Urban and Suburban Small-Scale Industrial Reuse. Strategies, Methodologies and Tools for Urban Regeneration in Small-Medium Towns

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The aim of this paper is the investigation and analysis of the emerging phenomenon of the micro industrial reuse that is affecting the contemporary European city with unknown and different features from those of the major productive sectors known. The issues related to this phenomenon are attributable to the popular opinion that micro industrial reuse can be managed locally and autonomously in the absence of an overview. However, a critical investigation of urban regeneration can develop a method of study based primarily on the development of these emerging phenomena, later on the recognition of the distinctive characteristics of this new urban condition and finally on the identification of operating ways that can be generalized in similar contexts. Essential is to verify the possibility of increase the level of habitability of this spaces and of the respective contexts to stopping the continuous waste of soil and improving the quality of life. So, the interventions of regeneration of urban areas must create relationships with its immediate surroundings, it can create hybridization functional between productive, collective and residential activities and between public and private activities. The physical setting of the research was an area included in the basin of the Po valley: an area along the Via Emilia, where small and medium industrial units have concentrated in the last decades. This area still shows problems of industrial reorganization, rendered more complex by the widespread crisis prevailing in traditional activities. In this context, a number of projects concerning rail and/or road accessibility were being carried out, arising much debate as to whether or not they will prove useful for the future transport network of the whole basin. In this broader context, our research has focused on in-depth analysis of a possible case study, represented by the city of Fidenza. The strategy adopted by the project moves by some general considerations, that see the urban plan of Fidenza fragmented into anonymous accidental conurbations, moving gradually away from the city center to the countryside. This anomaly, which is common in many centers for small and medium, in Fidenza is particularly emblematic near the entrances of the city on the Via Emilia. Then, is an urgent need to rethink, in this urban fabric, the role of the Via Emilia, which has historically helped to create direct relationships along the course, between town and country and between urban facts within the city itself, which are still dismissed. To exemplify our approach to the theme of the proposed project, it is necessary to look at the analysis of some projects. These projects have developed in different ways the issues proposed by the place, chosen as project area. These issues can be summarized as follows: proposals for the organization in the area facing the Fidenza Railway Station; proposals for the organization in the bounded area of the former Jesuit Convent in Fidenza. The innovative aspect of the project lies in posing the problem of urban regeneration at the micro-scale, looking at the potential role of small industrial units, which have closed down in small/medium

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towns. In the current situation a priority vision is mandatory. Sustainability, so often set as a priority by international research institutions, requires not only a generalized approach; rather does it require specific solutions, to be found considering the distinguishing features, and resources, of each single context. Our aim is to focus examples on how to reuse, modify, or replace (partially or entirely) existing small industrial units and activities. To do this, we shall experiment with new spatial arrangements and building types, while asking contribution from other disciplines to rediscover and revive the identity of townscapes under study.

KEYWORDS
Aspects of architectural and urban theory, City centre regeneration, Micro reuse, Dismissed area, De-industrialisation.

Introduction

In the current economic crisis European cities are facing the closure of small industrial units on a scale hitherto unknown. This process could provide opportunities for new policies of intervention, in view of limiting land consumption, improving the quality of life, and therefore enhancing the cities' competitiveness.

Due consideration should be given to the closure of small industrial and/or service units in small-medium towns of the former industrial clusters in the basin of the Po valley, including part of Lombardy, Veneto and Emilia.

While having been so vital for the economic success of their districts – the "Third Italy" contrasting with the post-war "industrial triangle" – small-scale skilled production units have also caused urban sprawl and land consumption; a recurring feature are industrial warehouses – at one and the same time working areas, showrooms and storage points – whose density increases on approaching the so-called "industrial areas" adjoining almost any town.

It is currently thought that the reuse of small industrial units can be dealt with locally, without any agenda or general picture. Local authorities, administrators, or technicians consider regeneration of small industrial and manufacturing units a lesser problem than conversion to new uses of large industrial complexes.

Nevertheless, small industrial units are closing down one after the other and many workers are dismissed (CIGL Report, December 2012: Struttura produttiva della Lombardia. Dati e Analisi / Productive Structure in Lombardy. Data and Analysis).

When summing up all these units, the real scale of phenomenon comes to fore, showing how it often exceeds areas formerly occupied by larger industrial complexes. In small-medium cities of the Po valley, both suburban and central areas are facing this process, particularly along historical roads.

