

Innovative housing models that reflect the needs of contemporary society. (Post-pandemic context)

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Abstract- *This article is concerned with understanding the need for housing in the context of the Covid-19 pandemic and suggesting alternatives to provide solutions for housing in a demanding post-pandemic society and a new lifestyle.*

Since this pandemic hit the world, the issues revealed tackled primarily general societal health, followed by social distancing, change of transportation concepts, and a new remote work model within the housing unit; putting into a tangible discussion, the overall quality of housing.

An emergent need to re-address a new concept for housing, sustaining the actual socio-economic model of living, is frequently being discussed between academics alternating between provision for flexible internal spaces, innovative and resilient houses as well as re-adaptations. In this context of global societal changes, 'The Housing Unit', has been positioned under pressure to meet the extra needs of the inhabitants, like better indoor physical comfort and air quality, natural light and ventilation, wider spaces, and flexible interiors, needs which were previously addressed in the outdoor environment.

While the impact of the pandemic in regard to housing as the primary unit responsible for the overall quality of life imposes researchers and different professionals in design fields to attend to and forecast changes within the housing as the primary "nucleus" driving the general health and quality of life for the citizens; the situation challenged every component of the urban environment, including the uses of public space, public transportation and movement within the city, which already seeks to be redefined.

This research is conducted during a two-week workshop, in the framework of the doctoral program in Architecture and Urban Planning, concerning the context Northern Albanian Region of Lezha, with the participation of the students: Rine Zogiani, Nicola Talamonti, Elena Verzella, Luca Lanzoni, Bianka Madhi,, Armela Lamaj.

The results of the workshop, after a thorough investigation of existing housing typologies, the relation of public spaces with residential buildings, and other aspects like sustainability, through the objective of providing innovative housing solutions. generated variable models of housing in two main directions: a) adaptations of existing housing units; and b) new proposals for contemporary, post-pandemic housing. The proposals integrate the use of near public space and the incorporation of auto-sufficient buildings concepts.

Keywords: *housing, typology, collective spaces, form, morphology, resiliency, sustainability*

1. Pandemics and the urban environment

The cities are living organisms, which are affected by different aspects during the course of history. Natural catastrophes, political systems, and other developments are known to drive the changes in our

cities. Pandemics also are considered a major stressor in the health, social and economic aspects, which play a major role in posing various challenges in the life of a city. What is mostly not so evident in the general discussion, is the position of

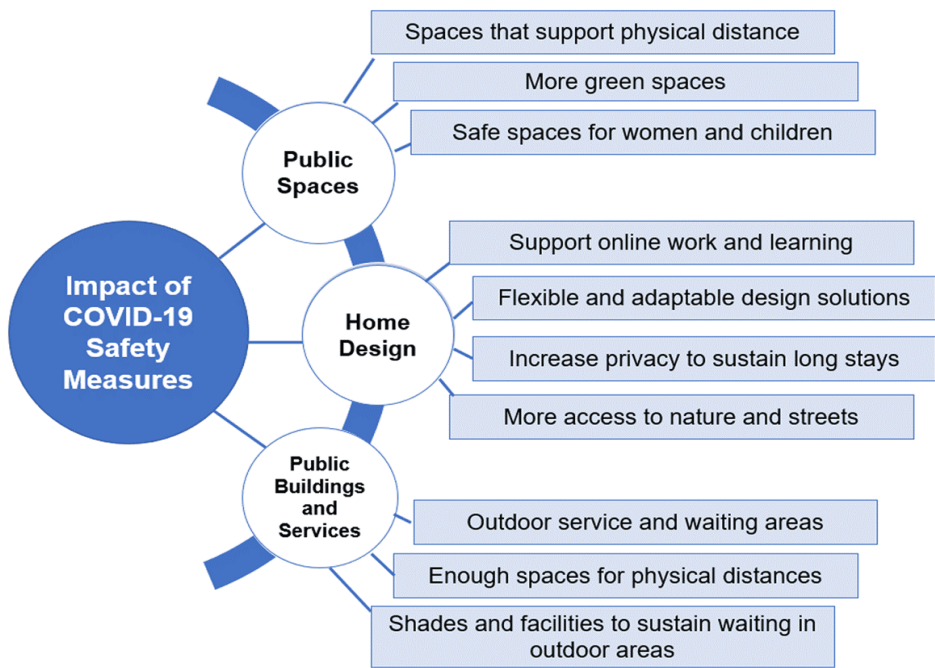


Figure 1: Built environment design response to the safety measures of COVID-19 (Elzein and Elsemary 2022)

architecture as a frontier plane of impact in every aspect of human life. Its attribute of narrowing the gap between the needs of the now and provision for the future is at the prime moment of overall crisis deflected by the emergent needs. It takes a second phase of the crisis, after a reflection space for architects, urban planners, and researchers to have their position displayed towards tackling approaches to assess and meliorate through its tools the urban environment and quality of living.

