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Re-envisioning the American Dream

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Re-envisioning the American Dream

A Thesis Presented

By

ELAIN TANG

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF ARCHITECTURE

May 2021

Department of Architecture

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A Thesis Presented

By

ELAIN TANG

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ABSTRACT
RE-ENVISIONING THE AMERICAN DREAM

MAY 2021

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Directed by: Professor Kathleen Lugosch

The United States of America is globally known as the land of opportunity, freedom, independence, equality, and above all, the American Dream. American writer and historian, James Truslow Adams, coined the phrase “American Dream” in his 1931 book *The Epic of America*. The American Dream is the belief that anyone, regardless of where they were born or what class they were born into, they can attain their own version of success in society through hard work, sacrifice, and taking risks. Post-World War II, the demand for home ownership rapidly increased. The development of Levittown provided single-family homes for white nuclear families, which was highly idealized by society and became a part of the American Dream.

Against this backdrop, this thesis project addresses the role of architecture in adapting existing communities to serve the more comprehensive view of today’s family structures. This development concept results in a supportive and flexible environment where families of all configurations and backgrounds are accepted. In doing so, its surrounding environment will be exposed to a multi-generational and multi-cultural community, resulting in a richer and more interactive environment. Numerous co-benefits emerge from this model, including flexibility within existing and new homes, a supportive community, and synergies between different family structures.

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CHAPTER 1

MODERN FAMILY

1.1 Introduction

In the early 1950's there was an idealized family structure in society known as the nuclear family. The nuclear family consisted of a mother, father and child or children. The fathers were known as the "breadwinners", which meant they worked full time jobs to provide for their families. Women were known as the "housewives", which meant they did household chores and raised their children. Most children from the 1950's grew up in this type of household. This was due to the instability during the early 20th century that created this idea of a close-knit family. (csponline 2015)

In the late 1940's Abraham Levitt's development company Levitt & Sons, along with his two sons who worked there, Alfred and William, created a great impact on housing post World War II. The demand for housing was high due to the baby boom and returning veterans. Levitt & Sons created affordable housing that could be built quickly but also of high quality. Their homes were designed for white nuclear families.

This idea was very short lived. Family structure began to change in the 1960's due to the fact that women had expanded their roles in society, both in the workplace and education. (csponline 2015) Women began focusing more on their education and careers. This played a role in the diversity in family living arrangements and fluidity of the family. Since the 1960's there has been an increase in parents in remarriage,

single parents and cohabiting parents while there has been a decrease of two parents in their first marriage. (Parker and Menasce Horowitz 2015)

In current times, the American Dream of a white picket fenced home with a nuclear family structure is no longer ideal. The American Dream of equality regardless of one's background, stability and homeownership has been unattainable. A majority (52 percent) of millennials are living with their parents for the first time since the Great Depression. The global pandemic had an impact on this but not as much as one would think, pre-global pandemic 47 percent of millennials were living at home. (Fry, Passel, and Cohn 2020)

I am interested in addressing the change in family structure within the home but also its surrounding community. Levittown has been used as a model for many suburban neighborhoods. Families and society have greatly changed since that model was implemented. Developers are still creating homogenous neighborhoods with no sense of identity and serving the nuclear family structure. For my thesis, I will be examining current suburban neighborhoods and how they can be adapted to address the diverse family structures. The thesis will focus on the relationship between the flexibility of space and the fluidity of the family.

CHAPTER 2

LITERATURE REVIEW

2.1 Family Structures

The article *Parenting in America* by Pew Research Center, Section 1 is addressing the recent change in family structures. In the early 1960's it was common to get married at a young age and then have children. During this time, the concept of a nuclear family, which consisted of stay-at-home mothers and fathers who worked, was highly idealized by society. Family structures started to change when women were expanding their roles in the work force and education. As a result of this, family structures have diversified and there is no longer one dominant family structure. A family can be defined as a single person, couples, married parents with children, single parents, co-parents, or blended families.

Another factor that is creating this change is that people are having children at an older age. In the 1970's the average age of a new mother was 21 years old and as of 2015, the average age of a new mother is 26. (Parker and Menasce Horowitz 2015) Since women have expanded their roles beyond the traditional housewife, they have been more focused on their education and careers. For women, there is a time frame of when they can conceive a child. With this knowledge, women are having children later which means they are having less children than before.

