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- AUTHOR:** *Elena Verzella*
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Beyond boundaries. Exploring new post pandemic housing models through the reformulation of collective spaces.

Elena Verzella- Orcid Id: 0000-0001-7987-260X

DA, Università degli Studi di Ferrara / Italy

Abstract- *The outbreak of the pandemic COVID-19 has profoundly impacted the world where we live in. Especially in the urban and architectural fields, it has posed the necessity to define new housing models, capable of responding to both ambitions and needs of the upcoming post-pandemic society. In particular, two different types of necessities have risen: social issues (the necessity of more spaces for recreation, working, exercising, ...) and environmental issues (the reduction of flood risk, urban heat islands, air pollution, ...).*

The argument of this paper is that it is possible to overcome this apparent dualism of targets only through the reformulation of the conventional "living" paradigm, and, specifically, through the extension of the latter beyond the (physical and conceptual) "walls" that traditionally define the idea of housing. For this purpose, the outdoor space, conceived as not a mere addition but as a structural component of the living environment, has been identified as the main field of investigation. The effects of the pandemic situation, indeed, have exacerbated the traditional contraposition between private, semi-private and public realms. However, it is exactly through the exploration of this "friction" that it is possible to generate alternative design pathways for the reconceptualization of the conventional housing models towards a social and more sustainable perspective.

For this reason, taking as a case study the Albanian city of Lezhë and the surrounding region, the paper reflects on the connection between the ground floor spaces of local dwellings and the outdoor areas around them. In particular, two different space typologies have been considered: the "in-between" space, resulting from the aggregation logics driven by the different historical settlements models; and the "residential/outdoor space interface" between private buildings and the adjoining common areas (streets, squares, parks, etc.). For each of these two categories, the paper tries to establish potential design principles, strategies and tools which can embrace the twofold necessity of creating spaces where to integrate the new recreational, social or working activities which have been making their way into the post-pandemic idea of living, but also to give possible answers to the forementioned impending climate issues. In this way, the ultimate goal is to explore how new housing models based on blurring the traditional demarcation between private and public through the reformulation on the outdoor space idea may not only improve liveability and physical and psychological health of individuals, but also entail wider-scale effects, becoming a beacon to ultimately increase identity, social inclusivity, and climate resilience of local communities.

Keywords: post-pandemic society, outdoor spaces, resilience, in-between spaces, residential edges.

Introduction- The pandemic COVID-19 has greatly re-shaped our way to conceive architectural and urban design, exposing in a sudden and virulent way all the limits of current design paradigms to respond

to the complexity, dynamicity and often unpredictability of the world we live in (Allam 2020). In particular, this inadequacy appears extremely visible if we assess the main current housing models

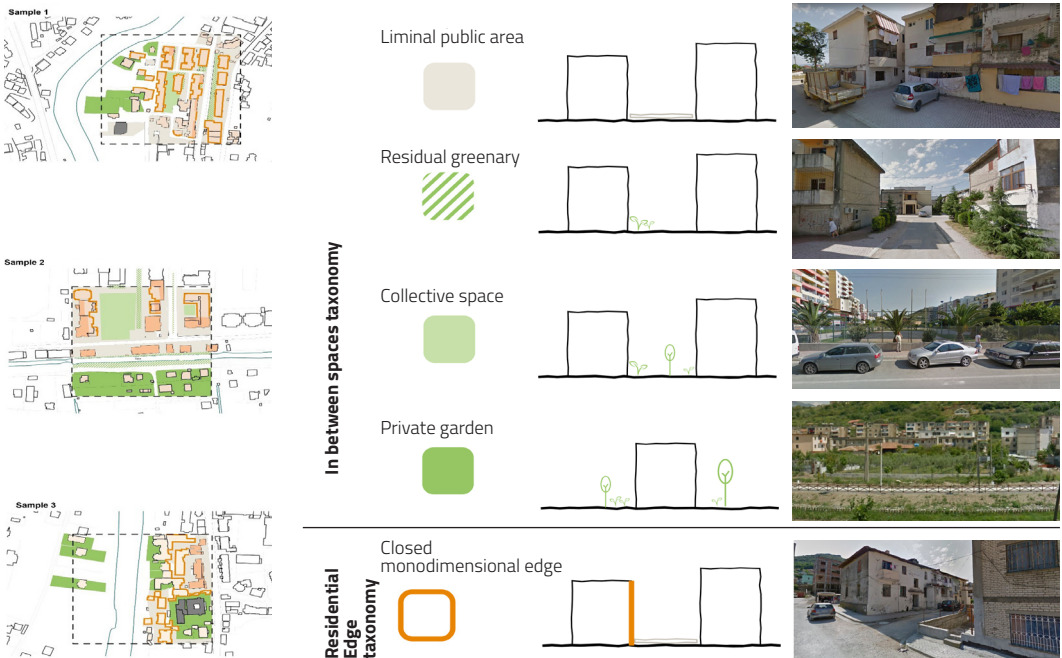


Fig 1/ Mapping of the existing urban spatial categories in Lezhë -The in-between space

