Case Study

Apartment Typologies in Collective Housing and their Integration with the Space between Buildings

Case Study: typologies of residential complexes in Tirana before the 1990's

Archaeology

Keywords: space between buildings; apartment typology; public squares; residential block; residential complex.

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Abstract

The spatial distribution of spaces inside an apartment and the orientation and position of apartments, both inside the building, as well as in connection with surrounding spaces, are important factors contributing to the livability of the units, and the quality of life of the residents. This can be observed in many typologies of collective housing in Tirana, where the array of spatial layouts is both diverse, and strongly related to the urban and historical context. This paper explores some of the apartment typologies that emerged in Tirana in the period 1950-1990 and their impact on the well-being and quality of life of inhabitants of the respective housing blocks.

Introduction

The way residential complexes are organized in a spatial layout, and the orientation of the composing apartments towards the squares, are both crucial elements influencing the quality of life of the inhabitants. An overall view of the building layouts of Tirana in the 90's shows that the city was organized in urban units, starting from the building block, which was the smallest module, to the residential complex, made up of several building blocks, and the neighborhood, composed of several residential complexes. The way the buildings are positioned towards each other, and the shape of building blocks, strongly influence the climatic conditions and livability qualities of the apartments inside this block, thus influencing the life of inhabitants itself.

In the 1990, plans indicating the typological urban layout show that building blocks and complexes were spread everywhere in the city. They were located mostly along the main roads, and in the respective crossroads. Figure 1 shows the distribution of residential complexes along the ringroad, in both sides of the Lana river, along "Durrësi street", "Myslym Shyri" street, in the south-western part of the city (Neighborhood No.8), etc.

Residential complexes can be found in different forms: linear, open block, closed block, tower typology, and a combination between tower and linear typology (Figure 1). The building height did not exceed 2-8 floors. The buildings situated along the main roads have a 'social' area in the groundfloor, reserved for shops, recreational activities, etc.

Figure 1. The typological layout in Tirana in 1990: distribution of the main residential complexes

Research Aim

This research aims to explore which were the main typologies of residential blocks that emerged in Tirana in the period 1960-1990, and the morphological impact they had on apartment spaces and in the spaces between buildings.

Research Questions

– Which are the main typologies of residential blocks, in terms of spatial configuration and morphological features?

– How have these block typologies influenced the spaces between buildings, in terms of livability and climate conditions?

– Which were the main apartment typologies that can be found in these residential blocks?

– How did the apartment position and spatial distribution of rooms in them affect the living conditions of the inhabitants in these residential blocks?

– Which is the correlation between the shape of residential blocks, the apartment type configurations, and the livability of the space between buildings in Tirana, before the 1990's?

Research Objectives

A. Identifying the spatial organization of residential blocks in the city of Tirana before the 1990's

B. Analyzing the main apartment typologies in these blocks, in terms of distribution of functions, livability conditions, etc.

C. Exploring the main impacts of the block typologies and the respective apartment types in the quality of life of the residents, and spaces between buildings.

Research Methodology And Materials

This research is based on a comparative analysis of the different typologies of residential buildings and apartments, through a series of case studies. The indicators used for the comparison derive from extensive bibliographical references. The conclusions are mostly elaborated through desk surveys, and partly through visual surveys.

The research is of a deductive nature, since it take a number of case studies, to generalize on wider terms in the context of Tirana, before the 1990's. All data used in this research was provided by the Central Technical Archive of Construction.

Analysis of Residential Blocks Typologies in Tirana

Residential blocks of linear typology

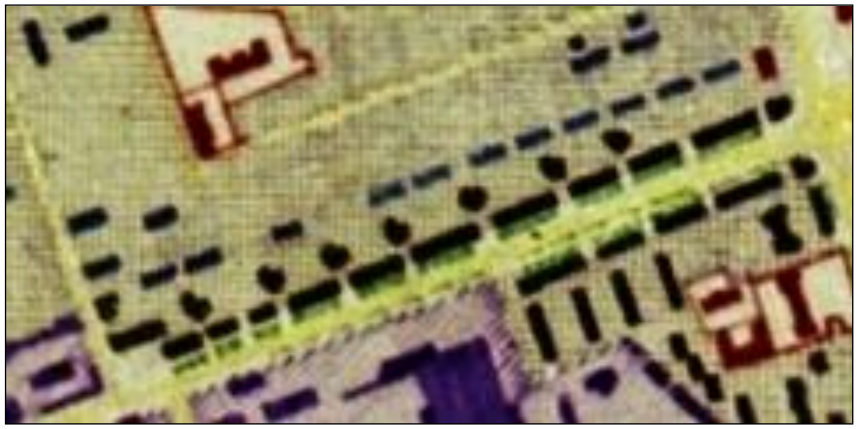

Figure 2. Excerpt from the typological layout of the "21 Dhjetori" block, 1990, Tirana.

