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The Redevelopment of The Heritage of Social Housing in Italy: Survey and Assessment Instruments. The Case Study of Pilastro Neighborhood in Bologna

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Abstract

The increasing importance of social housing in order to deal with the emergency caused by the pressing demand, places in the foreground the need to redevelop the existing public housing heritage.

The paper proposes the deepening of one case study, the Pilastro neighborhood, a significant example of social housing high density settlement, situated in the outskirts of Bologna in order to brought out the technical, functional and social factors, on which the level of quality of the settlement and the phenomena of social uneasiness depend. It also highlighted some factors that may pose a resistance to the measures of improvement.

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1. Actuality of the social housing topic in Italy

In the decade 1996-2007 the Italian real estate market had a cycle of intense growth, with a production of over 2 million new housing units and a 6.5% average annual rate of growth (Cresme, 2008), and a strong positive trend in sales, slowed only until late 2007 because of the incipient global economic crisis. The 10% decrease in sales in 2008 over the previous year means a reduction of about 80,000 transactions (Nomisma, 2008). The phase of dynamism in the housing market has further increased the proportion of housing ownership, which has exceeded 80%, while the share of housing for rent was reduced to 17.2% (ISTAT 2007), confirming the continued decline already registered in the past: -5.4%, from 2001 to 2005,

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and a further decline from 18.8% to 17.2% from 2005 to 2007 (Censis processing on Federcasa data). The supply of rental accommodation is growing farther away from the European average and even more than those of most EU countries (Germany 55%, France 38%, UK 31%, Cecodhas data [1]).

Despite the predominance of home ownership, the demand for houses to rent hasn't decreased, driven primarily by the increased number of households, which from 2000 to 2007 grew by more than 2 million. Since the primary housing need of traditionally weak social groups is still not completely satisfied, a new additional demand is emerging, expressed by a diversified low income population, such as the elderly, young couples, students, immigrants, temporary workers. So not only the marginalized segments of society are involved, but also large portion of the middle class, that has swiftly grown poor and it is looking for a housing affordable to their income levels; which doesn't allow the access even to the large surplus of 5.5 million unoccupied homes on the market.

The situation that is occurring, therefore, has some highly peculiar critical features: a strong housing exclusion that affects large and relatively heterogeneous social groups, coexists with a surplus of unfilled stock, also recently built, with consequent effects of urban sprawl. The impulse of new categories of demand, expressing specific needs and expectations, shows the urgent necessity for more rental housing [2]. Since 1991, household incomes have increased by about 20% while the increase of rents in urban areas was 66.7%, making a rent at market prices inaccessible for many of them.

This has highlighted the issue of housing placing it on the political agenda and renewing the interest in social housing. The term "social housing" is to mean all the activities, initiatives and instruments implemented by public institutions or private operators to reduce the social disadvantage of individuals or groups who fail to meet their housing needs in the market (for economic reasons or for lack of an adequate supply), allowing them access to a satisfactory living environment and social development.

It's difficult to estimate the number of families who live in poor housing conditions because this can take many forms. In 2004, a survey of Banca d'Italia has estimated that 3.3 million households are in poor housing conditions. This is more than 15% of the entire population, despite the survey only under an economic parameter (when the cost of rent or the mortgage reaches 30% of disposable income) and a physical index (the overcrowding of housing) and not considering other factors instead.

The picture seems bound to evolve negatively because the economic crisis will tend to shrink further the households incomes and the demand pressure will become more intense.

On the supply side, in Italy the assets of public social housing, managed by the "Aziende Casa" (social housing public companies), amounted to just under 940,000 units, including 768,000 for rent. The public park represents less than 4% of the total stock of housing in use, but it covers nearly 18.8% of the housing for rent (ISTAT-CGP 2001). This reduced supply of social housing does not affect significantly the market, and it is shrinking even further because of the privatization of the public property [3]. The sale of housing to individuals, introduced by L.560/93, allowed the sale of approximately 200,000 units and led to a fragmentation of the estate that has complicated its management and administration.

On the other hand, public engagement has been gradually diverted to a substantial dismantling of a direct intervention. Since the '80s until today, the public housing supply has reduced of 90%, mainly because of the end of the Gescal regime (1995-1998) that had until then guaranteed stable financing: from more than 30,000 new social housing per year (34,000 units in 1984), domestic production has fallen to a few hundreds per year (1,900 in 2004).

