ABSTRACT

Title of Thesis:	A NEW CHAPTER…REFUGEE HOUSING: FROM ENCLAVE TO HUB
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Ref.u.gee (*noun*):*"A person who has been forced to leave their country in order to escape war, persecution, or natural disaster."[1]* 30,000 refugees were resettled to the United States in 2019.[2] Coming from countries all around the world, refugees experience the tough reality of leaving their homes in search of a better life in a distant and unfamiliar place. With little knowledge and understanding of new customs, many struggle to establish daily routines and complete simple tasks. Resettlement Agencies also struggle to find adequate accommodations, especially in California, where the current housing crisis has led to a shortage of affordable housing. This thesis proposes an affordable housing model that facilitates refugee integration into new communities by providing housing options that meet their needs as well as community spaces that educates and promotes cultural diversity throughout the greater urban community.

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[1] "Refugee" Merriam-Webster. Accessed October 18, 2019. https://www.merriam-webster.com/dictionary/refugee
[2] "Refugee Resettlement Facts" *UNHCR.* March 2020. Accessed May 18, 2020. https://www.unhcr.org/resettlement-in-the-united-states.html

A NEW CHAPTER… REFUGEE HOUSING: FROM ENCLAVE TO HUB

by

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Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
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Dedication

For refugees who are starting a new life in America

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List of Abbreviations

UNHCR – United Nations High Commissioner for Refugees

US – United States

WWII – World War II

RSD – Resettlement Status Determination

SCD – Social Contact Design

Introduction

With little to no knowledge about living in a new country, many refugees struggle to adapt to new customs and daily routines. They are often faced with limited support from communities and access to resources, specifically suitable housing. This thesis proposes an affordable housing model that facilitates refugee integration into new communities by providing housing options that meet their needs as well as community spaces that educates and promotes cultural diversity throughout the greater urban community.

Integration can be defined as the ability to participate socially and economically in one's community. Architecture can change negative stigmas that are associated with refugees through spaces that improve well-being and provide them with the ability to become independent and contribute to society. The application of a co-housing model promotes social interaction as well as affordability to create a hub of resources that save residents money, buy time, and provide resources. Community engagement is also fundamental to the acceptance and integration of refugees therefore, enforcing transparency and communication can defy stigmas present in current communities can lead to positive experiences.
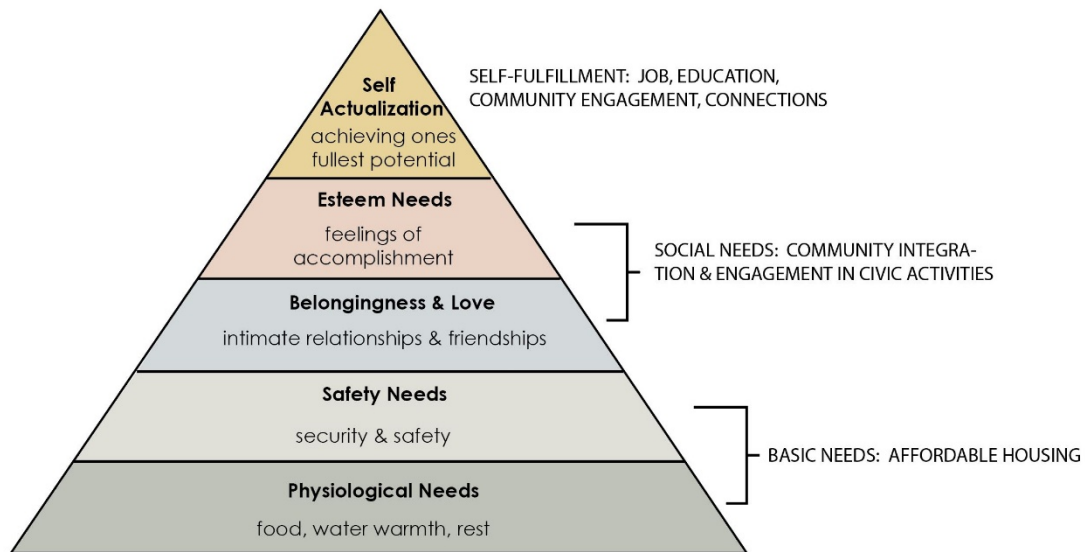
Figure 1: Hierarchy of Needs (Source: Author & McLeod,S.A.)

The main question guiding this thesis is; How can we support refugee integration into new communities? When refugees come to this country, they are essentially restarting their lives. Maslow's hierarchy of Needs categorizes a person's basic needs in order to grow and achieve their goals (Figure 1). At the base, are basic needs such as physiological and safety which appropriate housing can fulfill. Once that is met, then a person can more easily engage in activities that fulfill their social needs, and eventually reclaim their lives as functional members of society by reaching self-actualization. The current housing options that newly arrived refugees have is fulfilling their basic need at a low bar, thus reducing their ability to achieve self-actualization in the form of jobs, education, community engagement and social connections. Without access to adequate housing, it is difficult to integrate into a new society especially if one does not have access to basic needs, which is among one of

the challenges refugees face today. Furthermore, a connection can be made to people's perceptions of refugees and where they live. Successful integration happens when refugees are viewed as self-reliant, equal and assets to communities, which in today's society is not the case. Housing that evokes dignity for its residents, is one way we can combat negative stigmas communities have about refugees and affordable housing.

Pilar 2: Multi-Family Co-Housing Model
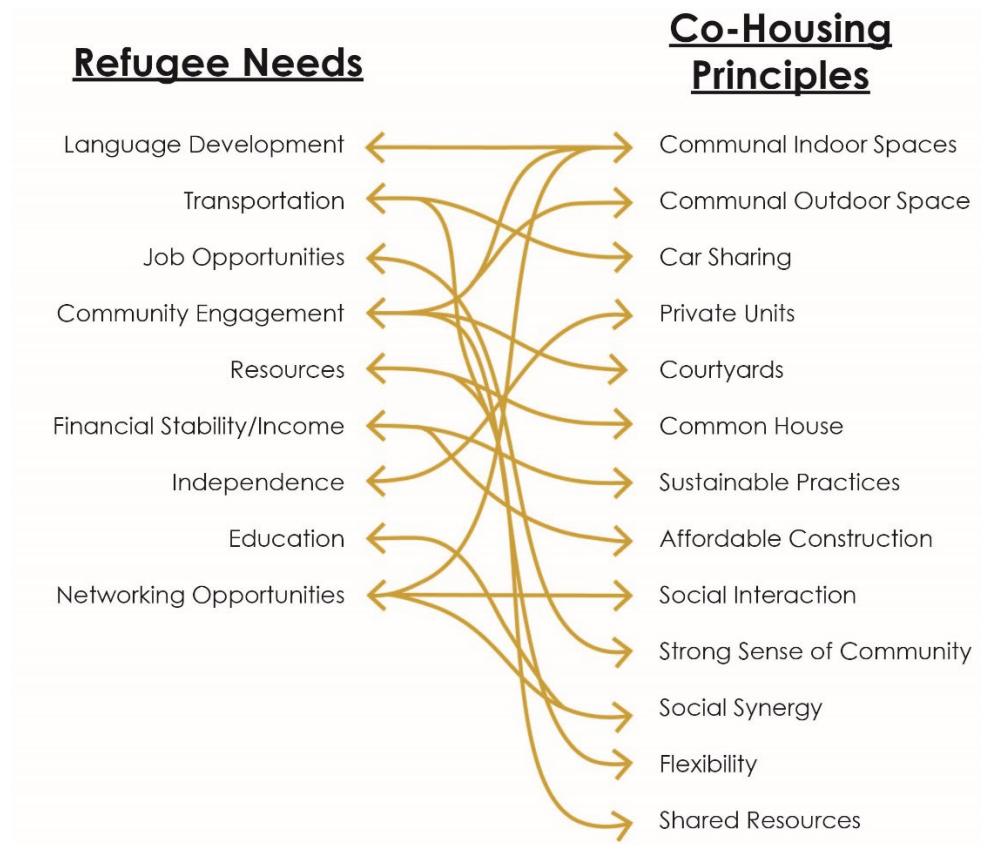
Figure 2: Comparison of Refugee Needs & Co-Housing Principles (Source: Author)

Through studies of refugee needs, social networks and community are very important to refugees in maintaining their sense of identity and connection to their

culture as well as a resource in their everyday lives. Co-housing fulfils these needs by providing a housing model anchored around the idea of shared spaces that cultivate the spread of knowledge, resources and communication that provide the social networks that refugees look for from other refugees who have gone through this experience.

Pilar 3: Program Serving Refugees & Larger Urban Community
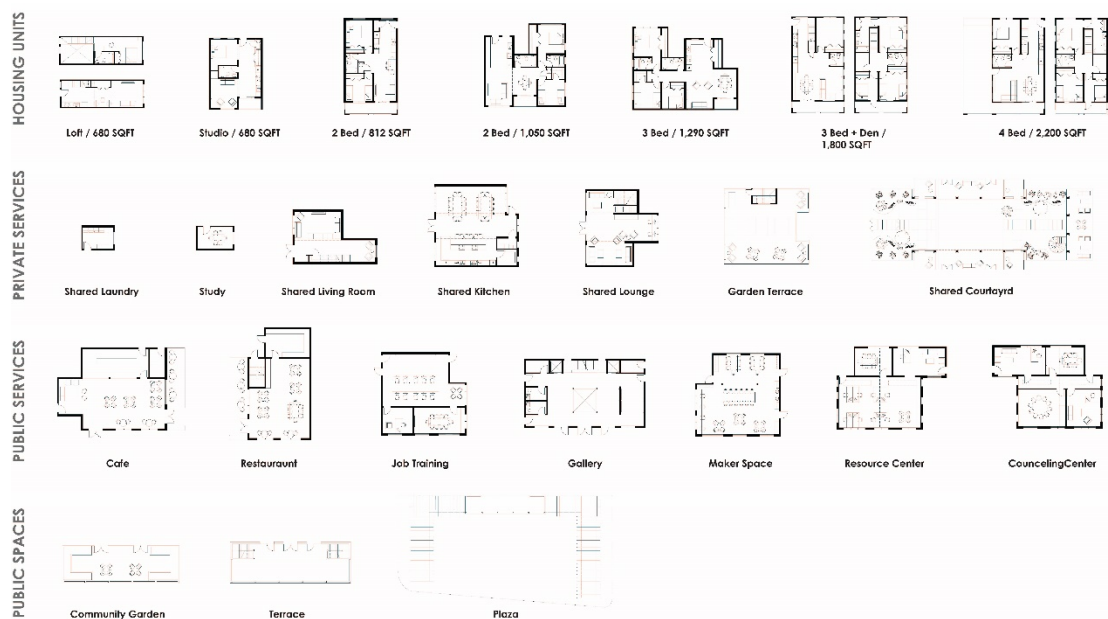
Figure 3: Program Categories (Source: Author)

The success of this thesis depends on providing program that not only serves residents but also the greater urban community. When talking about integration of refugees, there are two perspectives to think about. First is the individual's ability to integrate into society. As previously discussed, starts with appropriate housing. On the other hand, there is the larger urban communities perception and acceptance of refugees into their space. In order to foster acceptance and promote positive

relationships between the larger urban community and refugees, public spaces that

educate communities about different cultures are necessary. Four program categories

have been proposed to accomplish this, which include housing units and private

services within the housing complex for residents (Figure 3).

Chapter 1: Refugee and Asylee Migration

History of Resettlement Globally & In The United States

The United Nations High Commissioner for Refugees defines refugee as a person who has been forced to flee their country because of persecution, war or violence.[3] Since World War II, nations have been faced with assisting large populations of displaced persons in finding new homes. This led to the creation of organizations such as the International Refugee Organization in 1946 and the UNHCR in 1950, both aiming to support international protection of refugees.[4] As a world leader in this movement, The United States and has a long history of resettling thousands of displaced persons dating back to the Displaced Persons Act of 1948.[5] This legislation allowed 400,000 displaced Europeans admission into the US. Since then, congress has passed the Refugee Act of 1980, which incorporates a formal definition of refugee and standardized resettlement services for all refugees admitted into the US.[6] Furthermore, The US has demonstrated its mission of providing protection to refugees through funding programs, providing educational opportunities, and helping refugees return to their homes.

Shifts in allowable admissions since the beginning of the resettlement programs correspond to global events and U.S priorities such as economic stability

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[3] "Who is a Refugee." United Nations Higher Commissions for Refugees. Accessed October 12, 2019. https://www.unrefugees.org/refugee-facts/what-is-a-refugee/

[4] UNHCR. "The History of Resettlement. Pre 1995: Early Resettlement." June 28, 2019: 5. Accessed October 12, 2019. https://www.unhcr.org/en-us/protection/resettlement/5d1633657/history-resettlement-celebrating-25-years-atcr.html

[5] "History Of The U.S. Refugee Resettlement Program." Refugee Council USA. Accessed October 12, 2019. http://www.rcusa.org/history

[6] "History Of The U.S. Refugee Resettlement Program." Refugee Council USA. Accessed October 12, 2019. http://www.rcusa.org/history

and concerns of domestic security. The graph below shows U.S refugee resettlement

rates from 1982-2018 (Figure 4).

U.S. trailed rest of world in refugee resettlement in 2017 and 2018 after leading it for decades

Number of refugee admissions, in thousands, by calendar year
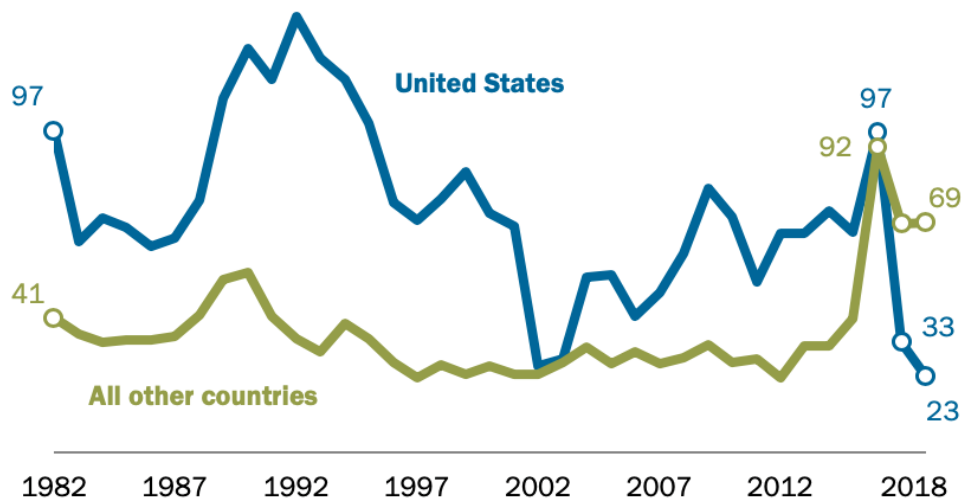
Note: Figures rounded to the nearest thousand.
Source: Pew Research Center analysis of United Nations High Commissioner for Refugees data, accessed June 12, 2019.

PEW RESEARCH CENTER

Figure 4: US Refugee Resettlement Trend (Source: PEW Research Center)

Under recent administration, the number of refugee admissions will reach

below the world trend for the first time since WWII at 18,000 people in 2020.[7] The

low 2020 ceiling for refugee admittance trend does not reflect the upward trend of the

estimated global resettlement needs. According to the 2020 UNHCR Projected Global

Resettlement Needs, it is projected that global resettlement will reach 1.44 million

[7] UNHCR. "UNHCR Projected Global Resettlement Needs 2020." *Geneva 25th Annual Tripartite Consultations on Resettlement.* July 1-2, 2019. Accessed October 12, 2019. https://www.unhcr.org/en-us/protection/resettlement/5d1384047/projected-global-resettlement-needs-2020.html

people in 2020, 20% higher than 2018.[8] Despite falling refugee admittance in the last three years, a vast majority of refugees still depend on the US for a new home and are continuing to resettle here.

History of Resettlement in California

As a nation of diversity, migrants have prompted important contributions to the way we experience the American way of life. Refugees resettle in this country with the hopes of social inclusion and a dream of reclaiming their lives by becoming a functional members of society. The state of California has resettled the most refugees, behind Texas, New York and Florida with 108,600 refugees since fiscal year 2002[9] (Figure 5).
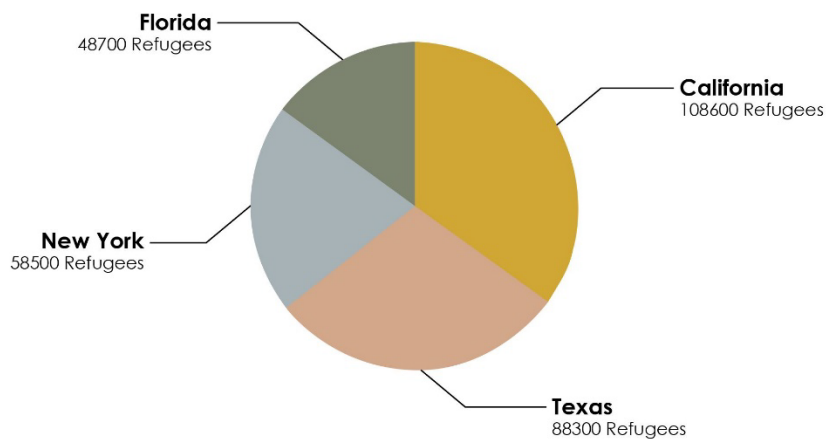
Figure 5: Leading Resettlement States in US since 2002
(Source: Author & Pew Research)

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[8] UNHCR, "UNHCR Projected Global Resettlement Needs 2020." Geneva 25th Annual Tripartite Consultations on Resettlement. July 1-2, 2019. Accessed October 12, 2019. https://www.unhcr.org/en-us/protection/resettlement/5d1384047/projected-global-resettlement-needs-2020.html

[9] Jens Manuel Krogstad "Key facts about refugees to the U.S." Pew Research Center. October 7, 2019. Accessed October 12, 2019. https://www.pewresearch.org/fact-tank/2019/10/07/key-facts-about-refugees-to-the-u-s/

In 2019, California was 4th in top states for US refugee resettlement behind Texas, Washington, and tying with New York.[10] The latest trend reflects the high cost of living in California compared to other leading resettlement states. According to the National Low Income Housing Coalition, minimum wage in California is $12.00 and in 2019, the national hosing wage is $23 per hour for a modest two bedroom rental.[11] This means that in order to afford fair market rent, Californians need to earn $11 an hour more without paying more than 30% of income. The map below reflects California's housing wage among all other states (Figure 6).

2019 TWO-BEDROOM RENTAL HOUSING WAGES
Represents the hourly wage that a full-time worker must earn (working 40 hours a week, 52 weeks a year) in order to afford the Fair Market Rent for a **TWO-BEDROOM RENTAL HOME**, without paying more than 30% of income.
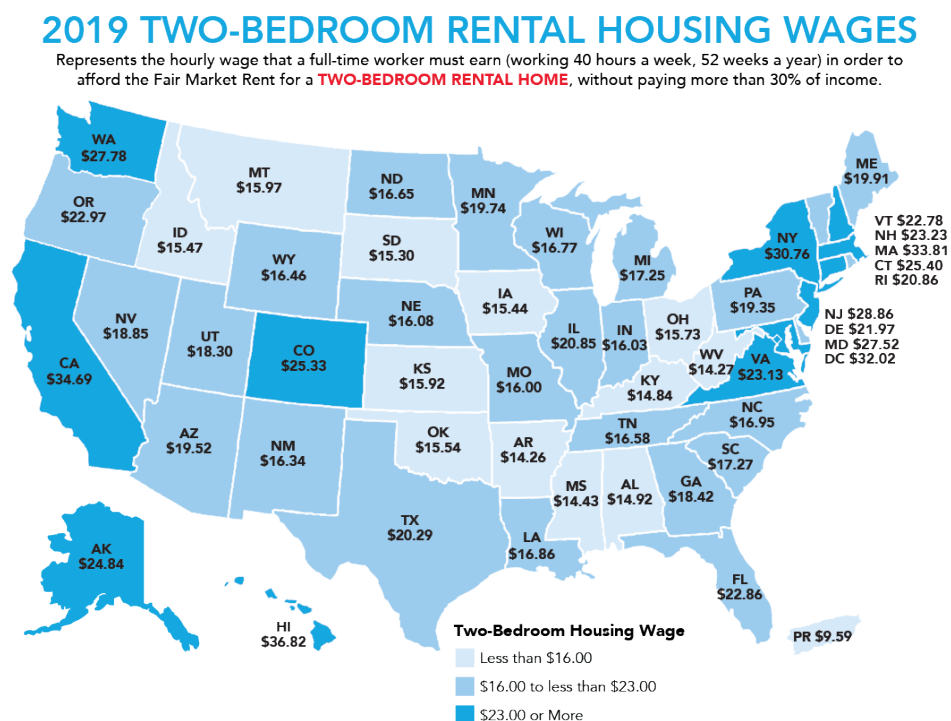
Figure 6: 2019 Two Bedroom Housing Wage in the US States
(Source: National Low-Income Housing Coalition)

[10] "Top states for U.S refugee resettlement in fiscal 2019." Pew Research Center. October 7, 2019. Accessed October 13, 2019. https://www.pewresearch.org/fact-tank/2019/10/07/key-facts-about-refugees-to-the-u-s/ft_19-10-07_refugees_top-states-us-refugee-resettlement-fiscal-2019/
[11] "Out of Reach California." National Low-Income Housing Coalition. Accessed October 12, 2019. https://reports.nlihc.org/oor/california

Compared to states with the highest resettlement rates such as Texas, Washington and New York, California has the highest housing wage. Despite high housing costs, California continues to see high resettlement rates due to positive acceptance from communities who believe that immigrants are a benefit to the state. Furthermore, high concentrations of deeply rotted immigrant communities in major cities such as San Diego, Los Angeles, Sacramento and San Francisco dating back to mid-1970's offer familiarity and comfort that attract refugees. Historically, these deep-rooted immigrant communities have established along the coast where the cost of living is higher. Families seek places that share local cultures, languages, and familiarity that allow them to assimilate better into communities. As a compilation of these factors, refugees benefit from relocating to California for opportunities, availability of resources, and social networks despite the high cost of living.