Our research work proposed a critical approach to urban regeneration:

- surveying the crisis of urban and suburban small industrial units in the current Italian context;
- identifying key aspects of this process, to understand which actions can be undertaken for an upgrading of the area concerned;
- focusing new practices to be adopted in similar circumstances.

Our research work has considered case-studies where "productive precincts" have become a vital part of the surrounding areas, by introducing a functional mix (public/private; manufacturing, housing and collective activities).

Our aim was to focus examples on how to reuse, modify, or replace (partially or entirely) existing small industrial units and activities. To do this, we have experimented with new spatial arrangements and building types, while asking contribution from other disciplines to rediscover and revive the identity of townscapes under study.

Research context

The physical setting of the research was an area included in the basin of the Po valley: an area along the Via Emilia, where small and medium industrial units have concentrated in the last decades.

This area still shows problems of industrial reorganization, rendered more complex by the widespread crisis prevailing in traditional activities. In this context, a number of projects concerning rail and/or road accessibility were being carried out, arising much debate as to whether or not they will prove useful for the future transport network of the whole basin.

In this broader context, our research has focused on in-depth analysis of a possible case study, represented by the city of Fidenza.

The strategy adopted by the research work moved by some general considerations, that see the urban plan of Fidenza fragmented into anonymous accidental conurbations, moving gradually away from the city center to the countryside.

This anomaly, which is common in many centers for small and medium, who aspire to an independent growth without a large scale approach, in Fidenza is particularly emblematic near the entrances of the city on the Via Emilia.

While on the western side, the river Stirone has formed a natural barrier to the spread of an undifferentiated urban fabric, on the eastern one, conversely, the potential settlement seems to have given up on building new landscape. Then, is an urgent need to rethink, in this urban fabric, the role of the Via Emilia, which has historically helped to create direct relationships along the course, between town and country and between urban facts within the city itself, which are still dismissed (e.g. Fig.1).

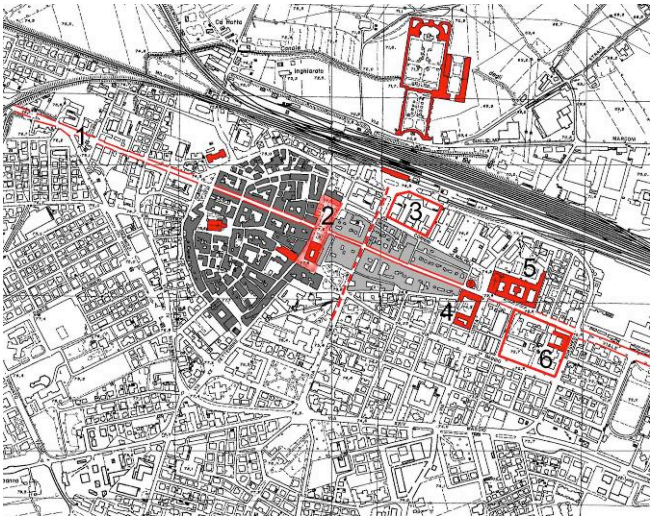


Fig. 1

Fidenza, General Urban Plan:
(1) Ancient Via Emilia;
(2) Fidenza historic centre;
(3) Railway Station project area;
(4) Ursulines College;
(5) Complex of the Jesuits;
(6) Old Hospital project area

As the course and the experiences of the great artifacts of the city of Fidenza has historically testified - such as the large complex of the Jesuits or the Ursuline convent - the opportunity to design places that face directly on the Via Emilia, required a special relationship with the city through a direct frontal with the road, recovering a monumental character that appears to be lost.

Or as in the case of the Old Hospital, for example, where the project has adopted a strategy of replacing some artifacts with a unitary plant, a new construction which was able to incorporate inside some of the potential of the open and free space, that large religious communities in Fidenza favored as urban, public and collective place.

The functions allocated within this unitary plant, propose the establishment of activities related to professional training and secondary and higher education with special interest in the potential represented by the adjacent buildings of the Convent of the Jesuits and Ursulines, all organized into a functional unit circuit, able to take advantage of some opportunities provided by the territorial infrastructure, potentially decisive for the medium-sized towns in in the basin of the Po valley. To support this multi-laboratory, some recreational facilities, dedicated to sports, recreation and leisure, integrate the system with the recovery of some existing equipment, in order to compensate for the lack of facilities and services due to the residential saturation.