The typology of buildings positioned lineary along main roads is found in many examples of blocks in Tirana, especially in the main roads. Two of the oldest residential complexes in Tirana are the ones situated along "Kavaja" street, at the city entrance. These residential complexes were built in the period 1956-1958 and are dominated by typologies of buildings with a height of 2-5 floors, which are positioned in a linear layout, along the main street (Figure 2). Most of the buildings were typical dwellings, made of 3-4 sections, with each containing 2 apartments per floor. The main facade is oriented towards the main road, while the entrance to the buildings is on the opposite facade, from the backyards. The buildings were constructed with brick walls, plastered from the outside, and did not contain any particular architectonic/decorative elements in their facades.

Figure 3. Satellite image of the "21 Dhjetori" block, 2013, Tirana

In this case, the linear position of buildings (Figure 3) on both sides of the main road has a strong impact on the spaces inside and surrounding these buildings.

This layout has the following advantages:

– All apartments have the same external conditions

– When the orientation of the building is appropriate, the linearity ensures a good sun exposure and appropriate access to natural light

– Apartments and spaces between buildings are subjected to good ventilation conditions

In the above-mentioned case study, we come across two different scenarios, for the complexes positioned in the northern and southern part of the street. In the north, the linear layout ensures a more intimate, quieter and safer outer space, but it also prevents sun exposure from entering inside the courtyard (Figure 2). The opposite happens in the southern part of the street, where the linear layout of buildings blocks the courtyard from strong northern winds in the winter, while the perpendiculary positioned buildings allow for good solar exposure and ventilation of the space between buildings. In both cases, the presence of closed corners is avoided completely.

Closed residential blocks

The linear layout is used in different ways, thus composing a range of residential configurations, from blocks with open corners, to blocks with closed corners; from regular, rectangular or triangular shapes, to combined shapes, etc. The central and north-eastern part of the city is composed of buildings of 1-3 floors, built in the pre-liberation period, before WWII (before 1944). These different layouts were to be seen everwhere in the city of Tirana in that period. The residential complexes built from 1950 onwards can be found not only in central parts of the city, but also moving towards the outskirts, as new residential areas of medium density.

An example of a building complex that is composed by linear buildings, but shaped as a closed block, is the "1 Maji" residential complex (Figure 4).

Figure 4. Excerpt from the typological layout of the "1Maji" Block, 1990, Tirana

This complex was built in the period 1960-1968 and is composed predominantly by buildings of a height of 2-4 floors, with linear composition along the main street, in the southern part of the ringroad and along Lana river. The majority of buildings are divided into 2-3 sections, with 2-3 apartments in each floor. The main facade of these buildings is oriented towards the main road, whereas the entrance is located in their backside, in the inner courtyard. Constructed with brick walls and concrete blocks, most of the buildings were covered in tile roofs and didn't have any architectural element in their facades. The buildings were not plastered, and their design is of a repetitive, monotonous nature, without any relation to the context and traditional typologies.

Figure 5. Satellite image of the "1Maji"Residential Block, Tirana (2013)

This complex is situated in the central part of Tirana (Figure 5). The buildings are positioned lineary along the perimeter of the complex, and perpendiculary in the center. This layout forms regular, rectangular blocks, with well-lit spaces, good sun exposure and appropriate ventilation. Another positive aspect is the prevention of the noise produced throughout the main roads.

Figures 1 and 4 illustrate the distribution of the typology of linear buildings organized in closed residential complexes, with open or closed corners, in the city of Tirana. An example of a closed complex, with closed corners, is the area at the beginning of "Durrësi" street (Figure 6).