Resettlement Process: Causes, Eligibility and Process

The resettlement process begins when a family or individual is forced to flee their country due to fear of persecution, war or violence. Persecution can be based on religion, race, nationality, political opinion or membership to a certain social group.[12] In order to gain refugee status, an individual must apply for Refugee Status Determination, which is a legal process that determines if a person seeking international protection is considered a refugee. RSD can be conducted by the state or

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[12] "Who is a refugee and what do they go through to get to the U.S.?" World Relief. December 3, 2015. Accessed October 13, 2019. https://worldrelief.org/blog/who-is-a-refugee-and-what-do-they-go-through-to-get-to-the-u-s?gclid=EAIaIQobChMI5f2r1-6Z5QIVgYTICh0xuATLEAAYASAAEgJtQ_D_BwE

UNHCR through a trained Eligibility Officer who follows the UNHCR RSD

Procedural Standards.[13] Once an individual is granted refugee status, they can be

referred by UNHCR to another country, embassy, nongovernmental organization or

Resettlement Support Center to start the resettlement process.

According to US Citizenship and Immigration Service, in order to be

considered for resettlement in the US, one must meet several requirements including;

an individual must be located outside of the US, is of special humanitarian concern to

the US, can demonstrate history of persecution or well-founded fear of persecution, is

not permanently resettled in another country, and can be admitted into the US.[14] Once

a referral has been received and found eligible, individuals interview with a USCIS

refugee officer, conduct health screenings, gain sponsorship assistance from

community-based organizations in the US and take a course on cultural orientation

before departing.[15] The average processing time for admittance into the US can range

from 1- 3 years. Upon gaining admittance to the US, travel is funded by the State

Department which refugees are required to pay back and a one-time subsidy of $1000

per refugee to finance the first 19-30 days in the US. This often poses challenges for

refugees who are learning a new language, searching for employment, and can barely

afford rent and are assimilating to a new culture simultaneously.

[13] "Refugee Status Determination" UNHCR. Accessed October 13, 2019. https://www.unhcr.org/en-us/refugee-status-determination.html
[14] "Obtaining Refugee Status: Who is eligible." U.S Citizenship and Immigration Services. October 11, 2019. Accessed October 13, 2019.
https://my.uscis.gov/exploremyoptions/obtain_refugee_status#benefit-related-content-2
[15] "Obtaining Refugee Status: What Happens After You Receive a Referral." U.S Citizenship and Immigration Services. October 11, 2019. Accessed October 13, 2019.
https://my.uscis.gov/exploremyoptions/obtain_refugee_status#benefit-related-content-2

Today, there are nine resettlement agencies in the US, with offices across the country that support refugees upon arrival and provide assistance throughout the transition process into local communities.[16] These organizations are often state sponsored and provide refugees with services that promote self-sufficiency such as attaining social security cards, registering children in school, accessing shopping facilities, arranging medical appointments and connecting them with social and language services. They also assist in obtaining basic needs such as housing, furnishings, appliances, food, and clothing. Deep-rooted refugee communities are often located near resettlement agencies due to the resources they provide and proximity to these resources are crucial in the early stages of resettlement. Over time, affordable options are becoming scarce in California and agencies often struggle to find appropriate or permanent housing in urban areas. Alternative housing options include moving refugees inland where cost of living is cheaper, however, they suffer from being geographically isolated from communities who share the same culture. This directly impacts language development skills of woman or caretaker who stays home with the kids and experiences less social interaction. Furthermore, mobility is a large factor for those who rely on public transportation. Urban areas provide walkable neighborhoods, bus, train, light rail and bike options that rural neighborhoods lack. In order to provide housing in areas that foster more opportunities, refugees are often

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[16] "History of the U.S Refugee Resettlement Program." Refugee Council USA. Accessed October 13, 2019. http://www.rcusa.org/history

presented with temporary options such as hotels, shared housing in apartments or transitional homes (Figure 7).

Figure 7: Inside of an El Cajon motel showing refugees collection of suitcases and donated items (Source: Katie Schoolov & KPBS)

Hotel options are not preferable and do not meet the needs of families who often share a single room and pay high rates for rent and food, since cooking is not an option. Small apartment options also lack the necessary space that meet family needs such as bedrooms, bathrooms, and shared living space. Often, multiple families share living quarters and are forced to withhold information from tenants about the quantity of people living in an apartment in order to stay. Naseema Sashefi, a refugee from Afghanistan recounts her story when first moving to Los Angeles, "When we first arrived in Orange County, a caseworker set us up in a cramped one-bedroom apartment with another family. We lasted a week. We got sick there, it was very

difficult. Thirteen people to one bathroom, you can imagine."[17] The housing

conditions Naseema and her family faced are similar to what many families go

through before they are able to afford better options. For those who have access to

better options, typical affordable housing developments still lack space and amenities

that promote social interaction and integration into communities.

Alastair Ager, PhD. Professor at Columbia School of Public Health and Dr.

Alison Strang, a psychologist whose work addresses mental health and refugee

integration strategies, define aspects of successful integration. Through extensive

research, they have found that successful integration occurs when newcomers have

access to opportunities, resources, participation in communities, and feelings of

security and belonging in their new homes.[18] A new approach to the way we design

affordable housing could provide better living conditions for refugees and therefore

elevate their state of well-being by creating spaces that support integration. Access to

housing that promote exchange of knowledge, resources, culture, experiences, and

community interaction while allowing for private experiences aligns with cohousing

principles. Architectural design has the opportunity to create positive spaces in a

residential typology that can improve a person's well-being and allow for a positive

integration experience for those who have suffered in search for a new home.

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[17] Sarah Parvini. "At this L.A supper club, refugees share food and memories of the lives they left behind." Los Angeles Times. May 31, 2019. Accessed October 15, 2019. https://www.latimes.com/local/lanow/la-me-supper-club-immigrant-dinner-mirys-list-refugee-migrant-20190531-htmlstory.html

[18] Alastair Ager, Alison Strang. "Understanding Integration: A conceptual framework." *Journal of Refugee Studies.* Volume 21. Issue 2. June 2008:166-191. Accessed December 12, 2019. https://doi.org/10.1093/jrs/fen016.

According the Journal of Peace Psychology, Hayes and Endale explore identity development and adaptation of refugees, stating that "policies that are often intended to address concerns about the costs of hosting asylum seekers and refugees may increase costs by reducing their economic participation."[19] They argue that social perception of refugees reflects how policy responds to them. Some believe that refugees pose an economic burden and policies that reduce that amount of support they get directly result in the need for refugees to find work immediately after arrival. This reduces the time they have to learn a new language, thus making employment more difficult, which can have long term costs. As a result, refugees are then less likely to be able to participate in the local economy and therefor end up relying on social services for support. The struggle to adapt to a new culture can negatively affect mental health and make it harder to assimilate due to lack of support and isolation. Studies from the BMC International Health and Human Rights on long term health of war-refugees state that "poor mental health has been linked to limited language skills, poor housing and underemployment"[20]. Thus, the ability for policies to support refugees by providing a place to live where they have access to resources, knowledge, social interaction, and comfort can be beneficial to the longevity of their success and equip them with the skills to be valued members of society in a quicker

[19] Hayes, S., & Endale, E. "Sometimes my mind, it has to analyze two things: Identity Development and Adaptation for Refugee and Newcomer Adolescents." *Peace and Conflict: Journal of Peace Psychology. 2018:*283–290. http://dx.doi.org/10.1037/pac0000315.

[20] Bogic, M., Njoku, A., & Priebe, S. "Long-term mental health of war-refugees: A systematic literature review." *BMC International Health and Human Rights*. 2015:15, 29. Accessed October 20, 2019. http://dx.doi.org/10.1186/s12914-015-0064-9

and more effective way. Ultimately, allowing refugees to be able to meet other needs and achieve self fulfilment (Figure 8).
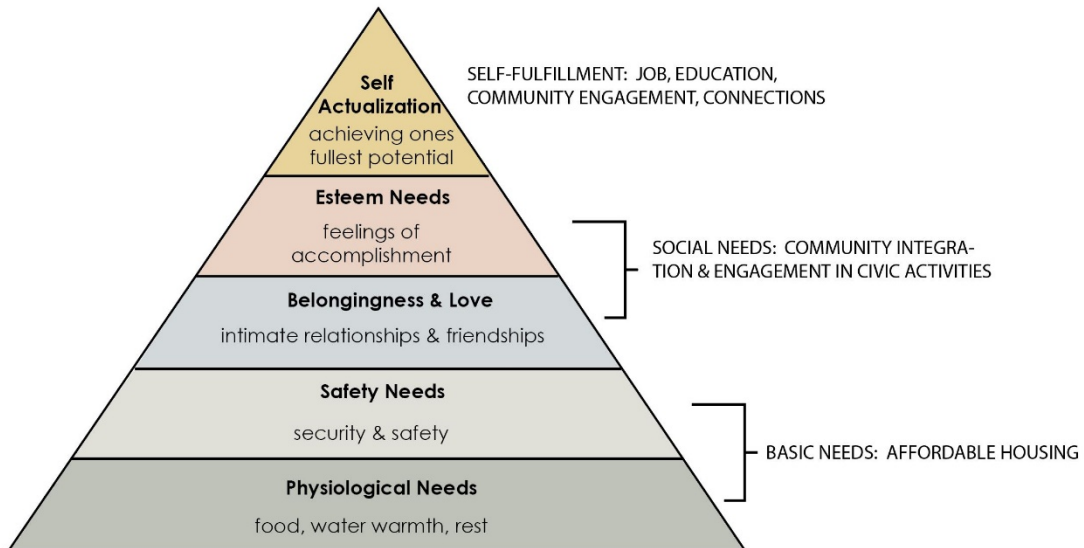
Figure 8: Maslow's Hierarchy of Needs (Source: Author & McLeod, S.A)

Chapter 2: Housing Typologies for Refugee Integration Among Residents

Figure 9: Collective Housing Model with Shared and Individual Spaces
(Source: ArchitectureLive)

Collective Housing Model

Collective housing also known as Co-Housing is designed with the goal of inclusive living, where a balance of daily social interaction and privacy is achieved through a mix of communal and private spaces within a residential typology (Figure 9). The application of co-housing has increased over the years as "people are realizing the benefits to reducing their environmental footprint, looking for walkable communities with shared resources, and building social capital within a greater

neighborhood"[21] This housing model has proven to increase the well-being of its

residents as well as design for environmental and social sustainability, although, has

been limitedly applied to communities that experience marginalization such as

immigrants and refugees. The relationship between aspects of refugee needs and co-

housing have been identified and correlate (Figure 10).
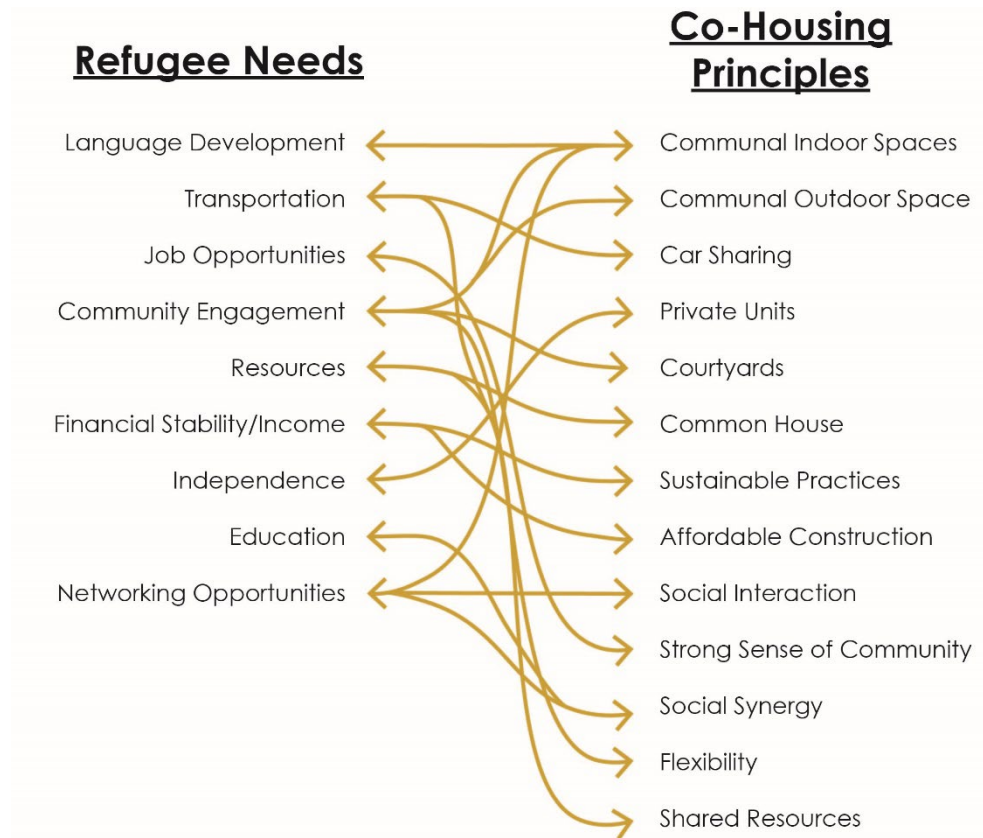
Figure 10: Co-Housing Principles and Refugee Needs
(Source: Author)

We can see that the function of co-housing spaces align with the needs that

refugees have as new members of society. Applying the design principles used in this

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[21] "Urban Cohousing: The Essentials for Organizing and Developing Community" *International Living Future Institute.* Accessed November 13, 2019. https://living-future.org/events/tour-urban-cohousing-essentials-organizing-developing-community/

typology to create affordable housing generates opportunity for social networks among residences, thus providing a space to share ideas, resources, knowledge and experiences with people who share common goals and needs. Furthermore, collective housing provides economic advantages that build upon affordable rent since resources such as food, appliances, technology and tasks like cooking, driving and childcare can be shared among residents. By providing residential stability through affordable housing, families can plan and carry out activities that support integration.

History of Co-Housing

Co-housing is described as a housing typology with common spaces and shared facilities that all members utilize while still maintaining their own individual unit. The idea of communal living was first introduced to the US by McCamant and Durrett in 1988 based on Danish communal housing experiments where people with common interests sought housing and communities that met their specific needs.[22] Many collective housing models exist and are all designed with the idea of shared resources and social interaction guided by the individuals within the community. Therefore, everyone's needs are being met through resident led decisions. Since the introduction of co-housing, extensive research has been conducted in its success as a housing model. Copper Marcus, a expert in the field of social housing issues has conducted various research studies along with other members of the academic community such as Dovey, Brenton and Meltzer. Through research studies, they have

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[22] Vestbro, Dick Urban. "Collective Housing in Scandinavia — How Feminism Revised A Modernist Experiment." *Journal of Architectural and Planning Research.* Vol. 14, No. 4. 1997: 330. Accessed November 11, 2019. http://www.jstor.org.proxy-um.researchport.umd.edu/stable/43030435.

found that "mutual support networks and social relations are stronger and more developed in co-housing communities".[23] When applied to refugee housing, these support networks facilitate adaptation into new country by sharing resources, new friendships and an improved sense of belonging.

Co-Housing in the US

The presence of co-housing models in the US has been present for many years, especially in California, which has the highest number of co-housing communities when compared to other states in the US (Figure 11). This trend has proven its resiliency and dependability throughout many communities and the application of this model to create affordable living options aligns with the needs of the population it can serve.
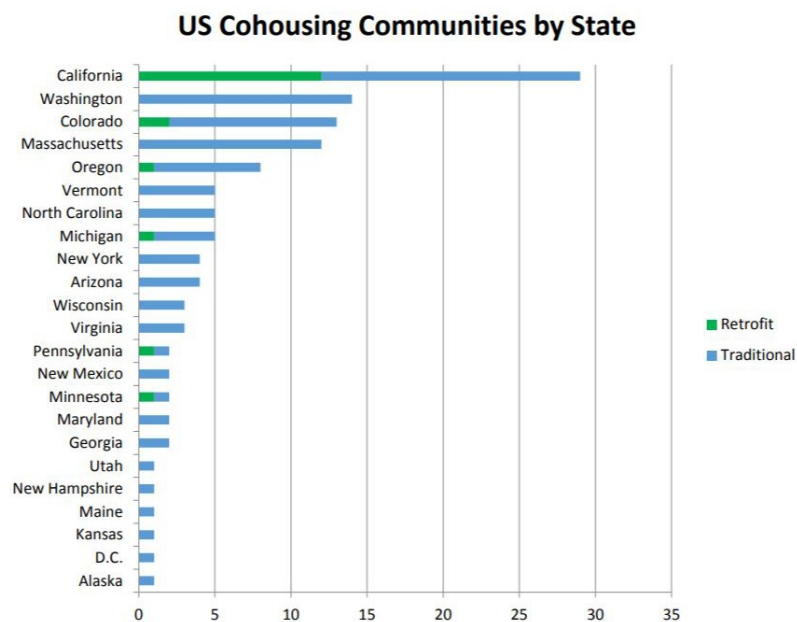
Figure 11: US Cohousing Communities by State
(Source: Cohousing Research Network)

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[23] Jo Williams. "Designing for Neighborhoods for Social Interaction: The Case of Cohousing" *Journal of Urban Design*. Vol. 10. No. 2, June 2005: 201. Accessed November 12, 2019. http://dx.doi.org/10.1080/13574800500086998

Co-housing has evolved over its history starting with the early European utopian communities to classical Swedish and Danish cohousing versions throughout the 19th century. Under the overall term, there are five distinctive models, first being the Integrated Block Type where housing areas contain collective services in order to facilitate housework, care and communal participation. Second, the Collective Housing Unit which is organized with a central kitchen and other collectively organized facilities connected by indoor communication to individual apartments. There are three subgroups within this model including Classical Collective, Swedish Cohousing, and a combination of service housing. Classical Collective is based on services through employed staff. This model was developed in order to increase woman productivity in the workplace and promote contribution to the economy by reducing household duties. The Swedish model is based on housing with a communal work component where "15-20 small collective housing units share communal efforts such as meals and other tasks".[24] Lastly, service housing combines housing for the elderly with a collective housing unit and communal space is used by both categories of residences. The third model is similar to service housing but serves only one demographic or group, such as the elderly, students, and/or people with dysfunctions. The fourth model is based on the Danish Cohousing model, where a group of people plan their housing cluster. In this model, communal facilities are incorporated in the design, although indoor communication is not required. Housing Communes is the

[24] Vestbro, Dick Urban. "Collective Housing in Scandinavia — How Feminism Revised A Modernist Experiment." *Journal of Architectural and Planning Research.* Vol. 14, No. 4. 1997: 330. Accessed November 11, 2019. http://www.jstor.org.proxy-um.researchport.umd.edu/stable/43030435.

last model, where more than many individuals live and eat together in one residential

unit.

COLLECTIVE HOUSING MODELS

1. INTEGRATED BLOCK TYPE

2. COLLECTIBE HOUSING UNIT
   A. Classical Collective
   B. Sweedish Cohousing
   C. Service Housing

3. SPECIALIZED COLLECTIVE HOUSING

4. DANISH COHOUSING

5. HOUSING COMMUNE

INTERACTIVE MODELS

SWEEDISH COHOUSING

DANISH COHOUSING
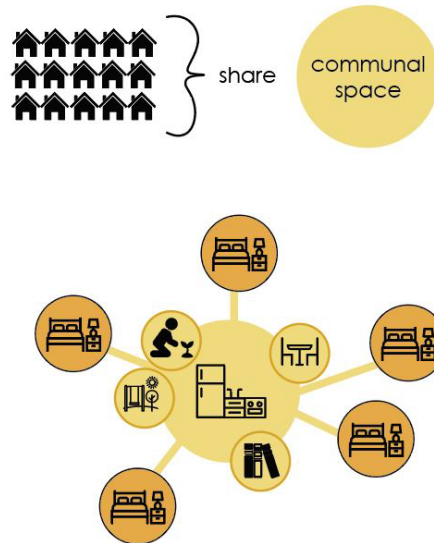
HOUSING COMMUNE

Figure 12: Interactive Model Organization as Driver
(Source: Author)

Within these collective housing models, some cater to more interaction among

residences than others. Models 1, 2a and 3 provide collective services without

promoting communal ways of life, while models 2b, 4 & 5 emphasize social

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interaction which is important to cultivating a successful community based on sharing needs and resources (Figure 12).

Each co-housing model poses its own challenges and opportunities. Within the Danish model, individuals initiate and plan their housing units as well as select the people in which they want to share spaces with. This is known as the Resident-Led model, where the residents are responsible for planning and securing finances of the project. As a result, this tends to be the least favorable option as it has high financial risks associated and is a large time commitment. In this model, residents oversee maintenance, organization of activities, electing community leaders, holding community meeting, etc. Second, is the developer and user partnership model that allow for financial and planning responsibilities to fall on the developer while the client is still able to achieve their design goals. Since refugees are new members of society with little to no resources, these two models are not viable options. Instead, a third model, a developer led approach, aligns most with the needs and resources available to refugees. In his model, all design decisions are made to cater to individual needs once residences move in. It's success is based on a critical understanding of the types of spaces that foster interaction as well as a balance of private space for people who are unfamiliar with one another at the beginning can still co-habitat peacefully.

