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Industrialized building and the quality of housing in Turin during the years of the great immigration

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Highlights

An attempt has here been made, through a study of the application of patents and heavy industrialization systems in the building sector, to reread the effects of some decades of Italian history. This obviously means dealing with the history of construction, but also economics and social history. Speaking about patents and industrialized construction systems also means, as a consequence, speaking about mutations in living, in domestic interiors and in the quality of life. The case study is Turin, an exemplar industrial city during the so-called “Italian economic boom”.

Abstract

The industrialization of construction practices became established much later in Italy than in other European countries. The impetus of the so-called “Italian economic miracle” in the subsequent fifties, together with the still unresolved problem of reconstruction, induced designers and building contractors to resort to the use of prefabrication. The present work has the aim of investigating this complex situation, connected to the affirmation of building industrialization in the planning of public cities in the period from just after the II World War until the beginning of the eighties, taking the case of Turin into consideration as a study case.

Keywords

Industrialization, Prefabrication, Patent, Quality, Turin

1. INTRODUCTION

The Italian building sector as a whole, when analysed as far as the technical aspects of prefabrication methods and systems are concerned, seems to have been characterized, from the II post-war period up to the end of the sixties, by technological backwardness and slowness, and to have depended on other countries for the supply of equipment and patents for many years.

The debate on the reconstruction of Italy, with reference to the main actors in the building sector in the period immediately after the end of the II World War, in spite of some promising ideas, such as the competition published by the National Research Council in 1945, under the guidance of Gustavo Colonnetti, and the building of the QT8 experimental district at the VIII Triennale in Milan in 1948, basically converged on a reconfirmation of the traditionally adopted construction methods. The introduction of prefabricated
elements, whether mounted off site or on site, and which characterized most of the Italian building production from the end of the II World War until the sixties, could still be described as being of a craftsman like type. Autonomous innovation, with the exception of a few experimental episodes, was limited and not very incisive. The organization and dimensions of building contractors in that period seem to be congruent with a work market that was prevalently characterized by poorly qualified workmanship, and this in fact constituted the main objective of the Fanfani Plan: to supply work to the enormous masses of un-employed people in the post-war period. Only later on did Law 167 of 1962, which put into practice the GESCAL Plan and introduced area plans, favour a change in scale, both in extension and scope, of public interventions. In fact, decisions were made to resort massively to prefabricated building technologies in order to resolve the housing problem of the great masses that had moved from the country and from the South of Italy to the city, on the wings of the so-called “Italian economic miracle”.

The regulations of the GESCAL Plan were in fact explicitly addressed to the promotion of the industrialization of building processes. For example, IACP from Milan built between 21500 apartments between 1962 and 1974. These built up areas included the Gallaratese district, Gratosoglio, Bovisasca, Fulvio Testi, and Olmi, although other apartments were also built in other municipalities in the Milan hinterland. Gallaratese was constructed by the Soberga construction company, using the French Costamagna system, which is based on the use of specific forms that are used for casting against pre-prepared fired brick elements. New construction systems, which in general were based upon the use of large prefabricated reinforced cement panels, were patented in Lombardy and Piedmont for walls and floors (e.g. the Sacie-Koncz system in Milan, the Borini system in Turin and the Teo system in Valdadrige) as well as more complex tridimensional elements, such as the Zanussi-Farsura, Uniquarto, Triedro and Elle procedures. Large-sized, reusable, self-mounting, metallic formworks were built, and mixed techniques, in which the prefabrication of light-weight structures was juxtaposed with standardized and modular completion works, were tuned. Immense districts that were at a great distance from the centre arose around large Italian cities. These districts were thrown up in a hurry, with limited manpower, as the workers were frequently employed in other production sectors that were undergoing massive development, such as the metal and mechanical engineering industry, and in particular those connected to the automobile industry. These districts were mostly constructed using prefabrication systems imported from abroad, even though these systems were in part metabolized by Italian companies and in
some cases even modified by them. However, the technological potentialities of these systems were only explored partially, as speculative and economic logics of constructing large numbers of buildings in a quick way prevailed and were on occasion accompanied by phenomena of corruption or distortion of the public system. Between the end of the sixties and the beginning of the seventies, a new urbanistic and building vision emerged, in answer to the overall questionable results of the majority of interventions realized for the economic working-class buildings of that decade. This vision was driven by urbanistic and sociological ideas taken from other European countries, above all those from the North, and was focalized on the conception of large residential structures, as syntheses of cities and districts, divided into units according to the self-sufficient theory. From the legislative point of view, Law 865/1971 introduced new organizational and managerial elements into the public building program and entrusted the regions with the responsibility of the localization of the intervention areas; from a technological point of view, the planning was directed entirely toward integral prefabricated systems. The construction of megastructures implied a radical change in the productive and organizational layout of the building contractor companies, which, from necessity, had to be larger in order to obtain the economies of scale which were necessary to be able to support the large investments required for the new equipment. Moreover, the continuation of production was a fundamental condition in order to sustain the introduction of these industrialized processes on a vast scale.