and their capability of effectively responding to the needs brought to light by the post-pandemic society (Papu, Pal, 2020; Klochko 2022).

Indeed, on the one hand, the pandemic has exponentially expanded the ambitions of contemporary housing, introducing the necessity to integrate, within the space of traditional dwellings, a new set of functions which go far beyond the classic ones, including exercising, working, creating, meeting, or even gardening and local food production.

On the other one, the pandemic has also exacerbated even more the impacts on our current building stock of worldwide phenomena such as climate change, revealing the intrinsic incapability of existing dwellings of coping with the effects of higher temperatures, extreme rainfalls, drought or sea level rise.

The scientific literature has identified in this condition an opportunity to explore new housing models which might be more suitable for the upcoming needs of a post-pandemic society. However, what if we go a step further? What if we take this situation as a chance to challenge the traditional "housing paradigm" itself? In other words, what if we extend the existing idea of "housing" beyond the (physical and abstract) "private walls" that traditionally define it and we include in its reconceptualization also the outdoor space, conceived not as a mere addition but as a structural component of the living environment?

The reformulation of the outdoor space as a tool to address both social and climate

change issues in the housing realm

From the ancient times, outdoor spaces represented the most important sites where political, economic and cultural activities used to take place, or, in other words, where "urban life" used to happen (Wilkinson 1988). Also in terms of urban planning, their importance was soon discovered as they were recognised as a resourceful tool only to create space of social interaction and representation, but also to guarantee healthy living conditions (Duhl, Sanchez 1999). In particular, during the XIX cent., the redesign of outdoor spaces was of fundamental importance to address both social and health issues as overcrowding, disease and crime in the densely built new suburbs generated as a consequence of the Industrial Revolution. The widening of streets and the implementation of new green spaces and squares were some of the principal interventions envisioned by Haussman in his well-known model aimed at beautifying Paris but also, and above all, to remediate the poor conditions of many districts of the city (Hall 2014). Similarly, in U.K. outdoors spaces were identified as a primary tool to face the deteriorating living conditions in the uprising English industrial towns, from the earliest attempts to introduce, through a sequence of Public Health Acts, the first publicly accessible parks in the urban framework (as the ones realized in London and Liverpool in the mid. XIX cent.) till the more extreme approach of the "garden city" lately proposed by Howard (Wilkinson 1988, Worpole 2000). Again in the XX cent., much part of the Modernist movement stressed

once more the importance of sufficient light, ventilation, hygiene and safety as essential premises of the modern city and recognized, even if through the lens of its specific design assumptions, outdoor spaces as key elements to achieve this purpose (Worpole 2000). However, with the establishment of car-oriented city models in the same period, outdoor spaces and particularly streets were also progressively engineered to provide more space for motorized vehicles and optimize automobile circulation, introducing, in this way, a different conceptualization of the collective domain often colliding with its former uses (Brown 2009).

In recent times, though, many alternative design concepts have been developing, claiming the necessity to regain the outdoor space as a space for people rather than car (Gössling 2020). Design experimentations such as the "15-Minute city" of Paris, the "1-minute city" of Sweden or the "Superblocks" in Barcelona have already proved the possibilities unfolded by such approaches to create additional value and define new social, cultural and economic opportunities in the urban environment. Therefore, in the aftermath of the COVID-19 pandemic, these concepts can represent a fundamental starting point for providing an answer to the always more challenging task posed by the post-pandemic society of integrating new activities and needs within existing dwelling's conceptual domain (Moreno et al. 2022, Sisson, 2020).

Especially in densely built urban environments, where most of current housing models are based on an almost extreme contraction of the living space, the overcoming of the traditional hard dwelling's boundaries (or, in other words, the traditional clear separation between public and private realms) and recognition of the outdoor space as an active part of the housing environment can become for the solution to define new housing models more in line with the needs and ambition of the contemporary society.

