

ARCHITECTURE: AN INSTRUMENT FOR A NEW PARADIGM

Devising new systems with existing materials



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ABSTRACT

The most noteworthy concept that we need to incorporate into this new paradigm towards sustainability is attention to the full life cycle of materials, i.e. the necessary recyclability of materials, minimising the erosion entailed by the current concept based on an open linear cycle that begins with extraction and ends with disposal as waste material. In trying to halt that flow we are moving towards a desirable closed circle of 'circulating raw materials' that are constantly being transformed – materials, therefore, with little raw materials implication, which are highly elaborated and high performing. That necessary recyclability is called upon to profoundly transform construction modes, fostering systems based on assembled components, above and beyond traditionally adhered or mixed materials that can only be pulled down and produce rubble.

1. CONFERENCE

A good friend and economist says that architects, and the entire building sector in general, find it hard to understand this crisis because we are too imbued with the law of gravity: we think that once the system has failed, we need to wait for the pieces to fall on the ground in order to begin to reinforce a new structure with them. But things don't work like that, at least not in economics, since in reality there is no floor, but it is the own dynamics of individuals that begins to reinforce a new structure from those very pieces while they travel in free fall. It is precisely

that action, together with a vision of a model that better matches the moment, which reverses the movement and makes a stable network resurge again.

To me the explanation seems quite stimulating and, in any event, I see evidence here and there that this is what is really occurring: individuals and companies are beginning to move according to new standards. The issue is not just that there is less demand, but that this has changed to a large extent.

In this sense, I believe that certain key traits are already starting to emerge of what our post-crisis building sector is going to look like.

First of all, a certain measure of self-esteem is needed to go forward and, after a period of being blamed for all the problems, we notice that this self-esteem is gradually coming increasingly to the fore as we become aware that there can be no recovery of the general economy if building construction is left out and that, on the other hand, from an environmental standpoint great expectations are harboured of this very sector, so that an ambitious action led by building construction would suffice to enable our country to meet the commitments agreed in the Kyoto protocol.

Constructing is not a lesser evil, nor does it unavoidably adversely impact the natural environment and its resources, but it is clear that it is necessary to address construction from a new standpoint and to overcome a great deal of inertia in order to reformulate it in positive terms for society.

Nowadays our knowledge and the technology on hand allow materials to be elaborated that absorb CO₂ instead of emitting it, and to produce nanoparticles with wide-ranging effects that could provide important savings in urban consumption; we can artificially reproduce the properties of the natural substrate by making building construction a producer of realms in which nature can dwell... In short, we can elaborate materials and systems from a viewpoint that contributes to achieving the social paradigms that we are outlining and not to eroding them.

However, the most noteworthy concept that we are incorporating is attention to the full life cycle of materials, i.e. the necessary recyclability of materials, in order to minimise the erosion involved in the current concept based on an open linear cycle that starts with extraction and ends with disposal as waste material. In trying to halt that flow we are moving towards a desirable closed circle of 'circulating raw materials' that are constantly being transformed – materials, therefore, with little raw materials implication, which are highly elaborated and high performing. That necessary recyclability is called upon to profoundly transform the ways of constructing, fostering systems based on assembled components, above and beyond traditionally adhered or mixing materials that can only be pulled down and produce rubble.

Other sectors and companies, which long ago travelled a similar path and now lie far ahead, have set their sights on building construction and its evolution as a new prospective field. In such a scenario I believe that the atavistic reaction of falling back and putting up barriers to keep more actors from entering and claiming their share of a segment that has shrunk is quite absurd. Rather than claim a share, those new actors will tend to revitalise the sector and, in any event, will hardly be able to operate in such a singular framework without the collaborative participation of traditional actors, who will need to be able to see the arising opportunities for promising new alliances.

Such alliances tend to fine-tune integrated systems in which the manufacturer becomes engaged in the installation, thus assuming and assuring the final quality of part of the building work and not just of the materials that go into it. We are faced with the need to devise new systems with existing materials, to enhance the quality and efficiency of the resulting building beyond that of its constituent parts, on a road that is increasingly industrial and less manual. In this scenario, manufacturers tend to focus on identifying complicities with other, complementary manufacturers rather than join battle with their direct competitors.

This is clearly all driving internal research and, in particular, the application of the vigorous flow of research coming from outside the sector itself in a favourable drive for innovation.

Thus, as the manufacturing industry is shifting its traditional commitment as supplier to also becoming installer/recycler, the sector as a whole – with the housing developer in the lead – will conceive the building itself not so much as a self-contained event that produces sellable objects, but as an unending process of construction, maintenance, and revitalisation, integrating all the building items – new and old – in a closed recycling circle.