2. STATE OF THE ART

The main reason behind the industrial take-off in Italy was the motorization of the masses. The production of these vehicles was concentrated in the factories of the largest Italian metal and mechanical engineering firm, Fiat, of which Turin represented the propelling centre. Although Turin was already the most motorized province in Italy in 1961, with one car for every 10 inhabitants, in 1971 it became the Italian model of industrialized city of excellence, and reached a position in which 75.2% of all the workers in the Italian metal and mechanical engineering sector were employed there. The great immigration/migration of workers and labourers from all over Italy reached a peak in 1961, with 76,000 new arrivals, and this led the number of inhabitants to increase to over a million. In the second half of the sixties, Turin in fact became the first “southern” metropolis in the North, with about 510,000 residents born in the South or on the islands living in the city. In those years, the building and demographic expansion in Turin, which was characterized by an almost total
absence or an inadequacy of urbanistic planning instruments, was concentrated above all in the outlying districts, where new and immense districts arose, further and further away from the city centre, destined to house the newly urbanized population.

These settlements, created according to the then public building plans, were built on the borders of the historical city, from the North to the South, in the plain areas, next to the ancient network of farmsteads, which, up to the years of the Second World War, had constituted the backbone of the agricultural economy of the region, and which were gradually knocked down because of the continuous spread of the “cement” districts. The main examples of the construction of the suburbs of Turin, in the 1950-1970 twenty-year period, by the public building sector are: Falchera district to the North, corso Taranto to the North East, the Vallette district to the North West and the Mirafiori Sud district to the South. Smaller construction examples were in part introduced into the already consolidated urban fabric and in part into the semi-centralized areas. From the technological point of view, the first important interventions date back to period of the INA-Casa program, and they were constructed with traditional methods and materials; the subsequent constructions, from the GESCAL Plan onwards, were mainly activated by resorting to industrialized
techniques; this sometimes resulted in rather questionable results which, however, were in line with the national events. Even the experimentations that can be considered positive overall, such as the extensive site of the first Mirafiori Sud nucleus, were not so incisive in promoting widespread examples of quality and innovation in a building sector, such as in the Italian one, which was conditioned by a remarkable cultural and technological backwardness.