Throughout history, pandemics have been a generator of urban and new design principles toward better health measures. According to Harris (2006), the Bubonic Plague, known also as the Black Death reconfigured the whole layout of the cities in 14th-century Europe. Following the design interventions recommended by the urban planners, the narrow streets were replaced by wider ones, which followed the positive impact of reduction of population density, better air circulation, and sanitary conditions. The cholera pandemic on the other hand-imposed professionals to achieve solutions for sanitation by constructing the city sewage systems. It was Bazalgette's visions and constructions which aimed to prevent the spread of the disease which defined the main infrastructure of 19th-century London (Gandy, 2016).

During the 20th century, under the pressure of tuberculosis, modernist architects like Alto, Gropius, and Le Corbusier expanded their research and design work, by defining design principles in hospitals or healthcare centers as a result of the tuberculosis

pandemic to promote better health and prevent the expansion of the disease. Their professional response towards the architectural principles included the prioritization of direct sunlight, natural ventilation, hygiene standards, and direct contact with nature to promote a healthier environment. At the Paimio Sanatorium of Alvaro Alto in 1929, following its vision for the purpose of this building as a 'medical instrument' these principles, combined with aspects of standardization provided a design that would care not only for the physical needs of the patients but also for their psychological ones, through integrating the natural light, colors, open spaces, and large windows that had access to views through the landscape (Fainstein, 2020).

Covid-19 is the latest pandemic which due to the sophisticated globalized infrastructure has found its way to spread rapidly worldwide, presenting an emergent crisis of health and security and obligating architects and urban planners to mitigate measures in transmission of the virus. The situation would affect the health care facilities, the workplace but mostly our houses, which in contemporary society would have to offer a wider variety of functions for the inhabitants.

Considering possibilities like re-formulation parts of the space and adopting flexibility through moving walls or even designing plain-free spaces, can provide an opportunity for the 'house' to serve many functions in the 'changed post-pandemic society'.



Figure 2: How coronavirus has shaped the home of tomorrow (Source: Financial Times: <https://www.ft.com/content/546716b8-bdec-48fd-9f5b-32304de7fcee>)

Housing as a reflection of the contemporary, post-pandemic context

Continuing to understand and elaborate on the correlation of architectural design with emergent needs from pandemics, highlights the level of impact that architecture has to influence urbanization, infrastructure, and every aspect of design, related firstly the general public health, establishing resilient environments and exploring strategies to tackle the challenges presented, especially to the housing sector.

According to Elzein and Elsemery (2022), based on Peters and Halleran (2020), the measures for Covid – 19 should tackle the intervention in public space, home design, and public buildings, which would support public health and the indoor life of families.

This scheme was considered as a base framework in the orientation of this research towards the findings and suggestions regarding the specific urban context of Lezha, where the addition of space is considered crucial to fulfilling the new needs, relation with the common space and nearby outdoor one seems to be the two main factors of contribution during the proposal presentations.

Concepts of adaptability and flexibility of interior spaces while integrating enhanced ventilation systems, incorporation of new materials like antimicrobial or antifungal, and reconfiguration of the internal spaces are highly considered during the discourse for housing in the post-pandemic society. Simultaneously, according to the data from Global Workplace Analytics which

concludes that from 2022, 16% of the companies worldwide have shifted to home remote control worldwide, in comparison with the 70% during the covid and 7% before covid, argue the growing relationship of the inhabitants with their house.

It's becoming more and more evident that the attachment of people to their homes is extending not just in the position of basic needs fulfillment, or refuge place in times of crisis, but also a shifting paradigm to a wider sanctuary able to provide the necessary spaces, flexibility, and support to the overall daily activities, including the workspace.

The importance of green spaces, outdoor access, or even terraces or balconies has become a vital factor for the satisfaction of residents according to Akbari et.al (2021), which also indicated that the typology of housing had a significant impact on the inhabitant's mental health and mental health, in favor of the private homes, in regard with the collective apartment buildings. During the pandemic, the balcony, verandas, or courtyards, represented the sole spaces of fresh air, outdoor time, and psychological freedom, which formulated a need for the presence of this kind of space within the house even after Covid. In a context where the relation of the people with their house is reinforced, considering the increment of time spent indoors (ElZein and ElSemary, 2022) during the research it became obvious that in terms of argumentation for the new concept of home, including new houses or interventions in existing ones, the new solution would have to work through



Figure 3: View of Lezha from the Castle (Source: authors)

the factors of a) increasing the quality of common and green areas, b) ecology and self-sufficiency in architecture a c) addressing the attributes of architecture that help to fulfill the necessary criteria of like and work in a post-pandemic situation.

Lezha Region nd Post-Pandemic Context

In Albania, the pandemic took place while the country was still recovering from the earthquake of November 2019. While the vulnerable economy was impacted by the loss of people and significant damages from the earthquake, the housing sector was dealing with onerous challenges, especially in the regions of Durres, Fushe-Kruja, and even Tirana and Lezha.

Lezha Region is located on the North-Western side of Albania. One of the oldest regions, with direct access to the Adriatic Sea and bounded by mountains on the eastern side is considered "home" of archeology, cultural and historical heritage, tourism, and agriculture. The region, and especially the main city "Lezha" location, is impacted by tangible other issues like climate change, floods, periodical forest fires, and high seismic activity, which imposes immediate measures to comprehend the actual needs for housing while taking into consideration the environmental aspects, to offer innovative housing models for the dynamic future.