Culture has an important role in determining the form of a family. In the report *Global Family Culture* by The Sustainable Demographic Dividend, a survey was done by the World Values Survey from 1999 to 2007 in 29 countries. There were four cultural

indicators: (1) agreement that a child needs a home with a mother and father to grow up happily, (2) disagreement that marriage is an outdated institution, (3) agreement that more societal emphasis on family life would be a good thing, and (4) opinions about how justified divorce is. The report makes it evident that regions have different perspectives on family. The countries in Africa, Asia and Middle East have the highest percentage of believing that children need a mother and a father, and that divorce is not acceptable. While in North America and some European countries, it is the opposite. This results from how the regions view marriage. In Table 3, it is indicating which countries strongly believe in marriage and disapprove of divorce. In Kenya, Nigeria, India, and Philippines divorce is non-existent. Divorce is illegal in Philippines which is why their divorce rate is essentially zero. (DeRose 2011) Asia has the highest rate of marriages and least number of cohabiting adults.

Based off the survey, it can be concluded that marriage and children are influenced by the culture they are set in. Different regions have beliefs and values that may not be common in another region. In some cultures, arranged marriages are still being implemented while in others marriage is not seen as a necessity.

2.2 Housing

Architect and author James W. Wentling created a guideline, *Housing by Lifestyle: The Component Method of Residential Design Second Edition*, for residential designs that accommodate the needs of current society and the future. Although this was written in 1995, it is relatable to the way we think about housing design today. Wentling begins to examine what has caused the change of needs in American society. Some factors that created this change are:

- Household size: the average American household is shrinking. Instead of the need for a *pure space*, there is an emphasis on enhancing livability and comfort of the home.
- Family structure: the traditional family is no longer the dominant family type. The percentage of single people, couples with no children, single parents, blended families, and unrelated people sharing a home has increased.
- Employment: the idea of the “breadwinner” and “stay-at-home mom” is diminishing. It has become more common for households to have both spouses working and sometimes extending their workplace into their homes. This is especially relatable to current times as the global pandemic has shifted many jobs to be remote.
- Values: most families have two working spouses, resulting in a bigger emphasis on relationships with individuals and the family. Couples or parents spend at least half of the day working so the desire for connection with their household members becomes more important. (Wentling 1995)

Houses have become less about the meaning of homeownership and financial status and more about the connection between interior spaces as well as exterior spaces.

Wentling divides the home into five components that are found in a typical American home and achieve the new needs of society. The five components are:

- Community: a comfortable and relaxed environment where members of the house can gather with one another in a informal setting. This is the space where families spend most of their time together such as the kitchen, breakfast area and family room.

- Privacy: Although homes are usually shared with other members, each person needs their own space for alone time and privacy. A typical private space would be the bedrooms but can also be the office, den, or library. They are usually located away from community spaces.
- Ceremonial: Entertainment is a large part of most American families, whether it is having friends and family over for holiday gatherings, a birthday party or sporting event, they are desired. These spaces are usually the living and dining room.
- Functional: The home must be operational and have room for all the behind the scenes as in the mechanical spaces, storage for household items and automobiles, clothing, tools, washer and dryer and other necessities.
- Outdoor component: the exterior of the home should reflect the members of the house. It should present as a friendly attitude towards the community and neighborhood. Outdoor spaces are just as important as the interior spaces as it can create a strong connection to nature and its surrounding community. (Wentling 1995)

In the later chapters, Wentling explains and shows through floor plans, how these components can be used to address the variety of family structures and the change in society's needs. Towards the end, there is a chapter about the future and how to think about residential design. Cookie-cutter homes and the mindset of individuality and isolation is no longer feasible. Throughout time, we have really emphasized privacy which resulted in a lack of community and under-utilized landscape. We need to bring back communities within suburban neighborhoods, which has become more evident since the global pandemic. Lawns are an old tradition that no longer serve a purpose today and

we need to begin to think about how we can utilize the landscape to its highest potential to not only benefit its residents but also the surrounding environment.

2.3 Community

Published in 2001, authors Kenneth B. Hall and Gerald A Porterfield of *Community by Design: New Urbanism for Suburbs and Small Communities* described community design in America as a preconceived notion of the kind of place that would be the center of community life that would shape the social order, a vision. (Hall and Porterfield 2001) Post-World War II, the vision changed as the Great Depression concluded and the economy boosted. Society realized their dream of homeownership and outdoor space. This resulted in a high demand of new housing with privacy and low-density communities. The focus became about more space and vehicular use rather than the convenience of its location to communal spaces. The government expanded their funds for the highway system which encouraged homeowners to purchase a vehicle as suburban communities were located further from the city, requiring a drive to work, the grocery store, and school.