Method of work

Research was carried out with the aim to developing some pilot-projects at the urban and architectural scale, an example on how to face reuse of small industrial units. The planned scientific activities was organized into four different phases divided by specific tasks as follows.

The first phase of work involved a on-the-spot investigation, in order to survey the existing conditions (physical context, zoning, main services and public buildings, accessibility); this survey was followed by the preparation of thematic and interpretative maps at different scales showing the potential links between the above areas and the settlements concerned, then by the analysis of the industrial units which could or not be reused (whether still functioning or abandoned and obsolete) and finally by the collection of data on possible new uses.

This first phase of the research work aimed to organize a database showing the extent and characteristics of the phenomenon in the city of Fidenza. Moreover this first phase has developed research on the settlement system of the city of Fidenza, particularly on accessibility to the town and related functional re-organization. Case-studies were chosen among industrial units in a residential area; industrial units within the historic urban fabric; industrial units along road/rail/water infrastructures.

A second phase of work involved the collection and study of data on the case-studies. While defining a functional layout for the projects to be developed, this second phase aimed to focus tools and criteria for intervention (e.g. grafting the new onto the existing structure; replacing part or all the existing structure and/or activities).

The third phase of research has considered the study of the relationship between new programs of activity and their resulting spatial arrangement, the collection of references concerning new forms of social life (community centre, idea store, art factory, etc.).

This phase has developed research on urban regeneration projects in a small and medium town as the city of Fidenza, particularly considering industrial and historical areas to produce feasibility studies.

These two phases, coordinates between them, have allowed to obtain a series of pilot-projects concerning conversion of urban and suburban small industrial units.

Finally, the fourth phase has considered a dissemination of the expected results, particularly concerning the relationship between building types and functional layout, in order to compare pilot projects with other relevant experiences on similar problems.

The contest of project

Among the various considerations it seemed really important to read the city of Fidenza in connection with the center of Salsomaggiore. Fidenza is the door of Salsomaggiore on the Via Emilia. Therefore, the articulation of functions sets out a program for both cities. A possible detachment of some disciplines from the University of Parma, for studies on the care of the body, you can imagine it as an experimental application of Salsomaggiore's spa practice. The strategy of the project involves the enhancement of the old disused hospital complex in the city of Fidenza, which takes on a new role in the urban setting of the old town.

The first project area covers the civil hospital with a building that is part of the system of large urban facilities to be reformed, developed along the historic Via Emilia on the eastern side.

The largest artefact of the Via Emilia expands inside the block of the old hospital in search of new open spaces, the project collects around a large enclosure with different uses: the theme of the open space and its architectural definition has been the focus of the project. The other two major artefacts considered are the Ursuline College with the Jesuits one, trying to maintain its primary function on the reception and assistance.

On the one side, the front of the large complex of the Jesuits, with a system with courtyard quite exceptional for the city; while on the other side of the Ursuline, not extended as the first but with

a rather significant typological complexity, together with the church of San Michele define the eastern approach to the historic city. In the functional program of our project, the convent of the Jesuits is intended to quarters for students and faculty; the Ursuline College conversely is intended for administrative task of the new university system in Fidenza.

The second area of the project is facing the square of the railway station. This area is a landing point with respect to a system of vehicular and pedestrian connections. It is part of an historical first suburbs of the city, and the same time linked to a complex gaming of urban squares and public spaces.

The route of the railway belt represents an embankment physical urban sprawl of the last century.

The route of the railway belt represents an embankment physical urban sprawl of the last century. This place is among the highest in the city and is a vantage point: on one side, towards the front on the north, the scenery of the rural countryside of Emilia with the neoclassical cemetery; on the other side, towards the interior of the city, the two large structures that develop in height: the Cathedral in the west, and east of the church of San Michele.

Results

Aims and expected results can be summed up as follows:

- (a) to collect and cross-check data to gain a thorough understanding on how to reuse urban and suburban small industrial units, considering the wider urban/local context and its distinguishing features: physical and architectural, cultural and social. Challenging land consumption requires first and foremost mapping the phenomenon and identifying which areas can be suitable to new uses and, possibly, which can be restored to their previous condition.
- (b) to refer a number of examples to three categories: industrial units in a residential area, within the historic urban fabric; along road/rail/water infrastructures;
- (c) to produce preliminary reports and projects on the case-studies, where the three above-mentioned categories can be experienced, and later extended to other similar contexts.

