



THE HOME OF
BEIRUT

BEIRUT

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Research Plan

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Abstract

The explosion has made the situation drastically worse, taking around 200 lives, damaging 70.000 houses and affecting more than 30.000 people. Housing is unaffordable for most of the people living in Beirut. Due to recent crisis and explosion, the middle class is shrinking, and the lower, social class is rapidly growing. The growth of a middle class is of crucial importance in contemporary low-income nations and currently that is deferring in Beirut. The communities in Beirut have shown to be resilient in problem solving after disasters and crises, The hypothesis of this paper is that the communities can produce the right conditions to make affordable housing possible in the current setting of Beirut. Different cases of achieving communal success are described in the paper. The aspect of community building and housing will be coupled to affordability strategies in the context of Beirut. The case of affordability will be built by looking at the work of the studio of ELEMENTAL, concepts of urban gardening, and also by looking at strategies currently applied by the communities of Beirut. The goal of this research is to gather information and evidence to support the design of a correct and efficient housing intervention in Beirut city center that is affordable for different social groups.

Keywords: Housing, Community, Social, Diversity, Resilience, Sustainability



Figure 01: Collage (Self), Community built affordable housing

Introduction

Beirut has been struggling with housing poverty even before the dock explosion. The explosion has made the situation drastically worse, taking around 200 lives, damaging 70.000 houses and affecting more than 30.000 people (UN-HABITAT , 2020). Housing is unaffordable for most of the people living in Beirut. Housing in Beirut is relatively expensive, especially in the city centre. Disadvantaged neighbourhoods suffer from the lack of supply of affordable housing, which does not match the demand (Marot, 2021). Along with this, Lebanon is the country with the highest number of refugees per capita. There are some formal camps for refugees, however most displaced Syrians rent inadequate shelters from private individuals. Due to the lack of governmental help, the biggest help received were from community initiatives in Beirut.

The solution to many of Beirut's crises were found in the co-operation of the different communities. Revalidation after the explosion also primarily came from the communities in Beirut, that offered shelter and aid to the victims. While housing was already almost impossible to attain for the average inhabitant, after the crisis and the explosion, parts of the population is even suffering from famine.

In this paper different community initiatives will be analyzed by looking at case studies directed towards community housing and the social class. These case studies will be underlaid with research to empower the need of communities. The aim of this research is to gather knowledge based around community building and how communities can arrange cheap housing. More specifically, communities in Beirut will be analyzed and a strategy will be elaborated on how cheap housing can be realized. This community concept will also be tied to sustainability, modern urban planning and resiliency. The goal is to create a resilient community complex that will eventually grow bigger in Beirut. Findings of this research will be methods and design principles that allow for communities to support each other and contribute to society, resulting in cheaper housing.

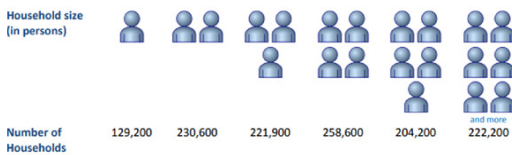


Figure 01: Collage (Self), Community built affordable housing

Problem statement

“A resilient middle class”

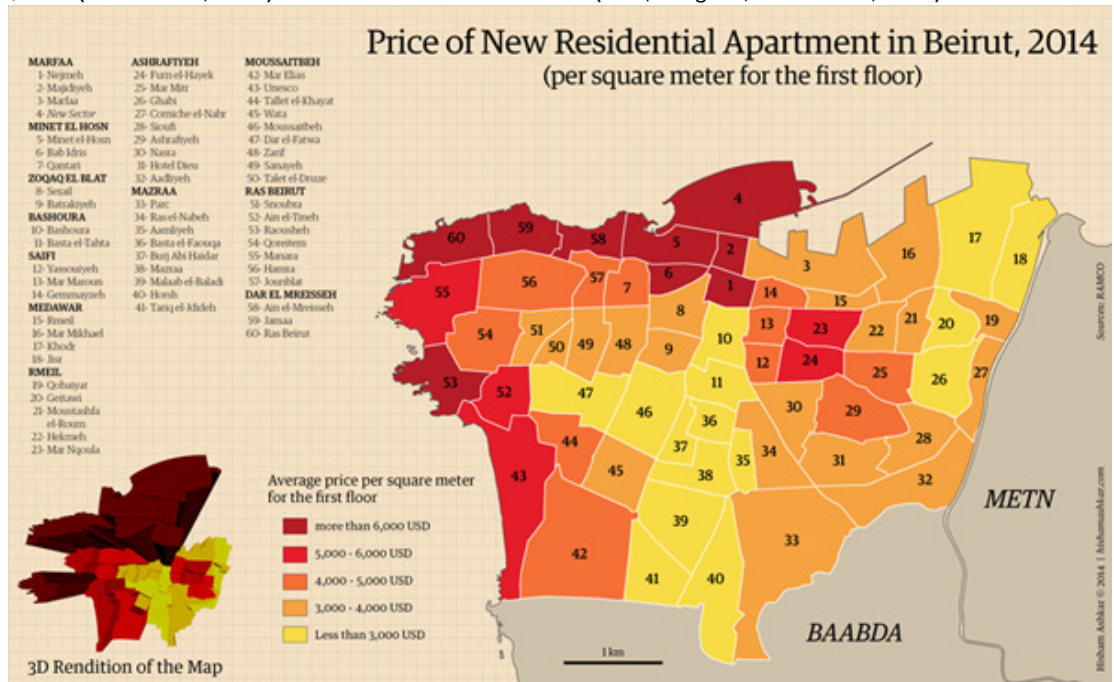
A study by the American University of Beirut (UAB) shows that housing prices have been continuously rising and are still rising. The square/ meter prices keep rising at a steady rate. At the same time, the average houses are getting smaller (Hammoud, 2020). The big families that are living in these houses could be the cause of the relatively big apartments. The average household in Lebanon consists of 3.8 residents. However, Beirut is way denser compared to the rest of Lebanon, so this rate is even higher in Beirut (Central Administration of statistics, 2019)



The average rental price in Beirut for a room is \$400. For a 1-bedroom apartment in central Beirut it ranges between \$600 to \$1390 and for a 3-bedroom apartment between \$1325 and \$3000 (Sewell 2019). The price per square/meter to buy a house in the city centre is approximately \$3760 (Boudisseau, 2021).

These high prices had several consequences like big households, habitants moving out of the city (centre) and youngsters leaving the city. A study of the United Nations Development Program (UNDP) shows a strong correlation between the big households and dissatisfaction with the housing conditions. While the average household is decreasing already, the current households are not satisfied with their living environment. The paper also shows that throughout whole Lebanon, Beirut has the highest density, largest group of big households and the biggest contrast between poor and rich (UNDP, 2003).

Currently, the group that cannot afford housing in the city centre is growing and possibly leaving the city centre. A research by Aravena and Lacobelli shows that the retreat of the low and the middle class from the city centre results in lesser opportunities for the lower class and slower development for the area and the economy (Aravena & Lacobelli, 2012). Youngsters leaving the city will also degenerate the development of the city as having more future oriented individuals will generate more businesses and tax revenues (Bibri, Krogstie, & Karrholm, 2020).



Equality

The minimum wage of Beirut before the economic crisis and before the explosion was \$450 and the average wage was \$1010. This has plummeted by 84%, making the current minimum wage approximately \$72. The current state of Lebanon is even against its own laws which states (article 44): “the minimum pay must be sufficient to meet the essential needs of the wage-earner or salary-earner and his family,”. In addition to article 46: “the minimum pay assessed shall be rectified whenever economic circumstances render such review necessary.” (Ramadan, 2021).

This resulted in the decrease of the middle class and the growth of the lower, poor class. The decrease of the middle class holds significant drawbacks for the economic and urban development of a country (Easterly, 2001). Societies that lack a significant middle class are troubled by elites that under-invest in human and infrastructure capital. On the long run, this is not optimal from an economic and urban development point of view.

Concludingly, due to recent crisis and explosion, the middle class is shrinking, and the lower, social class is rapidly growing. In addition, the current gentrifying urban developments are causing meaningful social groups to leave the city centre. This will further enlarge the unsustainability of the urban economy due to the lack of contributors. It furthermore contributes to an arid urban culture due to the lack of feeding layers.

