is directed to facilitate their application and then make easier the reaching of the objectives. In fact, besides the environmental quality requirements, also the most appropriate technologies are shown, together with the normative references, the indicators and the tools to verify the satisfaction during project, building and use. For the first time all the fundamental requirements are synthesized and quantified in a single document to characterize the energetic-environmental quality of a building. This document result from the politic-strategic will of the promoter committee to place the promotion of the sustainable development, also taken ahead through this document, like a fundamental objective of the Olympic Movement, as clearly affirmed in the CIO diary 21.

"Guidelines for sustainability in project, in building and in management of the Olympic villages and Multimedia" were developed taking these principles into account, therefore aiming to obtain, in the realization of the building works foreseen by the Olympic Program, concrete results for a more sustainable built environment.

1.3 Conclusions

The short view given above, while testifies a slow evolution of the culture of building activity government and of the territory government, also testifies of the amount of road that the Italian reality still has to cover to relate the behavior of local governments which manage the territory at an acceptable level in terms of sustainability. The current experimentations highlight as to make sure that the sustainable building becomes a diffuse and constant practice it is necessary, by the local governments, a deep revision of the methodologies up to today adopted as usual general procedures and in the editing of the urban and implementing planning tools.

These tools will have to always assume the guide role into the design process, in order to lead to the configuration of an idea of city in which the sustainable construction is not only the current episodic value added of a few special opportunities, but the current practice.

All the described experiences can represent the starting point for the consolidating of this culture and practice.

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