At the same time, recent studies have also showed how outdoor spaces can potentially turn into an essential tool to address climate change impacts (Matos 2016). In particular, outdoor spaces have proved to be an extremely effective resource for the implementation of both green or architectural and urban systems which can actively interact with the surrounding environment and contribute to providing shadows and cooling during heat waves and hot temperatures, storing water in anticipation of dry periods, reducing and delaying water runoff during

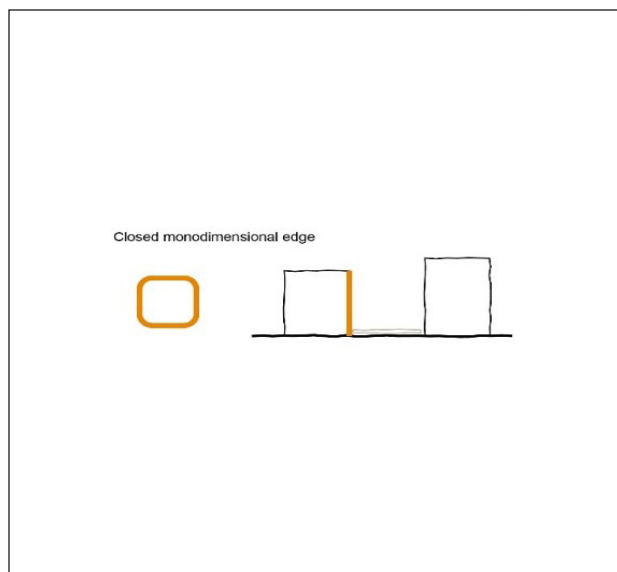


Fig. 2b / Proposed interventions for the residential/ outdoor space interface.

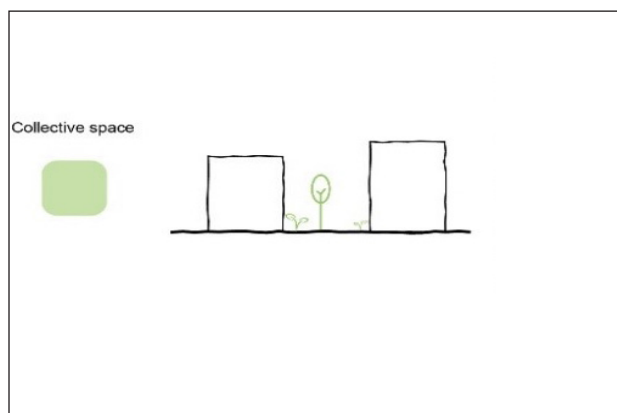
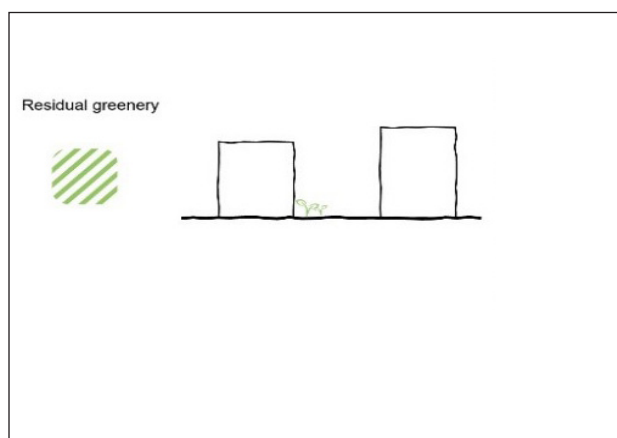
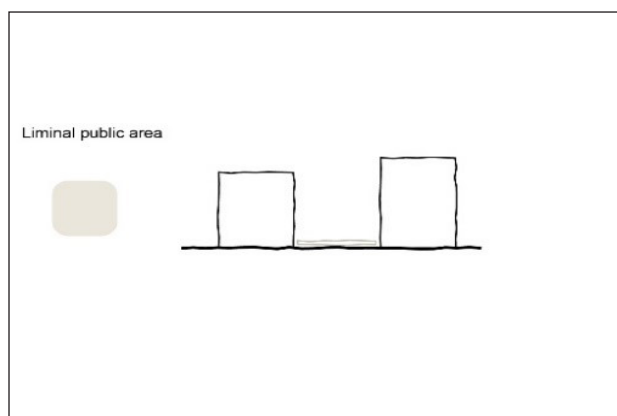
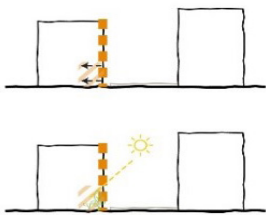