The baby boomers who were responsible for the rapid increase in housing, realized that homeownership is not the most important quality in a community anymore. Communities must have a sense of belonging, unique characteristics and be environmentally conscious. During the economic boom, large tracts of land were purchased to built houses on which affected the environment at large.

It is evident that the way we have been developing suburban neighborhoods is no longer feasible. We must “accommodate growth without losing the sense of community

identity” and demand more effective design solutions. (Hall and Porterfield 2001) Prior to the housing development after World War II, neighborhoods were designed to be near local amenities. Bringing the concept back, known as *traditional neighborhood developments*, communities need to be designed to “reduce the need for the automobile by centralizing life’s necessities within walking distance of housing.” (Hall and Porterfield 2001) We must be proactive and change the way we have been building. The answer to this issue is not to build an ideal community on an empty piece of land but to analyze our current communities and implement new concepts to reflect society’s present and future needs. This book provides step-by-step realistic approaches to community design, considering site, location, housing types, local amenities, and the structure of the community.

CHAPTER 3

PRECEDENT REVIEW

3.1 Housing

The housing precedents were chosen because of their flexibility and forward thinking. All of them address the possible change in family structure over time and how the homes can be designed to adapt to the changes. The precedents were built at different time periods, from when nuclear families were dominant to more recent years where single parents and blended families are more common and on the rise.

3.1.1 Rietveld Schröder House

Known as one of the most prominent examples of the De Stijl movement, designed in 1924, Gerrit Thomas Rietveld and Mrs. Schröder collaborated to create a home for Mrs. Schröder and her three children. Mrs. Schröder envisioned a flexible home that would adapt to her family's changing needs over time. The two-story home is composed of collapsible interior walls that surround a central spiral staircase. By having the option of pushing or pulling the partitions, it allows for open spaces for her children to play in during the day and closed spaces at night for when they want to go to sleep (see figure 1). Mrs. Schröder had three criteria for her children's bedrooms:

- A bed should be able to fit in two different positions
- Each room should have access to the water supply and drainage
- All should have a door to access the outdoors directly (Sveiven 2010)

The ground floor inhabits a traditional design; the walls are attached to the floor and ceiling and standard doors open and close a space. The common spaces are located at the front of the home. The entrance opens to a hallway that branches out into all the common spaces and the staircase. The private spaces, the office and bedroom, are tucked in the back corner. The first-floor plan is where Rietveld and Mrs. Schröder's design intent can be experienced. Similar to the ground floor, the hallway connects to the bedrooms and dining/living room. Every room, besides the toilet and bathroom, has a system of sliding and revolving panels. As shown in figure 1, when the panels are pulled out, the upper floor is divided into six spaces creating private spaces for the family. When the panels are collapsed, the children's bedrooms become one space and spill into the dining and living room area. Mrs. Schröder's bedroom is tucked in the back corner displaying her need for privacy. The flexible design was created to adapt to the family's daily and future needs while providing privacy and maintaining independence.

The Schroder House is combining a traditional design with a modern design. The first floor is a traditional setting with living, kitchen, study, and dining room with walls attached to the floor and ceiling. The children's bedrooms upstairs have movable panels that can open and close their rooms. It is possible that as they become older, that they move out and now those bedrooms will no longer be needed. Mrs. Schröder could keep the panels tucked away and use it as a studio for herself or maybe only one of the rooms becomes closed in and it becomes storage space. I would like to bring this concept into my own design in thinking about the space use in the present and future.



GROUND FLOOR PLAN



FIRST FLOOR PLAN - CLOSED



FIRST FLOOR PLAN - OPEN



Figure 1: Analysis of program.

(by author)

3.1.2 Grange Triple Double

Located in a corner lot of Chinatown in the city of Toronto, Williamson Williamson, who were aware of the rising cost of real estate, developed the concept of blending two households into one. The site, formerly a neglected duplex, is a multi-unit and multi-generational house consisting of “stacking rental units, a bed sitting-room, and a single family home on a double-wide lot.” (2016)

The scenario is a young professional couple who have a young child and just sold their one-bedroom condominium. They are searching for a home that can adapt to their family structure over time. To help with the cost of living, there is a rental unit on the ground floor and one on the basement floor. A few years later, the parents have become empty nesters and are looking to downsize. Collectively, they create a living scenario where they maintain independence and mutually benefit from one another. The grandparents help take care of their grandson while feeling secure and knowing that their children are in close proximity for when assistance is needed. The young couple feels safe knowing that they can keep an eye on their parents.