Different co-housing models also observe different levels of management within the community. In some cases, like the self-work models such as the small collective housing, the Danish model and housing communes, management of these communities falls directly on community members who all share equal

responsibilities for the organization and function of the building. Since the developer

driven model is the best approach for refugees, it is possible to incorporate shared

responsibilities that give residents a sense of ownership of how they live but also

provide a balance between responsibilities of the developer such as maintenance,

repairs, finances and support staff (Figure 13).

Figure 13: Shared Resident & Developer Model (Source: Author)

Residents will have opportunity to plan and participate in communal meals, parties,

exercise classes, cultural events, gardening, clubs, etc. with the help of support staff.

This approach will establish a structure of self-management and promote social bonds

between residents without forcing connections and necessary duties that may not be

priority for the residents.

<u>*Role of Support Staff*</u>

Following a study conducted by the Canadian Journal of Urban Research on

Hapoplex, a co-housing community for immigrants, they found challenges with total

resident management of the building. Residents felt that they were burdened with

organizing activities, which was mandated by the government in this housing

development. Residents stated that they largely benefited from the services of the

support staff by allowing them to foster social connections and economic networks

through community outlets. This study concluded the presence of a social worker as

support staff was one of the major successes to these projects and proposed the

following model (Figure 14) to promote integration.[25]

Affordable Units
+ Support Staff
_____

Resident Stability
+ Other Resources
_____

**= Opportunities for participation in civic and other
activities, hence for integration**

Figure 14:Promote Integration Through Housing and Resources
(Source: Author)

They note that developers should allocate their attention and resources to housing

quality than resident participation in in-house activities and leave that responsibility

to the support staff. The study also concludes that the in-house support staff was able

to mediate conflict between residents and furthermore, connect them with outside

resources. This service allows residents to stabilize their lives by giving them access

to resources such as job opportunities, access to clothing, shoes, modes of

transportation, English classes, food, appliances, furniture, healthcare and link them

to outside resources that support the community in which they live in. The presence

of support staff can be used to combat cultural enclaves. These professionals have ties

with the greater community and can educate, engage and introduce the local public to

the many skills refugees have to offer, therefore promoting civic engagement to

reduce marginalization among refugees.

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[25] Fischler, Raphaël, Lindsay Wiginton, and Sarah Kraemer. "A Place to Stand on Your Own Two
Feet: The Role of Community Housing in Immigrant Integration in Montréal, Quebec." *Canadian
Journal of Urban Research* 26, no. 2 (2017): 27-29. Accessed December 13, 2019
www.jstor.org/stable/26290768.

Co-housing Spatial Organization

Organization of space is an important aspect in co-housing models that supports interaction among residents. Within these models, there are three main characteristics that help organize spaces. First, utilizing social contact design (SCD) principles, dwelling density, and clustering.[26]

Social Contact Design principles are used to provide opportunity for contact among residents using the same spaces. The use of indoor and outdoor communal facilities allows for social interaction at different areas of the building. The development of good visibility in all communal spaces allows residents to see and participate in ongoing activities. Another element of SCD includes car parking along the periphery. This prevents residents from parking and walking directly into their individual housing unit. Gradual transition between public and private spaces is also important in creating buffer zones between residents and the community. This also allows for increased surveillance of the public space for longer periods of time which increases the opportunities for potential meetings. Buffer zones can additionally be used for more formal social events, which residents can express themselves in a space that is transparent to the community and allows for non-direct interaction. Positioning of active sites and communal building program on shared circulation is another design strategy to promote social interaction. Lastly, smaller unit size with limited kitchen and laundry facilities allows residents to utilize a central communal house where individuals can participate in activities they would normally do in their

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[26] Jo Williams. "Designing for Neighborhoods for Social Interaction: The Case of Cohousing" Journal of Urban Design. Vol. 10. No. 2, June 2005:197-200. Accessed November 12, 2019. http://dx.doi.org/10.1080/13574800500086998

individual units but with others in the same space. Overall, the six main SCD

principles to foster social interaction are indoor & outdoor communal spaces,

centrally located common space, good visibility between all communal spaces, active

sites along communal circulation, parking along the periphery, and transition between

public and private spaces (Figure 15).

Indoor & Outdoor Communal
Facilities

Centrally Located Common Space

Good visability in all communal
spaces

Active sites along communal
spaces

Parking along periphery

Transition between public & private
spaces
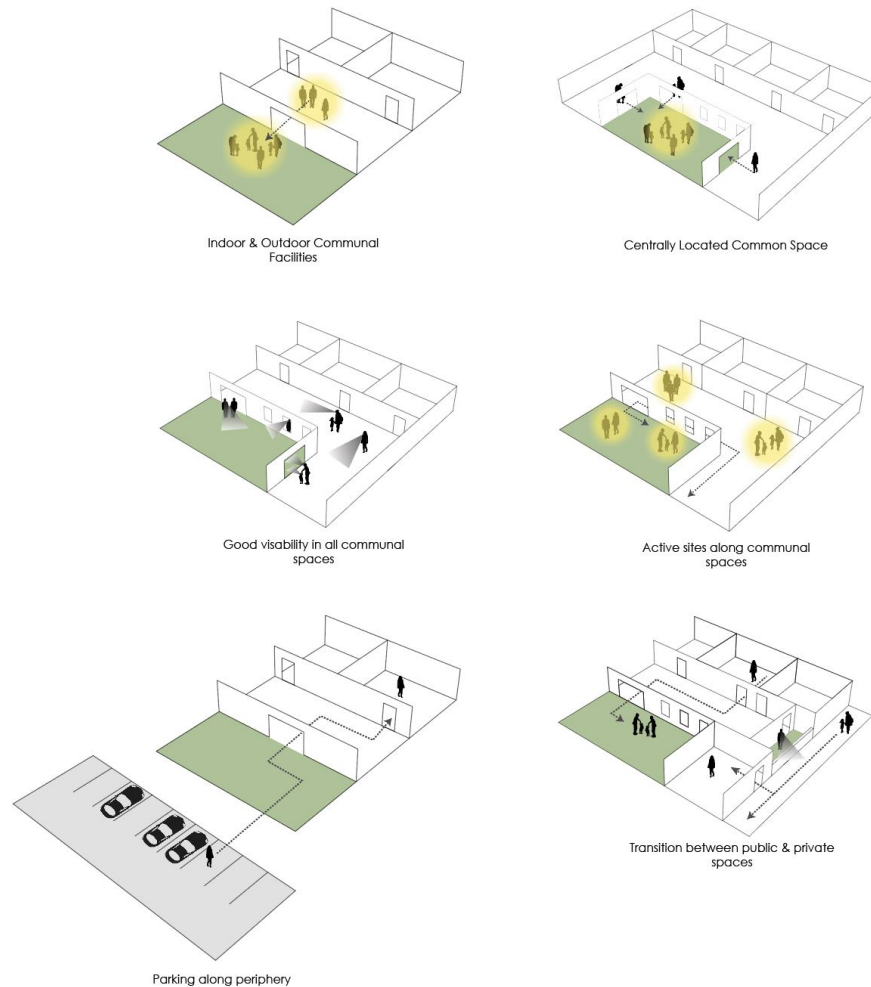
Figure 15: Social Contact Design Principles (Source: Author)

Among SCD principles, other design strategies that promote social interaction

include proximity of units. The organization of units and buildings within a

community affects spontaneous social interaction specifically in immediate neighbors

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rather than residents who live farther apart. Those on the edges of communities tend

to be more isolated than the ones in the center. Circular organized plans with

courtyards and balconies tend to reduce edge condition and promote visual contact

with neighbors across an open space (Figure 16). Of course, there are instances where

functional relationships overcome physical proximity, so the ability to have multiple

clusters still allows for cross interaction between multiple clusters.

Limited visual contact   Centralized spaces promote visual contact
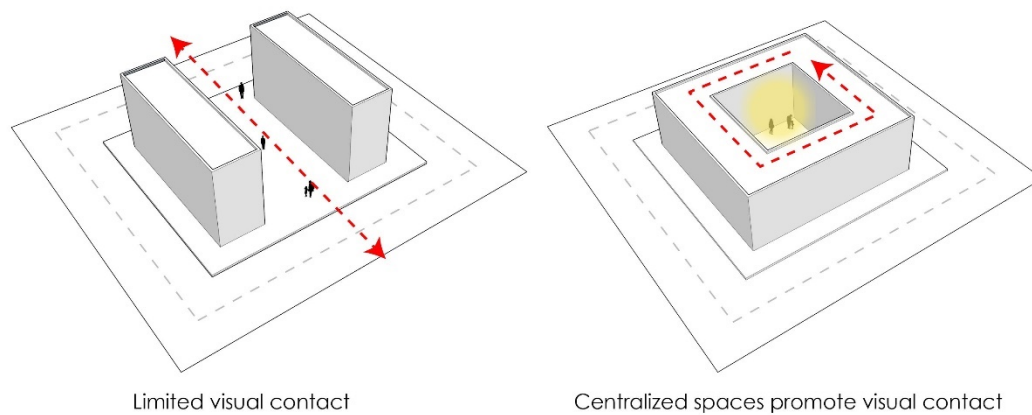
Figure 16: Building Configurations (Source: Author)

Furthermore, density also affects social interaction where residents who live

in high density apartments feel they have less control over their social environment

and as a result, are inclined to not participate in community activities.[27] According to

psychologist Irwin Altman, the privacy regulation theory produces a "critical mass of

dwelling density that allows proximity and not overcrowding".[28] Studies have found

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[27] Jo Williams. "Designing for Neighborhoods for Social Interaction: The Case of Cohousing" Journal of Urban Design. Vol. 10. No. 2. June 2005:198. Accessed November 12, 2019. http://dx.doi.org/10.1080/13574800500086998

[28] Jo Williams. "Designing for Neighborhoods for Social Interaction: The Case of Cohousing" Journal of Urban Design. Vol. 10. No. 2. June 2005:198. Accessed November 12, 2019. http://dx.doi.org/10.1080/13574800500086998

that shared communal spaces among smaller groups of users are more likely to attract users. Clusters of intimate communal indoor and outdoor spaces applied to 1-2 story buildings can also increase resident use due to its ease of accessibility and spontaneous accessibility. Of course, there are also personal factors that play a large role in participation in communal spaces such as personality traits, social class, education, affluence, religion and culture.

Psychological and Social Implications

Refugee families and individuals that will be living together come from all corners of the world, each with different skills, culture and knowledge to share. The need for housing that cultivates opportunity to exchange knowledge and support others who are in similar situations is a driving force for co-housing and design strategies that drive social interaction. The ability for refugees to be able to depend and cultivate friendships with neighbors who support their journey is crucial in adapting to a new environment. Furthermore, the understanding that they are not alone in this process is yet another reason to persevere in reaching their goals of being able to contribute to the community that has accepted them into their home. With access to affordable housing and support services, refugees will be able to increase their well-being and become better integrated and participate within society.

Co-housing Case Studies

The following case studies follow Swedish co-housing examples that share many of the design principles and program spaces that have been discussed.

Urban Hill Cohousing

The Urban Hill Cohousing project is an intergenerational urban community that came together and designed a building based on the following values; sharing, environmental awareness, intergenerational living, neighborhood partnership, healthy individuals and healthy community.[29] This project follows the critical design strategies and programming that are needed to produce a model where residents interact with one another as well as the community. Different types and areas of communal spaces thought the building such as open patio and exterior circulation connects residents visually on each floor (Figure 17). The ground floor is designed for resident entry as well as rental office/retail space for the community. The success of this organization is that the building activates the street (Figure 18) by providing areas for community use mixed with a residential component above, although it is not directly related to the community who lives in the building. The common spaces such as the green roof, shared courtyard and common house are centrally located in the building and are easily accessible by the residents. Since these areas are located in the center of the block and balconies face the alley, there is no visual connection to the street which limits interaction with the community. The rooftop garden (Figure 19) provides a space within the building where residents can work together and converse while growing their own food.

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[29] "Our Vision & Our Values" Capitol Hill Urban Cohousing. Accessed May 17, 2020, 2019. https://capitolhillurbancohousing.org/our-vision/
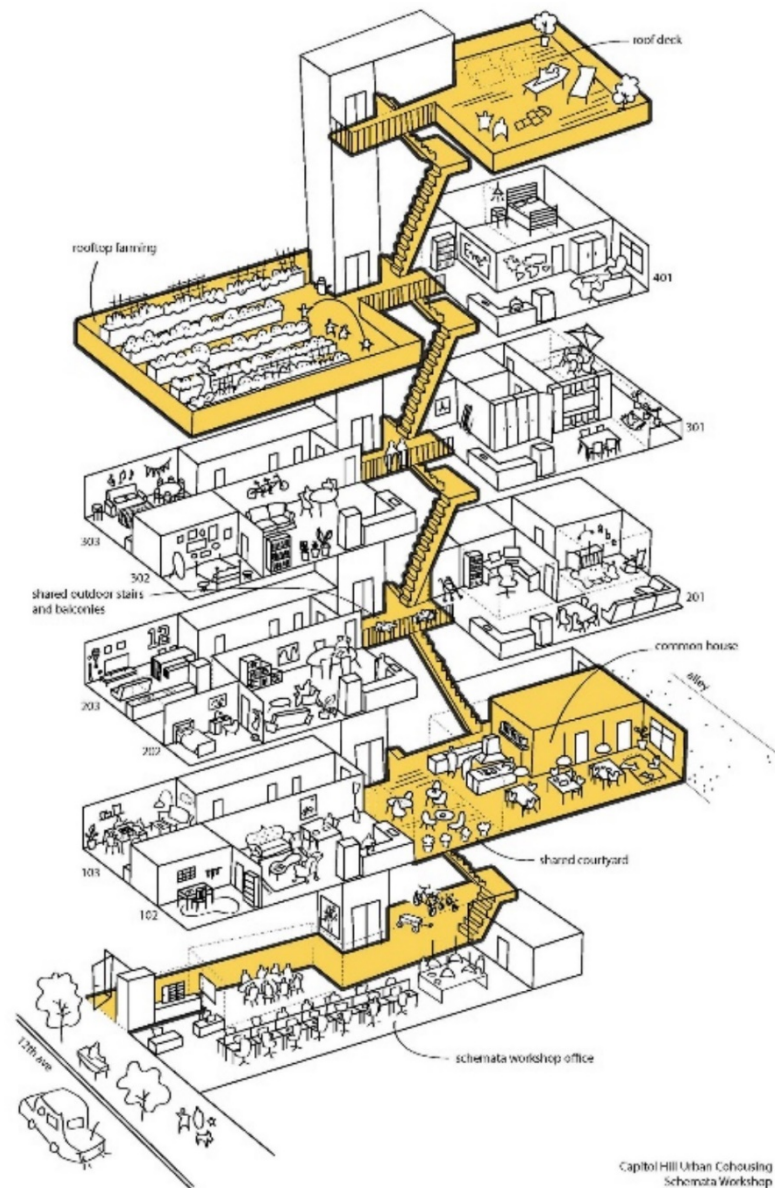
Figure 17: Communal Spaces connected through Circulation
(Source: Schemata Workshop)

Figure 18: Co-Housing Façade & Activated Street Front (Source: Schemata Workshop)

Figure 19: Community Garden (Source: Schemata Workshop)

Although this project is designed through the typical Swedish model where residents design the community, lessons from the design principles can applicable to a model that best suits refugee residents in the goal to create interactions among residents and the community.

The Brutopia Cohousing Project

The Brutopia cohousing development is located in Brussels, Belgium and was constructed in 2015 by Architects Stekke + Fraas. The development contains 29 units with a total of 3 apartment styles and 27 units with passive designs.[30] Office space, multipurpose rooms and local service spaces located on the ground floor invites a connection with the neighborhood by providing uses for the public. This project was designed based on 5 points: durability, prosperity, ecology and social diversity. The site is located in walkable distance to public transportation and residents participate in a car sharing system. Of the 29 units, 7 are zero energy and the roof contains a rainwater collection system as well as solar panels. This is a six-story building with parking underground which maximizes the use of the small site while accommodating the most amount of residents and proving everyone with views to the garden and streets (Figure 20).
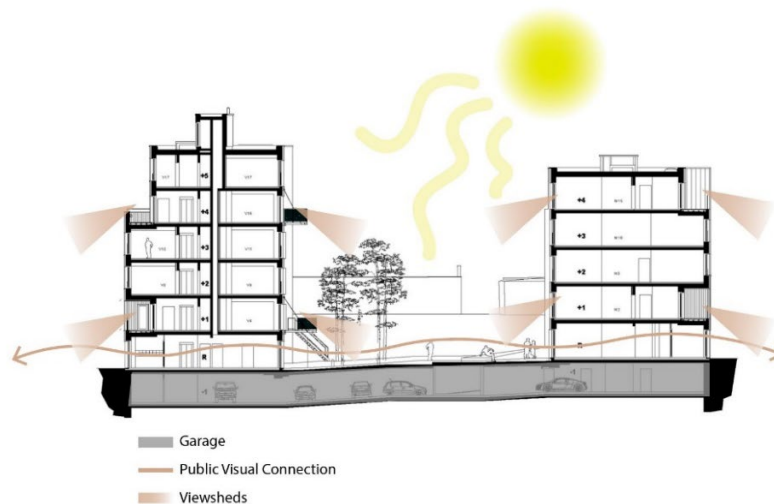
Figure 20: Brutopia Section (Source: ArchDaily & Author)

[30] "Brutopia / Stekke + Fraas" ArchDaily. June 13, 2015. Accessed December 11, 2019.
https://www.archdaily.com/641278/brutopia-stekke
fraas?ad_source=search&ad_medium=search_result_all

The building was designed with office space facing a shared garden at the center of the plan (Figures 21 & 22). Included on the ground floor is the multipurpose room which opens up to a dining space in the garden. Exterior circulation allows for unconditioned hallways which lowers costs for the residents. This development was designed so that the community and residents have views to the activities happening in the garden which allows for transparency between the residents and the rest of the neighborhood.
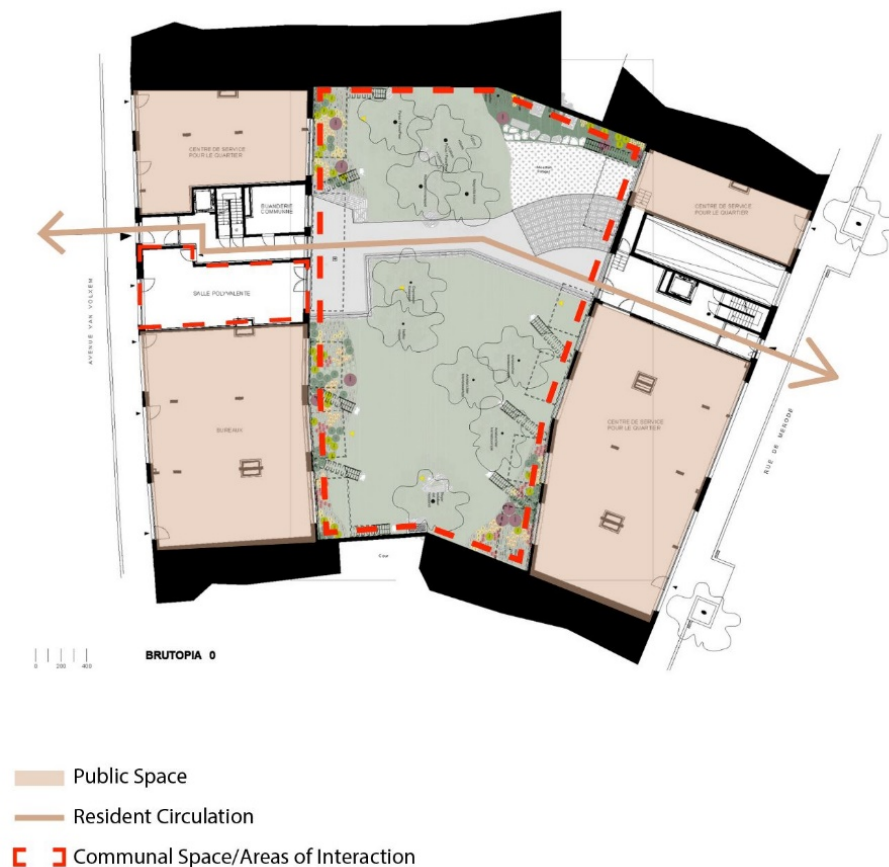
Figure 21: Brutopia Ground Floor Plan (Source: ArchDaily & Author)

Private Units

Resident Circulation

Communal Space/Areas of Interaction

Figure 22: Brutopia Typical Floor Plan (Source: ArchDaily & Author)

Marmalade Lane Co-housing Development

Completed in 2018, the Marmalade Cohousing Development comprises of 42

homes, a mix of one to two-bedroom apartments and two to five-bedroom terrace

houses in Cambridge, England. Co-housing was a driving force in this community for

the desire to foster community spirit and sustainable living. The demographics of this

community include intergenerational living, families with young children retired,

young professional couples and single person households.[31] The focal center of this

community revolves around an extensive shared garden where people socialize, play,

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[31] Paula Pintos. "Marmalade Lane Cohousing Development/Mole Architects" ArchDaily. June 2019. Accessed December 11, 2019. https://www.archdaily.com/918201/marmalade-lane-cohousing-development-mole-architects?ad_medium=gallery

grow food and contemplate. The integration of the development into existing

neighborhoods still provide private and shared exterior spaces (Figure 23).