At this point, for that flow to have an appropriate channel, in my view there are certain legislative or administrative issues that need to be readjusted.

On the one hand, it is absolutely essential to reinforce Patent protection in the sector. At the moment we have an entirely open framework that fosters bad copies and discourages invention; we still follow the sadly famous approach 'let them do the inventing', in which innovation is only a matter of personal endeavour with little tangible return.

On the other hand, environmental certification processes need to be earnestly fostered at all levels, from materials to buildings, as well as to districts. Recognised certification processes allow us to reach agreements and at the same time to explain the quality of what we make in a simple way to society, and thus activate a real demand.

Finally, if we really are able to understand, parametrically, the efforts and results in environmental terms of our buildings, materials, and systems, we will be able to avoid the 'one size fits all' approach and, thus, prioritise the best at the ex-

pense of the worst. In that sense, I ask myself: Would it not be possible to have a domestic market of emission rights? In any event, even though we still have more questions than answers, it would seem that in the future building construction will look increasingly like a service, rather than a product: this is the mechanism that is emerging to keep the tangible and intangible benefits of so much striving for improvement from being swallowed up, once again like a black hole, by the price of the ground.

REALITY-EXPERIENCE-PROJECTS-WORKS ON THE ROAD FROM INNOVATION TOWARDS NEW SYSTEMS AND APPLICATIONS IN CERAMICS

The interest in researching into new materials, new processes, and new spaces and in analysing their environmental and energy performance is the point of departure in our building projects and construction. Therefore, the project, the construction and subsequent life of the building are the result of a thorough study of its optimum use, good bioclimatic performance, and environmental characteristics.

Single-family housing on the Collserola hillside slope. Barcelona. 2001



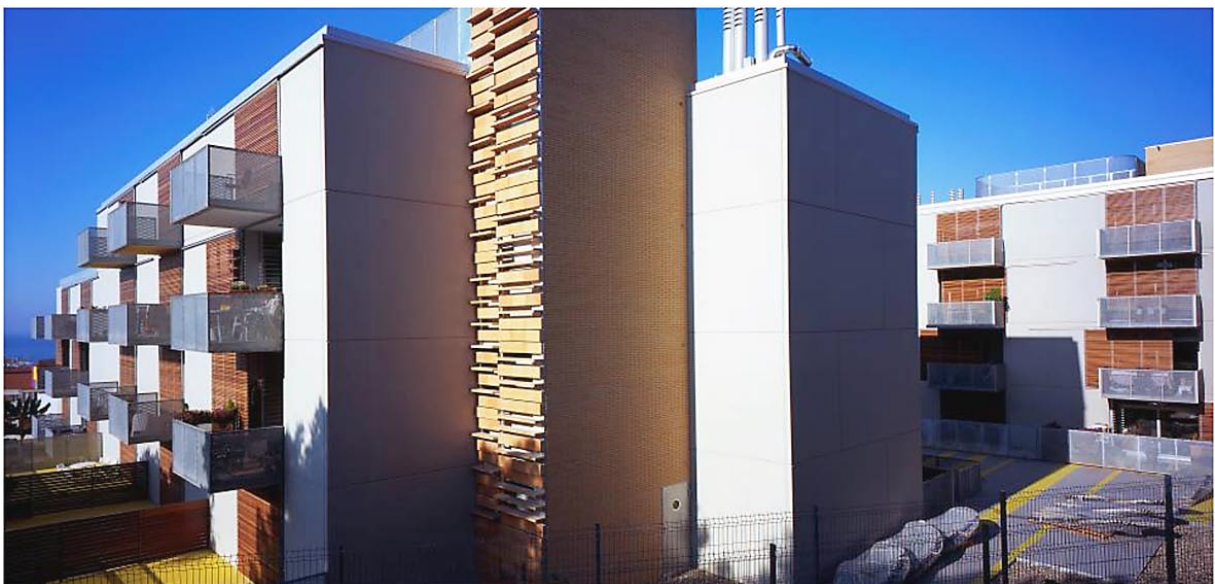
Call Center – office building. Toledo. 2005



'Puerto Banús' Hotel. Malaga. Project 2006



'Blanca Subur' rental social housing. Sitges. 2010



'Fondo' multi-equipment building. Santa Coloma de Gramanet. Under construction



'Sant Pau' Research Centre. Barcelona. First Prize October 2011



'Blue Horizon' Hotel. Yantai. In the design stage 2011



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