The current Italian social housing situation is very fragmented, related to occasional financings or to emergency measures: the prolonged weakness of the housing national policy did not allow the establishment of a defined scenario in which each Region would move to meet the specific needs of its territory.

Considering the complexity with which the problem occurs, the response to the growing housing problems require a multidisciplinary approach, implemented with complementary actions: in addition to

the production of new social housing, at least the marketing of units of the park consisting of vacant properties, economic support to families and the upgrading of existing public assets, in order to adapt them to the emerging demand and the current housing standards.

Increasing a supply of affordable rented housing, through a variety of formulas for public-private partnership, can't substitute an effective management of existing public housing stock. It was built over a long period of time, it has for the most part over 40 years, and it's formed by old buildings (400,000 rooms, approximately half of the public park, dating back to before 1990) that do not correspond to the needs of new groups of users and resulting in high operating costs, particularly due to the high energy consumption, in addition to often insufficient levels of ventilation and lighting, the presence of moisture, the use of materials that have proved to be harmful.

The rationalization of the assets of existing social housing, its functional and morphological regeneration, the economic enhancement and the reduction of the operating costs may trigger a set of actions useful for satisfying a portion of the growing demand. The need to define interventions aimed at the redevelopment of this large segment of the housing stock is recognized and encouraged by a number of Italian instruments of integrated planning: PRU (Programs of Urban Renewal), PRIU (Urban Regeneration Programs), PRUSST (Urban Regeneration Programs and Sustainable Development Planning), *Contratti di Quartiere* I and II, which, since the 90s, have allowed to experiment with programming and managing tools of operations including large scale regeneration. Sustainable development and regeneration of degraded settlements are considered priority targets by the European Commission (Green Paper on Urban Development and Urban Community Intervention Programs 1 and 2) and, although with different approaches, many European countries are implementing actions to recover the settlement of social housing, paying particular attention to energy efficiency and environmental sustainability [4].

2. The Research Program PRIN 2008

Within the Programme of Scientific Research of National Interest (PRIN), in 2008 the MIUR (*Ministero dell'educazione, dell'Università e della Ricerca*) has supported the Research "Renovation, regeneration and valorisation of social housing settlements built in the suburban areas in the second half of last century", conducted by a team of researchers from the Faculty of Architecture, University of Bologna (Cesena), together with researchers from the University of Ferrara (National Coordinator: prof. Roberto di Giulio), University of Venice IUAV, Polytechnic of Turin, University "G. D'Annunzio" of Chieti-Pescara. The objectives of the Research consist in setting up criteria for the investigation and the evaluation of technical and procedural instruments and of working models of intervention for the redevelopment of public housing assets. In particular the Research aims to develop a methodology for multidisciplinary analysis that includes different and complementary aspects of building quality (social, functional, technical and environmental) and that allows to implement the performance based on customer needs and on standards required by the regulations in force.

In this context, the Research Unit of the University of Bologna is to take a case study of the Pilastro neighborhood (see fig. 1), which is an important settlement of public housing located the Emilia-Romagna regional capital, Bologna. This neighborhood was chosen for its symbolism and for its representation of the heritage of social housing in Italy. The by far largest portion of that heritage, in Italy as elsewhere in Europe, is located in the suburbs, more or less distant from the center. There are neighborhoods that were built just outside the old town, many others that, despite being initially isolated, were then incorporated into the urban growth, others that still maintain a physical separation from the body of the more compact city and that are its outer fringes. These last ones, among which we can include the Pilastro, are typically high-density settlements, with large housing estates, which have suffered since

their creation of conditions of physical marginalization which then eventually led to consequences including issues from a social perspective.

The Pilastro has developed over a period of time between the end of the Fifties, when the first plan was designed, until the mid-Eighties. This means that the main phases of public housing are represented, with the various typological, technological and constructive trials that have characterized its evolution. In addition, the area is marked by particular dynamics of demographic, social and cultural factors that have strongly influenced its identity but have also led to segregation, with phenomena of social criticality and petty crime. On the other hand, the Pilastro is a topic of particular relevance: it is placed in the middle of an urban area that the city of Bologna considers strategic and on which it's intervening with the inclusion of relevant service infrastructure of metropolitan significance.