Public Space

Resident Circulation

Communal Space/Areas of Interaction

Private Units
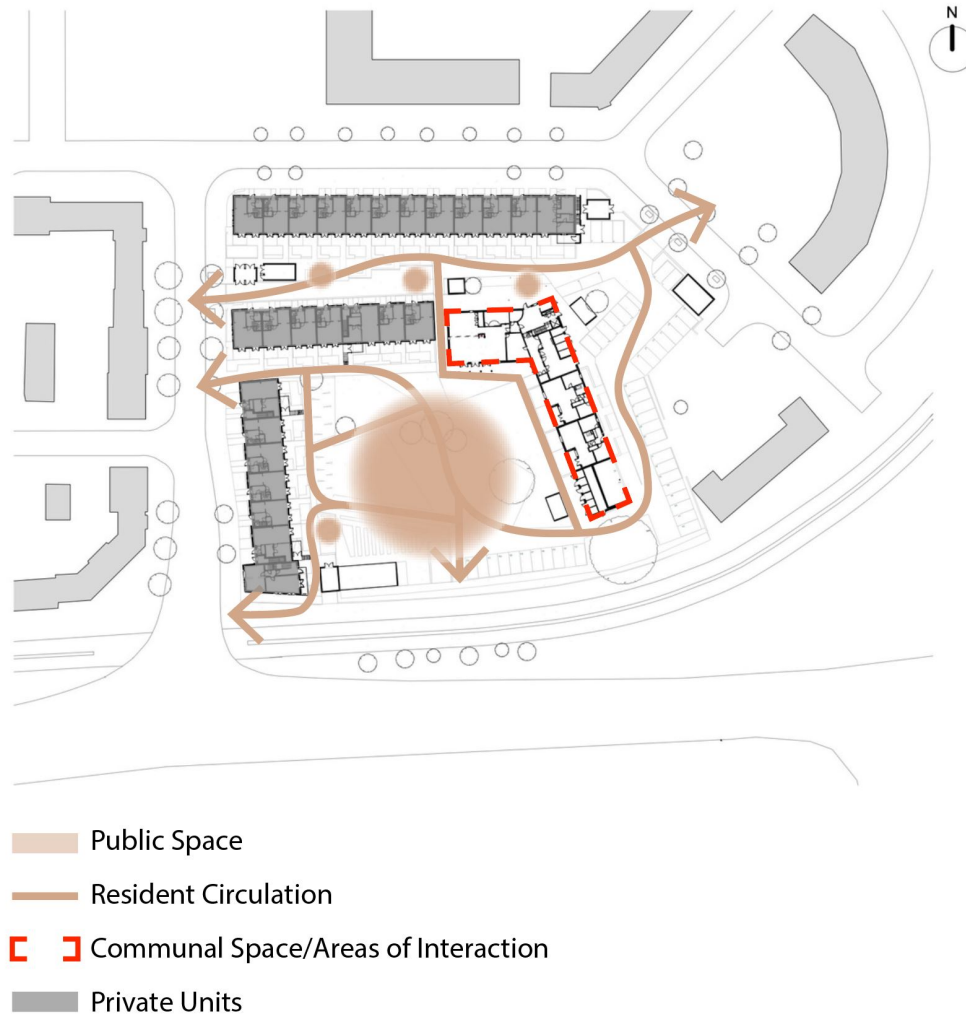
Figure 23: Marmalade Lane Site Plan (Source: ArchDaily & Author)

The common house is located centrally on the site with units stacked on top. The

main garden space faces both units as well as the common house while the other

public spaces are located along the East West street North of the site between two

rows of townhomes. This model displays various building types, creating a natural

pattern of development rather than an exclusive neighborhood with fences and gates.

These two projects were designed with the goal of integrating refugees to the Dutch culture through co-housing methods. It started with the need to provide better housing options for many refugees seeking shelter in the Netherlands. Both these projects are led by housing associations, who are responsible for determining the goals for the project. Project Riekerhaven was administered by the De Key housing association while Project Science Park was led by Rochdale (Figure 24).

Project Riekerhaven	Project Science Park
Housing association: De Key	*Housing association*: Rochdale
Interviewed: Rienk Postuma	*Interviewed*: Pieter de Roest
Amount of refugees: 282	*Amount of refugees*: 120
Amount of Dutch youngsters: 283	*Amount of Dutch youngsters*: 120
Age: 18 – 27 years old	*Age*: 18 – 27 years old
Management: self-management, done by residents	*Management*: done by Rochdale
Composition of refugee residents: focus on 'magic mix', as much different nationalities and education levels as possible	*Composition of refugee residents*: no specific composition
Composition of Dutch youngster residents: students, graduated and working people	*Composition of Dutch youngster residents*: students
Location: Amsterdam Nieuw-West	*Location*: Amsterdam-Oost
Opened in: 2016	*Opened in*: 2018
Amount of refugee project before this one: 0	*Amount of refugee project before this one*: 2
Total number of rentals De Key in 2016: 36.997 (De Key, No date)	*Total number of rentals Rochdale in 2016*: 37.884 (Rochdale, 2017)

Tabel 1, Case Boxes of project Riekerhaven and Science Park. Table made by authors.

Figure 24: Comparison of Project Riekerhaven and Project Science Park
(Source: M. Zonneveld & L.J.A. Buter)

The main difference between the two models is the management style and responsibility given to the residents. Both house equal numbers of refugees and Dutch citizens along the same age groups in Amsterdam. Riekerhaven was the first instance where co-housing was applied for refugee housing and the management style of the

community is driven by the residents.[32] Starting from scratch, they built a new

complex through by a top-down approach while the community is being build

bottom-up, where residents have input on the social structures and everyday decisions

with conditions provided by De Key. They went through a selective process to reach

the perfect mix of refugees to Dutch nationals with varying nationalities, interests and

education. Rochdale superseded and used Riekerhaven as an example but took a

different approach. Rochdale started with existing buildings where Dutch students

were currently living and moved refugees in as students moved out until equal

numbers of Dutch to refugees were established.[33] This structure was established from

a top down approach in both building the complex and community.

  The resident selection process was different since Riekerhaven made specific

selections based on interviews and meeting suitable Dutch youngsters who were

interested in this project. On the other hand, Rochdale was dependent on students

who left the complexes where refugees replaced them.

  The responsibilities of the residents art Reikerhaven were established by De

Key based on their most important conclusion that "to achieve practical integration,

aspects such as housing, language learning, educating and network building at the

same period of time, instead one after the other"[34] At Riekerhaven, space for

integration activities like common rooms for inhabitants to learn from each other and

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[32] M. Zonneveld & L.J.A Butler. "Successful cohousing with refugees" 2018. Accessed May 17, 2020.
https://forum-wonen.nl/wp-content/uploads/2018/04/Buter-Zonneveld.pdf
[33] M. Zonneveld & L.J.A Butler. "Successful cohousing with refugees" 2018:10. Accessed May 17,
2020. https://forum-wonen.nl/wp-content/uploads/2018/04/Buter-Zonneveld.pdf
[34] Fischler, Raphaël, Lindsay Wiginton, & Sarah Kraemer. "A Place to Stand on Your Own Two Feet:
The Role of Community Housing in Immigrant Integration in Montréal, Quebec." *Canadian Journal of
Urban Research.* Volume 26. No. 2. 2017:15-32. Accessed December 13, 2019.
www.jstor.org/stable/26290768.

institutions to come teach refugees are available. These spaces are utilized and managed by the residents in a bottom-up approach, which Rochdale has control over management. De Keys goal is that people will want to invest more of their time in their own living environment and therefore strengthen communities. This approach has been successful in some cases, although when applied to a family structure, more concern is set on working to get food on the table, so this approach may have to be modified depending on the users.

The success of these two models are measured in resident experiences and if refugees feel like they are integrating into Dutch culture. Both at Riekerhaven and Project Science Park, residents are given opportunities to network with surrounding communities and institutions in order to build relationships along with providing in house services. Housing associations are important in establishing how this model will be supported and providing connections to community resources. The responsibilities of housing associations are being challenged in collaborating with inhabitants, institutions and voluntary groups to create inclusive communities.

Conclusions on Co-housing Housing Typologies & Design Strategies

The Swedish, Danish, and Service/Specialized cohousing models offer the best design practice models (Figure 25). One important thing to note is that these models do not show developer led approaches to cohousing as a way to promote social interaction among neighbors who do not have the resources to apply these models in their own lives, such as refugees. With these models as a starting point, the refugee co-housing model will be different in how it is managed, through a residential typology that allows for residents to be able to congregate with each other and the

community much like the current examples in Amsterdam.

		Collective Housing Unit				
	Integrated Block Type	Classical Collective	Swedish Cohousing	Service/ Specialized Collective Housing	Danish Cohousing	Housing Commune
Social Contact Design Principles — Indoor & Outdoor Communal Spaces			●	●	●	●
Centrally Located Common Spaces		●	●	●	●	●
Visibility between Communal Spaces			●	●	●	●
Active Sites along Communal Circulation			●	●	●	●
Parking along Periphery			●	●	●	
Transition between Pubic & Private Spaces	●		●	●	●	
Dwelling Density — High Density 3-6 Stories		●	●	●	●	
Low Density 1-2 Stories	●		●	●	●	●
Interaction — Lacks Interaction	●	●				
Promotes Interaction			●	●	●	●

Figure 25: Co-housing Model Comparison (Source: Author)

Chapter 3: Design Strategies for Integration Among Communities

Migrant Acceptance into New Communities

The US is recognized as a nation of diverse cultures and has a history of accepting immigrants from around the world. Although the narrative of inclusivity is preached among many communities in the US, the reality is, racism and low tolerance of others who do not share the normative American culture and traditions or are lower class still exist.

Among the many struggles immigrants and refugees face when coming to this country, the lack of appropriate housing options has the greatest effect their ability to integrate into new communities. Refugees and asylees tend to disperse in areas of deprivation that are multicultural, near city centers and have large populations from their country of origin.[35] In this case, there are two extremes, one of living in a predominantly refugee neighborhood, which promotes dependence on the local refugee population and leads to lack of interaction with others. Second, blending in and living in isolation leads to their talents and individualism being overlooked and not showcased within their local community.[36] Furthermore, the behavior of blending in or being socially stagnant leads to limited connections to the community and increases ignorance from the native population. According to Lisa D'Onofrio &

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[35] Daley, Clare. "Exploring Community Connections: Community Cohesion and Refugee Integration at a Local Level." *Community Development.* Journal 44. No. 2. 2009:160. Accessed December 13, 2019. www.jstor.org/stable/44259102.

[36] Daley, Clare. "Exploring Community Connections: Community Cohesion and Refugee Integration at a Local Level." *Community Development.* Journal 44. No. 2. 2009:165. Accessed December 13, 2019. www.jstor.org/stable/44259102.

Karen Munk, who specialize in migration studies and social cultural sciences, refugees have "raised the importance of cultural awareness and information for positive relations. If you educate each other, you realize there are not so many differences"[37] At this time, there a lack of affordable and accessible housing for refugees that engage positively with the public and foster transparency and communication. There needs to be a shift in the culture of affordable housing in how we create spaces that reduce marginalization of people by providing them with housing options that engage with the public.

Design Strategies to Promote Integration

In order to promote integration of refugees, there needs to be a community where all are welcome. The way in which design can influence this is by creating spaces that build community relationships and open dialogue and transparency. Studies conducted by Tropp & Page-Gould find that several conditions have to be met in order to have positive attitude changes. [38] The ability to facilitate integration through design includes creating transparency, visibility and communication between the users. We can use strategies such as good visual access, landmarks, spaces for rest and dialogue, and buffer zones between private and public space that allows people to come together and capitalize on existing assets of the local communities and create experience through shared interests and learn about each other. According to Clare

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[37] Daley, Clare. "Exploring Community Connections: Community Cohesion and Refugee Integration at a Local Level." *Community Development Journal.* Journal 44. No. 2. 2009: 165. Accessed December 13, 2019. www.jstor.org/stable/44259102.
[38] Tropp, L. R., & Page-Gould, E. "Contact between groups. In J. Dovidio & J. Simpson (Eds.)" *APA handbook of personality and social psychology.* Volume. 2. 2004:535–560. Accessed December 14, 2019. Washington, DC: American Psychological Association.

Delay, local cohesion among communities is achieved by providing spaces that allow

for "inter-group contact and dialogue" that cater to common goals and interest of the

population such as neighborhood safety.[39] Design such as parks, plazas, safe streets

and engaging program are all ways to promote contact and dialogue outside of the

walls of the housing complex.

Successful parks and plazas create places that promote spontaneous social

interaction. This is critical in creating a network of relationships that can give

meaning to a place. Physical characteristics of parks that should be considered in

design are providing places to sit, good visual access to promote a safe space, water

as a calming and refreshing element, sun and wind for microclimate control, trees for

shading, relationship to surrounding streets such as building use on the street level

and lastly a special feature such as art or fountain. Plazas have similar characteristics,

although flexible design that responds to changing functions is specifically important.

Designing safe neighborhoods is also crucial in creating spaces that people

want to inhabit. The implementation of Jane Jacobs strategies of activating sidewalk

and streets in order to create a safe neighborhood is applicable. There are three main

strategies to designing a safe street (Figure 26). First, is a "clear demarcation between

public and private space. This allows people to know what spaces they are allowed to

inhibit. Second, the orientation of buildings towards the street to maximize the eyes

on the street to ensure the safety of residents and strangers. Third, the continuous

presence of uses along the sidewalk. This adds to the number of eyes on the street by

[39] Daley, Clare. "Exploring Community Connections: Community Cohesion and Refugee Integration at a Local Level." *Community Development Journal*. Journal 44. No. 2 2009:168. www.jstor.org/stable/44259102.

"introducing people in the building along the street to watch the sidewalk".[40] The use of these strategies is crucial to creating spaces that invite the community and reduce the negative stigma attached to affordable housing and crime when it comes to refugees.

Clear seperation between public &
private spaces

Orientation of buildings towards
streets

Continuous presence of useses
along the sidewalk
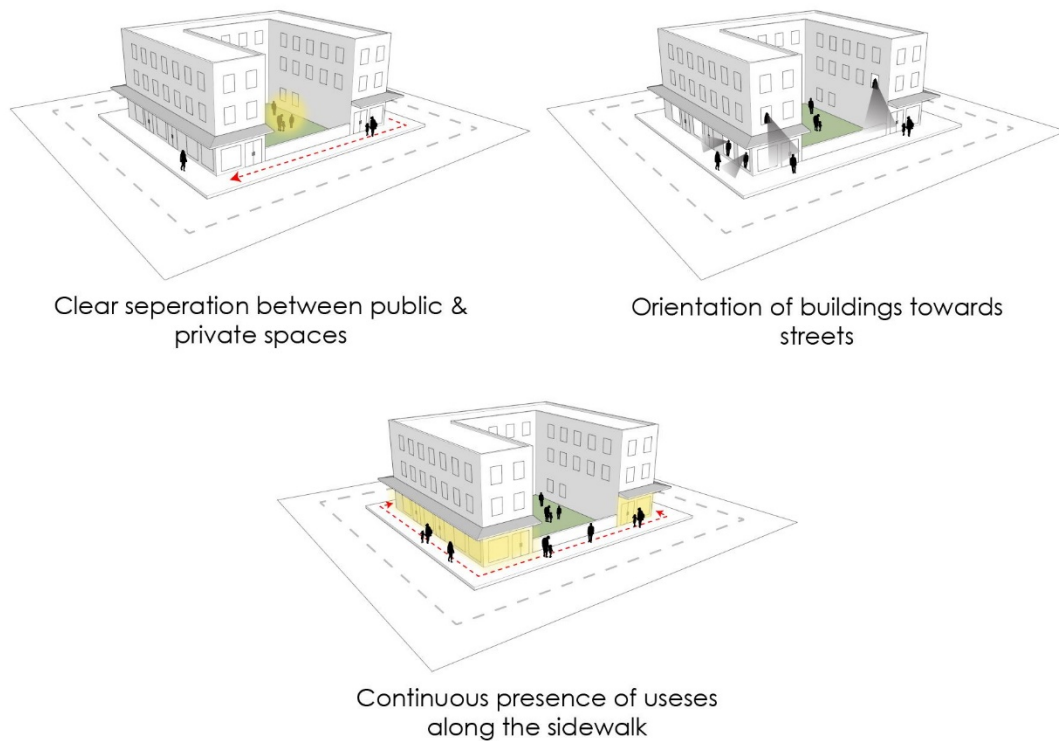
Figure 26: Jane Jacobs Safe Neighborhood Principles (Source: Author)

<u>Conclusions</u>

The primary goal of resettlement is to build community relationships that foster acceptance and integration of new residents and architecture can play a role in creating spaced that cater to this need. Resources must be met with interaction between refugees and the social environment they seek to integrate into. Having

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[40] Jane Jacobs. "The Use of Sidewalks" *The Death and Life of Great American Cities.* New York: Vintage Books. 1961:35.

support systems in place while also combating the negative stigma that refugees have by creating transparency is crucial in their integration into a new community. Safe neighborhood design and the use of public amenities also brings people together and the implementation of program such as a cultural center that spreads knowledge and culture educates the public about their community within the public realm.

# Chapter 4: Affordable & Sustainable Models

Modular Construction

      Modular constriction is an affordable mode of construction where buildings are fabricated in parts and assembled in a variety of different ways in order to adhere to specific sites and conditions. This approach is popular among design and construction industries due to its flexibility, applicability and efficiency.

      First introduced in the 1830's by carpenter Henry Manning[41] for a housing development in Australia, modular construction quickly became popular among the housing market around the world and has expanded since to a multitude of building types such as hospitals, schools, banks, apartments and institutional buildings to name a few. Some of the major benefits to this technique include speed of construction, affordability and sustainability. Since modules arrive on site prefabricated, the assembly process is cut in half compared to traditional construction methods.[42] This fast turnaround allows for a reduced construction schedule, therefore saving clients time, money and resources (Figure 27).

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[41] "A 'Mod' History- Modular Construction Makes a Mark" Earthtechling. July 14, 2014. Accessed October 16, 2019. https://earthtechling.com/2014/07/a-mod-history-modular-construction-makes-a-mark/
[42] "What is Modular Construction?" The Modular Building Institute. Accessed October 16, 2019. http://www.modular.org/htmlpage.aspx?name=why_modular
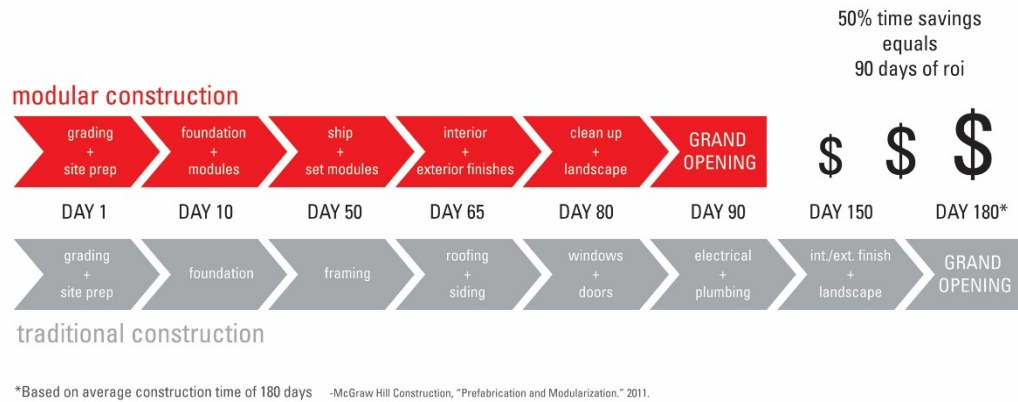
Figure 27: Modular Construction Process Flow Chart
*(Source: Modular Building Institute)*

Furthermore, embracing advantages of the assembly manufacturing process generates less waste and creates fewer site disturbances as well as provides the opportunity for models to be disassembled and reused. The application of modular construction can be utilized in reducing costs of construction, which is the highest determinant of selling prices and rent. Reduced costs can facilitate the construction of affordable housing, therefore creating a larger platform from which rent control can be established. Refugee housing needs to be affordable and provide long term housing when other options are not accessible.

Modular Design Characteristics

Cities have greatly benefited from the advantages of modular construction due to its affordability. Modularity provides a framework in which architecture can be applied through a series design goals to create efficient spaces. Modular design goals

include simplicity, economy, ease of construction, repeatability and flexibility.[43]

Simple building forms and connections are utilized in the design process that can

create dynamic composition of spaces that follow a repeatable and simple structural

pattern. Modules can be organized in many arrangements, creating an adaptable

model for a particular system. Variations of forms using a singular module can be

established and cater to different program, site and scalability (Figure 28). Refugee

housing can range in areas within the city, therefore this model can be utilized and

replicated on a range of locations while utilizing similar design strategies.
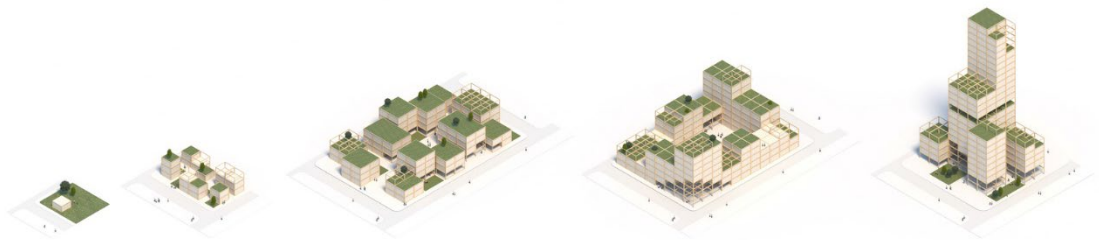
Figure 28: Modular Arrangements (Source: Effekt Architects)

This method also allows for flexible and adaptable spaces can be designed as

users and needs change. Various room organizations based on specific user needs can

be created using modules as a kit of parts (Figure 29). An adaptable living system

responds to the need for more ways of living, which supports the cohousing approach

where flexible shared space is integral.