3. METHODOLOGY

An attempt has here been made, through a study of the application of patents and heavy industrialization systems in the building sector, to reread the effects of some decades of Italian history. This obviously means dealing with the history of construction, but also the history of economics and social services. The research that has been conducted into the compliance between construction systems and building types has made it possible to trace a red line between the struggle for houses, the dreams and disenchantment of the protagonists, the role of cooperatives and of building companies, the state interventions, the legislative uncertainty and the land growth mechanisms, on a background of an economic sector, that is, the construction sector, which has long been in a perennial state of crisis and backwardness. To this aim, 5 construction systems and procedures have been analysed: the Barets system, the Co.Im.Pre.-Skarne system, the Tracoba system, the Estiot system and the Coffrage-tunnel procedure, while 7 districts have been chosen as application samples of the aforementioned patents: the Mirafiori Sud Gescal district, the via Artom M22, M 23 and M 24 districts, the zone E 7 corso Taranto Peep district, the zone E 2 Peep district, which is known as “Falchera Nuova”, the via Tollegno lots 2 and 3 zone E8 Peep district, the via Reiss Romoli lots 2 and 4 zone E14 Peep district and the via Stefano Tempia lots 3 and 4 zone E 23 Peep district. Critical and residual quality issues have emerged, from a cross analysis of the aforementioned data, here intended as a privileged observatory of living, in turn intended as a synthesis of theoretical reflection, technological experimentation, bargaining and mediation elements of the user’s needs, which are in continuous evolution. Some suggestions, taken from the examination of the seven sample districts, have been given as examples. The Mirafiori Sud GESCAL district: what has been demonstrated to be a ghetto district, with elevated social tensions, has maintained the evocative and aristocratic name of Mirafiori, which was derived from Miraflores, the castle donated by Carlo Emanuele I, the Duke of Savoy, to Catherine of Habsburg. The district has been divided into three built-up nuclei over a period of twenty years. The first group, which introduced the local way to heavy prefabrication, in line with the vicende nazionali. Anche sperimentazioni nel complesso positivo come il grande camiere del primo nucleo di Mirafiori Sud furono scarsamente incisive nel promuovere elementi di qualità e innovazione diffusa in un settore edilizio, come quello italiano, condizionato da forti arretratezze culturali e tecnologiche.

3. METODOLOGIA

Attraverso lo studio dell’applicazione in edilizia di brevetti e sistemi d’industrializzazione pesante si è tentato di rileggere alcuni decenni della nostra storia. Si tratta senza dubbio di storia della costruzione ma, anche di storia economica e di storia sociale. Nella sezione fra sistemi costruttivi e tipi edilizi è stato possibile rintracciare il filo rosso della lotta per la casa, le aspirazioni e il disincanto dei suoi protagonisti, il ruolo delle cooperative e delle imprese di costruzione, l’intervento statale, l’incertezza legislativa e meccanismi di crescita fondiaria, sullo sfondo di un comparto economico - quello edilizio - sempre in perenne stato di crisi e di arretratezza.