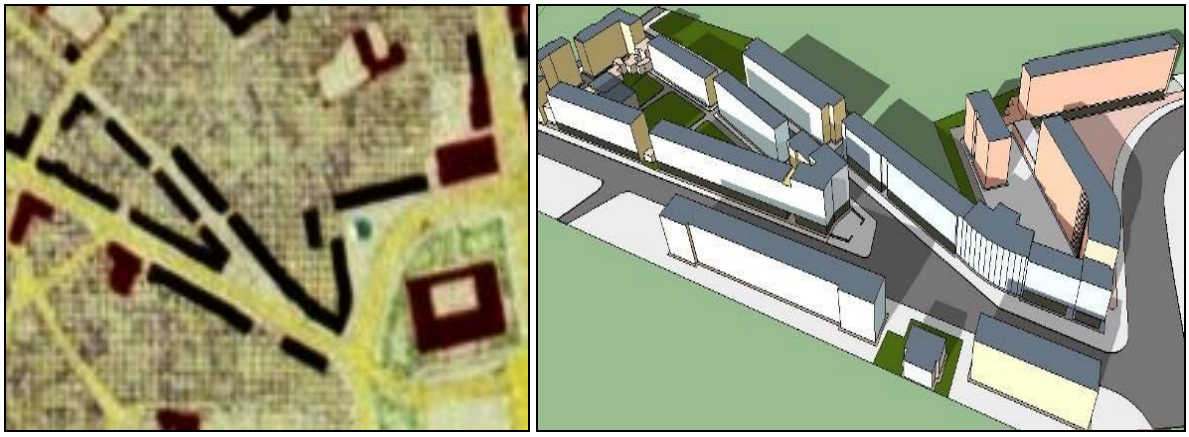

Figure 6. Excerpt from the typological layout of 1990 (left) and 3D Image (right) of a closed block with closed corners, beginning of "Durrësi" street, Tirana

This complex is situated in the center of Tirana, and has a medium height that varies from 4 to 7 floors. The buildings have a plastered facade, and are adorned with decorative architectonical elements, like concrete window frames, tile furnishings, etc. The main characteristic of this complex is that the ground floors were designed for commercial and recreational services. The ground floor also stimulates a good integration between the outside and inside of the complex, ensuring a series of pedestrian passages and tunnels, while the upper floors are compact, and create the continuous facade of the buildings. These design solutions allow the creation of quiet spaces inside the complex, preventing the penetration of the street noises. Nevertheless, when the southern part of the block is closed, the solution tends to be disadvantaged, because the inner couryard will always be shaded by the building and a linear facade would prevent both proper ventilation, and solar exposure.

Another example of a closed residential block is the one across the National Bank of Albania (Figure 7), in the center of Tirana. This block has been studied and designed carefully, both in terms of layout, and volumetric proportions, thus remaining one of the most successful cases to date. The objects were designed by the Albanian architect Petraq Kolevica and have a uniform height of 5 floors. The ground floor is reserved for social, commercial functions, while the upper floors are used for residential purposes.

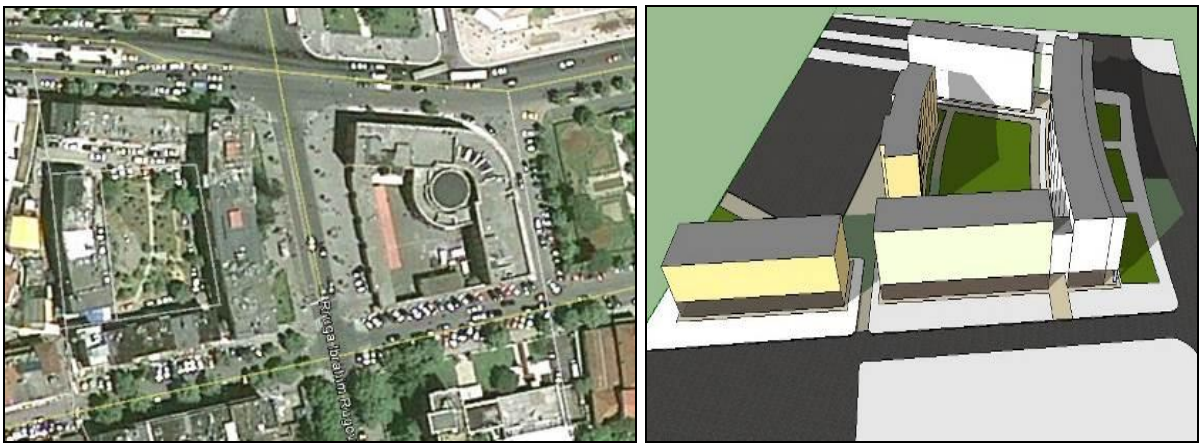

Figure 7. 9 Satellite image (left) and 3D image (right) of the residential block behind the National Bank, Tirana. (2013)

The inner courtyard of the block accomodates various spaces, like playground, urban green, recreational squares, etc. The rectangular shape of this courtyard, which stretches along the south-west and west, allowes for good sun and light exposure for the whole area. The openings in the corners allow for good accessibility of pedestrians inside the inner yard.