The understanding of the physical layout of the neighborhood, passing through the various stages of settlement and highlighting the relations with the surrounding tissue and the rest of the City, and the understanding of the immaterial components, are aimed at pointing out the factors which depend on the quality levels of the settlement, assessing their potential for redevelopment and at identify the elements that may be a resistance to change. To better understand the characteristic features of the Pilastro and evaluate their perception of the citizens, we have proceeded with an investigation that used the bibliographic sources and materials available in the archives of the Agency which has built and managed public housing, and in addition we have operated a field research through interviews, both on representative figures such as directors, members of associations and institutions, and ordinary residents. It came out a complex and sometimes contradictory reality, where next to feelings of disorientation and dissatisfaction lives a heightened sense of belonging and rootedness.

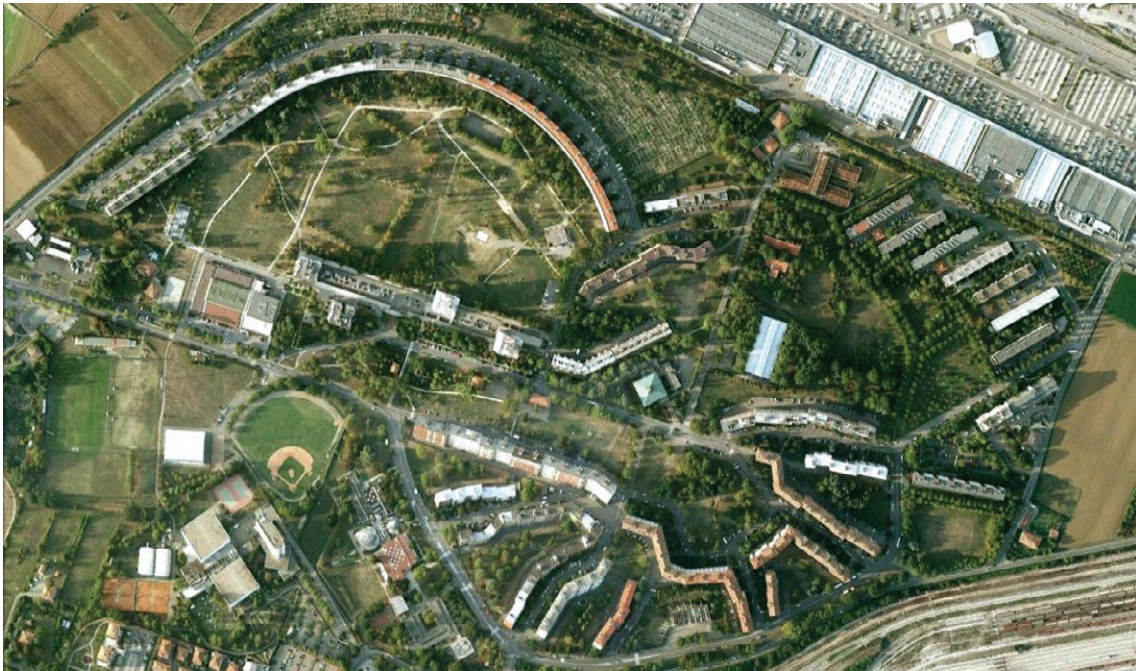


Fig. 1. Aerial view from above of the Pilastro neighborhood

2.1. The case study of the Pilastro neighborhood in Bologna

The Pilastro neighborhood is a part of a PEEP (*Piano di Edilizia Economica e Popolare*) of 1962 prepared by the City of Bologna and built by the IACP (*Istituto Autonomo Case Popolari*, see fig. 2a-b) in a period ranging from 1966 to 1986, when it was completed the construction of the last of four towers which, together with the so-called Virgolone, are the implementation of the urban variant plan of 1975. It comes at a time of great housing emergency to meet a pressing demand for housing; assignees were mostly immigrants from southern Italy, only with a low income and who already lived in a condition of disorientation and discomfort, not helped by the segregation of what was soon to be perceived as a "ghetto", by both the inhabitants and the rest of the city. When the first settlement, consisting of 411 apartments, was inaugurated in July 1966, 2,500 inhabitants were found to pass on dirt roads with no public transport lines, the houses were without water and heating, and the entire area had no services, schools, business or health structures. The rent was 30% lower than the average of the other peripheral areas of the City. For a long time it has experienced a pronounced physical isolation, not yet fully resolved, determined by the distance from the City center, by the fact of being surrounded for the most part by countryside for being and beyond significant structures of the territory, as the ring road, the railroad and the goods yard.

Soon there were episodes of petty crime and youth problems, which were accentuated in the following decades when the Pilastro would be permanently labeled as a place of ill-fame. However, as it often happens in the more marginal suburbs, great solidarity, dynamism and cultural vitality soon occurred. A highly distinctive feature was the participation of residents, who organized themselves effectively in a committee of tenants, and who directed the decisions affecting the future of their neighborhood, expressing needs, putting forward proposals and working to implement them in practice. The battles caused a shared sense of belonging, it built a brand identity and they are still remembered with pride and claim by older people who have been the protagonists of many episodes.