A tale scopo sono stati analizzati 5 fra sistemi ed procedimenti costruttivi: il Sistema Barets; il Sistema Co.Im. Pre.-Skarne; il Sistema Tracoba; Il Sistema Estiot; il Procedimento Coffrage-tunnel e 7 quartieri scelti come campioni di applicazione dei brevetti stessi: il Quartiere Gescal di Mirafiori sud; i Quartieri M 22, M 23, M 24 di via Artom; il Quartiere Peep zona E 7 di corso Taranto; il Quartiere Peep zona E 2 denominato “Falchera Nuova”; il Quartiere Peep zona E 8, lotti 2 e 3 di via Tollegno; il Quartiere Peep zona E 14, lotti 2 e 4 di via Reiss Romoli; il Quartiere Peep zona E 23, lotti 3 e 4, di via Stefano Tempia. Dall’analisi dei dati raggiunti sono stati evidenziati elementi di criticità e di qualità residua in ogni quartiere inteso, come osservatorio privilegiato dell’abitare e sintesi di elementi di riflessione teorica, sperimentazione tecnica, contrattazione e mediazione di esigenze di un’utenza in continua evoluzione. Si riportano, a titolo di esempio, alcune suggestioni derivate dalla lettura dei sette quartieri-campione. Mirafiori sud: quello che si è poi dimostrato essere un quartiere ghetto a elevata tensione sociale conserva il nome evocativo e aristocratico di Mirafiori che deriva Miraflores, il castello donato nel 1958 dal Duca di Savoia Carlo Emanuele I a Caterina d’Asburgo. Il quartiere risulta suddiviso in tre nuclei edificati nell’arco di vent’anni. Il primo nucleo - che apre la via torinese alla prefabbricazione pesante - è costituito da 798 vani costruiti con una gru che si sposta su binari. Il volume è stato costruito a piè d’opera e montati singoli blocchi costruiti con pannelli prefabbricati, uno per strato. La costruzione è stata condizionata da una notevole mancanza di conoscenze tecniche, contrattazione e mediazione di elementi di qualita e innovazione diffusa in un settore edilizio, come quello italiano, condizionato da forti arretratezze culturali e tecnologiche.
is a complex of 798 rooms that were constructed, in the same way as a part of the second group, by the Borini contractor company, using the Barets system. The construction typology that was adopted conditioned the urbanistic installation, which appears to be extremely rigid and in a comb-like setting, that is, constructed around the central axis, which is made up of the road that leads to the individual blocks of apartments. These blocks were built with panels that were constructed at the work site and mounted using a crane that moved along tracks. Very few variations were permitted by this system, and the efforts of the designers were concentrated, without success, on attempts to make the appearance less monotonous. The second part of the second nucleus and the first of the third were built by the Co.Im.Pre. construction company, who used their own Co.Im.Pre-Skarne patent. The last part of the third lot was constructed by the S.IM.E.T. and Recchi, who adopted the Tracoba I system. From an analysis of these three nuclei together, it can be observed that some adjustments were made. Starting from the almost complete lack, or rather of the postponement of the construction of the services for those residences, that is, from institutional ones, such as schools, commercial services, meeting and relaxation places, to the lack of integration with the rest of the urban context, in such a way as to render – if not optimal, but at least acceptable – “the relationship between the new citizen and his city” (Belloni M.C., 1993). These congenital defects were due to the absolute lack of “that strong and rational comprehensive urbanistic process that has never really triumphed in Turin, and surely did not in the period between the end of the seventies and the beginning of the eighties” (Mela A., 1989). The via Artom M 22, M 23 and M 24 districts: an archetypal image of the deterioration and alienation of the suburbs of large industrial cities, via Artom tells the story of emergency housing that then, almost immediately, was changed into residence buildings. The thesis of the “culpable ghettoization” underlying the transformation of the shack dwellings in via Artom can be confirmed from the policies adopted to assign the apartments. However, rather than the assignment policies, it would perhaps be more apt to speak about “compulsory recruitment” of the more marginalized urban proletariat and sub-proletariat. The logical consequence of this policy was the social and internal housing segregation of the tenants in via Artom, in comparison to the other inhabitants in the area. via Artom is the story of a class battle, but it is also and above all the story of a situation of incomprehension, exacerbated by the times and prejudices, the story of a lack in dialogue between the citizens and the public administration offices, which, through the Urban Regeneration Program (PRU), have only recently found an unexpected happy ending which has resulted in the difficult attainment
of the trust of the citizens. This, in turn, has resulted in the reconstruction of an identity and the feeling of belonging, which was obtained - paradoxically in a late manner- thanks to the knocking down of two of the eight blocks of apartments that made up the district, which in turn has resulted in the emergence of community values that were previously unknown to the inhabitants of that area.

Corso Taranto zone E7 Peep district: “District 33, which was desired, chased after and conquered as the promised land in 1967, and which turned out to be a bitter reality in the following years”, represents the harshest and most difficult moment of the workers’ struggle and of social vindication. The workers, from the factory gates, ran rampant on the themes of houses and quality of life in the city. The inhabitants, unsatisfied by the public response, organized themselves in self-managing political groups; the spontaneous committees, which “from below” proposed alternative and participated in design solutions.

The district, a building complex made up of 10 buildings, each with 10 floors and 4 stairways, and of 6 buildings, each with 7 floors and 6 stairways, for a total of 652 apartments, which, including the foundations, was constructed in just 10 months, utilizing 16.300 panels. With three apartments being prepared per day in the workshop and 4 being mounted on the site, the complex showed worrying signs of decay right from the start: “The internal walls are swelling with dampness and are falling to pieces, and the floors, under a thin layer of plastic, are overflowing with beetles”. The not always transparent management of the work contracts also played a decisive role: “The various plants were acquired from companies on the verge of bankruptcy – they broke immediately and it was not possible to buy spare parts” (in particular in corso Taranto, as mentioned in “La Gazzetta del Popolo”, in the Turin chronicler, Turin, 10 November, 1974). The building complex, that is, two long rows of identical buildings separated by a strip of dusty ground in the centre, seems to more than anything synthesize the feeling of discouragement and of alienation produced by these types of interventions.