Residential Complex with Tower Typologies

The combination of the tower and linear typology, as is shown in the case of the "Partizani" residential complex, allowes for new and improved urban concepts for the residential units in the city. Mostly this is attributed to the presence of tower buildings along the ringroad, which allowes a good visual integration between the pedestrian area in front, and the spaces in the inner parts of the complex.

Moreover, the opposite is also true: residents are able to have a better connection to the surrounding public spaces. The buildings don't exceed a height of 4-5 floors, and are constructed by silicate bricks in white color. The horizontally positioned windows are framed by concrete structures.

The whole building is surrounded by articulated, small gardens, and the rest of the inner yard is organized with walkways, public green and seating elements. The towers contain only one residential section, with 2-3 apartments per floor. They were designed for entirely residential purposes, although the ground floors have been transformed into commercial and recreational activities in the past 20 years.

Figure 6. *Excerpt from the existing situation in 1990 (left) and satellite image of 2013 (right) of the "Partizani"block, Tirana*

Figure 7. 3D Image of the "Partizani" Block

Residential complex with combined layout of tower and linear typologies

In the early 1980s, in the eastern part of the center of Tirana the first residential block was built, that combined linear and tower building typologies. The ground floor accomodated in all its linear extent a series of social activities, with different commercial services. Four towers were initially designed in the project, out of which only three residential towers were built (Figure 10). Each tower consisted of one section of 6 residential apartments.

Figure 10. Satellite image (2013) dhe photograph of the 8-storey towers, Tirana

The "social" floors accommodated various functions, mostly aligned along the western part of the block, at the main road, which at the time was called "Barrikada" street. The backside contained service roads, mostly used for the supply of the commercial areas. The tower typology was composed of three volumes, linked together at the central part through the staircase, and the elevator shaft, which was never installed. The façade was treated in the same way in all sides, due to the symmetrical layout of apartments. Terracotta bricks were layed on it, enforced with plastering and mortar cement.

An innovative element of the time was the orientation of the towers towards the main road. They were not facing the road through their main façade, but through their side one, thus underlining the verticality of the building. This residential block was on all sides surrounded by streets, and, despite bringing new design concepts, did not create optimal solutions in the space between buildings, and didn not accommodate recreational areas or playgrounds. Moreover, the orientation of the linear part in the north-south direction failed to create warm and quiet spaces for the residents to relax in.

Another example of a combination between linear and tower typologies is the case of "Work" block (Figure 11). This residential block is situated close to the center of Tirana, at the south-western part of it. The buildings are positioned at the southern side of "Myslym Shyri" street, and were designed by arch. I. Prushi in 1963.

Figure 11. *3D Image of the "Work" Block, Tirana*

This residential block was composed of 2 floors of social and recreational functions, positioned lineary along the road, and 4 tower buildings standing on top of them. These 4 storey towers were made up by one section, with 2 apartments in each floor. Their facades were plastered and contained large squared joints. The entrance to the buildings was realized from the back, through the inner roads of the block. In a perpendicular position to "Myslym Shyri" street, in 1962 a series of 4 storey buildings were constructed, each containing 5 sections, with 2 apartments per floor. These buildings were made of brick walls and remained unplastered, stripped by any architectonical or decorative element. The way the buildings were positioned allowed for quiet and livable spaces between buildings, with good sun exposure, proper ventilation, and distanced from the street noise. The reason behind this positive experiences is the fact that the linear typology of the "social" floors is located on the northern side of the block, thus the 4 storey buildings, positioned in the north-south direction don't prevent the southern part to be well-exposed to sun and ventilation.

Some Apartment Layouts in the Main Typologies of Residential Blocks

Apartaments in the linear block typology

The most common apartment layouts in linear blocks were the types 59/1, 59/1.C, 59/2, 62/6 etc (Figure 13). This denomination was widely used for standardized typologies, with the first number indicating the year of the design, and the fraction showing various modifications made to the original project. These types of apartments have more or less the same planimetric distribution of spaces. They were planned to be built in all cities of Albania, despite the different climate conditions. The lineary distributed block (Figures 2, 3 and 12) is made of 3, 4 or 5 sections, depending on the plot size and the surrounding conditions. Figure 13 shows the way different sections are linked, and the plan of type 59/1 apartments. Each section contained 2 apartments per floor.