The pandemic as a crisis leads to opportunities in terms of being proactive when thinking and designing the same way this pandemic exposed the differences and popped up the inequalities reflected also on architecture, society, environment,

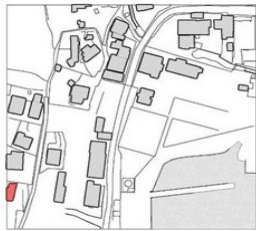
and economics. The crisis and natural catastrophes should serve as an alert on design and planning in order to avoid or at least manage easier the situations like the last pandemic. Rainfall management, air pollution, humidity, and people and space proportion are some of the main problems yet opportunities and possible approaches in the city of Lezhë according to the post-pandemic situation – based on the site visit and interdisciplinary research.

By using architectural and technical tools, through rethinking the space design through context preconditions, the article aims to generate ideas simultaneously in the flexible embodiment of interior housing as well as through the reconceptualization of the public space, towards more resilient and sustainable buildings.

Methodology and Indicators- The aim of this research was the generation of possible proposals for innovative housing models in the context of Lezha that reflect the needs of contemporary society. Aiming to develop new design paradigms which can combine future urban needs and ambitions, such as densification, the need for enlarged indoor spaces, and the exploitation of tourist potential of the area, with the necessities brought to light by the post-pandemic situation, such as the need of a deep reformulation of the traditional idea of living and both private and collective spaces related to it.

During the research, the methodology chosen can simultaneously be considered multifold. In order to achieve a clear understanding of the impacting factors

Detached house (Shengjin)



Linear house (Lezha)



Tower House (Lezha)

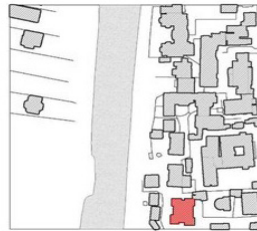


Figure 4: Housing Typologies in Lezha Region (Source: authors)

and the post-covid context in the region, towards defining the goals for housing, the first step in the methodology was a literature review and data linking the pandemic with the housing concept. General analysis of the history of Albania, to have an overview of how political, economic, and social transformations had a direct impact on the housing development.

During the second phase, site analysis and mapping has taken place by group work, to define the spatial and urban needs of the region, with a focus on urban settlements. In the research phase, the definition of areas for investigation, as a sample of 200x200 m², with the selection criteria for representing 3 different morphologies of terrain and which would contain the presence of the 3 typologies of housing, was considered of primary importance and was followed by 3 steps. Each of the participants further on has developed, according to their field of interest, a specific narrow topic within the workshop to aid the definition of the post-pandemic society and housing.

-the identification of the main representative areas for investigation.

The urban fabric of Lezha has been classified according to the most relevant historical events which determined its morphology over time (before, during, and after communism); afterward, the three most representative 200x200m samples have been identified.

-the analysis of sample areas through specific sets of indicators.

These samples have been investigated

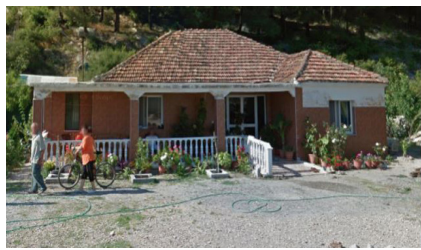
according to urban parameters (e.g., aggregation patterns, the relationship between dwellings and public spaces, etc.), morphological and typological aspects (e.g., form, volume, facades, building technologies, etc.), and environmental and sustainability factors (rainwater collection, humidity, air pollution, etc.).

-the development of new housing models.

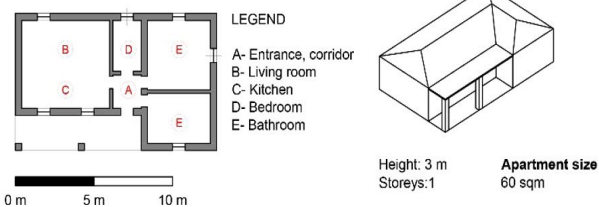
In light of the data collected in the previous moments, possible intervention strategies for the post-pandemic society have been defined, specifically divided into two main categories: principles for the adaptive reuse of the existing buildings stock and guidelines for the expansion of new residential areas.

From these criteria, three areas were chosen: a) in Shengjin City which consisted mostly of the first housing typology: the detached house, b) in the dense area of Lezha, represented by the linear house and c) nearby the river of Lezha, represented by the 'after dictatorship' – high rise tower. To define these typologies, in particular, three main historical periods have been taken into consideration. In particular, the Communist period (1944-1990) has been considered a fundamental historic phase to subdivide urban development and the housing. A further analysis of housing typologies has been carried out by comparing the vernacular and informal typologies of the region of Lezhe with the ones of the northern regions (Shkoder) and southern regions (Gjirokaster) of Albania. Then, the most representative typologies of housing located in the case study areas have been identified, considering the urban development throughout the

A_The Detached house



Type floor plan (1:200)



B Linear Housing (known also as Row Housing)



Fig. 5.a_ 1st Typology of Housing_ The Detached House; Fig. 5.b_2nd Typology of Housing_ The Linear Housing

history of Albania and the Lezha region.