Today, the Pilastro, which has about 7,500 inhabitants (about 3,000 less than in the Seventies), has gained a provision of neighborhood facilities that surpasses the needs of the residents and attracts people from all over the City, it has a wealth of green spaces and public parks unmatched in Bologna, and an efficient public transport service linking it with the center.

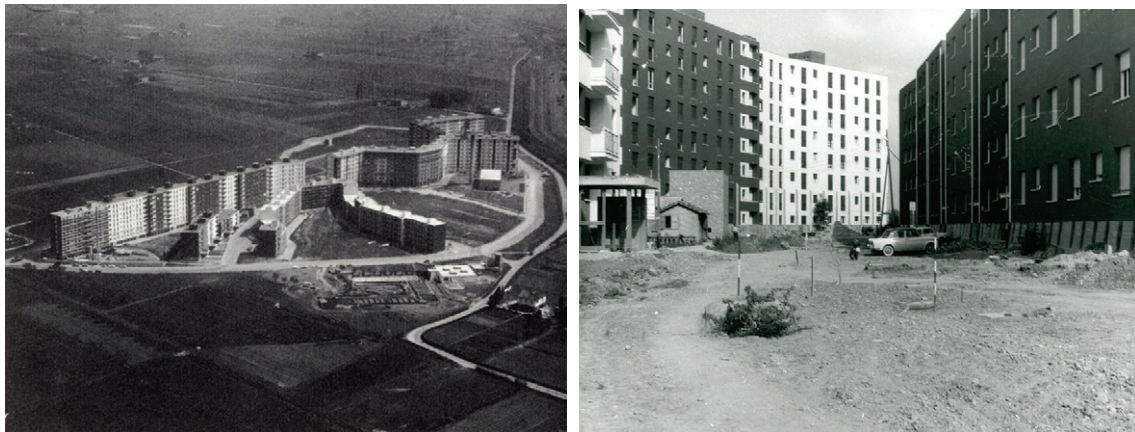


Fig. 2. (a) The construction of the first group of buildings in the Pilastro area in 1966; (b) View of two residential buildings in 1966. The road in between is not paved. *Archivio Storico ACER*

It has solved most problems of social and public policy, but the strong cohesion between the citizens has loosened and the participatory spirit of the past has been lost. It seems even more desolate and less frequented than when it suffered a total isolation: streets are empty now, squares do not function as places to meet and socialise, the few business in the promises of the homes are now empty.

Some of the causes of these dynamics are to be found not only in the changed social habits and in the demographic mutations, typical of many suburbs, but also in the rigidity of the urban plan and of the system of building types. There is a clear separation between residential buildings and the structures built for other purposes; it lacks the small business and personal services, which can create an attraction and a local polarization of users, who consisting of a particularly high number of elderly people, can express a strong need for relationships with neighbors and for local services.

The strong monotonicity of fronts, which in the extreme case of Virgolone (fig. 3) are systematically identical and uninterrupted for 700 yards, even if it's the result of projects that are still appreciable, is now perceived by residents as a trademark that reveals the popular origin and, in the absence of other adhesives, it doesn't help to create an "urban effect" that also consists of the recognition and the sense of belonging. The poverty of external finishes and the degradation, so evident in many buildings, reveal the current difficulties of ACER Bologna, the managing body of the public housing stock in Bologna, in coping with maintenance and with other works they need. Rents are very low: the average fee is 114 euro per month, while that applied to households that fall in the most disadvantaged category is 27 euro per month. ACER, in the absence of external financing can only do engineering work required by law and little else, with costs that are around 4,000 euro for each accommodation.

As already mentioned, the sale of public property, which was not governed with appropriate and far-sighted logic, has led to complicate in a sometimes insurmountable way the possibility to operate interventions on condominiums consisting of multiple owners. Even at the Pilastro, where the percentages of private and public property are now the same, routine maintenance of some buildings have resulted in an organizational effort not corresponding to the result.

Today the interior of the housing, which was carefully designed, articulated in various types and sizes, shows limits of usability and features of distribution that often make them inadequate to the needs. The buildings constructed during the first period (1966-1975), having a traditional structure made of reinforced concrete beams and pillars, are more flexible and adaptable, through hypothetical restructuring, compared with the more recent Virgolone and Towers.