Figure 12. Picture of the buildings at "21 Dhjetori"block, Tirana

The majority of these buildings were purely residential and didn't include social and commercial functions in their ground floors. In most cases, these typologies contained no balconies.

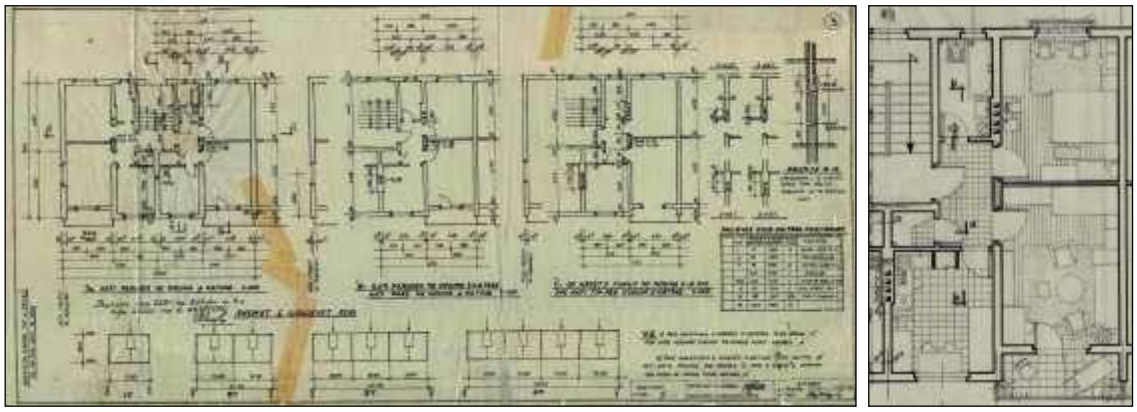

Figure 13. Plan and functional distribution of apartments of type 59/1, "21 Dhjetori" Block, Tirana

The entrance is on the backside of the buildings (Figure 12). The front side is positioned along the main road. The typical apartment in these buildings is composed of one dining area, two bedrooms, one corridor, a small storage unit, a balcony and a bathroom (Figure 13). This apartment is planned to be inhabited by a family of 4-5 persons and would be suitable for a newly created family, with a child aged 1-10. The living and dining areas are positioned along the main façade, while the rooms on the back-façade.

The "Kavaja", where this block is situated, is oriented in southwest-northeast direction. On both sides, this type of apartment (59/1) was used. It is therefore obvious that not all spaces of these apartments are subjected to the same conditions.

A. In the case of buildings positioned on the north part of the main road, the dining area and the smaller bedroom are oriented towards the south-east, while the master bedroom and the bathroom on the north-west. The public yard is located on the northern part of the building. This location allowes for good sun and light exposure and proper ventilation. Nevertheless, the kitchen is not recommended to be positioned towards the south. Moreover, the space between buildings, and the playgrounds where children are supposed to be playing, remain cold and un-exposed to sun, because the linear position of the building towards the south doesn't allow for the sun to penetrate the backyards. Thus, these spaces are most successful during the summer season.

B. When the buildings are situated on the southern part of the main road, the dining area and one bedroom are oriented towards the north-west, while the master bedroom and the bathroom towards the south-east. This is a very good position for these spaces, and the backyard of the block is located on the southern part of the building, thus creating very warm and bright spaces, appropriate and livable in the colder seasons.

This apartment type doesn't contain a specifically "assigned" living area. As seen in the plan above, both bedrooms are furnished with a single couch. This indicates that the apartment is not planned to have a common area, for the whole family to seat together. Furthermore, there is no grouping of service areas in one common space, like it used to be the case in many examples, for bathrooms and kitchen areas.

The backyard, oriented on the backside of the linear buildings, although is the place where children would usually play, cannot be easily controlled by parents. Thus, to supervise their children, in an age when they were allowed to play outside alone, parents had to see through the bathroom window. This typolology of 4-5 storey buildings didn't include elevators, basements or underground parking.

Apartaments of Closed, Rectangular Residential Blocks, with Open Corners

There are many examples of closed residential blocks of various rectangular, triangular or irregular shapes in Tirana, both with closed or open corners, which emerged from 1960, onwards. This paper will focus on the case study of a residential block in the "50 Vjetori" complex (Figure 14). In some parts of this complex, the standard types 59/1,59/1.C, 59/2 etc. were used.