Many economic historians like Landes (1998) have pointed out the importance of a large middle class for economic development. Landes points out that “the ideal growth and development society would have a relatively large middle class”. He continues by noting that this was the main argument of England being first at the industrialization.

Adelman and Morris (1967) furthermore note that “in the economic develop of Western Europe, the middle classes were a driving force”. More importantly, they say that “it is clear from many country studies that the growth of a robust middle class remains of crucial importance in contemporary low-income nations”.

Galor and Zeira (1993) find direct correlation in higher inequality implying a greater share of the population will be liquidity constrained and thus the society generates less human capital. Alesina and Rodrik (1994) and Persson and Tabellini (1994) take this statement a step further by implying that the rich are imposing a tax on themselves by feeding this inequality.

ARTICLES

Research questions and goals

The goal of this research is to gather information and evidence to support the design of a correct and efficient housing intervention in Beirut city center that is affordable for different social groups. In the theoretical framework, that variety of social groups in city centers is beneficial to urban economy, vibrancy, efficiency and resilience. My hypothesis is that communities of Beirut would be able to produce conditions to make this happen. To answer this question, some parameters must be set on what these terms might mean in this context. Par exemple, what are the communities of Beirut? What are the spatial aspects of housing of these communities? when is housing deemed affordable and how does this relate to the current state of Beirut? How can communities and community housing contribute to this problem? What are the connections of resilience and sustainability to community building and affordability?

Impact of the communities

The explosion proved again the resilience and the power of the communities in Beirut. Many Beirutis took to the streets to help the victims of the explosion. One community from Qaurantina helped approximately 1900 people through a WhatsApp initiative led by Wissam Diab. The same group also organizes events for the community, including event like communal meals and concerts to fundraise for the needs of the community (Maingi, 2020). This group also meets weekly with other non-governmental organizations (NGO), like Offrejoie to further extend their reach to the needed. These NGOs are often connected to Emergency Operations Cell structure, which promote community engagement. The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) has provided guidelines to the teams on protection about abuse and other forms of exploitations (Maingi, 2020)

Community building is done with different methods. A currently popular one is urban gardening. Urban gardening has proven to be successful in different researches (examples given: (Idilifitri, Rodzi, Mohamad, & Suleiman, 2015) (Sakip, Johari, Aldrin, & Salleh, 2013) (Wan Ismail & Said, 2015)) throughout the past decade. A group of landscape architects continued the research of the previously mentioned papers and have developed and confirmed these claims (Illias, Mansor, Hussain, & Omar, 2018) As proven in these studies, this paper will also enhance the community building through urban gardening. Additionally, with this movement the opportunity will be taken to recycle waste and generate compost for those gardens.

With these means, community building will be strengthened, resilience increased, community health improved, and organic waste vastly reduced.

Waste is barely being recycled in Lebanon due to the lack of a waste management facility. This insufficiency is costing Lebanon US\$154.5 for every ton of solid waste to manage. This is, compared to other middle eastern countries, at best 8 times worse. Algeria, Jordan and Syria spend approximately \$7.22, \$22.8 and \$21.55 per ton of waste. On a yearly basis, Lebanon spends \$420 million on waste management, while Jordan and Tunisia spend between \$48 and \$54 Million per year on average (HumanRightsWatch, 2020).

A study in 2014 (Arif & Doumani, 2014) showed that improved waste management practices, such as recycling and composting, could save \$74 million a year. Currently, about 85% of solid waste goes to open dumps or landfills. According to a study of the UAB (Abbas, 2019), only 10% to 12% of the total waste produced by Lebanon cannot be composted or recycled.

Ultimately, urban gardening has been an effective tool connecting communities and strengthening neighbourhoods by offer a kind of food supply and other benefits. In the case of Beirut, this strategy lines up perfectly with a major deficit of the city and could potentially play a bigger role in the strategy of building a resilient community and developing affordable housing.

The outlines of this paper will be based on studies on community building and community housing. On the case of developing the project in a context like Beirut, different case studies will be examined. Developments and innovations on these matters will be sought after in studies done among others by Ferguson and Navarrete (2003). For the built environment section, work of the Elemental studio will be used to develop an approach on how community housing could help strengthen the resilience of the communities in Beirut. For movements on community building, international cases will be examined and tied to current actions done by the communities of Beirut. The case studies and papers from Elemental will also be reviewed and applied.

Framework

Affordable housing: A layered challenge

According to The Economic Times, “affordable housing refers to housing units that are affordable by that section of society whose income is below the median household income.” The current average wage is measured around \$160, which is not even half the price for a single room in Beirut city centre. According to CHA Community housing refers to a form of affordable housing working alongside private housing in the open market. Generally, community housing organizations are not-for-profit groups meeting housing need through a range of affordable rental and home ownership options (Community Housing Aotearoa, 2021).

To make community housing work, generally different parties cooperate. In this case as the first party, the government fails to subsidize its residents, due to the extreme debts of 97.3 billion USD (Huaxia, 2021) they are in. Generally, the need of social housing and subsidies and the lack of financial possibilities keep governments from providing finished dwellings for the urban poor. When they are realized, they are made in areas that are far away from the city and thus cut the residents off from the opportunities the city offers (McKinsey&Company, 2014).

Secondly, private owners generally prioritize their own income. In most cases, put the responsibility on the residents in the apartments to cover up for the damage (Sewell, Beirut blast: Residents told to front repair costs by Lebanon’s landlords, 2020). A question raised in a paper by Ferguson and Navarette states (2003, P 206-207): “What if the houses are not being provided by the government, but by private organizations and facilitated by the government?” This way the housing project becomes an investment that steadily grows on a financial and qualitative aspect. The raw definition of an investment means “an asset or item acquired with the goal of generating income or appreciation” (Hayes, 2021).

Ferguson and Navarette continue to explain that the execution of this proposal lies in the endeavors of the communities. Summarizing, the private parties will organize the startup of the housing project for a return and the government will provide the needed environment and context needed to make the cooperation of the communities work on this scale. From the question statement above, the government would take a new approach to housing and act as a facilitator, instead of providing fully completed units (Ferguson & Navarette, 2003). An approach as described looks at the lack of affordable housing not as a problem, but as an opportunity to create the basis for strong and resilient neighbourhoods (CSSP, 2011).

Methods & Expected results

There will be two main methods, literature review and case studies, which will be used to gather information for this thesis. For the literature reviews, the goal is to gather information showing methods on creating urban resilience with the involved communities. By analysing practices that have resulted in desired, resilient and sustainable communities, benchmarking with the current case will be made. To gather information on programming, spatial organization and communities, an analysis will be made based on the problems and ambitions to solve them described above. The development of housing in Beirut will be an important factor, since it has had a drastic change in the past.

Traditional housing in Lebanon had large, hall-like spaces, sometimes focused around an open courtyard, with few internal walls. The area was multifunctional, where these were used as spaces of entertainment during daytime and became sleeping quarters by night. The central hall houses changed this pattern by keeping the open central area, but placing separate bedrooms, kitchens and baths around the big open area in the middle. This way, the hall acted as both common atrium and a corridor. These quarters offered flexibility, but more importantly in this context, privacy. (O’Sullivan, 2021)

Case study – Half a House, Chile – Elemental

A similar case can be seen in Chile as the Quinta Monroy project (2003). Studio Elemental has realized a housing project for the social class, where only half of the house is realized. The other half is to be built by the resident over the course of time. This way the residents build their house when they are financially ready and their feeling of ownership of the house grows.

The main intention of the program was to aid households living in problematic settlements overcome poverty (Greene & Eduardo, 2008). By improving on the residential situation of the households, the quality of the surroundings and access to various urban services, the program is being directed towards building a community and not only meeting the housing demand (Frenz, 2007). Another important factor for the success of this project relates to the development of the housing close to the urban centre, where the residents are close to the amenities. (Aravena & Lacobelli, 2012). For residents from the lower income groups in developing countries, the prime source of financial investment and economic growth has been the access to ownership of land and services (Durand-Lasserve, 2006).