Fig. 3. Aerial view of the 700 meters long building named "Virgolone", built in 1975

In fact, they are respectively made with the tunnel system, which creates a reinforced concrete structure with baffles that are repeated with a maximum distance of 3.80 meters, and with a system of prefabrication which correspond to the walls of the main rooms.

Another area of great weakness of the built heritage of the Pilastro is the high energy needs, which fall directly on the tenants who pay the utilities out of their own pockets.

2.2. Survey methodology and first results

In order to explain the results of the analysis on the Pilastro and to organize them in a concise and easy to interpret manner, we used the development of a number of descriptive parameters. They were developed from European researchers who have dealt with urban regeneration (EPQR and HQE2R) and some of the main systems of evaluation and rating of the buildings, such as LEED (The Leadership in Energy and Environmental Design) of the GBC (Green Building Council), which is becoming the benchmark for the design and the renovation of high-performance, sustainable buildings. There was then a further refinement on the basis of some research work which had as its object the PRU (Program of Urban Renewal, Matrix Quality AUDIS) that have been implemented in the Region Emilia-Romagna. The parameters have been specially calibrated on the need to provide synthetic informations (quantitative and qualitative) and to manage data organized on specific case studies concerning public housing, so that we can get directions to plan and manage strategies for retraining. Since they can involve multiple forms and levels of intervention, the parameters must be able to describe the settlement according to its urban location and its relationship with the City and to go into more detailed and precise descriptions related to the architectural and technological dimension. Furthermore, because an effective retraining program is the combination of physical and morphological transformation purposes and larger and more integrated objectives, involving the social, cultural, economic aspects and the overall sustainability, the parameters deal with the various subject areas (sociological, urban, architectural, technological, environmental areas) so as to bring out which area is more convenient to prioritise.

The application of parameters for the interpretation of the case study Pilastro has highlighted the need for their reorganization, in order to make them more operational and to bring out the direct contribution that they could give to the setting of a redevelopment project. The parameters were grouped according to the "qualities" which they help to achieve. The qualities, divided into Planning Quality, Architectural Quality, Social Quality, Economic Quality, Environmental/Energy Quality, are the targets of an hypothetical intervention of regeneration of the suburban area. For the case study Pilastro, some parameters return positive values and potential for change, while others represent negative elements of resistance and obstruction to the transformation.

The parameters are also particularly helpful in forming a platform for comparison between different case studies, to have a flexible tool used to highlight the descriptive similarities and differences between several neighborhoods, and also to compare the strategies of regeneration that in some cases have been put in place and to assess their degree of transferability from one context to another. A special section is devoted to the parameters that allow an examination of the factors affecting the assessment of the environmental sustainability of the settlement as a whole and of the physical aspects of buildings that appear critical from the energy point of view.

To meet the more theoretical aspects of the Research and to verify those who may have the most immediate impact, it was decided to select some sample buildings to be examined in detail, both in regard to the fruition by users and the responsiveness to their expectations, and in terms of their typological and constructive feature, both of which are inherent to the physical degradation. In particular, we explored the building Virgolone, whose energy behavior has been verified and whose weak points are being checked with instrumental surveys on the field.

It was chosen for its semantic relevance, as it has been taken as a symbol of the neighborhood and it's perceived as a very strong presence by the inhabitants of the Pilastrò, for the imposing size (it is a building line which contains 552 accommodations) and the special construction techniques. It also represents the formalization of a social model space and a vision of living that characterised the era of the great popular settlements in Italy.

The in-deep study of the energy issues regarded the main building: it analyzed the envelope and the plant equipment, breeding and comparing the actual data of consumption of electricity derived from the bills paid by the inhabitants with the results of an energy assessment performed with a validated software UNI/TS (Termolog), it developed a pattern of energy behavior throughout the building that allows, changing the various factors, to assess which are the technological components to be amended to improve the energy behavior and then derive design guidelines for an energy redevelopment. The figure emerged from the assessment of energy requirements with the software (101.10 kWh/m²a, see fig. 4) was higher by 4.9% compared to the real one (96.20 kWh/m²a) derived from the bills of energy supplies. The small difference between the two registered data support the conclusion that the model simulation of energy behavior developed for the building Virgolone is reliable and it can be used to formulate options for action on a larger scale, aimed at reducing energy consumption and at increasing the comfort of residents.