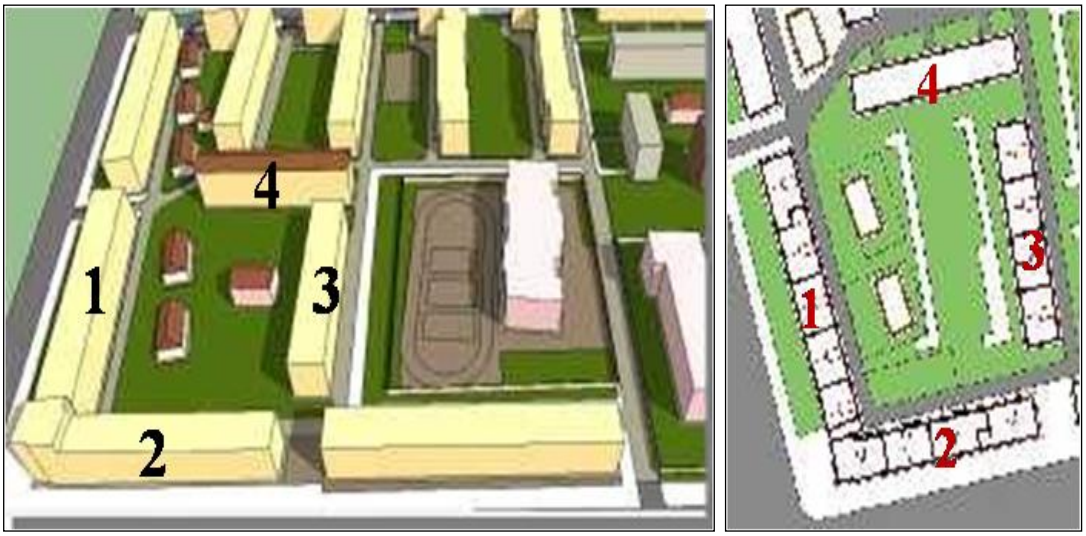

Figure 14. 3D and 2D view of the rectangular block with opened corners, Tirana

This residential block was designed in 1961 from the Architecture Directory in the Ministry of Construction, by local architects. As in the cases of the linear and closed blocks, the entrance to the buildings is realized through their backside, while the front façade is aligned with the main street (Figure 15). The 4-storey buildings have an average floor-height of 3.06 meters and a "social" floor with a height of 5.35m.

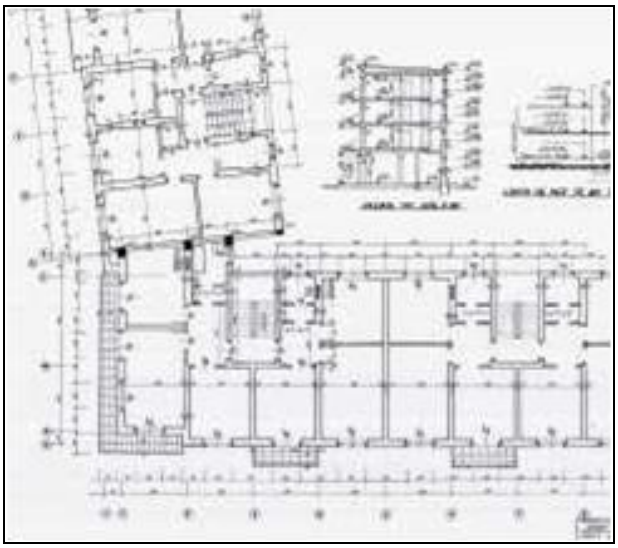

Figure 15. Fragment of standard apartment plans in the closed residential block

In the case of buildings no. 1 and 3 (Figure 14), the kitchen-dining area and one bedroom are oriented towards the south-west. For building no.1, this coincides with the main road, while for building no. 3 with the inner side of the block. The master bedrooms and bathroom spaces are oriented towards the north-east. These buildings contain storage units, which are not present at buildings no. 2 and 4. This layout allowes for proper ventilation and light exposure for all apartments, but none of them have spaces that are oriented towards the south.

Buildings no. 2 and 4 have their dining spaces and one bedroom oriented towards the south, while the master bedroom and the bathroom are oriented towards the north. Building no. 2 is different from the others, because it doesn't contain a storage space, but an antechamber is added to the bathroom space, which contains shelfs for storage. Out of the 4 buildings, the most livable one in terms of orientation is building no. 4, because it has proper sun and light exposure, and is located in the central part of the complex, thus having quiet living spaces. Building no. 3 also has a good spatial position towards the outer space, but the orientation doesn't allow for it to have any room facing south. Building no.2 has a social space in the ground floor, containing a library, servicing the whole neighborhood, and accessible from the main road in the southern side. Buildings no. 1, 2 and 3 all have unaccessible flat roofs, while building no. 4 is covered by a tile roof.