Fig.2a/ Proposed interventions for in-between spaces. The residential/outdoor space interface

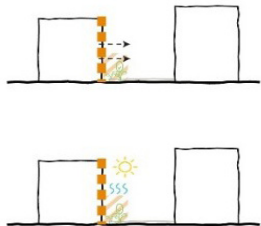
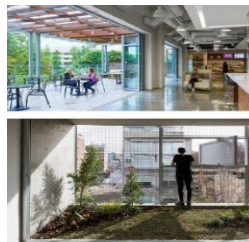


Social effects:

- Increase of open/semi-open residential space (loggias, small green houses,...)
- stronger visual connection with the street
- creation of extra activities (sport, relax, playground,...)

Environmental effects:

- possibility to integrate more greenery also in indoor spaces
- increase of lighting



Social effects:

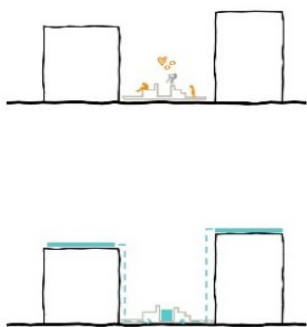
- Increase of street quality (more attractive and lively space)
- increase of potential interactions among neighborhoods
- extension of the house activities also outside and creation of extra ones (sport, relax, gardening, playgrounds,...)

Environmental effects:

- possibility to integrate more greenery and reduce housing heat stress



Proposal / A. Implementation of site-specific designed urban furniture / through sitting elements, kids playing items, shading elements,...

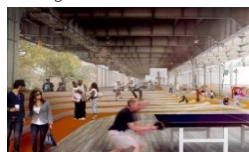


Social effects:

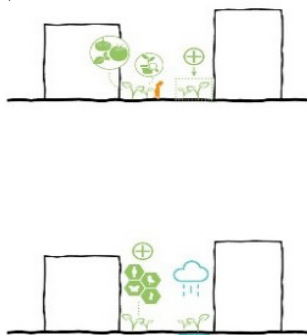
- Improvement of outdoor space
- promotion of social interactions among local inhabitants
- creation of extra activities that can be carried out outdoor (sport, relax, playgrounds,...)
- one minute city concept

Environmental effects:

- possibility to integrate and increase water storage spaces in the built-up areas



Proposal / B. Enhancement and implementation of green buffers / through the reconversion of residual green into new natural areas, community gardens, educational gardens,...

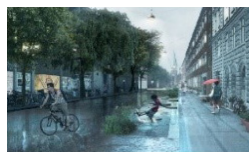
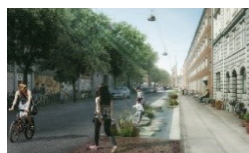


Social effects:

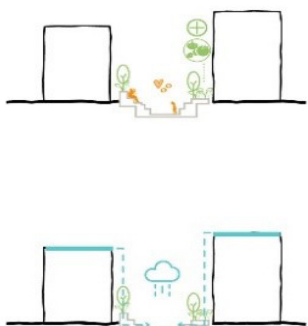
- Improvement of outdoor space
- promotion of social activities (vegetables and fruits gardens, educational gardens for kids)
- Increase of the sense of community
- Increase perception of an healthier and more sustainable environment

Environmental effects:

- increase of rainwater infiltration capacity (e/g, creation of bioswales)
- increase of biodiversity
- increase of greenery and consequent cooling effect during hot waves



Proposal / C. Enhancement of the collective space with green features and extra activities / such as rain gardens, water squares, permeable green surface, neighbourhood facilities, ...



Social effects:

- Improvement of outdoor space
- promotion of social activities (vegetables and fruits gardens, educational gardens for kids)
- promotion of social interactions among local inhabitants
- increase of the sense of community

Environmental effects:

- reduction of impermeable surfaces and increase of rainwater infiltration capacity
- creation of rainwater gardens for water storage
- increase of greenery and consequent cooling effect during hot waves



Sample 1



Legenda

- residential edge typology:
 - Closed monodimensional edge
 - Semi-open indoor thick edge
 - Semi-open outdoor thick edge
 - Permeable thick edge
- in-between space typology:
 - Private garden
 - Collective space
 - Liminal public area
 - Residual greenery

Existing situation



Fig. 3 a/ Principal section 1

heavy rainfalls or buffering and reducing the impacts of storm surges in case of flooding (Matos 2018, World Bank 2018). In light of these preliminary considerations, the main challenge in the reformulation of the existing housing models through outdoor spaces is, therefore, to rethink the relationship between these two terms and, in doing so, to develop design principles capable of addressing both social and environmental issues.