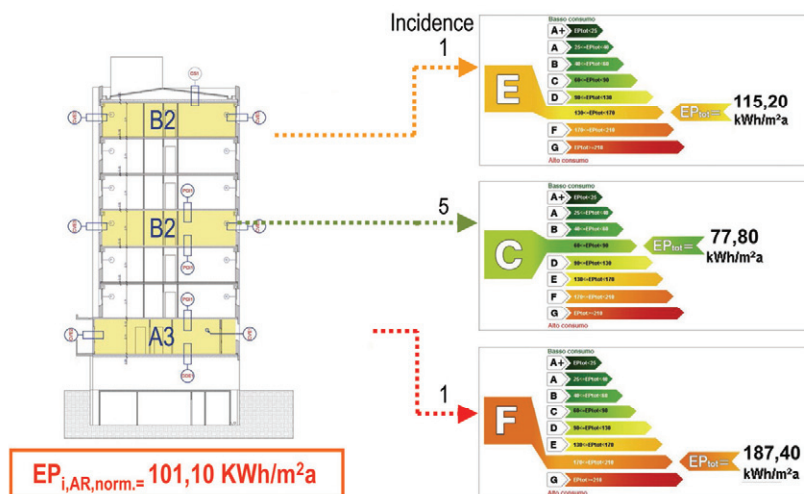


Fig. 4. Energy assessment of the Virgolone, (performed with Termolog). The production of hot water is not included in the visualization. It amounts to 24.40 kWh/m²a

3. Conclusions

The application of descriptive parameters to the Pilastrò neighborhood case study, the interpretation of which is nearing completion, allows to highlight and comment on some results of this first phase of the Research. The data relating to the provision of services reveal that they are appropriate to the amount of users, they outweigh the needs even as the population decreases. The parameters of the urban topics, which have long constituted the main reason for isolation, describe a situation less critical than in the past: the physical distance from the center of Bologna is now regarded by many residents as a benefit, associated with a higher quality of life and partly overcome by an efficient public transport network. The efficient road system internal to the neighborhood, the broad allocation of parking, green and public spaces are the pride of the neighborhood. Employment opportunities are increasing due to the presence of

major service facilities in that important urban sector, and management, shopping and accommodation activities which, although located at the edge of the Pillar and little related to it, bring jobs and economic benefits.

The Research brings out with clarity the two most critical aspects, now linked to the social and architectural quality. The first is increasingly affected by the obsolescence decay of the built heritage, because of age, the lack of maintenance and poor initial quality of the product. The needs of changing user groups do not find full satisfaction in older types of accommodation, that are underutilized or used improperly. The uniform, repetitive and poor image of buildings, even if they were at the time the results of careful planning is now associated with degradation.

The parameters that contribute to the social quality are the most interesting and provide a complex and singular profile. It can be said that they describe the elements of strength and weakness of the Pilastro at the same time: people were and are still the main resource of the district, although their composition has changed. In place of immigrants from southern Italy, the large number of apartments for large families are used by non EU-citizens. The awareness that the Pilastro was always inhabited by those coming from afar to create a better future for themselves, means that the acceptance is still a value shared by most, but the massive settling of foreign population, sometimes sudden and related to emergency situations, has also created a distortion of its strong identity and led to new imbalances. The Pilastro peripheralization is not so much due to the physical marginalization, which in a large-scale project can be further reduced, as to a relational one: both internally, between different parts of society, and between the district and the rest of the city.

The Research then identifies in the architectural and social quality the two preferential targets to aim for a strategy of development and regeneration of the Pilastro neighborhood. However, the need to narrow the research areas and to identify objectives that can realistically be achieved, should be carefully compared with the many problems that the analysis of large urban areas brings out and placed in a multidisciplinary perspective. One issue that this Research did not address, but that is strategic to the success of a regeneration program, is the management of both the planning phase and the constructive phase of physical interventions to be made on the buildings: the participation in the shared drafting of the project and the reaching of an agreement between the various blocks, the understanding with the owners and the tenants about their possible temporary transfer, the economic cost of the works and of its use.

The rest of the Research aims to identify and circumscribe one or more intervention strategies, derived from both the enhancement of the aspects identified as specific and potentially leading to endogenous forms of planning and development, both derived from the analysis of a selection of Italian and European experiences that may be linked with our case study. The sample study on the building, the Virgolone, will be completed with the focus of an intervention of morphological and energy improvement, optimizing the use of space and overseeing the integration of renewable energy. The effectiveness in terms of reducing the energy requirements will be verified with the simulation model of the behavior of the building already prepared at this stage of the Research.

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