Through this research work our aim is to face concrete problems of "micro" urban regeneration and focus, case by case, appropriate tools and practices. A sustainable micro urban regeneration should improve the architectural and environmental quality of a given urban context, strengthening its identity while promoting new "smart behaviors" among the users (tackling the societal and environmental challenges set as priorities by the EU program Horizon 2020).

Our ultimate aim was to show the pivotal role that architectural design can play in urban regeneration processes, experimenting with space to accommodate new schemes of social life, as well as with new expressive forms.

Our expected result was to contribute in producing theoretical knowledge and practical innovative tools, by updating the concept of urban regeneration concerning micro urban and suburban industrial units and developing accordingly new good practices of urban regeneration (by updating the analytical, critical and operative approach to concrete problems).

To exemplify our approach to the theme of the proposed research, it is necessary to look at the analysis of some projects. Presenting these projects, a warning is unavoidable and useful: the choice of these projects, with their degree of approximation and with all the naivety contained, seeks to affirm a shared point of view about Architecture according to the conditions explained before.

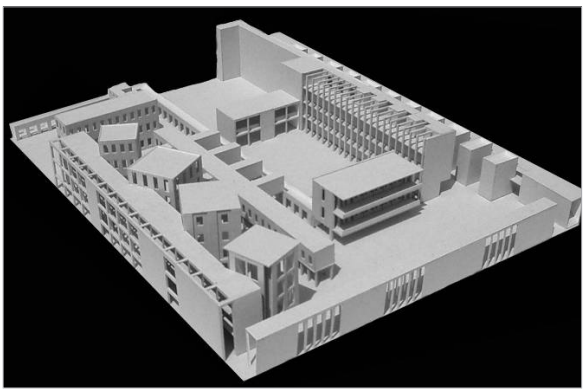
They do not represent perhaps the most successful cases, and perhaps not even the most convincing and therefore relatively mature in dealing with a subject as complex as that of the public building in the city. These cases presented are examples of a slow and mutual acknowledgment of the complexity of an architectural project.

Fig. 2
Plan of the project area

Fig. 3
First floor plan

Fig. 4
Axonometric view of the project

Fig. 5
View of the project model (1:200)



They are therefore relevant in the witness how some pedagogical choices, based on experimental research, should be able to act critically on present experience, capable of producing culture and knowledge.

These projects have developed in different ways the issues proposed by the place, chosen as project area. These issues can be summarized as follows:

- proposals for the organization in the area facing the Fidenza Railway Station;
- proposals for the organization in the bounded area of the former Jesuit Convent in Fidenza.

Proposals for the organization in the area facing the Fidenza Railway Station.

The structure of the project will be responsible for a directional part for the promotion and development of facilities and welfare of the city of Fidenza and Salsomaggiore Terme.

The program covers the allocation of agencies dedicated to the promotion, organization and development of tourist accommodation in Salsomaggiore Terme and all the recreation, welfare and accommodation of Fidenza: revival of theater, hospitality workers and students, assistance for hospitalization.

In the first project proposal, activities are organized inside the area respecting a very precise scheme. The place is fenced and well-defined by buildings in line and punctual elements that have the task to reconstruct a building courtain along the side facing the station and along the axis of Via Malpeli (e.g. Fig.2 and Fig.3).

Within the area bounded is going to have other buildings alternating with each other to create a sequence of

two internal courts well-structured. All these spaces that are different in their characteristic but similar in their meaning, enrich the project with public and open spaces, transforming all the area in a very permeable place and usable, both inside and outside (e.g. Fig.4 and Fig. 5-6).

The second proposal, however, places the buildings along the outer part of the project area to create a central space almost entirely free.

The courtyard created communicates very clearly with other similar spaces that are in the historical pattern of the city of Fidenza; for example the College of Jesuits and Ursuline.

Then, this project maintains the existing buildings along the axis of Via Malpeli and withdraws the new building curtain into the spice behind (e.g. Fig.8 and Fig. 9-10).

The project envisions an architecture of representation, interpretation of characters founding of the city along its peripheries: an urban scene in which to place various structures able to communicate at a distance with the historical urban and rural monuments.