Additionally, studies have showed that ownership of a house is linked to better interaction and participation on neighbourhood level (Rohe & Basolo, 1997). The sense of ownership is also strongly held as an important condition from the lower income class to further improve the quality of their houses (Gelder, 2007). Furthermore, entitlement to an house is also seen as the first step in the introduction of the low income group into the formal economy, broadening the economic capacity of an area (Cook & Boyer, 2012).

Concludingly, developing social housing for lower income groups will develop into a resilient urban neighbourhood. This would require alternative policies that open ways to more pluralistic and progressive approaches to the housing process and ownership of one (Souza, 1998).



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Right after the explosion, many Beirutis took to the streets to help the victims of the explosion. One community from Qaurantina helped around 1900 people through a WhatsApp initiative led by Wissam Diab. The same group also organizes events for the community, including event like communal meals and concerts to fundraise for the needs of the community (Maingji, 2020). This group also meets weekly with other non-governmental organizations (NGO), like Offrejoie to further extend their reach to the needed. These NGOs are often connected to Emergency Operations Cell structure, which promote community engagement. The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) has provided guidelines to the teams on protection about abuse and other forms of exploitations (Maingji, 2020).

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Design Brief

01 Introduction

02 Site

03 Ambition

04 Program

05 Massing

01 Introduction

During the explosion, most of the damage was done to residential buildings and the residents did not receive any help from the government. To offer aid to the victims, communities gathered and formed groups to help the victims. This was also the case in the earlier crises in Beirut. The community would gather and form a resilient layer to protect Beirut. To tackle the housing situation in Beirut, this paper will primarily focus on strategies for Housing opportunities, financial stability and public space



77,000
Houses
Damaged



300,000
Residents
Affected



6,500
Injured

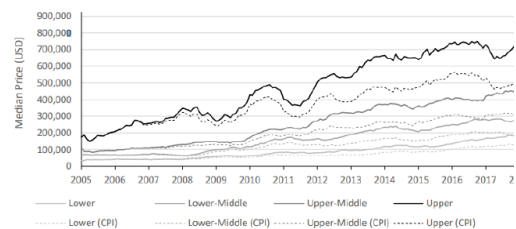


212
Deceased

Housing opportunities

As for housing opportunities, the civil war robbed Beirut of many of its heritage and affordable dwellings. Many landlords also refused to pay for the damages, leaving it for the inhabitants, which are from the social class and generally cannot pay for the repair of the damages, resulting in them leaving the dwelling. As a response to the civil war, many new residential buildings rose in Beirut, however many of them were too expensive for the average Beiruti to afford (Marot, 2021). The landlords refused to lower the prices, to keep the value of its building high, resulting in high vacancy of even newer apartments. Additionally, the average apartment in Beirut is approximately 190 square meters. This is more than twice the size compared to other high-density cities. Although the average household in Beirut is also bigger

than average, existing roughly of more than 4 residents per house, the houses are still over dimensioned compared to other precedents (Central Administration of statistics, 2019).



Financial stability

The financial housing crisis of Beirut started pre-explosion. Before the explosion, the housing prices were already rising hard and people on average were paying more than a third of their income as rent. After the last economic crisis and the explosion, more than 65% of the middle class became part of the social class and approximately 75% of the population needed primary aid, thus belonging in the social class (UNICEF, 2021).

Public Space

Public space is very scarce in Beirut. Currently, its estimated to be 0.1% of the total space in Beirut, however in many interviews and videos, active residents express the need for social meeting spots, public spaces and identity in the built environment, oftentimes referring to the souk of Beirut.

“Looking at public space reveals issues of power and exclusion. In Beirut, public space has consistently transitioned into what Dr. Aseel Sawalha calls “prohibited space”.

Adding to this, Dr. Aseel Sawalha says that looking at public space (in Beirut) Reveals issues of power and exclusion. In Beirut, Public space has consistently transitioned into 'Prohibited space' (Sawalha, 2010). Space that should be open for the public, but it prohibited by the owner of the

space. Larkin adds that the limitations of Beirut's spectacle city center are further underscored by residents, who criticize the new Downtown for providing little 'neutral' space for people to meet, socialize or engage with one another (Larkin, 2010).



Figure 01: Vision collage of mixed use strategy in Beirut.

02 Site

Research Question

Based on these topics, this paper will focus on providing more housing opportunities with heritage in mind for different social groups, come up with a strategy to allow for financial stability and possibilities to for the social groups to regrow into society and offer mixed use public spaces for the communities to gather. Concludingly, the main question is as follows: **How can a mixed-use housing intervention in Beirut city center be affordable for different social groups and contribute to a resilient city center?**

Location & Site

The site choice was initiated with the division of areas on the map of Beirut, where the city center group was appointed to our group. Based on this location, the site choice is made, from bigger to smaller scale, looking at the identity and heritage of the area, community demands, connection to public spaces and the waterfront, accessibility through to the fragments of the city center through different axis, proximity to the amenities and zone regulations to allow for high density living.

The decision was made to select this area since it incorporates the main layers of Beirut's heritage in development and also the very starting area of Beirut, the seed of Beirut. This location is fragmented, and the ambition of our group strategy is to reconnect these fragments, keeping heritage and community need in mind.

This location can be divided into three main areas: The residential area, which lacks amenities. The amenities area, which

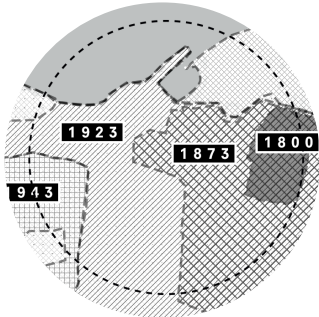
is mixed with (essential) functions for locals, residents and visitors, holding most of the amenities of the city centre and the Solidere area. Solidere is the private company that was appointed to reconstruct the area that was the most damaged due to the civil war and is also the heart of Beirut, looking at the history of Beirut. Larkin concludes on this matter that Solidere has failed to reconstruct an inclusive center, a place with which all identify in a new social, national and global context (Larkin, 2010). Most of the public space that is located in this area is prohibited space, which is inaccessible for the public.

Based on the heritage and importance of the area, the most demanded public space that was located in the solidere area, was the Beirut marketplace. In many masterplans, the important functions for the identity of locals were planned to move to the western side of the highlighted circle, closing in on the Ain Mreissah area.

This neighborhood is located in the amenities area of the city center. According to Aravena and Locobelli, the chance of success on development for the lower class lies in the proximity to the amenities of the area. Since traveling is hard for the lower class, being near amenities opens up more job possibilities, allowing for a better chance to regrow into society.

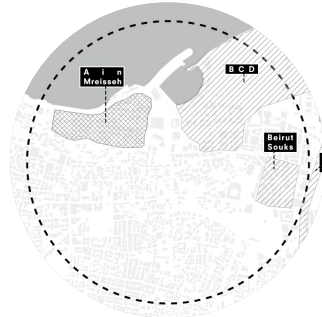
Furthermore, this location is connected by the most important axis that connect the fragments of the city with each other. Also, this area potentially holds many 'public' green areas for parks and other activities and is adjacent to the waterfront. The intersection between these axis and public spaces, is the site next to a vacant building, the former Holiday Inn Hotel.

Seed of Beirut



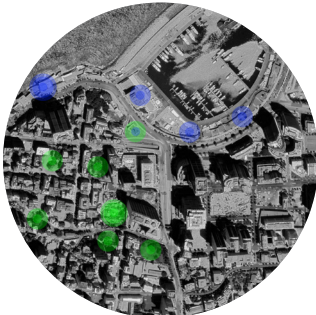
Identity & Heritage

Commercial & Housing



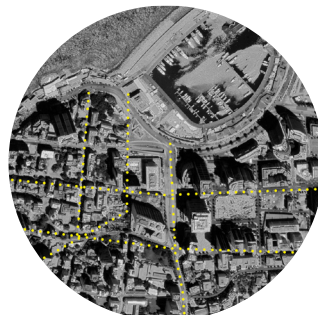
Masterplan development & Community need

Vacant Urban Spaces



Connection Waterfront & Creating pub. spaces

Center of important axis



Accessability

Amenities Area



Regrowth of Communities

Zone regulation



Density & Capacity

Figure 03: Site decisions

Concludingly, the city center is close to Beirut's identity and heritages, but it is fragmented. The prohibited (Solidere) area is mainly looked after by the locals, but the functions and amenities were planned to move more towards the west, near the waterfront, the Ain Mreissah area, which is accessible to the public. This area allows for much potential on open spaces and activity on the waterfront. It is also on the intersecting area with the most important axis that connect the different fragments of the city center. Adding the vast number of amenities near the site, it also allows for regrowth potential for the social class and high density, cheaper housing to the zoning regulations and capacity of the area.