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[43] Kate Wagner. "The Modularity is Here: A Modern History of Modular Mass Housing Schemes"
99% Invisible. December 15, 2016. Accessed October 16, 2019.
https://99percentinvisible.org/article/modularity-modern-history-modular-mass-housing-schemes/
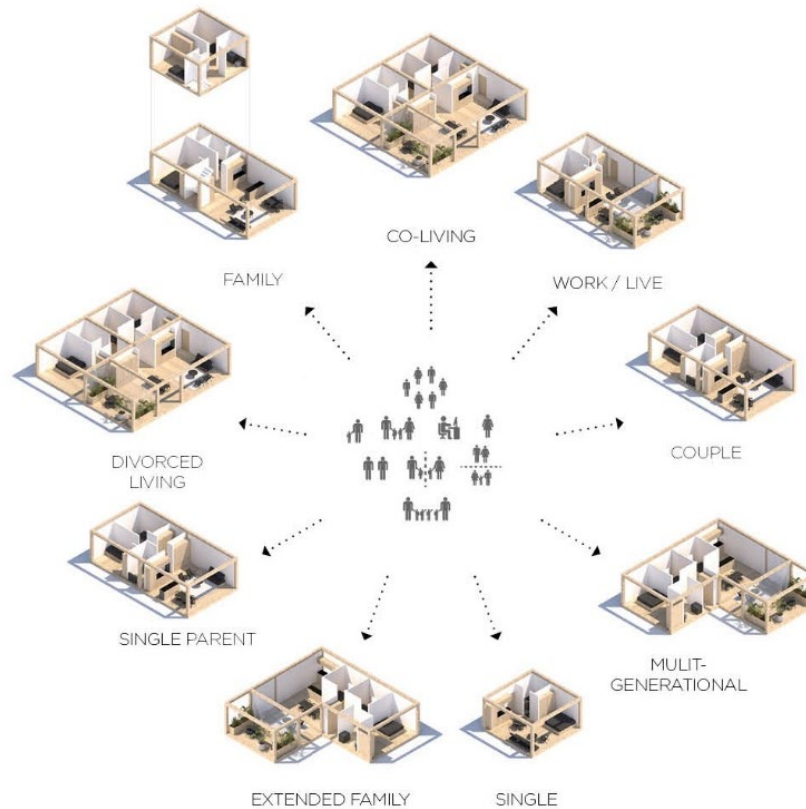
Figure 29: Flexible Modular Components
(Source: Effekt Architects)

The economic benefit also presents itself in material and labor costs. Excess materials

are limited due to the pre-fabrication process where reduced production errors and

potential material damage based on environmental factors are limited. The process in

which the modular units aggregate is also quick and less labor intensive than

traditional methods that rely on specialized professionals. These design elements

ultimately allow for cheaper construction and the ability to increase the amount of

affordable living options.

Perceptions of threat are popular among communities with negative attitudes

towards immigrants and refugees. Affordable housing developments face pushback

from communities who believe low income housing will increase poverty and crime. One of the advantages of modular construction is the increased construction quality that typical low-income developments lack. When combined with mix use programming throughout the building, developers can create housing that will invite local community members to interact and accept the integration of diversity within a community.

Arid Climate Design Strategies

Climate plays a large role in determining architectural form and orientation. Passive design strategies can be utilized especially in California, where arid climate supports natural and sustainable systems. Passive strategies are characterized as a systems that utilize natural energy such as wind, sunlight and gravity to achieve comfortable temperatures in indoor spaces. These design strategies lead to lower energy costs since it eliminates the need for mechanical systems. Design strategies used to achieve natural systems include passive cooling and ventilation, passive heating, lighting control, daylighting design, and unconditioned exterior circulation.

Passive cooling and ventilation are used to reduce heat gain by controlling the amount heat energy and wind that enters interior spaces in order to maintain thermal comfort. Natural ventilation is achieved by implementing operable windows or openings in buildings to allow for natural air flow. This optimizes cool air flow in and pushes warm air out, maximizing the cooling effect (Figure 30). Placement of windows in low and high areas of the wall allows for cool air to enter in lower openings and warm are to escape through higher openings. Close attention to window

placement and openings can increased air movement and provide an inexpensive

strategy for reduced energy use.
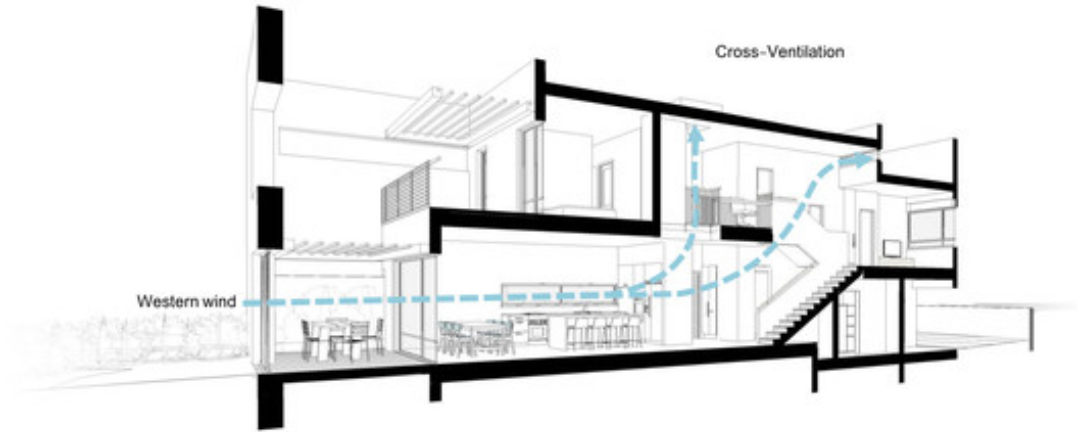
Figure 30: Cross Ventilation (Source: ArchDaily)

Shading devices can also be implemented to achieve energy saving strategies

by reducing solar gain during summer months and increasing solar gain in winter

months. Architectural elements such as horizontal overhangs, vertical fins, louvers,

blinds and shutters can be utilized to control heat gain.[44] Building orientation and sun

exposure are used to determine ideal shading strategies. For example, East and West

facades are affected by low altitude sun exposure, therefore vertical orientation of

shading devices such as fins or louvers are ideal. Shading on southern facades should

implement horizontal overhangs that block high altitude sun. Additionally, when

designing for passive cooling, space arrangement and building orientation should be
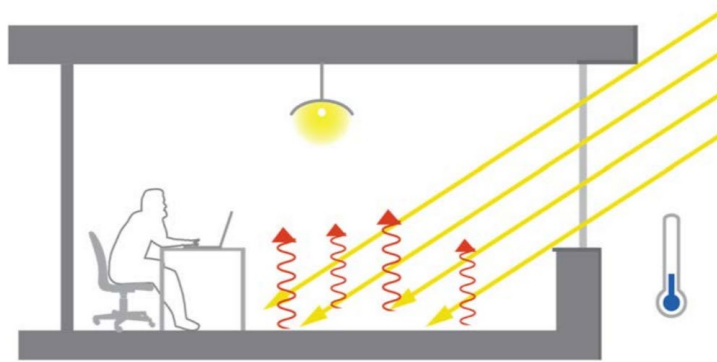
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[44] "Passive Design Guidebook: Shading Strategies." California Sustainability Alliance. 2016:15.
Accessed October 17, 2019.
https://sustainca.org/sites/default/files/publications/Passive_Design_Guidebook_Designed_2015-12-31_0.pdf

considered.[45]. Building orientation towards prevailing winds is also vital when providing natural ventilation to maximize wind movement through interior spaces.

Passive heating strategies are also intended to reduce energy use by allowing direct solar gain to heat spaces during winter months. Similar principles to passive cooling are implemented such as building orientation, window placement, and shading systems that allow for deep sun penetration into interior spaces. South facing facades with long horizontal overhangs allow low winter sun to heat interior spaces (Figure 31).

Figure 31: Passive Heating (Source: California Sustainability Alliance)

Daylighting strategies utilize natural light to minimize energy consumption and electric lighting systems. Daylighting in combination with electric lighting systems with dimming options can be utilized to lower energy use.

Another way to reduce energy consumption is through unconditioned spaces. Due to the arid climate in California, most of the circulation can be expressed on the

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[45] "Passive Design Guidebook: Massing and Orientation." California Sustainability Alliance. 2016:16. Accessed October 17, 2019.
https://sustainca.org/sites/default/files/publications/Passive_Design_Guidebook_Designed_2015-12-31_0.pdf

exterior of buildings. This design strategy can not only be utilized to lower energy costs, but also allow for increased outdoor stimulation and accessibility to sunlight and the environment. Light, wind and connection to nature are all connected to passive design strategies. These design strategies not only reduce energy costs but also improve health and well-being in the built environment.

Case Studies

Affordable & Modular Precedent – Kit-of-Parts

Brooks and Scarpa have designed a series of modular units or kit of parts that come together to create scalable and adaptable buildings. This model has been designed to fit into a variety of urban lots using prefabricate parts for communities in need of affordable housing. The vision behind this adaptable model is that affordable housing should scattered throughout regions on underutilized land in order to create shelter for citizens and create a sense of dignity and shared social spaces.[46] Flexibility is one of the advantages of modular construction and they have used these modules and applied it to a variety of lot shapes and density (Figure 32).

[46] Eric Baldwin. "Brooks+Scarpa Design a Toolkit for Affordable Housing" *ArchDaily*. November 2019. Accessed December 13, 2019. https://www.archdaily.com/927411/brooks-plus-scarpa-design-a-toolkit-for-affordable-housing?ad_source=search&ad_medium=search_result_all
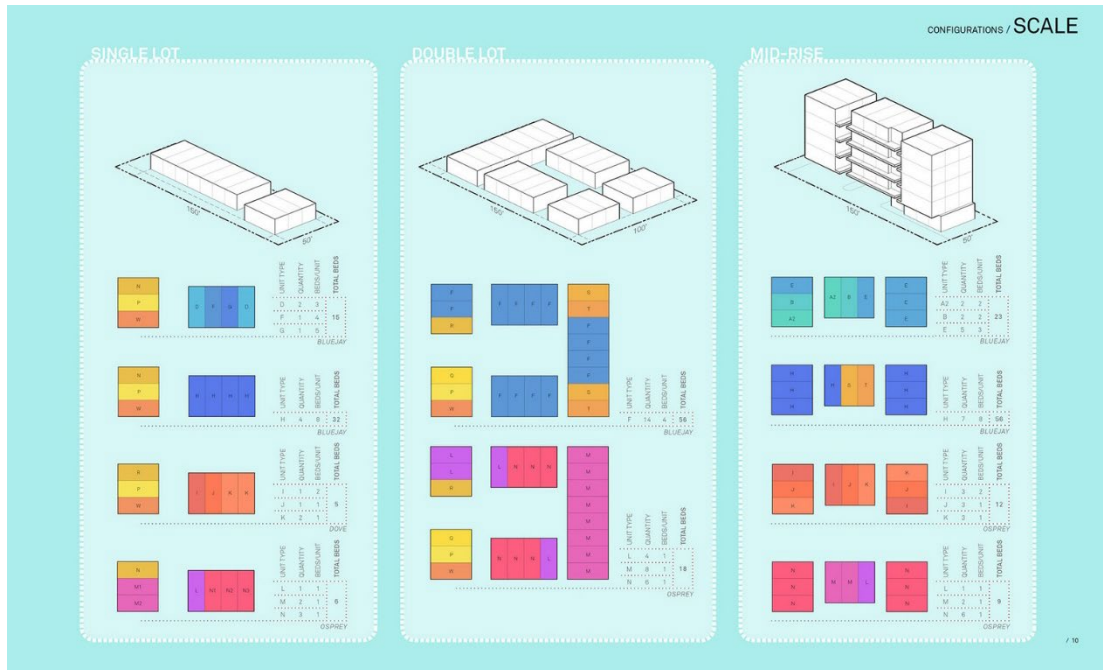
Figure 32: Module Configurations Based on Lot Size & Density
(Source: Brooks+Scarpa & ArchDaily)

The way in which these modules are constructed allows them to be stacked in various ways. Interchangeable parts accommodate different site conditions. For example, multiple treatment options for the facades are available as well as interior finishes like windows, doors, materiality and layout (Figure 33). Multiple unit types have also been designed for different combinations of users. First, studio and one-bedroom configurations that can be arranged in different configurations to create 2-3-bedroom units (Figure 34). Modules containing temporary shelter beds and shared room and bath have also been considered to serve people in transitional circumstances (Figure 35). Modules containing shared spaces have been designed to serve all unit types (Figure 36) The Shared spaces are designed to operate with our without direct utility access through the use of equipment that provides potable water supply, grey

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and black water storage and energy generation systems. These modules are truly self-sustaining and provide suitable options to lower cost of living for residents.
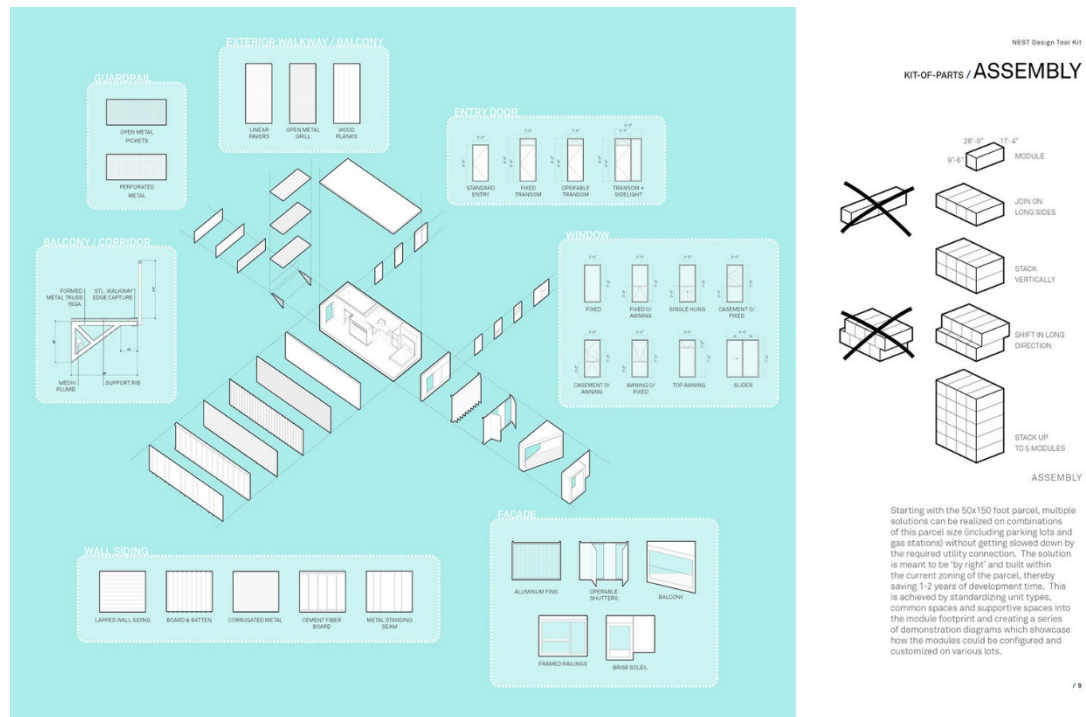

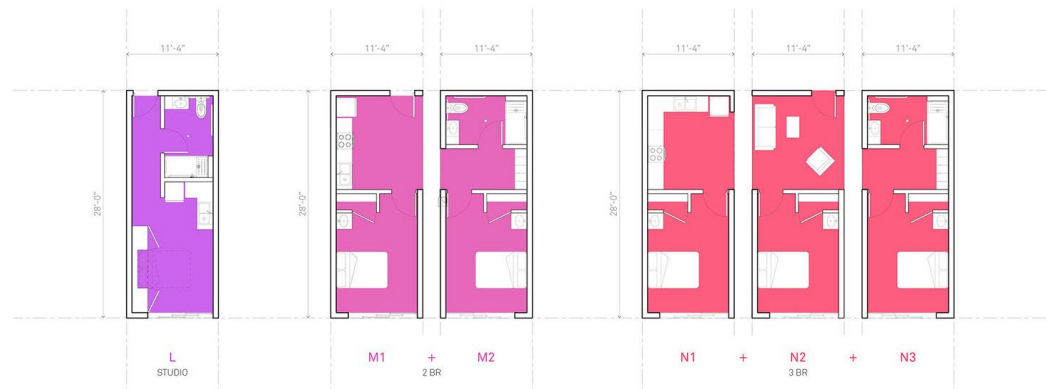*Figure 33: Kit of Parts Assembly (Source: Brooks+Scarpa & ArchDaily)*

Figure 34: Unit Configurations (Source: Brooks+Scarpa & ArchDaily)
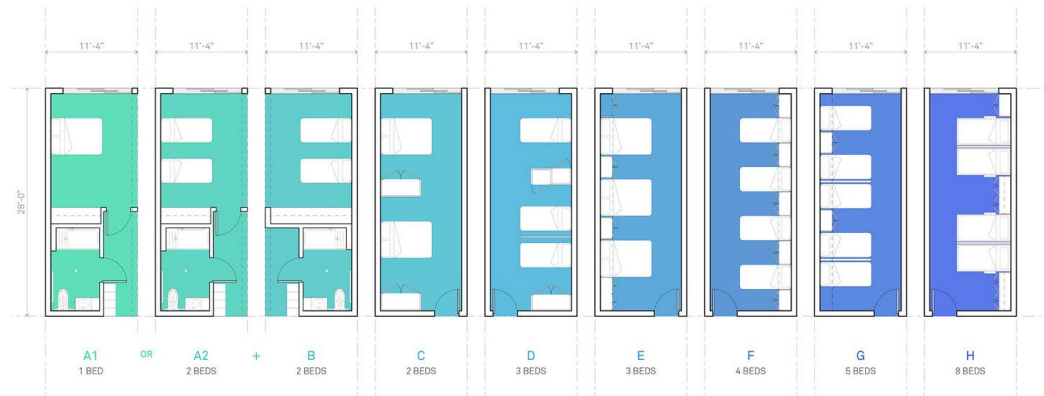
Figure 35: Shared Units (Source: Brooks+Scarpa & ArchDaily)
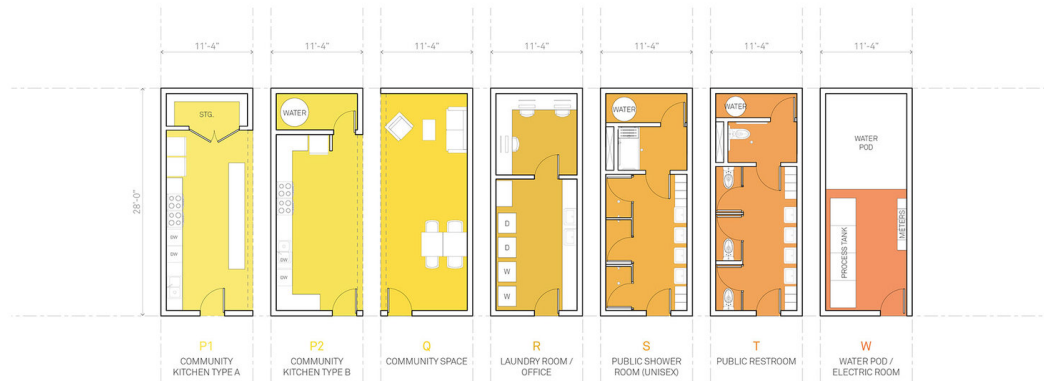
Figure 36: Communal Spaces (Source: Brooks+Scarpa & ArchDaily)

Arid Design - 26 Passive Apartments

Passive Apartments is an affordable housing project led by a cooperative in France with goals of integration in the urban environment, economical frame with social home ownership and low energy consumption.[47] The layout of the building was split into two masses to accommodate an urban edge on one block and lower scale residential typologies on the other. The center of the block consists of a shared

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[47] Paula Pintos. "26 Passive Apartments" *ArchDaily*. August 2019. Accessed December 13, 2019. https://www.archdaily.com/920656/26-passive-apartments-benjamin-fleury?ad_source=search&ad_medium=search_result_all

common outdoor garden that enforces social interaction (Figure 37). This also allows

for each unit to have glazed openings at both ends, creating opportunities for cross

ventilation (Figure 38)
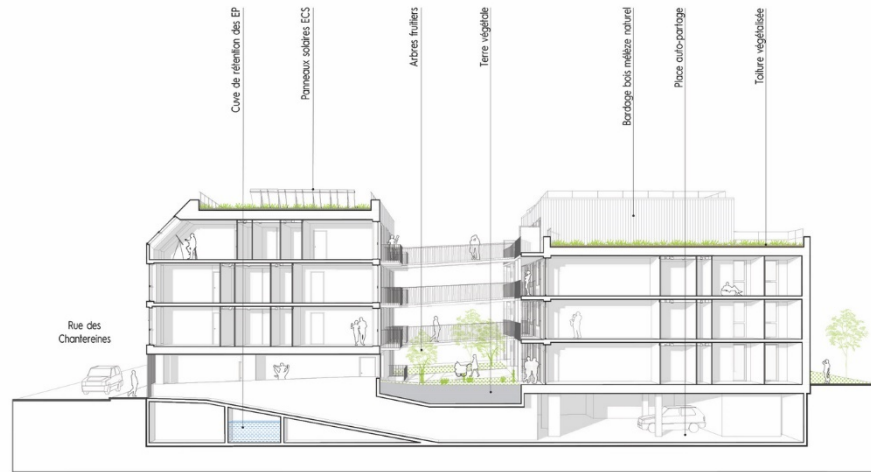
Figure 37: Cross Section (Source: ArchDaily)
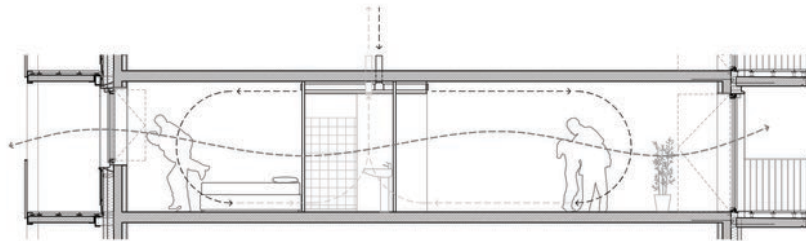
Figure 38: Unit Section (Source: ArchDaily)

The economic participation of residents who struggle to be owners provided

the opportunity of social ownership. In this model, in addition to regulations of low

prices, residents can take out a loan without pre-existing capital and become owners

instead of renting. In order to sustain low prices, attention to low energy systems and

low maintenance costs was integral. Exterior circulation, East/West facing units to increase solar gain, triple glazed wooden windows, and solar panels were used to reduce costs.