Through the cities in this context means encountering a sequence of structures and images belonging to a common cultural identity, despite the various regional centers have a particular local declination.

Handed down to us from ancient times, the structure of this settlement is an authentic and tipical expression of cities along the "Via Emilia".

This context faced and formalized by different historical transformations in its antropica conformation, offers itself as a opportunity in its very ability to be interpreted trough the significance features of its physical and architectural composition.

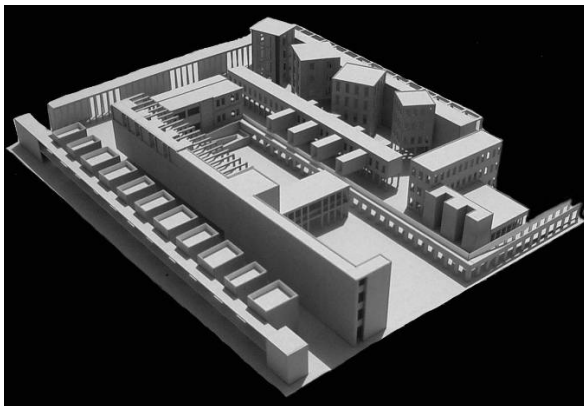


Fig. 6

View of the project model (1:200)

Fig. 7

Plan of the project area

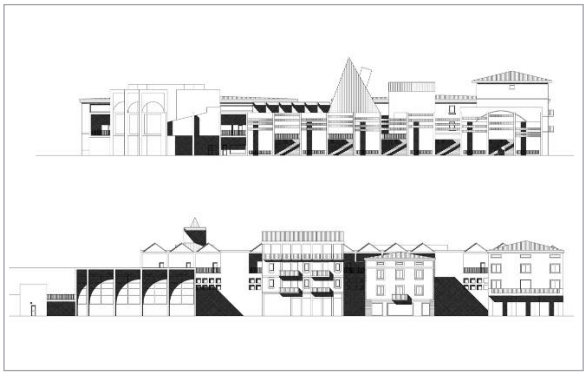


Fig. 8

Study of the facades

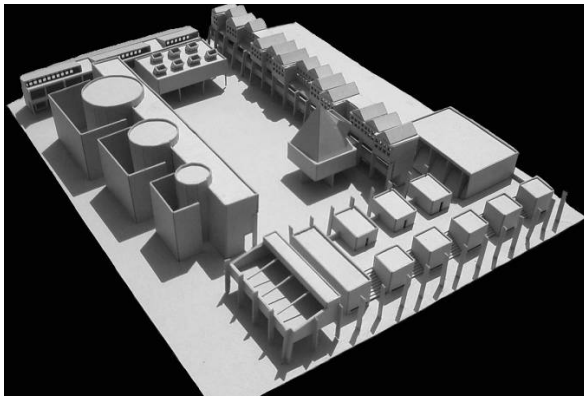


Fig. 9

View of the project model (1:200)

Fig. 10
View of the project model (1:200)