Figure 04: Center of Beirut

03 Ambition

Strategy & Zoning.

The strategy for this ambition is to connect the site, using the main axis and the nodes to the waterfront. The project on an urban level will be a connector to the primarily the waterfront and the other fragments of the city center.

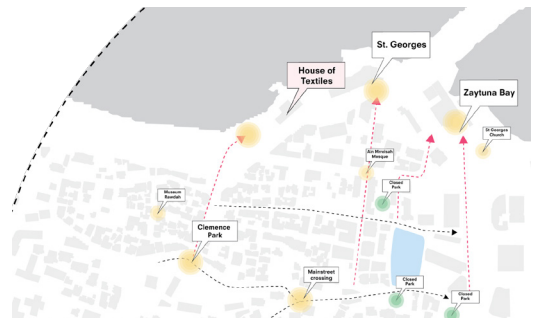


Figure 05: Strategy: Nodes towards the waterfront

As the group strategy, the main disconnecting urban element of the city center is caused by the spine, which is a wide car zone. The focus on cars makes the primary and the secondary roads pedestrian unfriendly. The strategy to tackle this issue, is to select the different pain points of the city center and help solve issues of that fragment the center by connecting it to the areas and projects.



Figure 06: Group strategy: The future of the Spine

In this case, the mixed-use housing project will join forces with the cultural house of textiles to resolve the problems in the Ain Mreissah area. This area is roughly divided in six zones (Gebara, 2016):

- Zone1:Waterfront
- Zone2:American University of Beirut
- Zone3: The old fabric zone
- Zone4: Fast-forward development
- Zone5: Mixed zone
- Zone6: Hotel zone



Figure 07: Zones of Ain Mreissah

The project will be located in zone 6, which is also known as the hotel zone. This zone has been stigmatized and marginalized after the civil war, which led to many of the properties to be abandoned. Therefore, this area is usually isolated and not very friendly to pedestrians, making the area less attractive. However, considering the proximity of the hotel zone to the corniche and also the ambition of the house of textiles, to open the corniche again for the public, this zone became a point of interest for the ambitions of the social housing project.

Taking a closer look to the secondary roads inside the area, it is visible that these are also dominated by the car and allow for no public function or use. Adding to this, most of the public parks and open areas were closed by

walls or fences after the civil war, to preserve safety. However, after the civil war, these walls and fences have not been taken down.

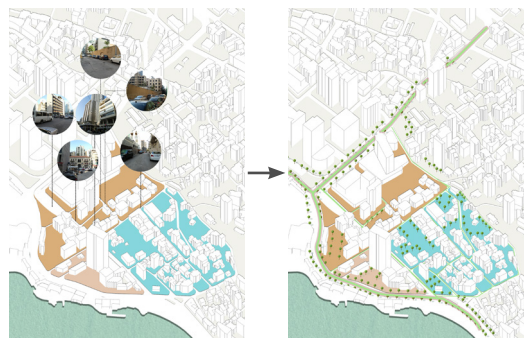


Figure 08: Car dominated to pedestrian friendly

The first step in the proposal is to open the closed parks and open areas. The mixed-use social housing will be the first housing project in the area with an open public space that will serve as an example to open the other open spaces in the Ain Mreissah area. The second step is to remove the two lanes of parking from the street level and make a public garage in the vacant building next to the chosen site. These steps will open the area for more public interaction and more shared spaces for the communities.

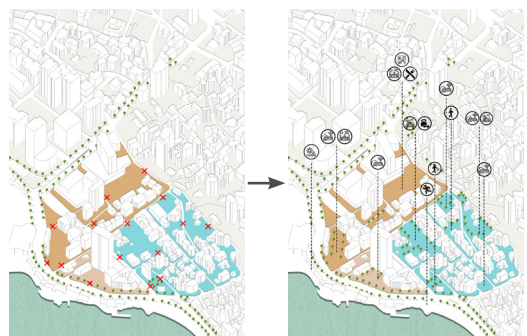


Figure 09: Open spaces for activity

Based on the zonings, the activities will be primarily focused on visitors (tourists) and locals and residents. The waterfront side will have the community meeting spots and public parks towards the waterfront and the residential area will have a broad arrangement of functions like a calisthenics park, children’s playgrounds, jogging areas, hiking areas and picknick spots. Since the chosen location is on an intersecting area based on these axis, it is an ideal location to combine the public and private elements of both zones (touristic and residential).



Figure 10: Activity on site

Looking at the heritage of Beirut, a combination of residential and touristic leads to the typology of the souk, which is commonly identified with among Beirutis. During the high times of the souk era, people of Beirut would live and work near each other. The divisions in the city center were based of the profession of the inhabitants, so you would have the shoemakers district, the market alley and so on. Hence, the division were not based on sects as nowadays and the division was practical not enforced.

Ultimately, the location of this shared space supported the interaction and unity of secular and religious life in

these cities and economically provided the most attractive place for retail, commercial and other activities. This shared marketplace developed to become the trade hub of the middle east. As a result, the addition of a temporary residential function was added, allowing for the traders to stay, trade and leave when ready. Over time, this function evolved to the commercial centers that are nowadays present in nearly any city.



Figure 11: Development of the Souk

The organization of this shared multifunctional space is focused on the main amenity of the area. In this case, the main area is the waterfront, so the commercial functions will be focused on activities for tourists and the waterfront. Another significant difference is the role of the souk regarding its context. Whereas the waterfront used to be the entrance to the marketplace, nowadays the marketplace is the entrance to the waterfront. This notion empowers the concept of connecting the fragmented residential area with the commercial marketplace to the waterfront.

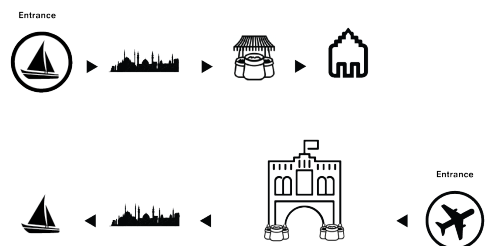


Figure 12: The marketplace in urban context

Concludingly, the public space that will connect the communities based on heritage and identity is a public commercial space called the souk. This typology will also allow the residents to attain financial stability due to its function, public space and housing opportunities due to its mixed-use nature. The site ingredients based on the location analyses and heritage are shown in figure 13.

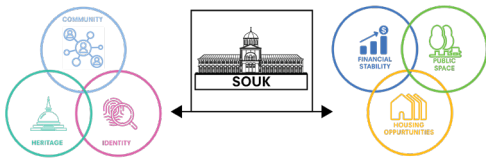


Figure 13: The souk as a connector

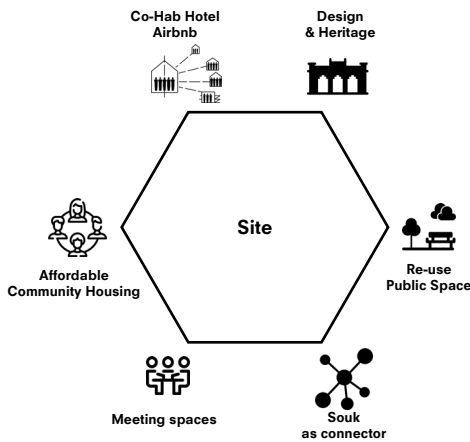


Figure 13: The site ingredients

Clients & Users

The main potential clients will be UNDP Lebanon, backed up by NGO's. The UNDP offered different fundings and protocols for the redevelopment of Beirut. NGO's offered different necessities to Beirut's need, like reconstruction, food supplies, clothes and temporal shelter.