The Detached house (before WWII), contains only one dwelling unit and is completely separated by open space on all sides from any other structure. The bearing structure consists of stone or masonry walls and the roof structure is made of wood. The greatest part of the detached house stock of linear houses was built on private initiative.

The linear house is a building containing at least three dwelling units per floor, organized horizontally and connected by the stair (Communist period, 1944-1990). The bearing structure consists of a reinforced concrete frame structure or reinforced concrete panel structure and the envelope is made by perforated brickwork. The greatest part of the building stock of linear houses was built on public initiative. Tower house (after 1990) also called an apartment block, the tower house is a building containing more than one dwelling unit, organized vertically. Shops and non-residential features are located from the ground floor to the first or second floor, while the residential ones are located above. In general, the roof is flat and accessible only to allow the maintenance of mechanical building systems installed there. The bearing structure consists of a reinforced concrete frame structure and the envelope is made of perforated brickwork. The greatest part of the building stock of tower houses has been built on private initiative.

The spread of Covid-19 pandemic has been transforming every aspect of life, impacting obviously also the living habits

and needs of people all over the world. Taking into consideration the reality of Lezha, the current building stock has to be transformed to respond to new critical issues: the lack of both exterior and interior spaces. As for the first issue, is evident that due to lockdowns people have been forced to stay for a long time at home, private of their vital contact with the outdoor environment and with nature. For this reason, exterior common and private spaces like balconies, terraces, and gardens have been becoming essential amenities for every dwelling.

As the second issue, due to lockdowns, people have been also forced to do homeschooling and work, often in spaces not suitable for these activities for the noisiness or lightning. Consequently, is evident that the layout of the dwelling has to be readapted and expanded, creating separate spaces to host these functions.

Public space design principles towards sustainability, resiliency and autonomy.

The public space, for the purpose of this research in the post-covid context is considered essential to the health and quality of live of the citizens. The public space, reflecting back on its usage during Covid, is now not understood only as an 'open space', contrariwise the smaller open spaces within the apartments, nearby or within the ray of movement in the neighborhood is the one that have raised the main interest, due to a more individual need for using the public space. These aspects are the one which during the research have been considered as the

C Tower Housing (known also as High-Rise Apartment Building)

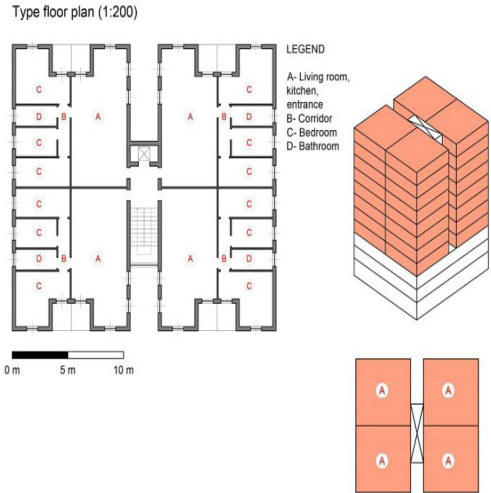


Figure 5.c: 3rd Typology of Housing_ Tower Housing

most relevant in providing the resiliency and autonomy of the neighborhoods.

The levels of analysis, followed by concrete proposals, in the realm of the public space have been extended in 3 levels of analysis. Including In between spaces Taxonomy, Residential Edge Taxonomy, and Ground Floor program analysis.

In between spaces Taxonomy is understood as a result of logic driven by the different historical settlements model, with application in 5 aspects: liminal public area, residual greenery, collective space, private gardens, and closed mono-dimensional edge.

In the proposal generated from the research, solutions for Liminal Public Area, consists of the Implementation of a site-specific designed urban future, which is expected to provide the social effects of promoting social interactions, extra activities like sports, playground, relaxation and improvement of outdoor space as well as the environmental positive effect of integrations and increase of water storage spaces in the build-up areas. In the residual greenery, the intervention proposed is focused on the Enhancement and Implementation of Green Buffers through the reconversion of residual green into new natural areas including community gardens, education gardens, etc. The social effects expected to derive from the intervention include improvement of outdoor space, promotion of social activities, and increase perception of a healthier and more sustainable environment. The principles design for the In-between spaces regarding Collective

Spaces is proposed as a process of Enhancement of the collective space with green features and extra activities such as rain gardens, water squares, permeable. While regarding the 4rth component of Private Gardens, its actual increased value is intended to be achieved by the enhancement of natural elements and reconceptualization of existing landscape morphology.

The closed mono-dimensional edge is intended for the actualization of the facades with the character of a semi-open indoor thick edge, semi-open outdoor thick edge, and permeable thick edge which will act like the buffer zone within indoor-outdoor spaces with its evident expectation of environmental and social effects.

Environmental assessment as an integral part of the urban and architectonic resiliency

Lezha is a Region that is suffering its share in the context of climate changes, floods, pollution, humidity, fire in the woods, and seismic activities while impacting the financial and social aspects.