In terms of extruded spaces, building no. 1 and 2 have their balconies facing the main roads, while there are none facing the inner courtyard. This situation is not the best scenario, because balconies looking towards the yard, rather than the noisy, main street, would allow for a more calm and serene atmosphere and a better integration with the yard area. This yard public space in this case, which also contains a playground and resting places, is surrounded by buildings in all sides, but still is well ventilated and has a good sun exposure.

This typology of residential block creates several advantages in terms of efficient use of space by different age groups, allowing for better communication and social integration of residents with each other. All spaces between buildings were initially designed by the architects (in 1965) to have green areas, playgrounds, sitting elements and other recreational spaces, but this was never realized. The spaces were there, but they were lifeless, without any furnishing element, without architectonic details, or water bodies. Inside the space, a few shelters have been constructed, while on the sides, along the inner streets, there were the waste disposal bins. Nevertheless, children played safely in these vast areas, and used their creativity to invent different interactive games, with surrounding objects.

Apartaments of Tower Block Typologies

The spatial organization of the tower block typologies, combining linear buildings and perpendicular ones with towers, creates a new model of residential block, very different from the ones built in Tirana before. This combined block is composed of 2 different apartment types, as part of buildings of type 1 and 2. Buildings of type 1 usually have an apartment layout similar to 59/1 (Figure 16). The type 2 buildings are the towers, which, in this example in "Myslym Shyri" street, are connected through a "social"floor (Figure 17,18).

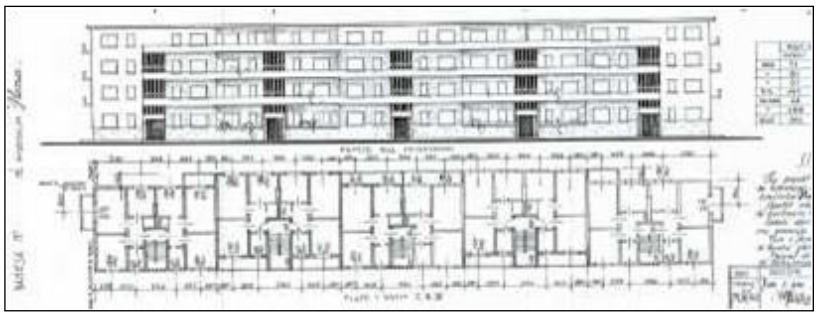

Figure 16. Fragment of the project for type 1 buildings, "Work" block

The type 1 buildings have their apartments oriented towards the east and west, thus becoming easily cold in the winter, but staying cool in the summer. These buildings have flat roofs, open staircases and unplastered façades. There are 2 apartments in each floor, and the whole building is surrounded by the central yard of the block. This allowes for good ventilation and sun exposure to the space between buildings, making them appropriate for use by children, or other age groups. The whole building is residential, with no service or commercial floors.

The tower type buildings (2) are connected with each other through a "social" floor (Figure 17), which accommodates various functions, ranging from bakeries, shops, cinema, artisans, to pastry shops, barbers, etc. All these functions are accessed by the front façade, along the "Myslym Shyri" road. The 4 buildings are accessed from the inside of the block. The whole "social" floor is interrupted by a pedestrian passage, which allows for communication to the main road.

Figure 17. 3D View (left) and layout plan (right) of the"Puna" block

Being a linear structure, the social floor also allowes for prevention of northern winds and noises to enter the inside of the block. The tower buildings are composed by one section, with 2 apartments per floor. They were designed in 1963 by Albanian architects.