The primary users of the project will be the residents, tourists and students. Students and residents form the biggest part of the community groups in Beirut, thus will contribute to the community forming on an area level.

The consumers of the project will be the locals and tourists. First as renters or buyers of the apartments. Second as consumers of the commercial and community spaces.

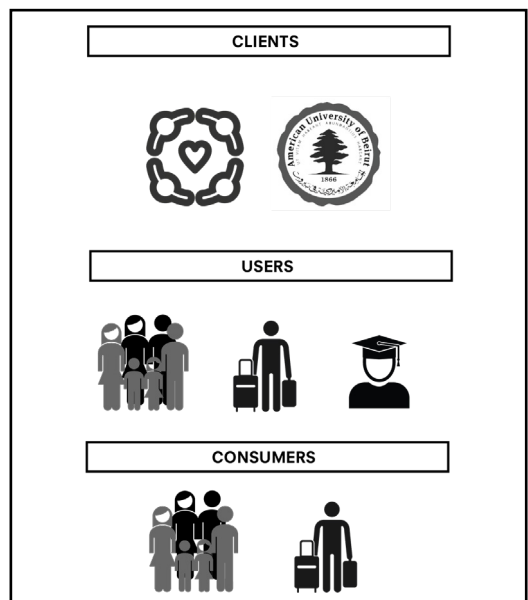


Figure 14: Clients, users & Consumers

Site Analyses

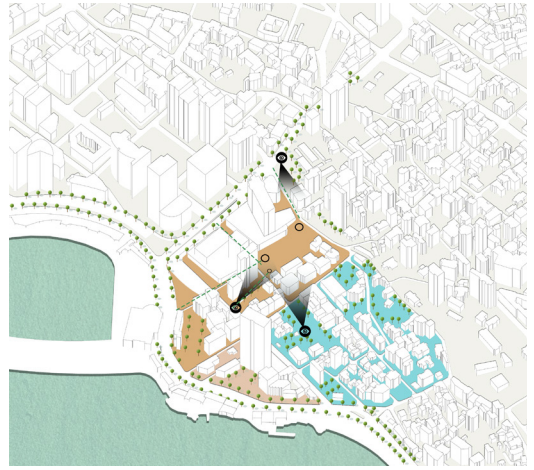
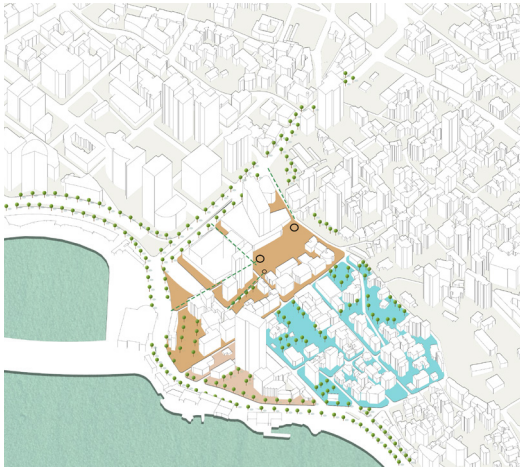
The site is accessible through many roads; however the main connectors are from the waterfront area and the spine area. The building however is not always visible from these entrances, due to the high buildings. This Highrise building also offer shadow on the site, which is favorable in the case of Beirut, due to the hot climate.

The site dimensions are 120x80 meters, with the highest building next to the site being 100 meters tall, with a plinth of 20 meters. The site is located on a high ramp zone, with a height difference of 12 meters over the distance of 40 meters. The analyses can be found on the site analyses, figure 16. To get an understanding of a residential tower and a public plinth, the collages were made (figure 15).

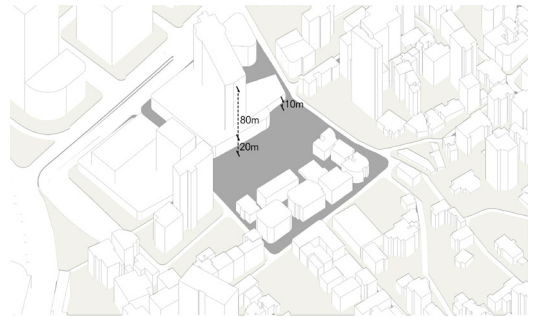


Figure 15: Clients, users & Consumers

Sightlines & Sunstudies



Site Dimensions



Site Ramp

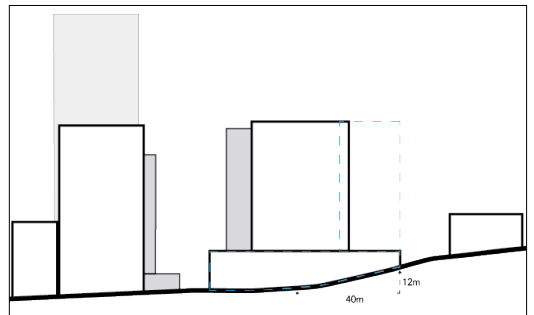
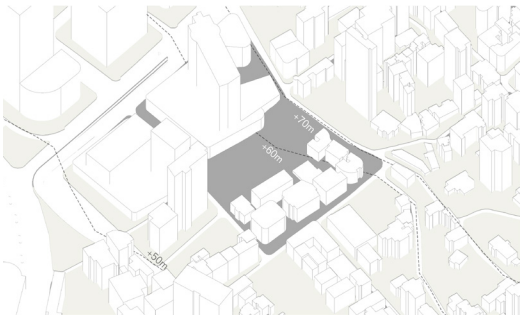


Figure 16: Site analyses

Housing & Heritage

Residential development started family oriented in Beirut. On an urban level the dwelling were oriented on a courtyard typology. This typology was prevalent in the history of Lebanon and is still used for shared spaces. Due to modernization, this typology became more oriented around commerce, changing the main use of the typology to a public space, oftentimes a marketplace. Currently, the social need in Beirut is directed towards a community oriented urban layout.

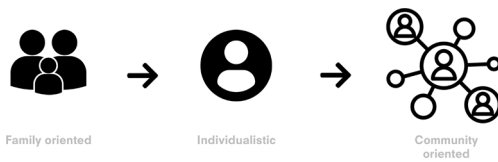


Figure 17: Shift of urban living

On an architectural level, elements of heritage can be found in the early forms of dwelling in Beirut, in the housing typologies until roughly 1960. These typologies existed of the courthouse, the central hall house and the transitional mandate house, from which every type had its own different iterations. On the exterior subject, the buildings show resemblance in architectural elements, materials and colors.

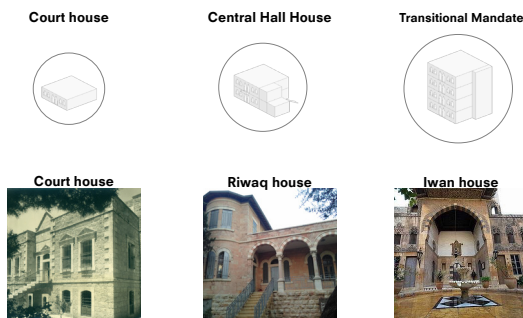


Figure 18: Architectural elements in heritage

On the interior level, the housing plans share one main common element: the shared central space. While the composition of the plans changed over the years, the main space central to the plan was a shared multifunctional space, ranging from a living room type to a temporary residential space. This central shared space typology can be interpreted as a modern-day shared way of living, shrinking the currently big shared indoor spaces of dwellings in Beirut and making the shared spaces among the different apartments bigger.

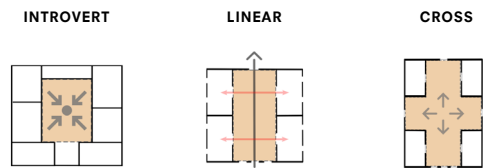


Figure 19: Heritage on planning: Central hall

Historically, the shared spaces in Beirut were applied on different scales as shown in the examples. This project will also have shared spaces on different scales:

- On the apartment level, the shared central hall
- On the floor level, the shared terrace or gallery
- On the building level, the shared courtyard or plaza
- On the urban level, the shared commercial spaces

These scales of shared spaces will connect the community on different levels and scales with each other: on an urban level, the different bigger social groups, on a building level the communities living in the project and visitors, on a floor level the residents of different apartments and on an apartment level the residents of the dwelling.