These issues need to be attended to in the prompting attempt to define the new vision for housing in a challenging moment. These aspects need to be taken into consideration, and integrated within the city and in the housing unit, in order to achieve the needed resiliency and sustainability, aiming toward the auto-sufficient house and the overall resiliency of the city.

Starting maybe partially, by collecting the rainwater and using it for other

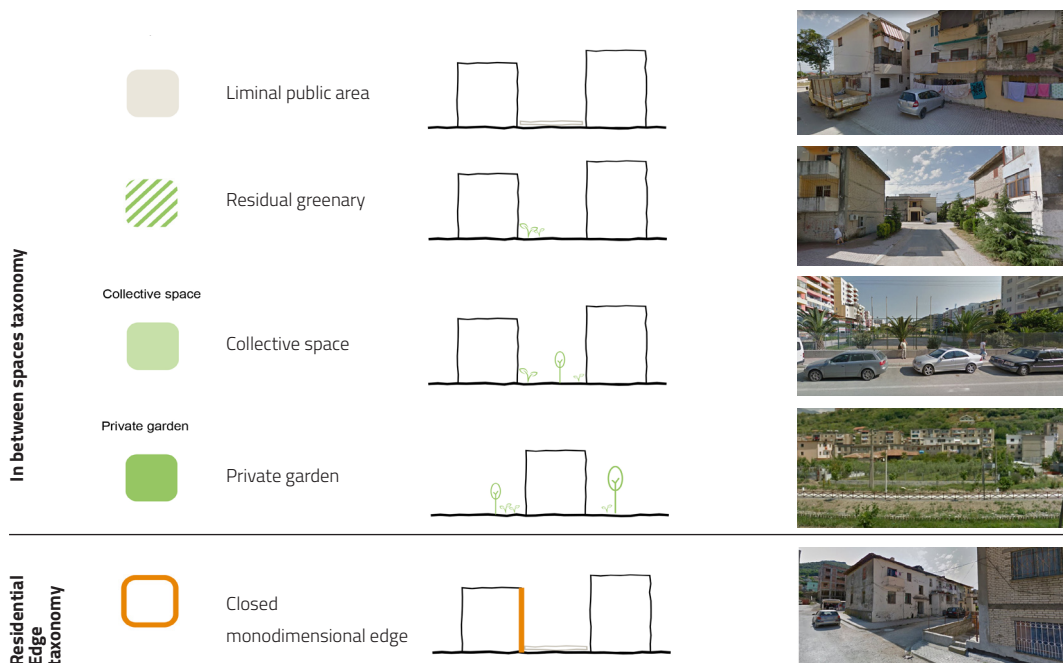


Figure 6: Public spaces identified. (Source: Ph.D. Candidate Elena Verzella)

purposes, adding Bio-materials and new solutions for ventilation that contribute to air quality, proposing new materials for reducing the possibility to develop micro-bio contamination, increasing the dimension of the space or creating flexible spaces that can be used for different purposes etc. could give a contribution on being proactive regarding crisis such the last pandemic – for public spaces and also housing, offices, flexible buildings and all the possible concepts of future regarding post pandemic indoor and outdoor spaces.

Also, During the past few decades, the increased link between various symptoms and illnesses to nonindustrial indoor environments has been discussed seriously regarding the general health of population. Different scholars have cautiously addressed the issues of indoor air quality and construction materials, which in the context of post-covid, during this workshop has been brought into attention, to be integrated in the proposals for the 'House of the Post-Pandemic era'. The sick-building syndrome, possibly converted in a bigger danger in a home where, remote working, and the greater crowding of living spaces, which is widely treated by the candidate Luca Lanzonie in his article, consists on the starting points to consider certain interventions, like inclusion of the 4 systems below which would also positively enhance the sustainability and resiliency and sustainability of housing.

General Recommendations, towards these objectives, after the workshop analysis and literature research include

the applications of: a) Technical Systems for Rainwater Management, b) Solutions related to humidit, c) Use of Solar Panels, d) New Materials.

Housing Models, as Solutions for Post-Pandemic Lezha

After the overview of new living needs imposed by the Covid-19 pandemic, the main challenge regarding housing is finding ways to redefine the house design, use, and space to serve the needs of contemporary society, while taking appropriate measures to professionally orient new design, when requested.

In light of the data collected in the research, possible intervention strategies for the post-pandemic society have been defined, specifically divided into two main categories: strategies and principles for the adaptive reuse and renovation of the existing buildings stock and guidelines for the expansion of new residential areas.

4.1 Re-adaptation and Intervention Strategy on existing typologies

After this overview of new living needs imposed by Covid-19 pandemic, strategies of renovation and readaptation of the Lezha building stock have been proposed to define Resilient adaptations of housing units.

The three typologies, evidenced through the site visit process, are treated with different methodologies, like space or floor extension or subdivisions, subtractions, additions, fusion, densification, to achieve with minimal interventions in the existing structure, the objective reaching of providing additional space, common space and flexibility, by also keeping in focus the ventilation, greenery etc.



