L.E.I.B. LOW ENVIRONMENTAL IMPACT BUILDING STRATEGIES FOR THE DESIGN OF A Z.E.D. MULTIPURPOSE BUILDING

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Summary

Italy, as a “lucky” country (under the general weather conditions point of view), is coming only now to a serious debate on the guidelines that must be used for a new sustainable and eco-responsible architecture. Coazze, a small village in Val Sangone, 35 Km far from Torino will host a multipurpose building in which will be applied a synergy of several sustainable design strategies, both active as passive. The attempt is to use all together different strategies not competing but cooperating between each other to maximise the positive effects for the energy saving, the energy producing, the use of recycled or low energy materials, the reuse of water and the birth of a new concept for the design of public building in order to show and demonstrate as example what contemporary building technologies could already nowadays offer.

1. Ex-cinema Vittoria

The building of the ex cinema Victoria is an old construction in masonry with few values type both artistic as architectural, but that it has a big symbolic and affective value in the lifetime of the village and a very particular and moving history.

The few news concerning the origin of its construction have been given by a particular document dated written 1910, thanks to which is know that the building has been built to the beginnings of last century on initiative of two priests, Don Giacomo Zanella and Don Prudente Allais, and that motive was tied up, it looks like, to the return in country of the Franciscan Venerandes Suore of Susa, that time back had been guests of the village but immediately forced then to depart because of their “almost indefeasible” deficiency of trusts and a halves of maintenance.

Figure 1 Aerial view
Their permanence, even if brief, had strongly influenced the lifetime of the village and the news of their forced departure saddened to the point the population that immediately, and in spontaneous way entirely it mobilized all the citizens to do all what was necessary to prevent the departure of the Venerandes Suore* (1).

Aware of the emotion that would have provoked in the population the news of their return, Don Giacomo and Don Prudente they thought about concretizing the affection of the citizen in a fund raising and of helps for the construction of one "New Opera", that finally gave flat abode to the Venerandes Suore, and therefore a Sunday to the beginnings of 1910 in the square of the church a strange flier was distributed to the citizens on which was possible to read:

"[.] It not only deals with your interest, but of your honor still, of the honor of your country that it also wants and it knows how to advance him on the tracts of the progress and the civilization: you do therefore that the generosity your "clerk gold word" on the book of the skies and a glorious name on the history of the people" (1)

During the mass was communicated the new idea to the citizens: the construction of a new and modern building, fruit of the love and the generosity of the Coazzesis, that, besides giving lodging to the Nuns, would also have understood many other places, held essential for the social and religious lifetime of the community.

In the new building it was anticipated, in fact, also a masculine oratory with attached "courtyard ricreatorio for the gio-ventù", a "female laboratory", place where the young ones of the country would have been able "with some good will and, let's tell him/it pure, also of sacrifice, to learn all that jobs of needle and sweater, from which you/they can draw benefits effects for them and for their families", and still a great room for civil and religious assemblies and a saloon to destine him to evening diversions as "theater, concerts, cinema, bright projections etc". To end would have been also an useful "Refuge of the Old Poor men of the country", where the Venerandes Suore would have been able to take it medicates him of the needy people of the country that didn't have a residence.

The intentions and the words of the two priests struck in full the mind of the Coazzesis, whose generosity allowed, precisely February 14 th 1910, to begin the jobs for the construction of the "New Opera" on an Area generously given by the Signor Prevosto, jobs that lasted after few months.

After some years a lot of things changed, and the building has subsequently been destined to varied functions according to the necessities and of the demands of the community. Already to the beginnings of the years '20 the building entertained some classes of the elementary school until, in 1927, you/they were gathered in the places of the oratory all the scholastic classrooms of the village that until then were distributed in different buildings.

In 1959 the pupils leave the classrooms by now old and inadequate of the oratory to move to the new building of plaza 1° May, very ampler and bright, while the old construction is converted in multipurpose center turning the big saloon of the terrestrial plan into the room for cinema and theatrical representations. Everything this has lasted up to the beginnings of the years '90, when, closed definitely the cinema, the building has not developed a well precise function anymore and it has practically been unused. The buried places are finally used improperly as locker rooms to service of the field of football field.

2. The actual condition of the building

The complex of the ex cinema Victoria today introduces him as an old building, apparently abandoned, attested on one of the short sides of the small but attractive Park of the Remembrance, sets in the town plaza of Coazze (the Victoria's Plaza). The road that surrounds the plaza licks up the West façade of the building and the brick wall that it delimits the small in-house courtyard without not leaving even a small space for the gateway of the pedestrians, while the road to Giaveno separates the West side of the construction from the side façade of the parish church of Santa Maria del Pino, a valuable building, that has it's native implant, to the XIV century and known for some ancient frescos in the interior and for the curious writing on the bell tower.