Building design through the use of modular construction techniques and passive design strategies, can create affordable models. The application of these processes can be applied to housing options to create affordable options that cater to the needs of refugees but also supports and includes spaces for local communities.

Chapter 5: Design Principles for Refugee Co-Housing
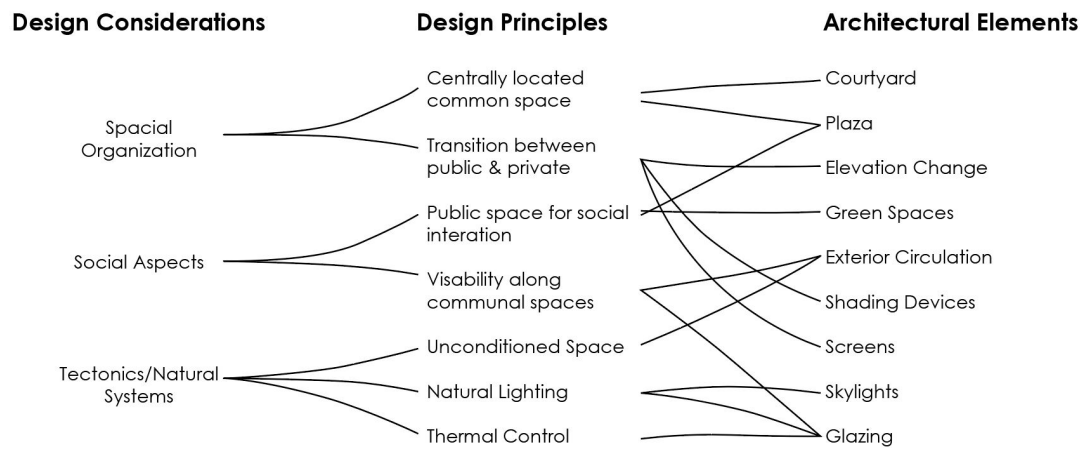
Derived Design Principles

Affordability of housing is by far the primary factor in successful refugee integration. Through research on architectural design strategies of cohousing communities, arid climate design, modular construction and integration, design principles can be derived from these findings to be applied to a housing model that offers affordable housing for refugees. Chapter 1 establishes the first pillar that guides this thesis: Housing as a Fundamental Need. Chapter 2 establishes the second pillar: Design strategies for cohousing communities that promote sustainable living as well as social interaction. The most common design elements were based on the social contact design principles such as creating centrally located indoor and outdoor communal spaces, visibility between communal spaces, transition between public and private space, multiple spaces for daily interaction as well as shared resources, implementation of courtyard spaces and controlled density. Chapter 3 establishes the third pillar: Program serving refugees and the larger urban community. Integration is facilitated through design by creating transparency, visibility and communication between the users through good visual access/connection, landmarks, spaces for rest and dialogue, and buffer zones between private and public space. These pillars in combination with modular and affordable housing design strategies discussed in chapter 4, establish clear design strategies to create multi-family co-housing for refugees.

By combining these strategies, 8 key design principles can be determined to create affordable housing for refugees such as: centrally located common spaces along courtyards, visibility within communal/public areas, public space for increased social interaction, transition between public and private space, unconditioned space for circulation, natural lighting and ventilation, modular construction and durable, elegant materials. Centrally located common spaces will allow for residents to locate communal amenities and promote interaction through outdoor activities. Visibility within communal areas also promote interaction among residents as well as community engagement with the refugee community. Transitions between public and private spaces are integral in creating private experiences among the residents and safe interaction with the public. Unconditioned spaces and natural ventilation reduce cost of living. Finally, modular construction with durable materials allow for flexibility and adaptability of the design as well as creating architecture that defies negative stigmas of affordable housing.

Design Principles Translate to Architectural Elements

These design principles can then be applied to promote several architectural elements that can implemented in the building (Figure 39).

Figure 39: Architectural Elements Derived from Design Principles
(Source: Author)

Courtyards and green spaces will be used as a gathering space for residents while plazas cater to the greater urban community. Elevation change as well as balconies, and screens act as transition elements between public and private spaces within the co-housing complex. Skylights, glazing and shading devices allows for natural ventilation as well as views in and out of the units and public spaces. Lastly, the use of exterior circulation to reduce heating and cooling cost can further add to the affordability of the buildings.

Program Requirements

Program spaces such as housing units of varying types are necessary to accommodate different family structures. Private services include communal areas within the co-housing building such as shared laundry, study, living room, kitchen and dining, lounge, garden terrace and courtyard.
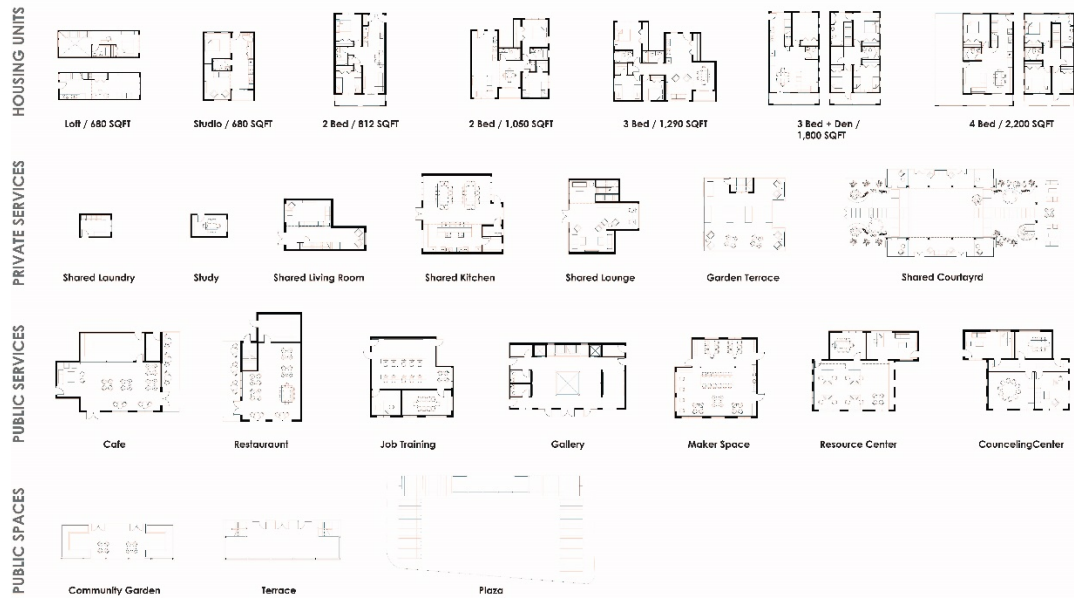
Figure 40: Proposed Program (Source: Author)

Providing public spaces and services such as a cultural center for encounters, exchange and dialogue allows people to come together and capitalize on existing assets of the local communities through interaction with different cultures in order to promote diversity that educates the community. Cafés and restaurants allow people to try cuisines of different countries. A job training center gives the local community a space to further their skills and help them find better jobs. Gallery and maker spaces allow community members to create and exhibit art showcasing unique skills and talents that individuals have. Finally, a resource and counseling center provides refugees with contacts and assistance to help them in their new lives (Figure 40).

Chapter 6: Site Selection and Analysis

Site Selection: City Heights, California

Before selecting City Heights, as the location of this thesis, a comparison of many cities in California is was necessary to identify which had the most potential to accommodate housing in addition to a cultural center. First, in order to conduct a comparison, establishing the top characteristics for the site was necessary. The following were the classifications that generated site options in order of importance; History of resettlement, institutional proximity, affordable neighborhood, accessibility & transportation, walkability, density, diverse neighborhood, job opportunities, and residential neighborhood.

History of resettlement was the most important since the site would need to be an area where refugees would naturally want to live when coming to the US. The California Department of Social Services tracks refugee arrivals based on counties and resulted in the following conclusion (Figure 41).

REFUGEE ARRIVALS INTO CALIFORNIA COUNTIES
FEDERAL FISCAL YEAR 2017
October 1, 2016 through September 30, 2017

COUNTY	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	TOTAL
Alameda	23	18	12	17	2	7	20	13	6	8	1	-	127
Contra Costa	1	3	4	9	1	2	5	1	-	1	1	5	33
El Dorado	-	-	-	4	-	-	-	-	-	-	-	-	4
Fresno	12	5	-	-	7	-	-	-	-	-	-	-	24
Kern	-	-	-	-	-	-	-	-	1	-	-	-	1
Los Angeles	189	169	132	271	141	98	103	95	84	16	48	113	1,459
Orange	15	19	12	27	13	13	-	17	25	-	1	2	144
Placer	5	25	-	6	8	2	12	-	4	-	-	-	62
Riverside	5	6	11	4	-	2	-	-	-	2	1	-	31
Sacramento	215	251	153	214	83	20	79	106	68	31	26	45	1,291
San Bernardino	8	1	-	2	-	-	-	-	3	-	-	-	14
San Diego	268	334	237	275	127	48	87	79	12	13	28	24	1,532
San Francisco	-	-	3	-	-	-	-	-	-	-	-	-	3
San Joaquin	-	-	-	-	-	-	2	-	-	-	-	-	2
San Mateo	-	-	4	1	-	-	-	-	-	-	-	-	5
Santa Barbara	-	-	-	-	-	-	-	-	-	1	-	-	1
Santa Clara	12	19	15	15	13	16	10	11	23	-	-	5	139
Solano	-	-	-	1	-	-	-	-	-	-	-	-	1
Stanislaus	57	21	43	16	34	7	13	11	10	2	11	1	226
Tehama	-	-	-	-	-	-	1	-	-	-	-	-	1
Tulare						1		-	-	-	-	-	1
Ventura	-	7	4	4	1	-	-	-	5	-	-	1	22
Yolo	4	9	6	2	-	-	6	-	4	8	2	-	41
TOTAL	**814**	**887**	**636**	**868**	**430**	**216**	**338**	**333**	**245**	**82**	**119**	**196**	**5,164**

Figure 41: Refugee Arrivals into California Counties Federal Fiscal Year 2017
(Source: California Department of Social Services – Refugee Programs Bureau)

The top three locations of refugee arrivals in 2017, in order include: San Diego, Los Angeles, and Sacramento. This trend is also present in 2018 the following year. Proximity to institutions such resettlement agencies, churches, and services that refugees utilize is also important in easing accessibility to necessary resources. The site must also be in an affordable neighborhood in order to cater to the needs and lifestyle of refugees, who have limited funds for the first few years of their life in the US. Accessibility to public transportation as well as good walkability is also important to refugees who do not have access to cars or funds to pay for uber/taxi for rides to work, grocery store, doctors appointments, etc. The site also needs to be located either in an urban area or along an urban transect in order to easily access goods and resources as well as to reduce geographic isolation that one might experience in a suburban neighborhood. Furthermore, the site must also be in a diverse neighborhood in order to provide opportunities for social interaction with people of different cultures. Next, the site must be in an area that has job opportunities or can easily access areas with job opportunities. In order to sustain a good living, one must be able to have access to the job market and easily get to and from work. Finally, the sire must be located in or on the edge of a residential neighborhood in order to ease community engagement.

From these criteria, a comparison of neighborhoods with different lot vacancies in San Diego and Sacramento reveal the ideal site. These neighborhoods include; downtown San Diego, City Heights, El Cajon, Glendale and Arden-Arcade.

Ultimately City Heights is selected as an ideal location for the test of this thesis as it

scored highest among 7 other proposed locations (Figure 42).

Site Matrix

A NEW CHAPTER... CAN COHOUSING SUPPORT REFUGEE INTEGRATION INTO NEW COMMUNITIES?

Classifications	Downtown San Diego	Transect San Diego	City Heights	El Cajon	Downtown Glendale	Glendale Transect	Glendale Transect 2	Arden-Arcade
History of Resettlement– Resettlement Communities	1	1	3	3	1	1	1	3
Institutional Proximity – Resettlement Agencies & Services	1	1.5	3	3	2	1.5	1	2
Affordable Neighborhood	1	2	3	3	1.5	2	3	3
Accessibility & Transportation	3	3	2	2.5	3	3	3	1
Walkability	3	2	2	1	2.5	2	1.5	1
Density– Zoning	3	2	2	1	3	3	2	2
Diverse Neighborhood – Opportunities for social interaction	3	3	3	2	3	2	3	2
Job Opportunities	2.5	2.5	2	1.5	3	2	2.5	2
Residential Neighborhood	2	2.5	3	3	2	3	3	3
TOTAL	21.5	21.5	26	22	24	22.5	23	20

Key: 3=Best

Figure 42: Site Matrix (Source: Author)

City Heights is located East of Balboa Park and is home to a diverse population of

refugees and immigrants who make up 42.4% of its population according to the

California Endowment.[48] City Heights is rated the Top 5 Neighborhoods with the

highest housing potential with 200 units along transit routes, making this an ideal

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[48] "City Heights" *The California Endowment*. Accessed May 16, 2020.
https://www.calendow.org/places/city-heights/

location for refugee housing (Figure 43).

Figure 43: Geospatial Analysis of Housing Capacity
(Source: SANDAG Geospatial Data)

Site Analysis

City Heights is located in San Diego, California, within a 10-minute drive to downtown as well as a 20-30-minute commute by public transportation (Figure 44).

Figure 44: San Diego (Source: Google Maps & Author)

The site sits along El Cajon Boulevard, which is an active corridor with job

opportunities and provides accessibility to downtown as well as neighborhoods to the

East and North (Figure 45). The site is located along an urban transect, separating the

business and commercial district to the south and residential to the north, allowing for

connection to activity but also access to a quiet neighborhood. Public transportation is

easily accessible from the site, with 7 bus stops within a 5-10 minute walking radius

as well as a transit plaza (Figure 46). In a similar distance from the site, there are also

8 resource locations that cater to refugee needs such as resettlement agencies,

churches, and support organizations mostly along Fairmount avenue which is the

main commercial street bisecting the town (Figure 47).
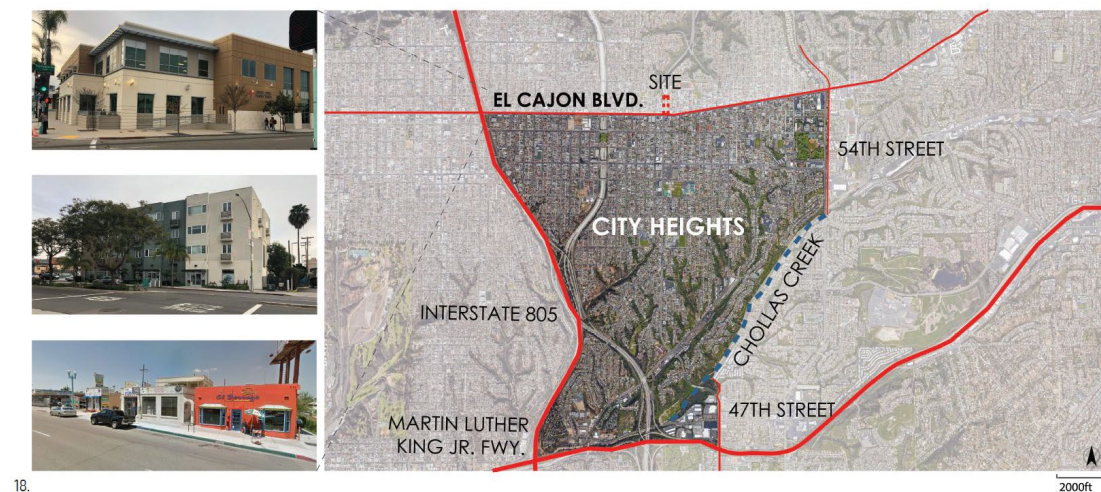
Figure 45: Boundaries (Source: Google Earth & Author)

Figure 46: Transportation (Source: Google Earth & Author)

El Cajon Boulevard

City Heights Community
Development Corporation
Say San Diego
St. Luke's Refugee Network

Fairmount Avenue
Aja Project
Partnership for the Advancement
of New Americans
International Rescue Committee
Karen Organization of San Diego
St. Marks Church
Bridge Of Hope SD

University Avenue
San Diego Hunger Coalition
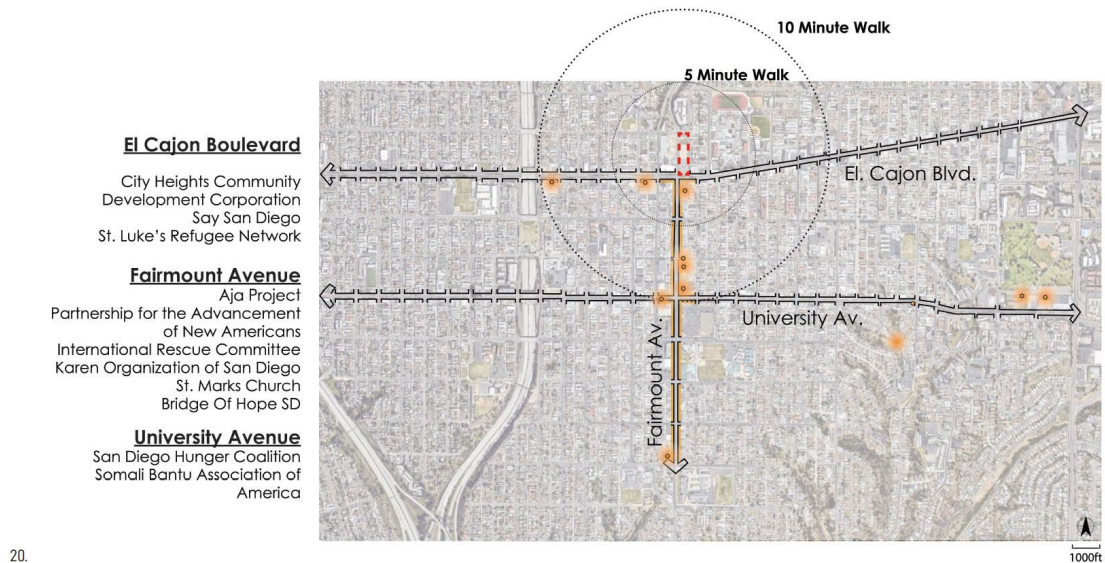Somali Bantu Association of
America

Figure 47: Resources (Source: Google Earth & Author)

The location of this site along the active El Cajon corridor as well as its intersection
with Fairmount Avenue, the city's main street makes it a natural spot for community
engagement from locals and people passing through.

Currently, the site is home to a mobile restaurant, called the Dojo Café. The cafe has utilized the South end of the block as an impromptu community gathering space by creating a plaza that brings all kinds of people together through coffee and conversation. This plaza is a cultural node in the community where people to sit, grab a coffee and engage in conversations as well as celebrate different cultures though food and entertainment (Figure 48). At the other end of the block sits an abandoned building as well as small dentist office (Figure 49). The sits is linear and rectangular at approximately 160'x 700' and is currently sitting vacant with the exception to the three uses at the North and South end.

Figure 48: The Dojo Café & Plaza (Source: The Dojo Café Facebook Page)

SITE

22.

Figure 49: Areal Site Perspective (Source: Google Images & Author)

Directly West of the site sits a large YMCA, taking up the whole city block, which includes the main building, gyms, indoor and outdoor pool, sports field and parking garage. To the South a long El Cajon Boulevard, sits a thrift shop, gas station and multifamily apartment building. To the East, sits a CVS along El Cajon with a mixture of single-family housing and duplexes beyond. Finally, to the North sits single family housing as well as a large 3 story apartment complex.

The location, size and existing uses makes this site a good candidate for this thesis as it will capitalize on the existing assents of the site such as the YMCA as a resource for the new refugee community but also the current plaza and café as a public amenity to the larger urban community for encounters, exchange and dialogue. Furthermore, the depth and length of city block allows for multiple uses along the site as well as explorations of different housing types and conditions that we see in California, primarily focusing on courtyard typologies with central gathering spaces.

Chapter **7**: Design Proposal

Local Housing Typologies & Massing Options

Many iterations were explored for the site massing, each responding to different housing typologies but all containing a central courtyard theme and a cultural center at the South end of the site. First, the Four-Court parti, which takes inspiration from Courtyard Housing in Los Angeles (Figure 50). This scheme focuses on units surrounding a small private courtyards as well as centrally located communal rooms along the pedestrian paths that separate each housing block. Although, it allows for too much separation and not enough interaction between each cohousing building as well as limited courtyard space. Along the South end of the block, the façade of the cultural center creates a balanced backdrop to the large plaza.