Figure 7: Proposals for the Buildings Systems. (Source: Authors)

These interventions are described in more detail in the article of the Ph.D. Candidate Nicola Talamonti.

Detached house (known also as the individual house) - The open green space on all sides from any other nearby structure is the strength of this housing typology. The need for exterior green spaces is already satisfied. The strategy to respond to the need of having additional interior spaces consists in a vertical expansion of the building, maintaining the same building footprint and increasing the number of floors above the ground (from the only one floor to two floors). In this way, the size of exterior green spaces is not compromised and the consumption of soil is avoided.

Linear house (known also as Row Housing) - Critical points of this house typology are the lack of exterior green spaces, few interior common spaces, few cross ventilations for each apartment, the size of the dwellings and their configuration. For these reasons, the intervention consists in the reconfiguration of the layout each floor by reducing the number of dwellings, using the resultant space of this reduction to create common areas at each floor and to expand the size of the dwellings maintained. Moreover, in an added structure, connected with the stair and lift core, are located common external and green spaces, at each floor. At the same time, to keep the same number of dwellings preceding the intervention, an addition of two floors, with the new layout above mentioned, has been proposed.

Tower house (known also as High-Rise

Apartment Building) - Critical points of this house typology are the lack of exterior green spaces and the few cross ventilation for each dwelling. For these reasons, the intervention consists in the reconfiguration of the layout each floor by filling the voids between each building block and using this resultant space to expand the size of each dwelling and to insert a double chimney to enhance the natural ventilation. Moreover, the flat roof is transformed from a technical space to a common green space.

4.2 New Housing Proposals

The discussion for the New Housing conceptualization, during the workshop was extended in the comprehension of the pandemic effects and the role that architecture should play in the globalized city of the 21st century. While accepting the changes that the housing concept has derived during the course of history, through the need for thinking about the New Housing in the post-pandemic world, the necessity for taking in consideration both inside or outside components has become crucial. From the indoor climate and interventions, to the re-conceptualization of the public space within the neighborhood seems to have taken an essential importance on the value and usage of our homes. The alternatives provided were merged from the emergent need to define the new "public space, common ones and the interior spaces". Inspired from the conglomerate concepts which surfaced during the research, it became obvious that now the "House" was not only a "cell" in the spatial planning

Post Pandemic Adaptation of existing Typologies

- Re-use of common public Space
- Re-adaptation of balconies and facades
- Re-adaptation of terraces

Post Pandemic New Design

- Re-conceptualization of public space
- Re-configuration of the housing program
- Definition of the “needed space”

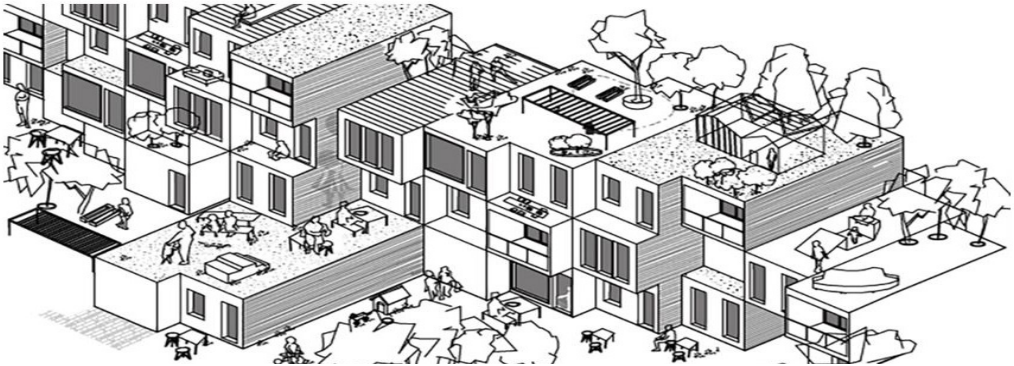


Figure 8: Alternatives for Housing, Post-Covid Area. (Source: <https://m.an239.com/mea/>)

processes but an organism to be defined especially in relation with the border spaces and neighborhood.

During and after the pandemic the home became the epicenter for many people. Everything happened at home—work, school, exercise, play and everything in between. Families' priorities and needs have changed in many ways, and how they use their homes tops the list. An emerging priority among homeowners is health and wellness. Not only do they want their homes to protect their health with great indoor air quality, they want adequate space to attend to their own wellness at home. Furthermore, homeowners now realize their homes must fill many roles. No longer are homes mainly a place to gather and rest, but they must also serve as schools, offices with dedicated workspaces, gyms, outdoor living and many other spaces. For this are suggested more segmented approaches than open floor plans.

Taking into consideration also the important aspects of the Strategy for Development and the Regulatory Urban Plan of Lezha, which identifies the 'Densification of the existing urban areas by Urban Infilling', these two main concepts were researched, conceptualized and proposed in the three sample areas of the study.

In these three samples, which also contains a different territory, landscape and also contains the three existing typologies of Housing, generated in the chapters above, were proposed three different suggestions for buildings, referenced to

innovative recent projects, with similar characteristics and needs as Lezha.