Design principles for the city of Lezhë

In order to test the assumptions outlined in the previous paragraph, the Albanian city of Lezhë has been chosen as a case study. Indeed, despite its own specific characteristics, Lezhë shares several morphological, typological and historical urban features with many other Albanian cities, and, for this reason, it represents an ideal framework where to define design principles conceived to have a much wider potential of future implementation in different contexts. In particular, the urban fabric of the city and its current housing models have been categorized according to three main development phases - before communism, during communism and after communism - (Thomaj et al 2021) and three samples of the urban fabric have been identified for further investigation. For each of these samples the relationship between existing housing models and outdoor spaces has been analysed. As a result, two spatial urban categories have been identified as a potential experimentation field (fig. 1):

- the in-between space
- the residential/outdoor space interface

and, for each of these categories, different design solutions have been developed, always through the twofold perspective of combining the technical requirements of climate-adapted urban spaces with the people’s desire for more and more attractive places where to carry out everyday activities in a post-pandemic era. With this definition, we intend the spaces often resulting from the overlay of diverse (and often informal) aggregation logics specific of each historical development phase of the city. Despite the intrinsic variety of these spaces, they are often deemed as a “residual” or “undetermined” ones, many times even perceived as unsafe or reason of further urban decay in residential neighbourhoods. Nevertheless, we recognized them as a great opportunity to implement social-oriented and climate-adaptive solutions in the city of Lezhë, and, for this reason, three main intervention fields have been identified (fig. 2a):

- liminal public spaces: these are the spaces between building blocks, mostly of public ownership and mainly identified with the streetscape. These areas are often downgraded to mere circulation spaces, either vehicular or cyclo-pedestrian. However, following the lesson of the already mentioned “Superblocks” project in Barcelona or other initiatives such as the “Piazze Aperte” in Milan, retrieving the historical idea of the street as a “space where things happen” is not only possible, but it becomes a tool to give an answer to the residents’ need of social interaction, accessible and nearby recreational spaces and, in general, of a greener, healthier, and safer neighbourhood. In these terms,

Sample 3



Legenda

- residential edge typology:
- in-between space typology:

□ Closed monodimensional edge □ Semi-open indoor thick edge □ Semi-open outdoor thick edge □ Permeable thick edge

Existing situation



Fig.3. b/ Principal section,

urban furniture plays a fundamental role: on the one hand the implementation of a rich and broad variety of street furniture (seating elements, playgrounds, planters, art installations...) represents a chance to stimulate a wider range of activities (playing, relaxing, mingling, training, sharing, ...) often impossible to be carried out within the boundaries of conventional dwellings. On the other hand, street furniture can also turn out to be an effective way to cope with some consequences of climate change. In this regard, the design of the ZOHO Rain Letter installation in Rotterdam by Studio Bas Sala offers a useful example: this art installation, indeed, is conceived to strengthen the identity of the area (ZOHO stands for "Zomerhofkwartier", the district where it is located) and foster community building in a complex and multi-ethnic neighbourhood; at the same time, though, it also works as a smart rainwater barrel capable of harvesting water during intense rainfalls (preventing also the local the sewage system to collapse) and storing it in anticipation of dry periods.

- residual green: it is the green often located in left-over areas of the city of Lezhë, along the streets, in the corners of the building, in the intersection of roads, ... Rather than wasted, disconnected areas, however, these green spaces can actually be interpreted as a resource for the residential environment: if preserved and even implemented into a consistent system in the built context of Lezhë, they can actually be an undeniable reserve of biodiversity (Baldock 2019), becoming urban ecological corridors, as

well as effective tools to accommodate water during extreme climate events or cooling during hot summers. At the same time, from a social perspective, the reconsideration of residual green as a design factor can improve the streetscape appearance and, in this way, invite residents to take care of it, triggering even the creation of new, cohesive and social activities (Thompson 2018). An example of this principle can be found in the "Street Edge Alternatives" (SEA, 2001) pilot project in Seattle, Washington, where green along the street profiles of the Piper's Creek neighbourhood was reconverted into lush bioretention areas. This intervention, besides improving the general water management system of the area, also created a sense of place and community among the residents as well as arose their environmental awareness, showing their own active role and contribution to managing stormwater and improving the quality of their neighbourhood.