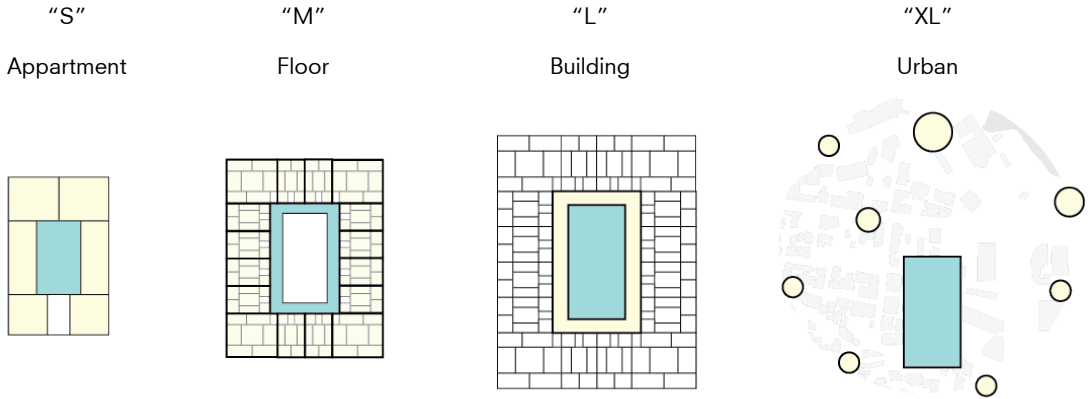


Figure 20: Scales of shared spaces

Looking at precedents that applied shared spaces on different scales, I looked at Zellige housing complex for shared spaces on urban scale, Roam Co living for shared spaces on building scale and NUI co living for shared spaces on floor level.

The Zellige housing complex has openings oriented towards various urban axis, that has cycle stalling in them, so the visitor can place their bicycle and enter the workshop space next to it.

The Roam co living has big, shared spaces on the ground floor and rooftop in the form of a pool and terrace, whereas the apartments are oriented around the shared space. This way there is always visual interaction between the shared spaces and private spaces. The NUI co living project has various shared spaces on the ground floor and offers co working spaces on each floor for the residents.

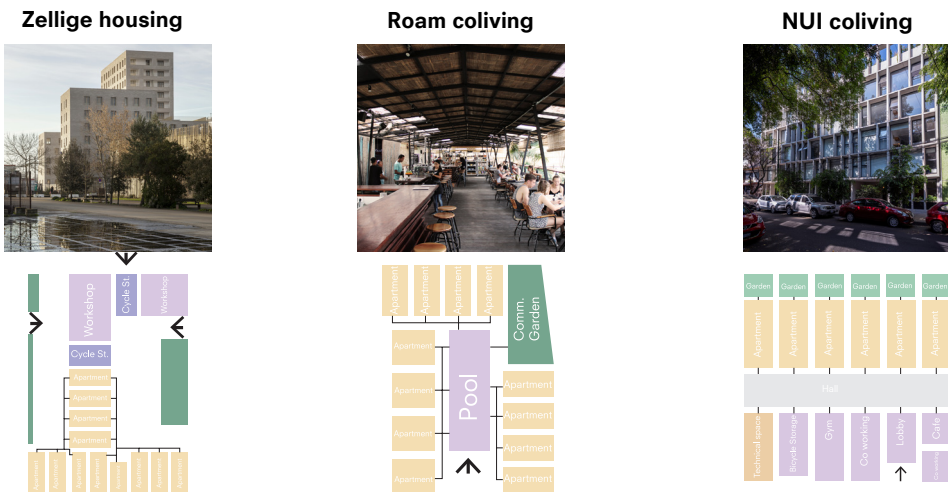


Figure 21: Precedent: Shared spaces on different scales

Each of these projects consist of small studios, using their space efficiently. The Sleeping Cocoon precedent shows how sleeping can be arranged on top of storage spaces to use the space more efficiently. The shoe box studio apartment in Beirut is changing furniture to preserve space when not being used. This project is developed in a vacant building and is also being used as a co habitation hotel on touristic seasons, generating income.



Figure 22: Precedents: Studio housing strategies

However, not many social housing project in the middle east consist of studio's. Two prime examples are the housing for fishermen of Tyre in Lebanon and the Dar Lamane Housing community in Morocco. These social housing projects exist almost primarily of house (average of 88%) and consist of units between 75 – 150 sq/m. From these precedents, it is apparent that most of the social housing is developed far from the amenities due to cost efficiency, though lacking opportunities for residents to redevelop into society.



Figure 23: Precedents: Social housing Middle East

These social housing apartments are on general smaller than the big apartments in Beirut. Making a comparison between the different types of floor plans, it became apartment that the growth in apartment size was almost exclusively applied to the sizes of the shared spaces. Concludingly, the essential spaces like the bedrooms and bathroom were on average the same size, while the living room, kitchen and the balcony kept growing in size.



Figure 24: Residential analysis Beirut

04 Program

Program organization

The program is organized to exist of 3 main clusters: The residential towers, the shared plinth and the vacant building adjacent to the site. The commercial space is the connector of the different cluster. While the connection to the parking garage in the vacant building and the commercial space is direct, the connection to the residential towers is arranged by a private lobby for the residents.

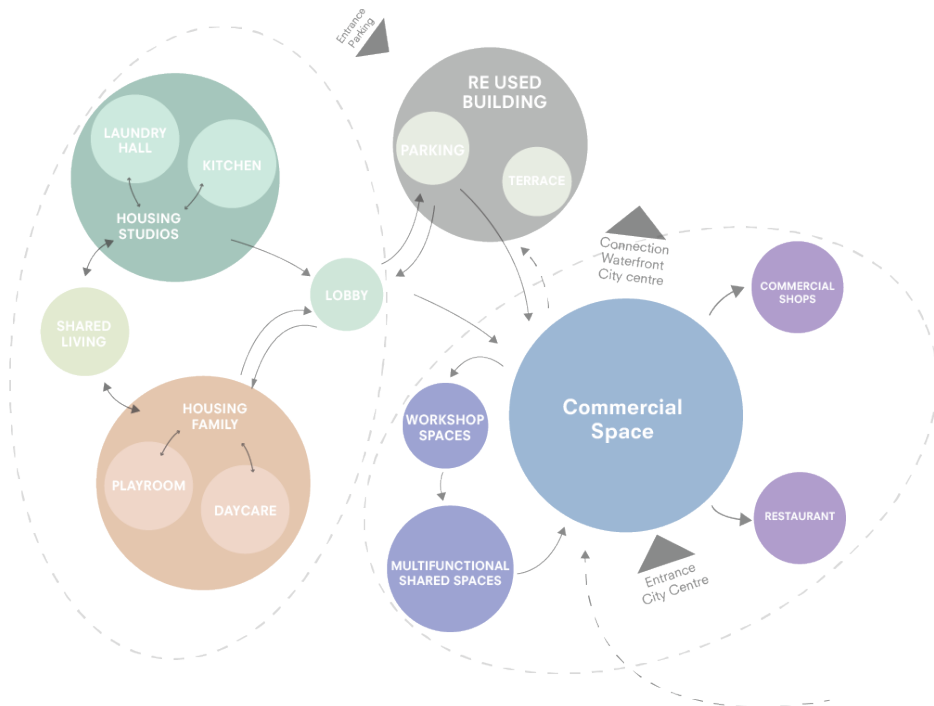


Figure 25: Program Relations

Program overview

The residential tower will consist of housing units and semi-private shared spaces for the inhabitants. The shared spaces in the towers consist of a combination of kitchen and laundry hall, a children's playroom and daycare and a shared living room. The commercial space will relate to the multifunctional shared spaces, restaurants and workshop spaces. The vacant building will be connected to the residential towers by the lobby and to the plinth by the commercial spaces.