After the selection of the samples, the criteria's for proposing the new housing typologies in Lezha were defined by: a) the average height of buildings on the sample, b) type of terrain, c) presence of a natural resource (like the river) and the d) special needs of the site, like: micro-climate, need for greenery extension, natural ventilation etc.

Each of this component has been identified to be able to provide the necessary up-to-date proposal of housing, fitting the needs of the area.

The references provided by in the workshop, which were further on explained in another article by the Ph.D. Candidate Bjanka Madhi, have included the following scenarios:

- The first scenario is referred to the "Linear typology " in flat terrain;
- The second scenario is referred to the "Box massing typology " in a slightly sloping ground near a hill;
- The third scenario is referred to the "Unit house typology " in very sloping ground.

Each of the scenarios provide the concept of modular volumes which interacting with each other or with the landscape configures a new architectural landscape itself, accompanying a conglomerate of spaces in between, to offer a variable open space which can satisfy the needs of the new post-pandemic society.

Natural ventilation is an important aspect of this modular combination,

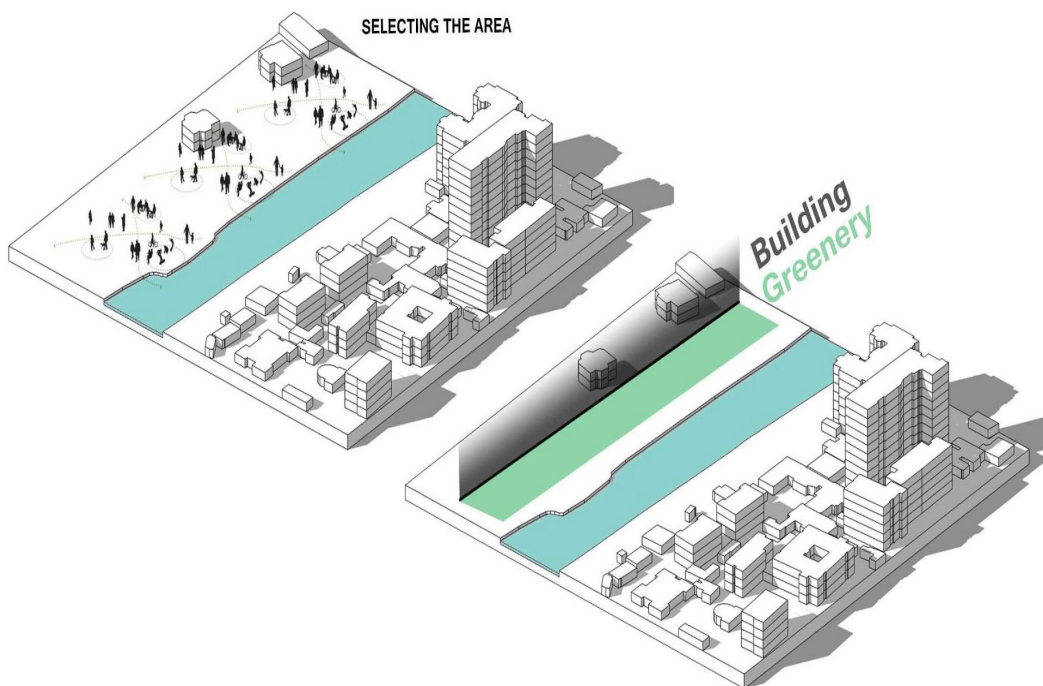


Figure 8: Sample Units Characteristics and Interaction with the landscape and the city (Source: Authors)

made possible by the openness of the facades and the differences in height. Natural ventilation can be understood in two dimensions: inter-structural for the building and interior for the home as a unit. The compositions offer a new dialogue with the terrain as well as predicting the opportunities to define indoor open spaces, like terraces or balconies.

One of the features of the modules are the composition of different patterns by the process of repetition which makes these options more flexible and authentic when positioned in different terrains.

The complexity that their patterns can provide, play also the necessary role towards organizing the interiors of the homes as wider interior spaces, flexible which include the wider living area, combined with working, sport and recreational area.

Conclusions- This research intended to understanding the needs of housing in the context of Covid-19 pandemic in the context of Lezha Region and suggesting alternatives to provide solutions for housing in a demanding post-pandemic society and a new lifestyle.

During the research, the general framework of tackling the problematics in Lezha Region has initiated like a necessity of new housing paradigms, but within the configuration of today's social needs, the new environmental challenges presented, which are considered the crucial targets to be tackled in the path of reformulating the conventional concept of housing and relationship between the public space and dwellings. These ambitions are addressed

during the workshop through different interventions. The first step by defining the public space and using it as a tool to enhance the environmental quality, outdoor and indoor life, while the second step has managed to offer alternatives for the existent housing structures and typologies and through proposing new typologies, based on the latest studies and alternatives provided in post-covid context.