To North and to East the building is surrounded everyone on his own way by a small green area partly occupied by a big football field and partly left free, with the vegetation that grows spontaneous and that in quite a lot pixels has already attacked the construction. From this point of view the building appears even more falling that from the plaza, and it results evident the state of almost overall dereliction in which it pours. As already said, to exception of some busy places provisionally, the rest of the building is, in fact, practically unused from years and the rains, the wind, and the
long winter frosts they have notched partially some building built elements almost one hundred years ago, in big hurry and with great economic stringencys, and that therefore since the beginning it introduced serious lacks both the design as for construction.

North and to East the facades exposed to were never been completed, and today they miss still some layer of finish to plaster present instead on the rest of the building. This abnormality seems both causes from the serious lack of trusts that has accompanied the construction of the building has forced the builders to have to choose to complete only the facades that leaned out on the village neglecting accordingly the others. Here water has been able to easily infiltrate in the interstices among the bricks of the masonry, and freezing has caused cracks and small separations.

The other façades are under best her conditions, both because the plaster and finished up, both because they enjoy of a best exposure to the rays of the sun that has contributed to get further more quickly the dampening brought by the atmospheric effects. The carrying lay-out, appears still however under good conditions to keep on also developing its function in forecast of the immovable property.

3. Description of new plan

The project of recovery of the building complex has intended to depart from the exploitation of the existing building is the functions in sinergia with the new body of building itself. The purpose “didactic experimental” and it foresees therefore the association of two geometries and conceptions of distribution and layout that collaborates to increase the fruitions and the activities are developed inside the building itself.

The dialogue between the old one and the new building happens through the mediation of the body staircases that I goes cross and all the height and the materials in it employed, this space proposes a synthesis of the strategies and the objectives that give peculiar character to the "L.E.I.B". As already mentioned in precedence it deals with a project of amplification and recovery that it foresees both the restructuring and the improvement of the existing structures and in discreet state of maintenance, and is the construction of a new building volume, attested on the old East façade, wide around 11 meters and long around 25 meters for two floors out earth and a plain basement.

In the "old building" they will find place to the terrestrial plan the room for the oratory, two rooms devoted to the exercise of the catechesis and hygienic services. At the superior level, the first one, they are anticipated three rooms devoted to offices with the relative hygienic services. At the second level they will be situated two offices, the hygienic services and the residence of the custodian. The buried plan will be destined to the fittings.

The "new building" it is situated in nearness to the building above described and it is accessible to the outside through a parvis. It technologically represents a building to the state-of-the-art one and it will be
formed from a carrying skeleton in armed cement and a block staircases in steel structure and glass cladding. From the functional and distributive point of view, the plan earth-no it entertains a foyer and a room lectures able to entertain 165 places to sit that to the necessity that can turn into the room to reconcile town, room video-projections and room for didactic theatrical preparations. The superior plan is destined to a multipurpose open-space in which the associative centers will be entertained with the relative shed offices on the town territory today. At the second level is situated the operational center of the Natural Park Orsiera Rocciavrè for the Val Sangone; from this place it will be possible to enter to a loft that will entertain the offices of the corporate body Park.

To the buried plan they have been situated locker rooms, hygienic services and a deposit material necessary to allow the use of the overlooking sporting field the building.

From the energetic point of view the new building introduces him as model of sustainable. The strategy adopted in the choice of the fittings and performance of the wrap has been that to reach the standard of the “passiv house” in which the level of thermal isolation is able to reduce to the least one the dispersions and to adopt such selected plants solution to be allowed the energetic maintenance of the whole complex with low costs (energy use max allowed of 15 KW / h year for meter square for the requirements of heating).

The fittings of climatization foresee the use combined of radian to floor and checked mechanical ventilation studied so that to allow an inside confort suitable to the anticipated functions. Adopted a recovery heat system and with exchange of air “current contrasted” for multipurpose room and the production of prewarmed air with the use of air solar panel. Besides this endowment it will be realized a heating pomp of heat geotermica exploiting the neighboring vast surface of the kick field to the LEIB. The pious-vain water coming from the coverages will be preserved in a special deposit of accumulation for an use of sub irrigation of the kick field.

In coverage they will find position a PV cells plan of 6 KWps and a thermal solar plant, this last able to handle the endowment of warm water for the locker rooms and the offices. The South facade of the building it will be endowed with element of screening endowed with a control in domotic operation from the level of luminance of the inside environment while the transparent portion of the North wrap will be endowed with a double layer filled by nanogel to maximize the exploitation of natural light and thermal insulation.

In synthesis LEIB will represent a sort of display of the technologies and of the sustainable strategies applied to the architecture design to show how much effectively this design philosophy can contribute to assuage the challenge of the global warming and not renewable energy source consumption.
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