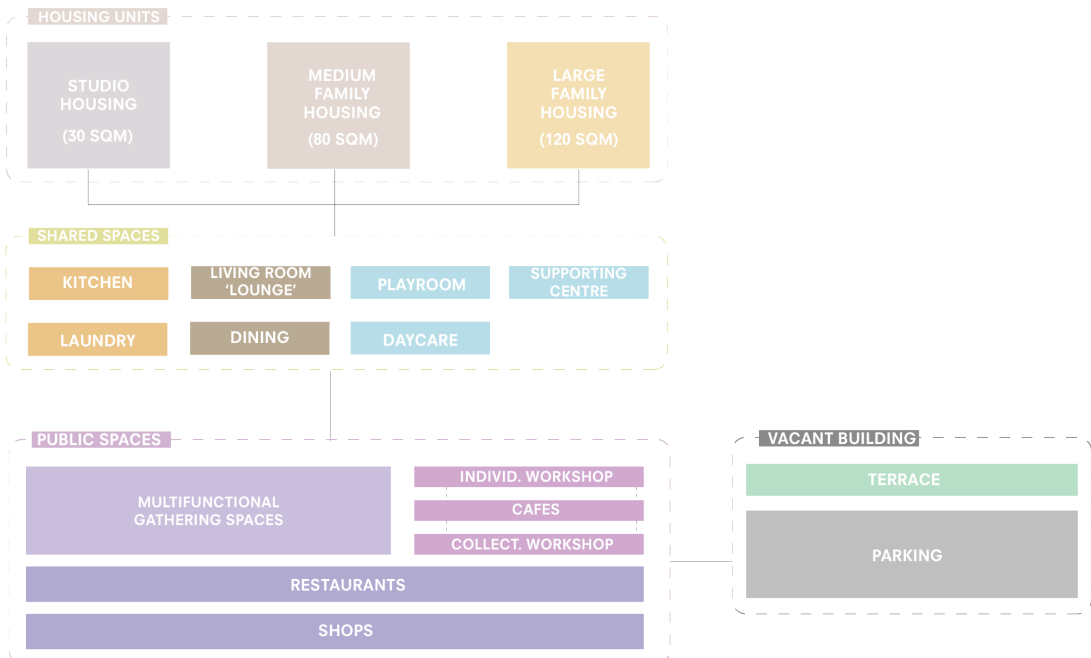


Figure 26: Program Organisation

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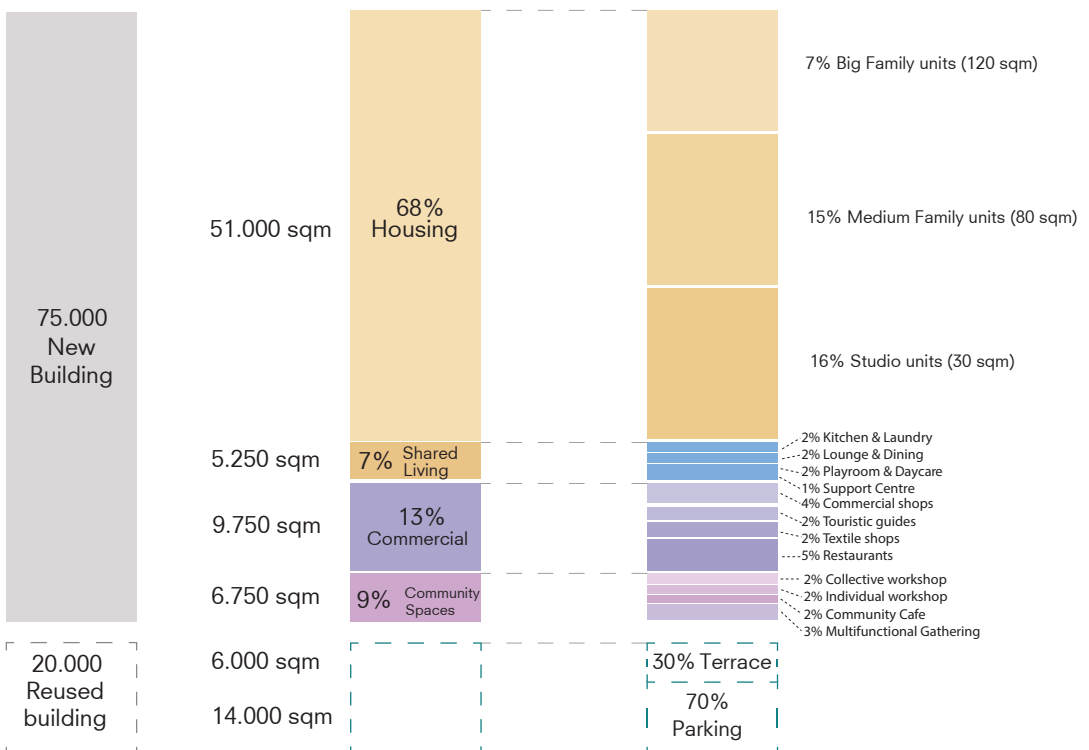
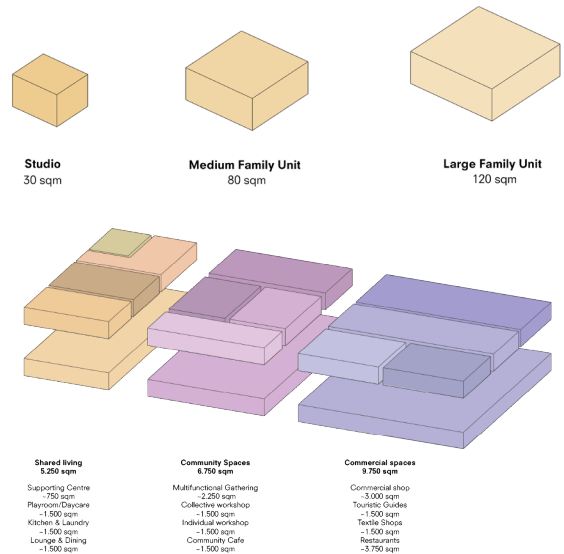


Figure 27: Program Distribution

05 Massing

Massing and principles

Following these functions, with the context in mind, masses were made based on three typologies: Towers, Density (Herzog 2.0) and Courtyard. The towers fit the context with the high-rise buildings, the density masses reflect on efficient building and the famous Terrace building in proximity to the site and the Courtyard typology is derived from the heritage of Beirut.

Following these studies, design principles were developed to form guidelines deciding on the right direction for massing.

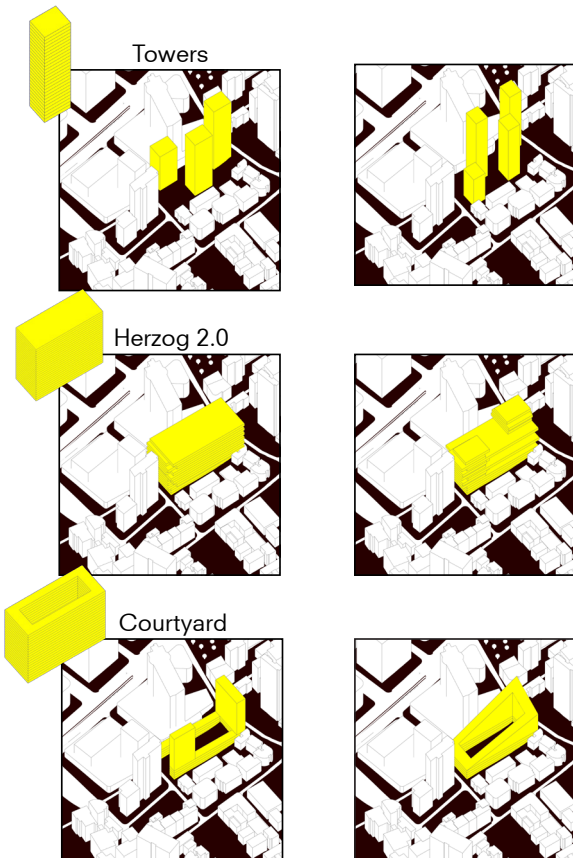


Figure 28: Massing typologies

The first principle states that the mass must be visible from different perspectives to attract visitors. The second principle states that the mass has to offer a passage from the residential area towards the waterfront, connecting the fragments on urban level. The third principle is that the plinths of the buildings must be connected to use the terrace of the vacant building. The final principle is the connection of the different shared spaces to form communities on different levels.