Zone E 2 Peep district, known as “Falchera Nuova”: the last workers’ outpost in the suburbs to the North of the city, this large public residential housing district, which was built in the Falchera region between the nineteen fifties and seventies, has come to the attention of the observatory because of its “marginal” construction nature, in both a metaphoric and evocative sense, as an exclusive and self-excluding satellite city, and in the economic sense, connected to the inertia on the real-estate market, because of the rigidity of the movement of the population which is inevitably imposed. The original project for this district foresaw three distinct settlements: Falchera vecchia (the
original Falchera area), Falchera nuova (the new Falchera area) and Villaretto. The later has never been constructed as the chosen area coincided with the layout of the then under construction urban ring-road, close to a slip road. The almost twenty years that separate the construction of the two settlements profoundly affected their characteristics, in terms of material consistency and architectonic result, but also in terms of the different social, political and economic climates in which they were desired and conceived. The former was marked by a “euphoric as much as brazen reconstruction” climate, even though “marked by a static and nonspecific view of the life models” while the latter was marked by a gloomy and asphyxiated climate of terrorism and social tension of the “anni di piombo” (years of lead). In constructive terms, this time interval also witnessed the passage from the still traditional craftsman like building practices, which were aimed at ironing out the knots and details, including even those of minor importance, although always in a direction of standardization and typification of some elements, to building practices for emergencies, where the dimensions of the intervention and the shortness of the construction times became the key indicators of a design process that was taking the first steps toward industrialization and unification.

Via Tollegno lots 2 and 3 zone E8 Peep district: this district was the first in Turin to introduce the application of the reverse U prefabricated system, which is known as the Coffrage - tunnel. This system was imported from France and adapted to the Italian market, thanks to the collaboration with the Emilian Consortium of Production and Work Cooperatives. The use of this imported technology inevitably conditioned the architectonic outcome of the interventions, which thanks also to the desire to minimize the construction costs, led to the concentration of the apartments and the relative services in a single structure, thus aggravating the mega-structural conception of the constructivist inspiration. It is only through the design of “admirable facility” apartments that the designers were able to combine the different needs: of structural compliance (taking full advantage of the potentialities offered by the construction system), of pragmatic compliance (through compliance with the dictates imposed by the GESCAL regulations) and of flexibility compliance (creating dedicated and interchangeable spaces, although within the rigidity of the industrialized system, in order to adhere as much as possible to the wishes of the user, who, through the newly created participation mechanism set up by the cooperatives, finally became the buyer and user of his own house, and no longer just a passive subject but an actor who was able to choose and direct the design choices).

Via Reiss Romoli: in this project, nato in un territorio di frontiera, ai limiti fra città e campagna i progettisti hanno voluto creare una sinesi fra i due paesaggi: urbano ed extrarurano, recuperando sia lo schema a corte tipico degli isolati urbani torinesi - accentuato anche dalla posizione del portico - che la sobrietà delle due torri gemelle costituiscono ancora oggi un punto da rừng, un elemento con setti in calcestruzzo armato prefabbricati - sia il tema degli edifici rurali piemontesi dove l’uia, situata in posizione baricentrica, dehors il fulcro geometrico ed effettivo della vita collettiva. L’austerità degli edifici, previsti a elevata modularietà per consentire l’utilizzo di tecnologie industrializzate, è compensata dallo studio dettagliatissimo degli interni che ha condotto - proprio per la complessità dei vincoli al contorno - soluzioni progettuali decisamente innovative rispetto alla produzione edilizia coeva della Torino di quegli anni.

Via Stefano Tempia: forse l’ultimo monumento urbano di Torino - significativamente entrate nell’immaginario collettivo non con il nome dei progettisti ma con quello del costruttore che nello specifico fungeva anche da stanza appaltante: la costruzione è avvenuta grazie all’impegno dei progettisti che hanno saputo, attraverso la contrattazione delle varianti al piano tecnico, architettonico e spaziale, ottenere soluzioni tecniche, architettoniche e spaziali che hanno voluto creare una sintesi fra i due paesaggi: urbano ed extraurbano, per consentire l’utilizzo di tecnologie industrializzate, è compensata dallo studio dettagliatissimo degli interni che ha condotto - proprio per la complessità dei vincoli al contorno - soluzioni progettuali decisamente innovative rispetto alla produzione edilizia coeva della Torino di quegli anni.
arose in a marginal territory, on the border between the city and countryside, the designers wanted to create a synthesis between the two different kinds of landscape: urban and extra-urban. This was achieved by recuperating both the typical courtyard scheme of the urban blocks of houses in Turin, accentuated by the presence of arcades, even in a transversal direction and revisited, in a technological-constructive way, through the substitution of the traditional columns with separators in prefabricated reinforced concrete, and the theme of rural buildings in Piedmont, where the farmyard, situated in a barycentric position, became the geometric and real hub of collective life. The austerity of the buildings, conceived with an elevated modularity and in order to allow the use of industrialized technologies, was compensated by an extremely detailed study of the interiors. This, because of the complexity of the boundary restraints, led to decisively innovative design solutions, compared to the detailed study of the interiors. This, because of the complexity of the boundary restraints, led to decisively innovative design solutions, compared to the building practices commonly adopted in Turin in those years.