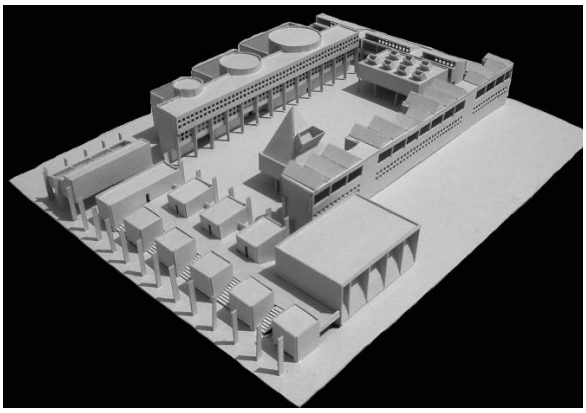


Fig. 11
Plan of the project area

Fig. 12
First floor plan

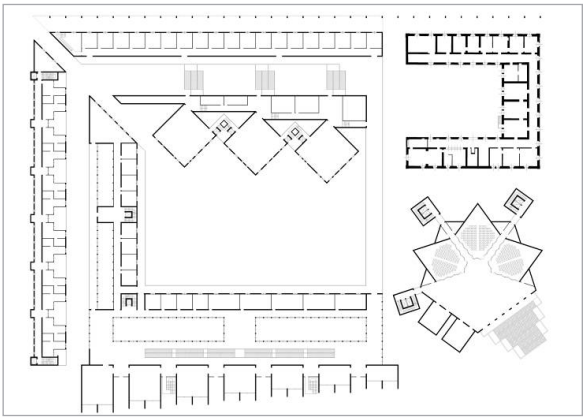
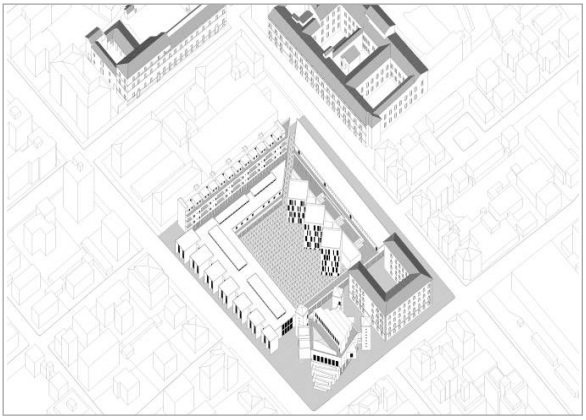


Fig. 13
Axonometric view of the project



Proposals for the organization in the bounded area of the former Jesuit Convent in Fidenza

In this case, the structure of the project will include an allocation of permanent university research and university teaching, some specializations of the medical discipline of the University of Parma, appropriately distributed in Fidenza and related to the medical activities in Salsomaggiore Terme.

Specifically, they would be provided for a detachment department of the University of Parma, for research on the care and well-being of the body through some branches of medical research into alternative treatments to traditional medicine. In this project, will be provided for the full involvement of the Old Hospital-structured, appropriately reformed into its parts architecturally valuable.

The project proposal consists of two parts. The first one concerns the delimitation of the area along Via Primo Maggio, Via Berenini and along the opposite side of the old structure of the Hospital. In this case buildings are arranged in a courtyard around a central space which remains mainly empty, but it is constantly in dialogue with the structures surrounding it **(e.g. Fig.12).**

The external structure of this courtyard is made by a double line of buildings connected with each other by some distribution spaces that have different depths and widths. Also in this case the architectural design of the court is used to recreate a public space with great value and importance for the city of Fidenza. The functions allocated within this unitary plant are all organized into a functional unit circuit, able to incorporate inside some of the potential of the open and free space **(e.g. Fig.13 and Fig. 14).**

The second part of the project concerns the space near the Old Hospital along Via Borghesi.

In this case the project proposal creates a central-plan building that emphasizes its exceptional nature as a structure designed to accommodate very special functions, such as conference rooms, meeting places and public spaces in general.

The second proposal tries to establish a precise relationship between the project area and Via Berenini placing its own entrance along this axis. All the space is enclosed within a fence composed by several buildings.

Near the old Hospital there is a compact structure designed to classrooms teaching that relates to the mass of the ancient building and redraws the axis of Via Borghesi.

In opposite of these elements there are two important buildings that closed the area along the West side; they are central plant spaces designed to accommodate very specific functions such as laboratories, congress rooms and meeting places.

These two parts are connected by an open courtyard which represents the most important public space of the project.

Finally, along the axis of Via I Maggio, the project involves the construction of some singular elements that are connected with a linear element to create a united front in the South side of the area (e.g. Fig.15 and Fig. 16-17-18).

In all this examples the composition gives the idea of a structure made of fragments that are combined in a free assembly of the figures to create a single project.

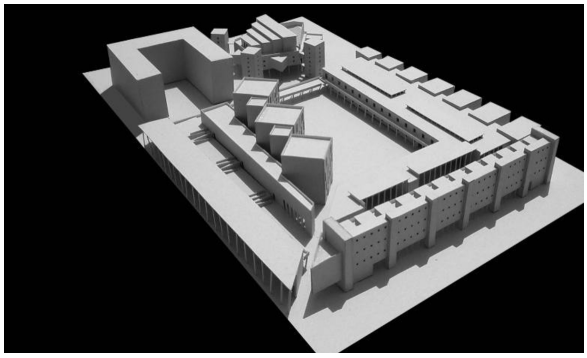


Fig. 14

View of the project model (1:200)