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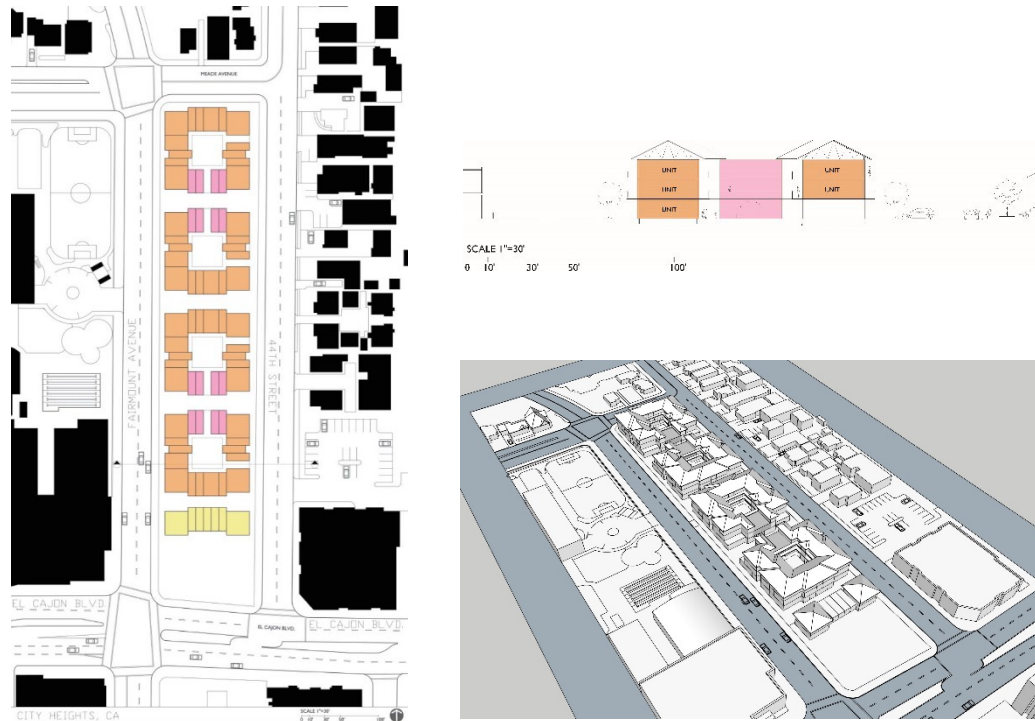
Figure 50: Four-Court Parti (Source: Author)

The second parti, the Common Core, takes inspiration from the Tehuset Apartments in Copenhagen with a long linear elevated courtyard with raised catwalks running across. This scheme places units and communal rooms on either side of the linear courtyard (Figure 51). Along the South end of the block, the elevated retail and public space creates distance from the busy street activity for a relaxed meander through retail and restaurant space with parking below. Unfortunately, this scheme creates too much shared space within the courtyard and not enough private space for the residents, but allows for intimate gathering spaces along the south end of the block.
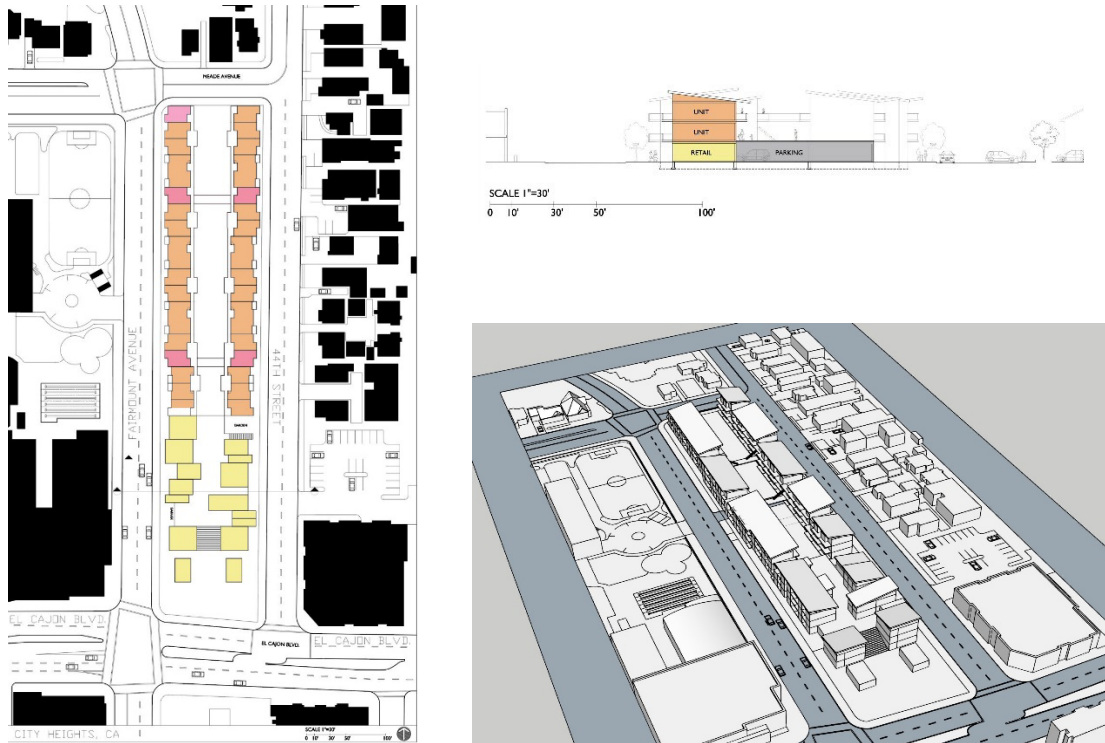
Figure 51: Common Core Parti (Source: Author)

The third scheme is a combination of the first two and resulted in the Permeable

Courtyard Parti (Figure 52). This scheme utilizes separate courtyards while also

centralizing communal rooms and units along the street edge. This allows for a shared

courtyard for residents of two buildings and also gives them views into the other

courtyard across a pedestrian path for a more controlled interaction. Furthermore, this

parti explores a new through street, breaking the long block thus reducing the scale of
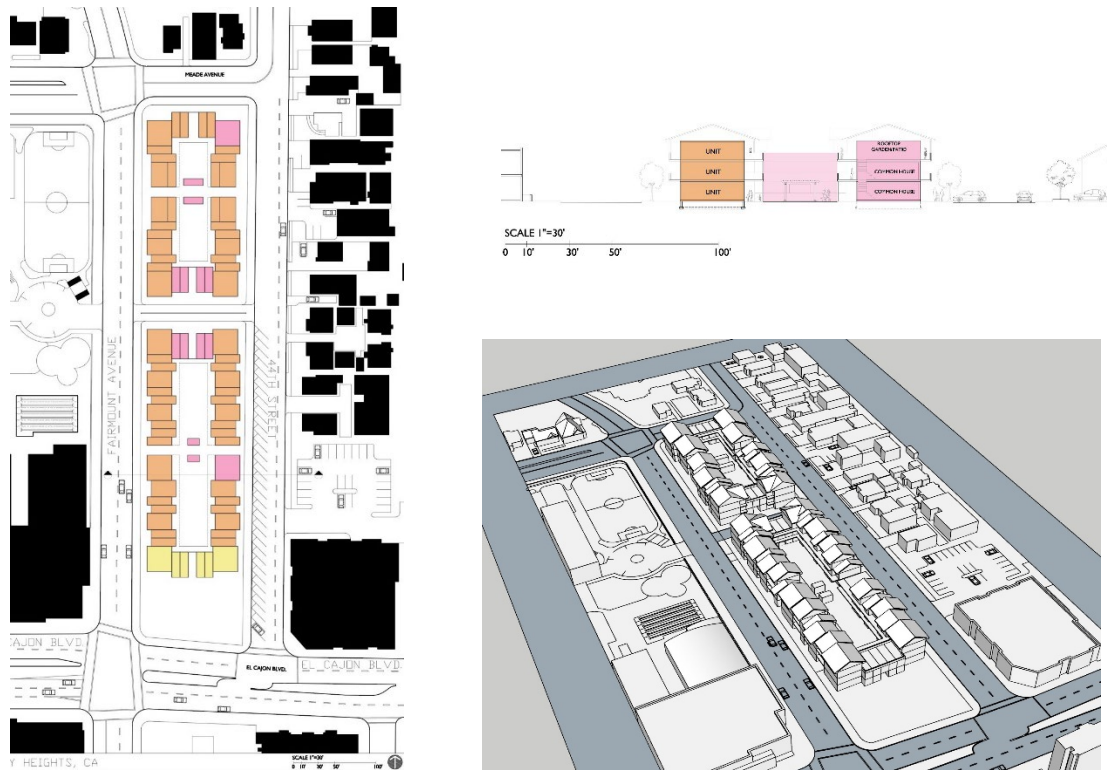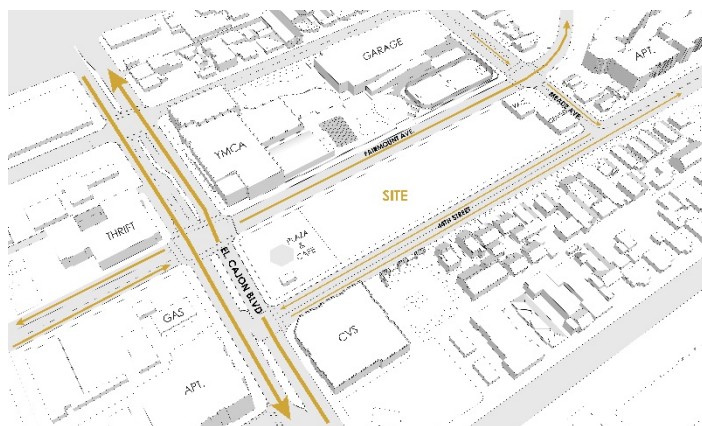
the massings.

Figure 52: Permeable Courtyard Parti (Source: Author)

Site Development & Final Massing

The final massing and program organization is based on the Permeable

Courtyard Parti and includes transitional housing along the new street bisecting the

site as well as the cultural

center layout form the 4

court parti.

The existing site is located along El Cajon Boulevard, separating the business and commercial district to the south and residential neighborhoods to the north. The south end of the site currently is occupied by a plaza and café while the north is occupied by a vacant building and a small dentist office which will be demolished. This resulted in a buildable site area of 110,600 sqft, which can accommodate housing and a cultural center.

There are two strategies used to shape the housing blocks, first, is front to street in the traditional way, with a central courtyard. Second, a fragmented approach in order to break up this large city block by introducing a through street. This through street provides a quiet, neighborhood street while also adding additional build fronts, which is

Figure 53: Existing Site Diagrams (Source: Author)
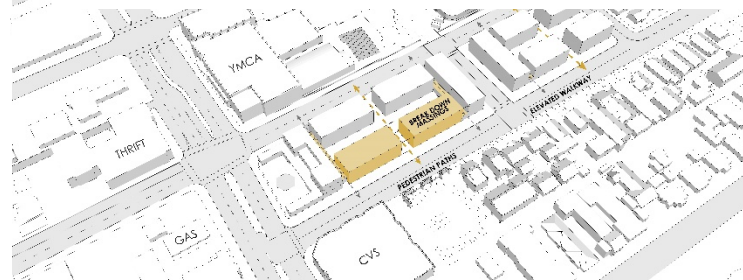
Figure 54: Site Development Diagrams
Source: Author

necessary. Then, arriving at a solution which was a combination of both.
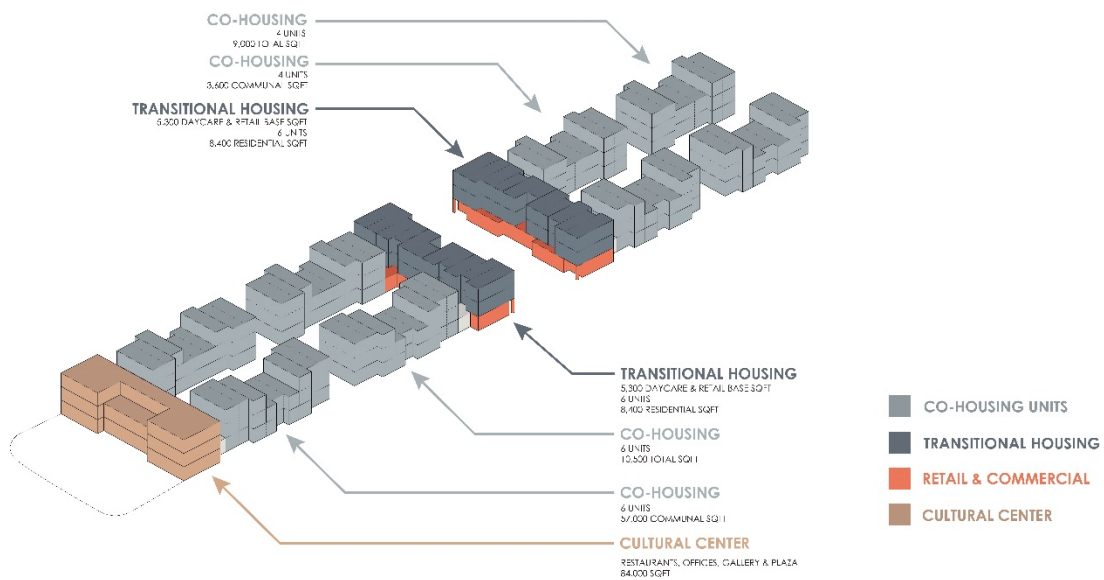
Addressing the street edge

but also creating private spaces for the residents. The use of pedestrian paths and

elevated walkways further break down the blocks in order to achieve appropriately

sized cohousing blocks of 20-25 people. In response to the scale of the neighborhood,

as well as social contact principles, the building masses are three stories high. Lastly,

setbacks are utilized as transitions from public to private spaces along the street front

and terraces are utilized as more private gathering location such as along the rooftops.

Figure 55: Final Massing Diagram (Source: Author)

On the South end of the site, a portico wraps the existing plaza in order to define the

space as well as allow for flexible movement in and out of the site (Figure 55).
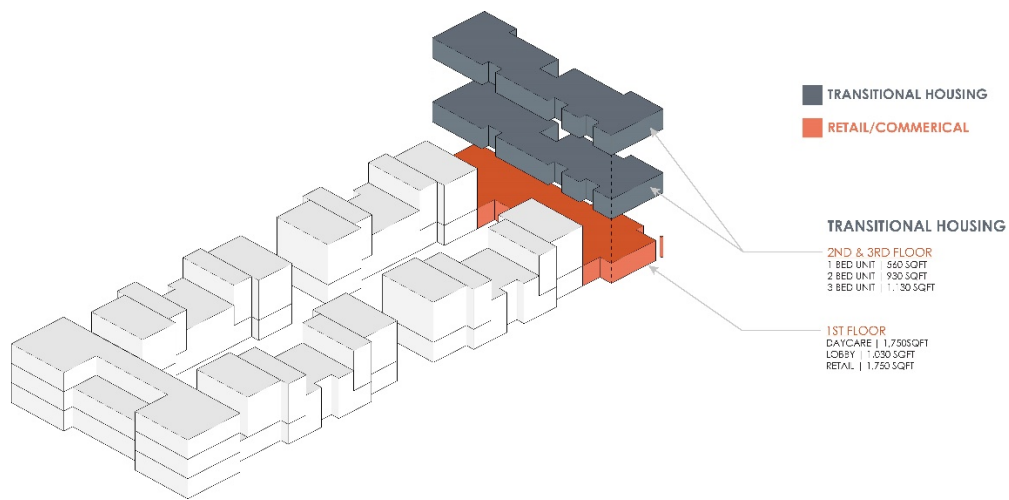
Program Organization

CO-HOUSING
4 UNITS
9,000 TOTAL SQFT

CO-HOUSING
4 UNITS
3,600 COMMUNAL SQFT

TRANSITIONAL HOUSING
5,300 DAYCARE & RETAIL BASE SQFT
6 UNITS
8,400 RESIDENTIAL SQFT

TRANSITIONAL HOUSING
5,300 DAYCARE & RETAIL BASE SQFT
6 UNITS
8,400 RESIDENTIAL SQFT

CO-HOUSING
6 UNITS
10,500 TOTAL SQFT

CO-HOUSING
6 UNITS
57,000 COMMUNAL SQFT

CULTURAL CENTER
RESTAURANTS, OFFICES, GALLERY & PLAZA
84,000 SQFT

- CO-HOUSING UNITS
- TRANSITIONAL HOUSING
- RETAIL & COMMERCIAL
- CULTURAL CENTER

Figure 56: Program Organization (Source: Author)

Program organization on the site consists of a cultural center to the south, opening out into a public plaza, 4 cohousing blocks with central courtyard spaces and transitional housing along both sides of the new street (Figure 56). Another set of 4 cohousing blocks to the north of the site meet the existing residential neighborhood and create similar shared courtyard spaces to the ones below. This site has been transformed into a space that elevates existing amenities by activating the plaza along

El Cajon Boulevard with public amenities as well as providing affordable housing to the north.

TRANSITIONAL HOUSING

RETAIL/COMMERICAL

TRANSITIONAL HOUSING

2ND & 3RD FLOOR
1 BED UNIT | 560 SQFT
2 BED UNIT | 930 SQFT
3 BED UNIT | 1,130 SQFT

1ST FLOOR
DAYCARE | 1,750SQFT
LOBBY | 1,030 SQFT
RETAIL | 1,750 SQFT

Figure 57: Transitional Housing Program Organization (Source: Author)

The transitional housing totals 9,060 sqft and is located above the retail and commercial base, totaling 4,530 sqft (Figure 57). The daycare, lobby and retail space are located along the base of the apartment building and serves the residents as well as the local community (Figure 58).

Figure 58: Transitional Housing Ground Floor Plan (Source: Author)

The daycare center is strategically placed on the west corner of the building to allow access to the recreational facilities at the YMCA. (Figure 59).


Figure 59: Transitional Housing & Daycare (Source: Author)

On the second and third floor are 6 transitional housing units with a range of spacious one to three bedroom units as well as communal laundry and balcony space (Figure 60). All units have views either to the street or to the co-housing courtyard space. This allows them to still see what it is like to live in co-housing while maintaining resident privacy. All the units are designed to utilize natural air flow through operable windows along the north and south facade, thus reducing heating and cooling costs.


Figure 60: Transitional Unit Balcony (Source: Author)
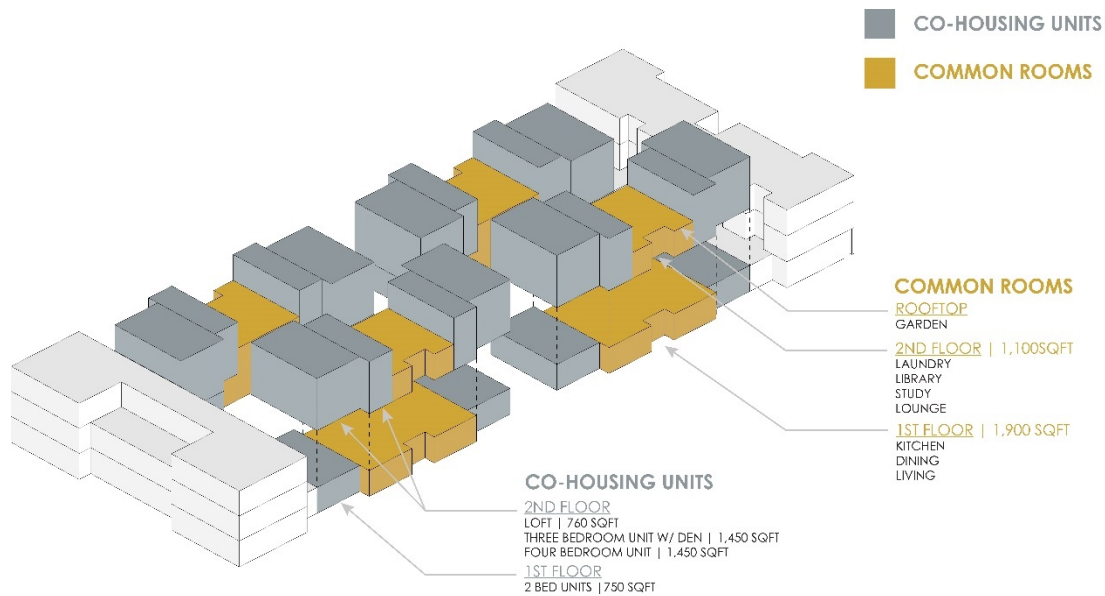
Figure 61: Co-Housing Program Organization (Source: Author)

Next are the co-housing blocks. These are organized in groups of four

buildings with two buildings sharing a central courtyard space (Figure 61). Each

building totals 10,200 sqft and has six units that flank the central common rooms. The

location of the common rooms are in areas easily accessible by esidents and allows

them to interact with other members of the community on their way to their units. The

common rooms are centrally located and stacked vertically so that access is available

to residents living on both floors. Units range from loft, one bedroom, two bedroom,

three bedroom with den and four bedroom, and can occupy a range from 20-25

people at any given time.
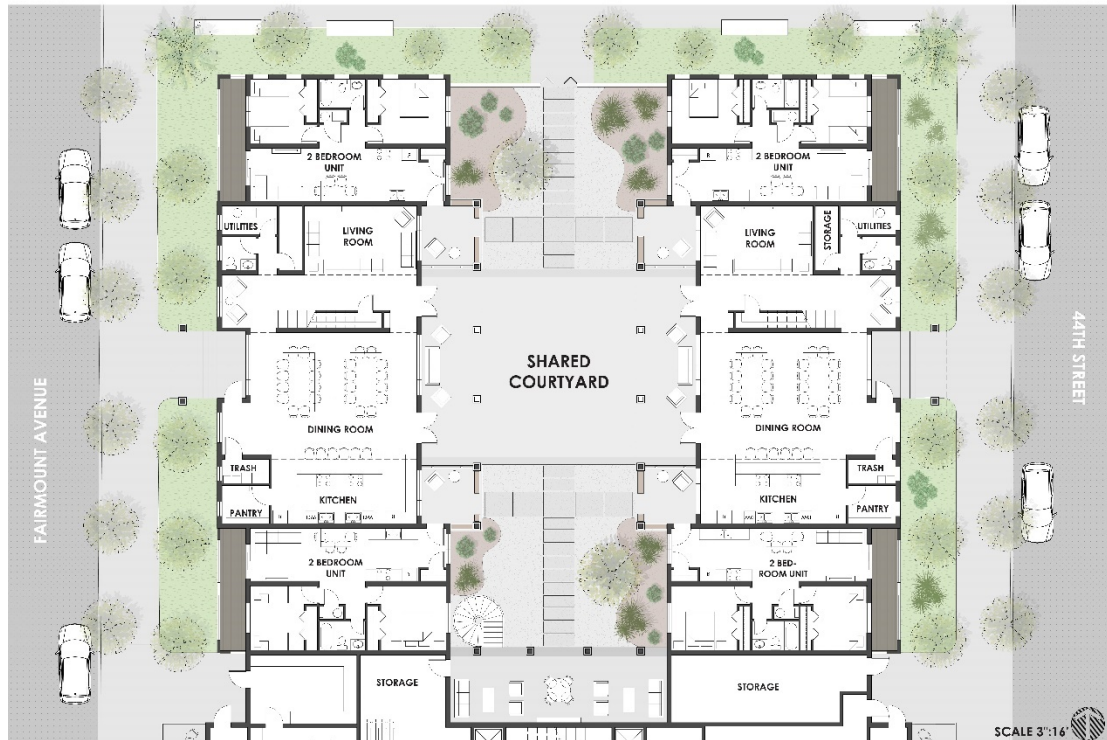
Figure 62: Co-Housing Ground Floor Plan (Source: Author)

Entrance into the building is located at the ground floor through the common room

where residents share weekly meals and meetings in the communal dining room and

kitchen (Figure 62). The building is elevated two feet off the sidewalk to allow for

privacy along the ground floor. Furthermore, setbacks as well as balconies separate

private units from the public sidewalk as well as provide each unit with their own

exterior living space. Two-bedroom units are located on the ground floor and have

private entrances through the courtyard. Above the communal kitchen, dining and

living, is the 2ⁿᵈ floor communal lounge where residents can gather (Figure 63). All

units and communal rooms in the building face the central courtyard.