The Urban structure of Lezha, according to the most important historical events that determined its morphology over time (urban parameters, morphological and typological aspects, environmental factors and sustainability) which derived propositions in the 5 aspects of the in-between spaces: liminal public area, residual greenery, collective space, private gardens and closed mono-dimensional edge.

a) Design principles for the spaces in-between buildings, the propositions tackled the implementation of: a) Urban furniture (benches, children's games, urban shading elements, etc.), b) Green corridors (natural green surfaces, community and educational gardens, etc.), c) Expanding the collective space with green elements and activities and d) Reconceptualization of the existing morphology of the landscape (increase of greenery, touchable surfaces, small hills)

b) General Propositions regarding the environmental interventions towards these objectives, include: a) Technical Systems for Rainwater Management, b)

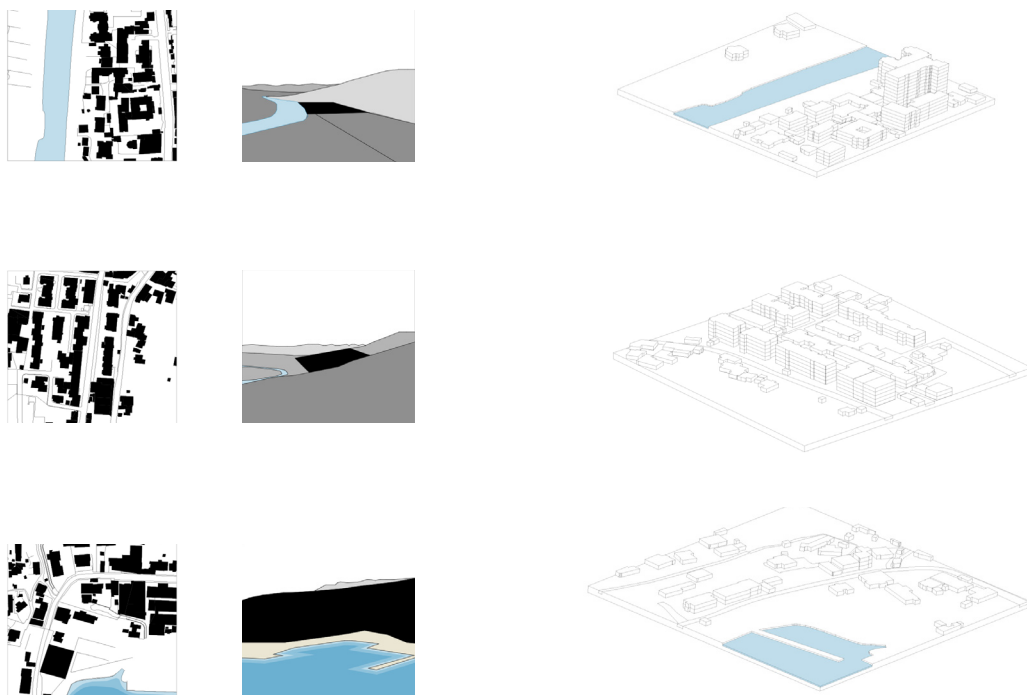


Figure 8: Sample Units Characteristics and Interaction with the landscape and the city (Source: Authors)

Solutions related to humidity, c) Use of Solar Panels, d) New Materials.

These aspects are intended to improve the existing situation, in the urban level, following the application of these components in the settlement unit.

A wider observation of the complexity of architecture in post-pandemic housing has been undertaken, towards a new paradigm for housing solutions based on; the flexibility of spaces, self-sufficiency, design, and architectural interventions to meet the needs of changing society, and the specific requirements of the city of Lezha in housing. During the research it has become obvious that the post-The Post-Covid Experience In the interior of the house, Flexibility and Customization of Space has the main focus, while Adaptation of Materials, inclusion of spaces like working, recreational, relaxation or sports are now on considered essential part of a home interior.

Based on the data generated on the preliminary work on site and on urban settlements, possible intervention strategies for the city of Lezha after the pandemic have been determined, specifically divided into two main categories:

- principles for adaptive reuse of existing building stock
- instructions for the expansion of new residential areas (densification, integration with space)

These two approaches are provided as a wide system of elements, including for the first alternative of re-adaptation:

the re-use of common public space, re-adaptation of balconies and facades, re-adaptation of terraces as well as finding ways to generate new indoor common spaces.

In the second approach, where new typologies of housing are proposed, along with the re-conceptualization of public space, the definition of new spaces have also taken place, according to today's needs of the society and the re-configuration of the housing program. The alternatives, provided for the context of Lezha, are sustained in well elaborated case studies which not only share these necessities, but also engage the space, according to the territory, interactive public space and integration of new needed spaces within the contemporary house.

As the world is striving to reform several aspects of the society, architecture of housing has emerged as a crucial domain for exploration and innovation. During the workshop, the analyzation process and the innovative complex propositions provided in this article and further on detailed in each participant article, has tackled the innovative architectural approaches to address the challenges posed by the post-pandemic era. By examining key aspects like spatial configuration, public space, health and safety considerations, sustainability, technology integrated systems and interior design, the proposals aim to address the emergent needs for re-configuring the public space in the same system with the indoor space, as the road towards the future of housing architecture.

The framework of this workshop, can sustain a further elaborated methodology to be implemented in various cities with resemblances in size, context, territory or similar housing typologies in Albania.

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