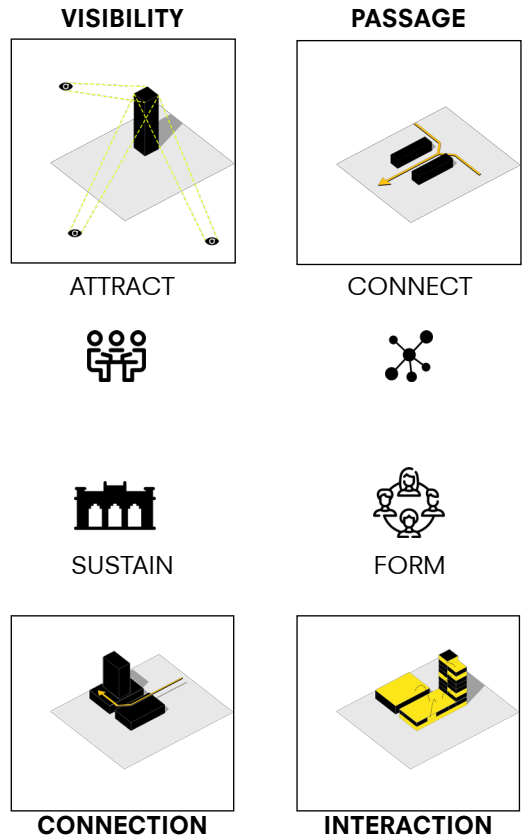


Figure 29: Design principles

On figure 30 the community vision is shown on urban and building scale with the provisional massing. The terrace, multifunctional gathering space, commercial spaces and community spaces are all public, to connect the communities on site.

On figure 31 (P.19) the vision on floor level is illustrated, where the different social groups can interact with each other.

Concludingly a mixed-use housing intervention in Beirut city center can be affordable by developing a shared housing typology combined with commercial and community spaces to profit the social class. This will allow for financial stability through the sharing of spaces and using the functions in the building. Also offering public spaces for the communities in the city center of Beirut.

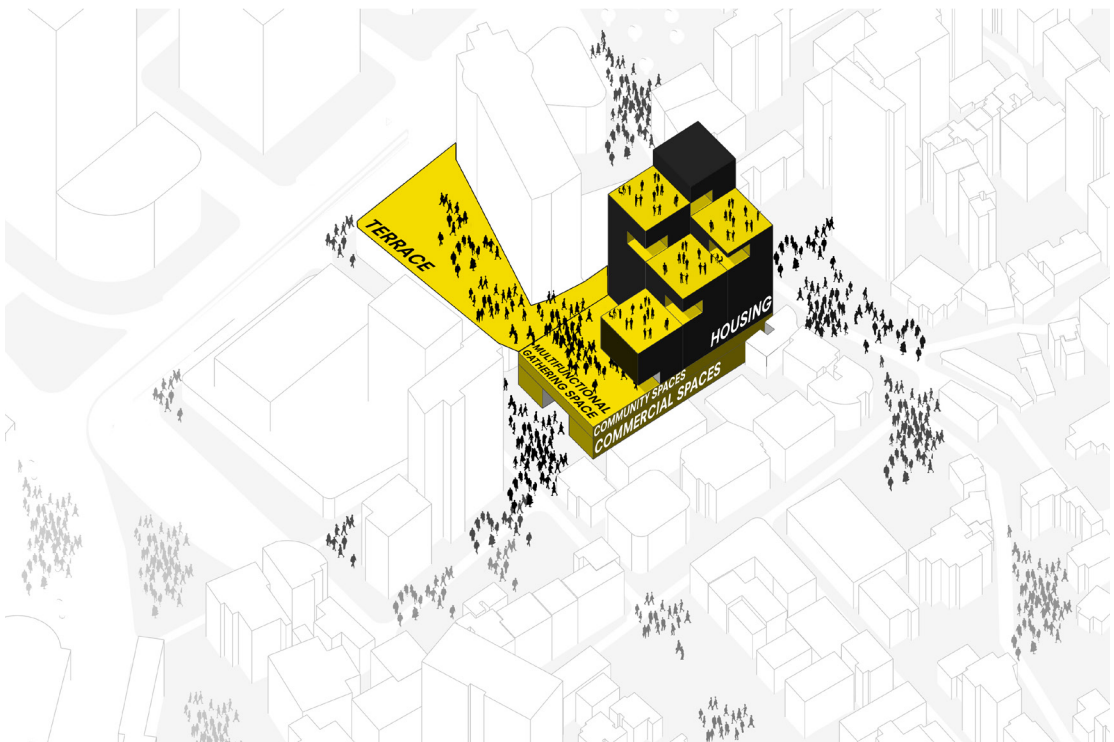


Figure 30: Design principles

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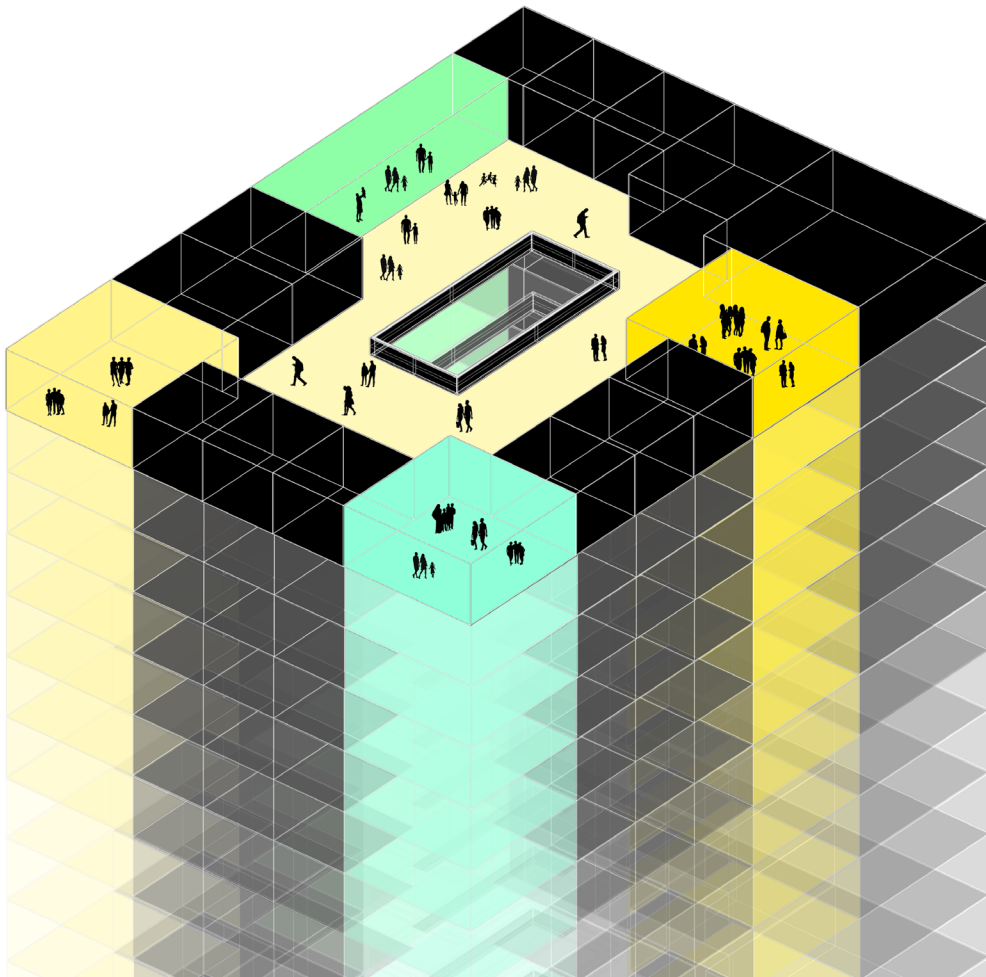


Figure 31: Community vision - Floor level

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