- collective areas: they have been identified, in the three samples, as those spaces already conceived to accommodate collective functions such as private courtyards or public squares but whose social value is not totally exploit yet. In this case, implementing climate-adaptive design solutions can actually become an opportunity to increase their urban quality and uses. The case of the water square in Benthemplein (Rotterdam) well represents this idea: the three lowered basins which constitute the square are designed to store water during heavy rainfalls before it enters the local drainage system, but they also become an opportunity to create

Sample 2



Legenda

- residential edge typology:

Closed monodimensional edge

Semi-open indoor thick edge

Semi-open outdoor thick edge

Permeable thick edge

- in-between space typology:

Liminal public area

Collective space

Residual greenery

Existing situation



Fig. 3.c / Principal section

more spaces for sports, performance activities, and gathering, realizing, in this way, the desires of the young community living in the neighbourhood.

Additionally, also urban farming can work towards these targets. Especially private courtyards, now mainly paved and underused, can become extremely suitable for shared food gardens: in this way, not only is the risk of pluvial flooding decreased (thanks to the infiltration properties of the soil) or is potential food scarcity threats as well reduced, but also the general lifestyle of locals is improved, providing greater access to fresh and healthier food and, at the same time, promoting interaction among neighbours.

With this second urban category we explore the relationship between private ground floors and the public (or semi-public) space in front of them. In all the three analyzed samples of Lezhë, most of the buildings present a hard separation with the outdoor space in front. The main assumption of this paper, on the contrary, is to reconsider the transition between private houses and outdoor spaces from a nondimensional line to a "thick border", an urban space where social opportunities can rise as well as green and climate solutions can find their space in a very dense urban context (fig 2b). This border can equally develop outward, expanding interior activities towards the public realm, or inwards, welcoming outdoor activities in the traditional dwelling domain, such as in the case of multifunctional lobbies of residential apartment buildings. In regard of the first case, the Dutch city of Delft offers a wide range of examples. Especially

in the historical part of the city, indeed, the edge between buildings and outdoor space is often articulated in different forms, such as seating elements, tables, vegetables gardens, etc...As a result, not only do these elements allow to people to carry out a much wider range of activities, but also activate the outdoor space in front and, at the same time, promote interactions among residents. Lastly, as already mentioned, they can often be implemented to mitigate the effects of climate change, creating a more liveable and safer environment (fig. 2b).

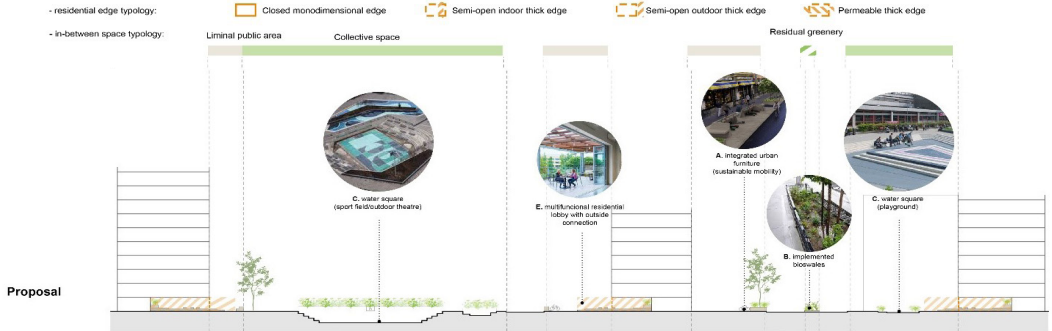
In light to the design strategies outlined, some principles sections for each of the three urban samples in Lezhë have been defined, not only to demonstrate the applicability to the solutions identified in the context of the case study, but also to create a coherent system between them, and demonstrate how the benefits of one solution can be exponentially amplified if put into relation with another one (fig. 3a,b,c).

Conclusions

The pandemic has revealed all the limits of existing housing design approaches in offering safe and healthy dwellings which can be also "home" of a wide range of new activities. Many scholars have seen this condition as an urgent call for action targeted to the upgrade of traditional housing models.

The analysis of the case study of Lezhë, however, has showed that before - or better, in conjunction with - this upgrade process, it is necessary also to rethink the traditional relationship between private

Legenda



dwelling and outdoor space. As described in the paper, indeed, the implementation and reconceptualization of the outdoor space as fundamental part of the housing domain can already provide many answers to the upcoming ambitions of the post-pandemic society, and, at the same time, it can also be a tool to address several of the impending effects of climate change and ultimately, become the trigger of wider regeneration processes capable to expand to the neighbourhood (or even the city) scale.

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