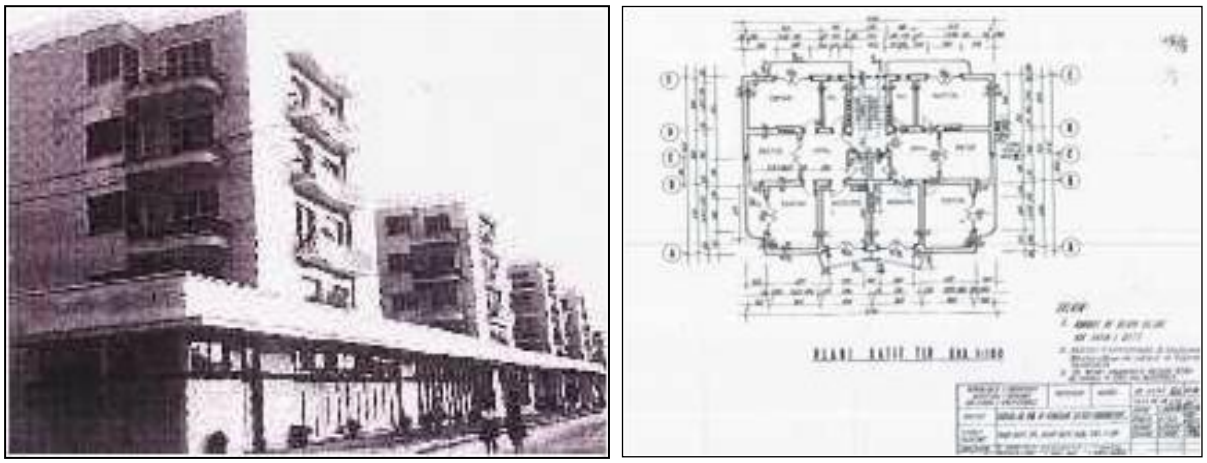

Figure 18. Photograph and layout plan (2) of "Work" block

The orientation of apartments in the tower building allows for proper ventilation, solar and light exposure. The apartments contain a main hall, which makes the distribution of spaces towards the living room, the shared kitchen-dining area, to the two bedrooms and the bathroom. This apartment has three balconies, distributed on all sides. The kitchen is located on the northern part; one of the bedrooms and the living room towards the east, and the other bedroom and the bathroom towards the south. The bathroom shares a long balcony with one of the bedrooms. The heating was planned to be realized through wooden stoves, so this type of apartment contains a small storage area for wood, and 3 chimneys.

This residential block creates a good integration between the residents and the surrounding space between buildings. Nevertheless, the spaces, although having appropriate orientation towards the sun, are not furnished with urban or architectonical elements. The yard accommodates shelters, which were supposed to be protecting inhabitants during wars, but they were never used for this purpose. They were standing in the center of the space, unwelcoming and gloomy, and were not only

visually unattractive, but would make a potential health hazard, due to the lack of maintainance, infection risks, and a lack of minimal hygiene conditions.

This paper tackles only a few memorable and representative cases of building typologies, apartment types and their respective relation to the space between buildings. Nevertheless, these examples can be seen in every part of the city, nowadays half-transformed, sometimes deteriorated, sometimes painted upon, but in any case, representing perfectly living conditions and the life quality of Tirana before the 1990's.

Conclusions

This study confirms that in Tirana the esthetic aspects of the residential blocks were never considered as important. Buildings used to be plastered and painted only on the facades facing the main streets, while the other facades were left untreated, with lack of maintenance, giving an overall poor and gloomy image. The design of these blocks almost never took into consideration the impact on the city silhouette and on the life quality of the residents. Before the 1990's no building had underground parking, due to the fact that personal vehicles were not allowed, and the inner roads were used only by service cars, for waste collection or wood supply. The lack of these spaces, as well as the occupation of residual open spaces by new buildings, caused major problems in the urban neighborhoods after the 1990's. The building tarraces were designed as unusable spaces, thus they didn't contain neither common spaces for the residents, nor service areas, for storage or clothes drying. This is why balconies, especially the ones positioned along the main roads, were used as storage units, or for drying clothes, rather than for shading and green areas. The existing storage areas inside the apartments were too small to be used properly by the residents. When apartments had only one balcony, like in the type 59/1, it would be better if they were positioned towards the backside of the space, not only to have a more relaxing atmosphere and a better connection to space and nature, but also to have a more hygienic approach towards drying of clothes, distanced from the pollution of the main road. In the conditions of the humid climate of Tirana, a loggia typology of balconies would be more efficient to use, if oriented towards the northern part, and the main roads. The apartment types 59/1,2,3, 62/2 etc. would be spatious enough for a newly created family, with a child of 1-10 years, or two children that can share a room. In the period 1980-1990 the ratio between number of residents in one apartment and the square footage of that space was alarmingly high, thus not allowing for normal living conditions. A family of three generations would normally live in these 50-60 sqm houses, or in some cases even two different families. The spaces between buildings were always articulated in the projects as ideal spaces, with recreational areas, playgrounds, sitting areas, etc. But this was never implemented in a proper way, due to fund shortage. This is why the relation between the inhabitants and these spaces remains anonymous, even to date.[1]

[1] All study materials have been provided by the Central Technical Archive of Construction (AQTN)

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