Via Stefano Tempia lots 3 and 4 zone E 23 Peep district: “The latest urban monument in Turin, the first in more than a century that can be seen from afar, just like Superga, the Mole Antonelliana or the Rivoli Castle”, the Torri Di Vittorio still today constitutes a point de repère, a stabilizing element in an unstable landscape, that is, the northern suburbs of Turin, where the regular drawing of the urban layout is lost and gives way to chaos and disorientation. The Torri Di Vittorio, in spite of housing about a thousand people in two hundred and forty joint ownership apartments, can still be considered a building and not a piece of city segregated by its unitary design. This result was obtained above all because of the efforts of the designers who, through negotiations pertaining to the variations of the detailed plan, were able to find solutions which, rather than technological, were architectonic and spatial. In other words, starting from the use of a thin cemented separator construction technology which, utilized perpendicular to the façade, that is, a method in which the profile, clearly sticking out from the wall, divided the overall volume in a vertical direction, with an effect of upwards movement. In this way, the relative enlargement of the floor, made necessary by the desire to develop the largest possible number of apartments as possible along the southern face, was recuperated. Particular care was taken in the distribution of the rooms in the apartments, and the constraints of rigidity imposed by the system were thus overcome- through the choice of dividing the premises into accentuated telescopic shaped rectangular rooms - and the fruition and panoramic aspects were exalted.

4. RESULTS

Speaking about patents and industrialized construction systems also means, as...
a consequence, speaking about mutations in living, in domestic interiors and in the quality of life. The reflection on the domestic habitat and on the quality of life within the much wider theme of council houses is rooted in the Modern Movement, which was founded in a period a great cultural and innovation turmoil, in both technological and above all in social terms. This period can be divided into two distinct moments that can be summarized as follows: from 1949 to 1963, with the INA-Casa Plan, and from 1963 till the end of the eighties, which were characterized by the PEEP, Plans for the Building of Cheap Council Houses. The elaboration of the study of the architectural, interior and fittings relationship reached its peak in 1954 with the X Triennale, in which attention was no longer given to individual spaces: kitchen, sitting room, bedroom, etc., but rather to the apartment considered as a complex system of relations and of vital functions, as can be seen from the section named “Della casa” (about the house) in which seven apartments, which had been or were being constructed by public or private organizations, were shown. This was the last occasion of reflection on the unit of conception between interiors and exteriors. From this date onwards, attention to the architecture of interiors was almost completely ignored, as it was considered a discipline or minor importance, and was reduced to banal furnishings, while attention toward the theme of social building almost totally concerned the relationship between the new settlement and the city, considering its economic and social implications. The debate was thus moved to concepts of building nucleus, settlement units and districts, while the social building complex was rarely documented through the quality of its apartments. Even the photographic material of that time mainly dealt with the settlement systems, and if individual buildings were dealt with, this was done almost always from the outside, as if the shape of the apartment had reached perfection through the studies of the Modern Movement and it was therefore just enough to repeat it. The quality of the new houses in the post war period was entrusted to the Architectural Office of the Management of the INA Houses, which was under the direction of Adalberto Libera until 1952. This office produced a series of regulatory dossiers; these were real manuals drawn up with the purpose of directing designers toward choices that would guarantee the quality of new houses. Reading among the lines of this set of regulations, recommendations and suggestions, which were divided according to building typology, volume of the apartments and living habits, it is possible to observe that attention was directed toward the international updating of the models, while attempting to differentiate the interventions according to regional variations. As far as the internal distribution of the individual apartments is concerned, the debate.
was basically concentrated on two symbolic places: the sitting room and the entrance. The living room, whether divided from or joining the kitchen-eating area, in the most innovative examples, crossed the entire apartment, prefiguring the skyglass type of solution in an evolutive manner, with the living room-through dining room-through kitchen. Such a solution was adopted extensively, starting from the eighties, as a response, in terms of distributive characteristics, to the restraints imposed by the industrialized construction systems. The entrance, the threshold between public and private, which had been the subject of sorrowful contractions, in terms of space and living quality, took on a dual role of entrance-sitting room or autonomous and defined space. In particular, the distributive solution that foresaw an entrance that was separated from the sitting room remained the ultimate rampart of the desire of self-representation of the working class and of adherence to the archetypes of the bourgeois class, from which it was important to distance oneself in terms of politics, but still not in terms of housing models.