Figure 63: 2nd Floor Lounge (Source: Author)

Figure 64: Communal Kitchen & Dining (Source: Author)

This is where residents from both co-housing buildings can gather, kids can play and get to know other members of the community (Figure 65). From the central courtyard, residents can engage with other members of the community from both across the courtyard and across the pedestrian path.

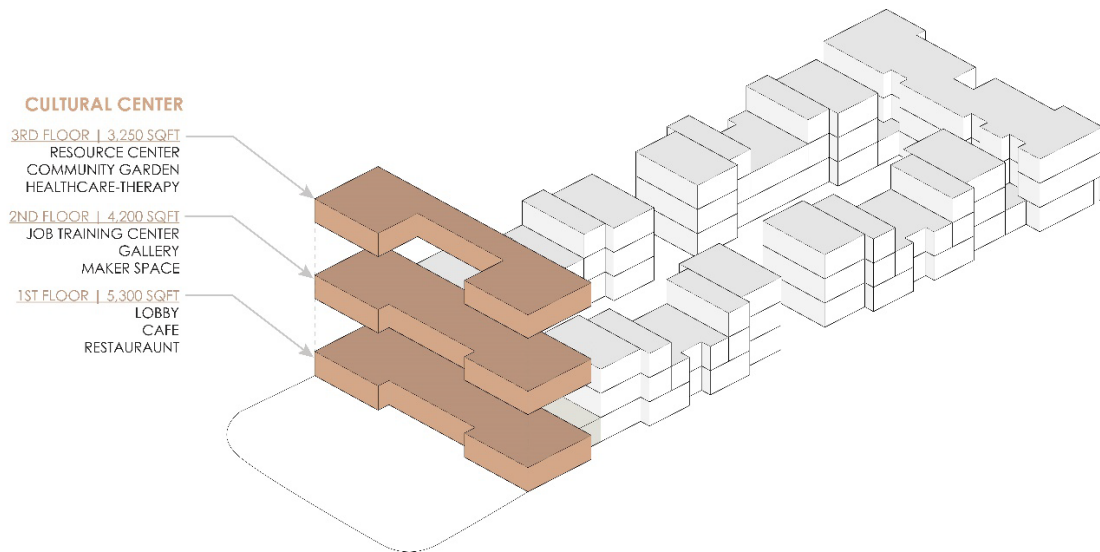
Figure 63: Shared Courtyard (Source: Author)

The 2nd floor also contains four two-story units; two lofts, a three-bedroom with den and a four-bedroom unit (Figure 66). The many unit types give flexibility to the user groups who range from single individuals to couples and large families. The third floor contains the second floor of the units below as well as a rooftop terrace where residents can socialize by gardening, grilling, and dining.

Figure 64: Co-Housing 2nd Floor Plan (Source: Author)

Figure 65: Co-Housing 3rd Floor Plan (Source: Author)

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CULTURAL CENTER

3RD FLOOR | 3,250 SQFT
RESOURCE CENTER
COMMUNITY GARDEN
HEALTHCARE-THERAPY

2ND FLOOR | 4,200 SQFT
JOB TRAINING CENTER
GALLERY
MAKER SPACE

1ST FLOOR | 5,300 SQFT
LOBBY
CAFE
RESTAURAUNT

Figure 66: Cultural Center Program Organization (Source: Author)

Lastly, at the south end of the site is the cultural center which activates the

plaza along El Cajon Boulevard (Figure 69). The cultural center totals 12,750 sqft and

houses a variety of program spaces for residents and the larger urban community.

Figure 67: Plaza (Source: Author)

On the ground floor, restaurants and lobby space open out into the plaza which is

activated daily with food trucks, farmers markets and various forms of community

gatherings. The plaza is designed for flexibility in order to be used for various

activities. Hugging the site, the pergola defines the boundary around the plaza while

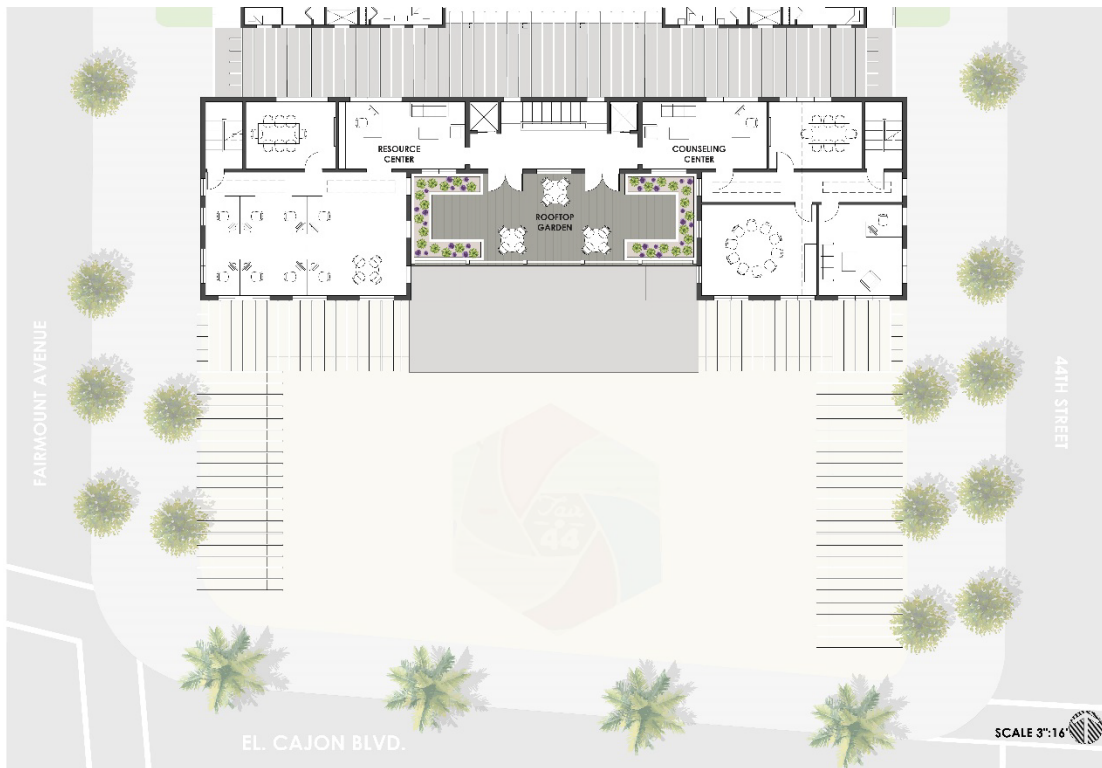also providing shade for tables and pedestrians.

Figure 68: Cultural Center Ground Floor Plan (Source: Author)

Figure 69: Farmers Market (Source: Author)
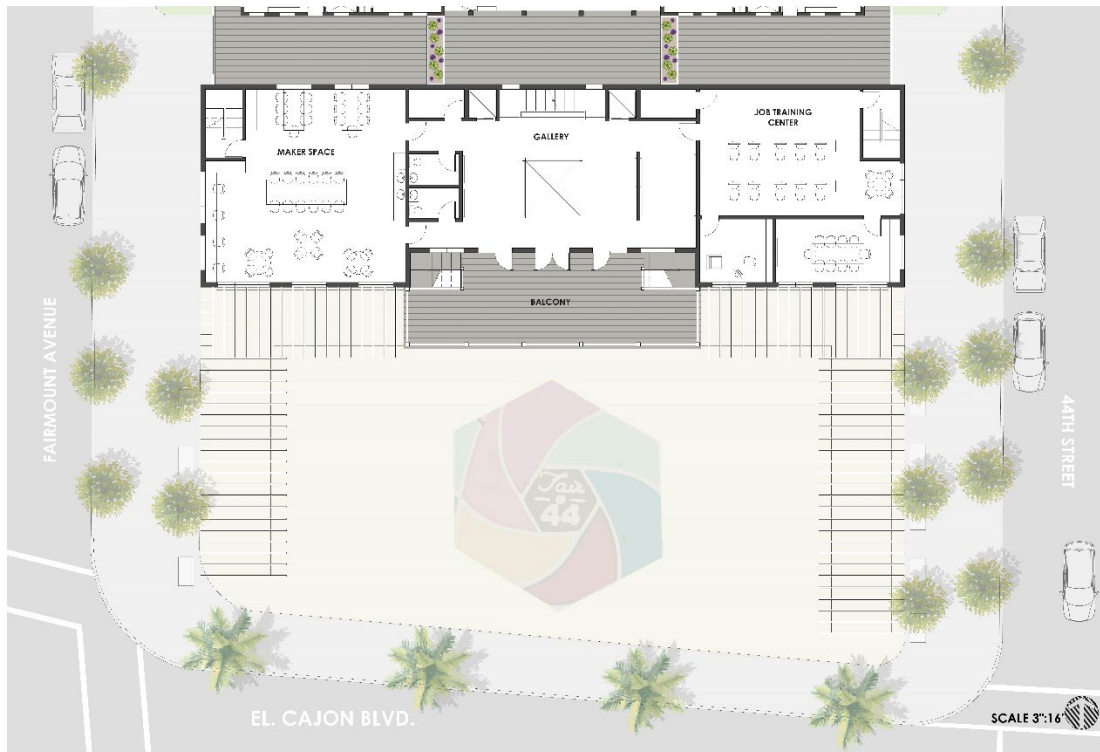
Figure 70: Cultural Center 2nd Floor Plan (Source: Author)
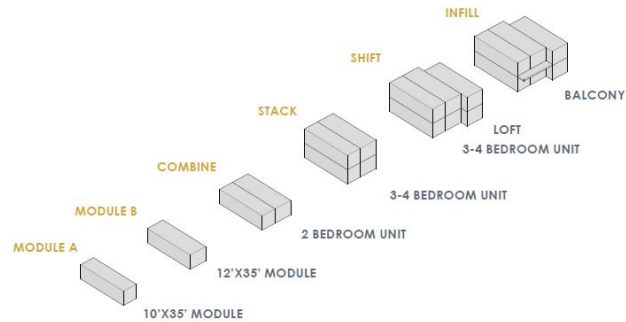
Figure 73: Cultural Center 3rd Floor Plan (Source: Author)

The second floor contains a gallery and maker space where refugees can to pursue creative entrepreneurship by making and selling art and goods in the gallery or plaza space. This provides them with alternatives to the typical streamline trajectories into the mainstream labor market where they have less success early on. The job training center is a resource to help community members learn new skills and how to apply for jobs. Lastly, the third floor provides refugees with a resource and counseling center where they can access information at a central location easier and get counseling through this new journey. Ultimately, the cultural center acts as a place for encounters, exchange and dialogue. It provides spaces that allows people to come together and capitalize on existing assets of the local communities through interaction with different cultures in order to promote diversity.
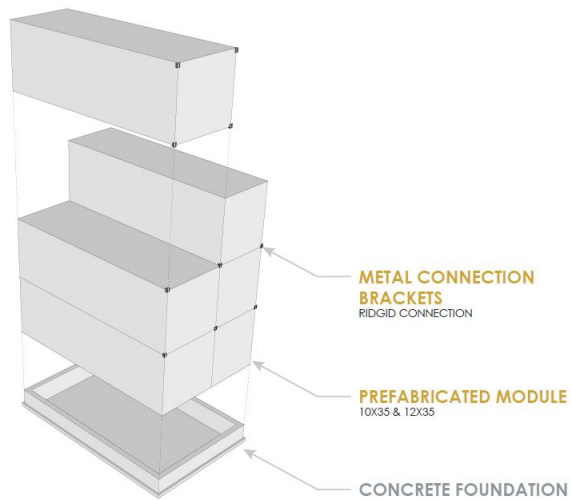
Tectonics & Materiality

Cost is an important factor in an affordable housing project, so the use of modular design and construction techniques are present throughout this thesis. Modules of 10 & 12' x 35' are used to create a variety of unit types by stacking and shifting to allow for flexibility (Figure 74). This strategy is implemented in the housing portion of the design as it is conducive for the types of spaces that modular construction offers. The transitional housing portion is constructed on a concrete podium with retail space below while the co-housing buildings are constructed on a continuous poured concrete foundation lower to the ground (Figure 75). Each module is designed to arrive prefabricated on site and quickly assembled, reducing costs and waste. Each unit is designed to have its own HAVC core with a fan coil unit and water heater and is constructed with wood members such as solid sawn and microlams for large span openings (Figure76).

Figure 74: Modular Unit Aggregations
(Source: Author)

Figure 75: Module Assembly
(Source: Author)

Units are also designed to reduce the need for artificial heating and cooling by utilizing natural ventilation (Figure 77).

1. FLOOR ASSEMBLY
   2X8 WOOD FRAMING
   3/4" T&G PLYWOOD
   R 30 BATT INSULATION
   7/16" OSB SHEATHING
2. WALL ASSEMBLY
   1/2" GYP.BOARD
   2X6 STUDS
   R-19 BATT INSULATION
   7/16" OSB SHEATHING
3. INTERIOR COMPONENTS
   1/2" GYP. BOARD
   2X4 STUDS
4. HVAC CORE
   FAN COIL HVAC
   WATER HEATER
5. CIELING ASSEMBLY
   2X4 WOOD CIELING JOISTS
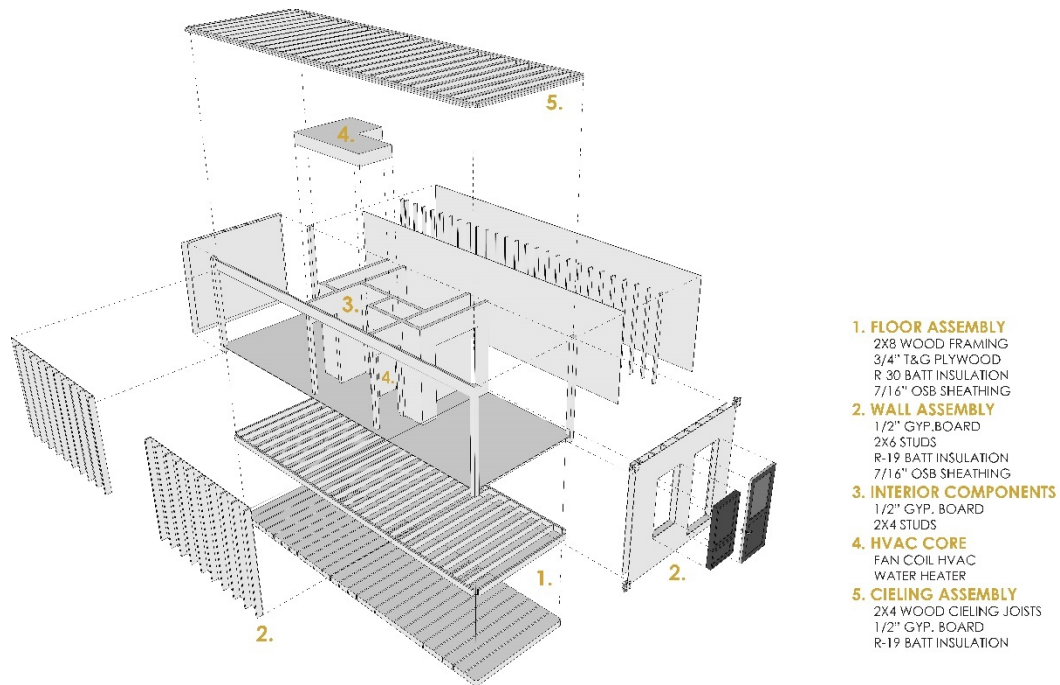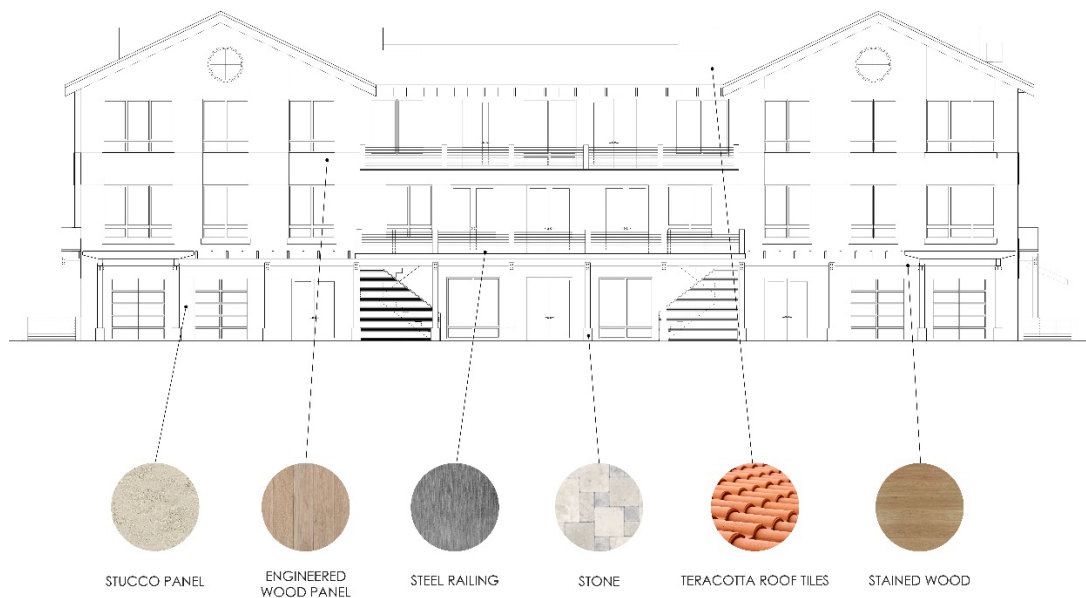   1/2" GYP. BOARD
   R-19 BATT INSULATION

Figure 76: Exploded Module (Source: Author)

Figure 77: Cross Ventilation Section Perspective (Source: Author)

Figure 78: Materiality (Source: Author)

Selecting durable and elegant materials that reduce the negative stigma of affordable housing as well as to match the southern California vernacular is important. The use of elegant materials such as stucco, terracotta, and wood speak to the quality of living that the residents are receiving and elevate their status to be on the same level as the neighboring homes. The arts and crafts style and the creation of porous spaces and terraces throughout the design opens the refugee community into the urban community to create a hub rather than a cloistered enclave.

Figure 79: Thesis Virtual Wall (Source: Author)

This thesis was defended virtually on May 13th, 2020. The presentation

consisted of a 20-minute pre-recorded presentation, followed by a 25-minute critique

and discussion with an online jury through zoom. This thesis received positive

feedback from the jury, although the following comments for improvement were

made. There was desire to explore façade options made customizable by the residents.

The style and materials were selected to blend with the local vernacular and to be the

same throughout, although further explorations could allow for the use of color to add

vibrancy to the design and for customization by the residents. There was also desire

to explore larger density on the site as well as different unit options such as three and

four-bedroom units on one level instead of two, to allow for more unit option on the

ground flood. The reason for the density selected was acknowledged and the

suggestion of reducing the size of the interior communal spaces was offered.

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