Fig. 15

Masterplan of the project area

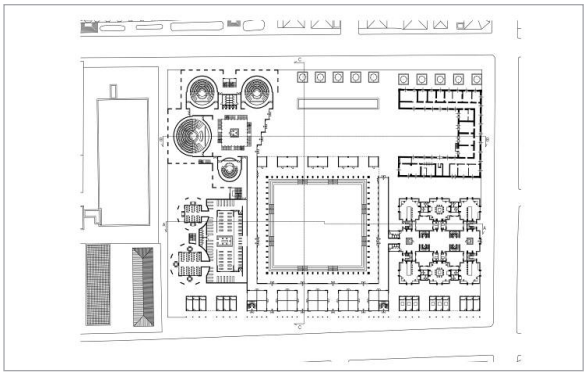


Fig. 16

Plan of the project area

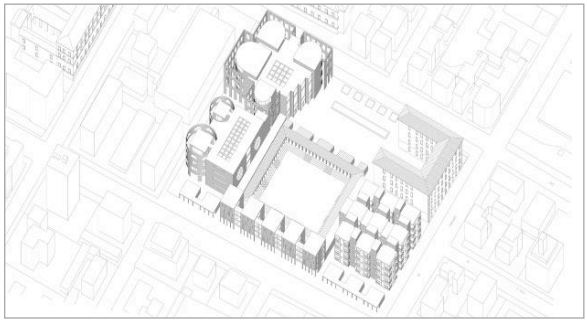


Fig. 17

Axonometric view of the project

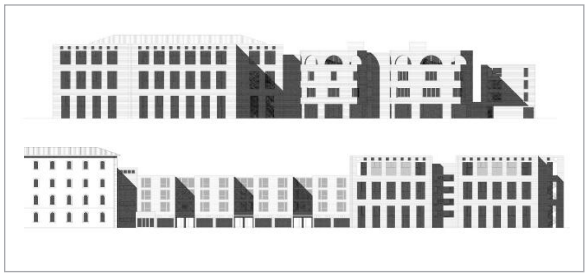


Fig. 18

Study of the facades

Sustainability of the projects

During the design process has been given particular importance to the sustainability of buildings.

Designing "sustainable" means to consider, in addition to the traditional requirements of security, accessibility and comfort, few typological characters relating to the overall design of the building (form, plan, equipment and distribution) and others related to construction choices in response to aspects of flexibility and "re-configurability" of building structural design.

Every building, in fact, change over the years according to the changing of its users or the destination of use. Some of these changes are controlled through the distribution plant of the buildings, designed with the aim of developing spaces able to predict the (probable) subsequent behavior of the users.

Regarding to the requirements for construction choices, in relation to any possible manipulation of the building during its life cycle, the main requirement was to ensure maximum "re-configurability" of the spaces and the structures. This was translated, during the design process of each building, not only in the choice of natural materials and "dry" construction systems, which more easily satisfy these requirements of reversibility, but especially in making easily removable and separable parts of building.

These requirements thus require a constructive processing based, wherever possible, on technical elements designed to be stacked and assembled with mechanical and reversible connectors, and thus easily re-used for more and different structures.

Conclusions

The innovative aspect of the project lies in posing the problem of urban regeneration at the micro-scale, looking at the potential role of small industrial units that have closed down in small/medium towns. These towns form a polycentric structure supported by a road and rail network, whose efficiency could provide a key to economic and cultural development; each with its personal role and character, they also feature rich historical townscapes which can play an active part in urban regeneration.

In the current situation a priority vision is mandatory. Sustainability, so often set as a priority by international research institutions, requires not only a generalized approach; rather does it require specific solutions, to be found considering the distinguishing features, and resources, of each single context. The task to be met is thus to identify a set of solutions that, changing only those things which need to be changed, can be adopted also in similar cases.

Our project aims at defining guidelines to be used by local administrators and technicians, whenever a comparison between alternative solutions can contribute to far-seeing urban policies (e.g. when establishing agreements among public administrative bodies, or dealing with project financing).

Our infra-disciplinary approach will rely on external consultancies. However, we believe that reuse of existing buildings and sites requires first of all understanding their "raison d'être", allied to an idea about their future role in the urban context, in other words re-interpreting their type, style and all of the system of architecture while exploiting complementarities/synergies with the existing resources in terms of townscape, public space and accessibility.

Updating the concept of urban regeneration implies going beyond a merely technical or energy-efficient approach to sustainability, to optimize the comprehensive use of urban/contextual resources.

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