5. CONCLUSIONS

Although the apartments constructed according to the INA-Casa Plan constituted an unsurpassed model that exceeded the borders of council houses, the INA-Casa Plan has been the subject of a great deal of criticism from a political-managerial point of view: the centralism of the decisions and the resulting marginal nature of the role of the local administrators in the decisional processes, the triggering of controversial mechanisms of increases in land growth and last but not least, the creation of ghetto districts that resulted not only from the actual physical distance from the centre but also and above all from the almost total absence of primary services. Starting from these criticisms, the legislative and regulatory measures on public building from 1962 to 1978-the year of the transfer of jurisdiction from the State to the Regions – were occasions of verification of the theoretical elaborations that the architects had matured over the previous years. The antidote to the uncontrolled growth of the city previously realized in anonymous and estranging suburbs was searched for through the large dimension. The monumental nature of the interventions represented an attempt of the public administration to restore the fragmented building fabric that had grown without rules. Moreover, the high number of settled inhabitants made it possible to return large surface areas that were destined to services to the city, but at the same time respecting urban standards. These areas, according to the designers and public administrators, were to become the new places for socializing. The large dimensions of the
interventions, as well as the desire to reduce the construction times and costs of the apartments, inevitably led to the adoption of heavy prefabrication systems, which were by then already in decline in other countries but which constituted, due to the uncertain Italian economy, a simulacrum of a possible recovery. Therefore, although building industrialization had been the dominant figure throughout the seventies, the construction companies, that is, the possessors of the prefabrication patents, were the main actors, even in the design phase. The use of heavy prefabrication techniques overturned the rationalist concept that started from the functions and arrived at the shape of the building. The patents and the industrialized construction techniques led to such determinant constraints, even in the choice of the distributive variables, that it is possible to say that building industrialization, and above all the prefabrication of panels, constituted the negation of Le Corbusier’s second point: the free plant. In particular, the use of wall and floor panels of the same size as the room made the technological modulation of the elements directly dependent on the functional modulation of the environments. In other words, the load-bearing panel structure dictated the dimensions within which the distributive layout had to be inserted. In this way, an obligatory correspondence was generated between the dimensions of the rooms facing the two sides of the building. This correspondence was resolved in the study of the individual apartments by introducing opportunely repeatable modalities, and in particular through the opposition of the following dimensions: sitting room to the kitchen and bathroom, bedroom to bedroom, two small bedrooms to the main bedroom plus bathroom, stairwell to bedroom, stairwell plus kitchen to sitting room, etc. This greater rigidity, from the constructive point of view, was counterbalanced by a greater flexibility of interpretation of the regulations. In other words, in contrast to the extreme rigidity of the regulations of functionalist origin, which were based on a completely abstract and theoretical notion of the average man, a greater flexibility emerged. This flexibility, which was based on regulations pertaining to the distributive nature of the apartment, was derived thanks to the extension of the theory of quality to statistical research and experimental investigations connected directly to variations in the way of living. In that period, attention to the internal distribution of the apartments and to the theme of furnishings became almost irrelevant in front of the large dimensions; debasement into simple adjustments that allowed serial repetitions of the typical floor, and painstaking statistical work introduced in order to reconnect the number of bed places with the hypothetical family composition of the new categories of users.
6. REFERENCES