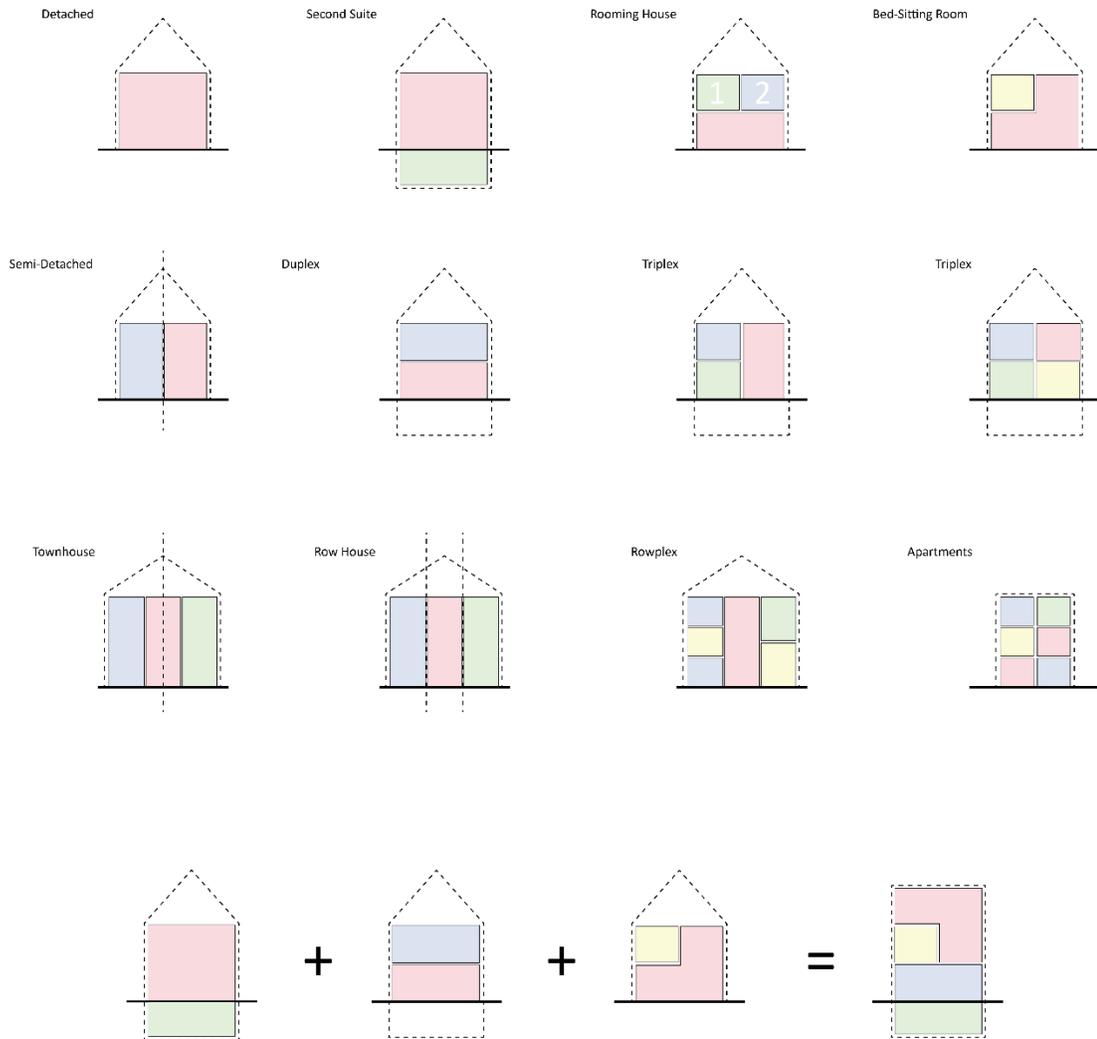


Figure 2: Unit type analysis.

(Williamson Williamson)

The family enters the home on the East façade while the tenants enter on the north façade. The rental unit corners Grange Avenue and Huron Street. In a city environment with minimal outdoor space, it was important to maximize outdoor spaces. Each floor has access to an outdoor space. The ground floor serves as the common spaces and the upper floors are bedrooms. In the scenario where the grandparents move in, the closet wall on the ground floor can be removed to create easy access from the rental unit to the family's

common spaces. Privacy and independence are not invaded due to the separate entrance and the grandparents' unit contains a full set of amenities (see figure 3).

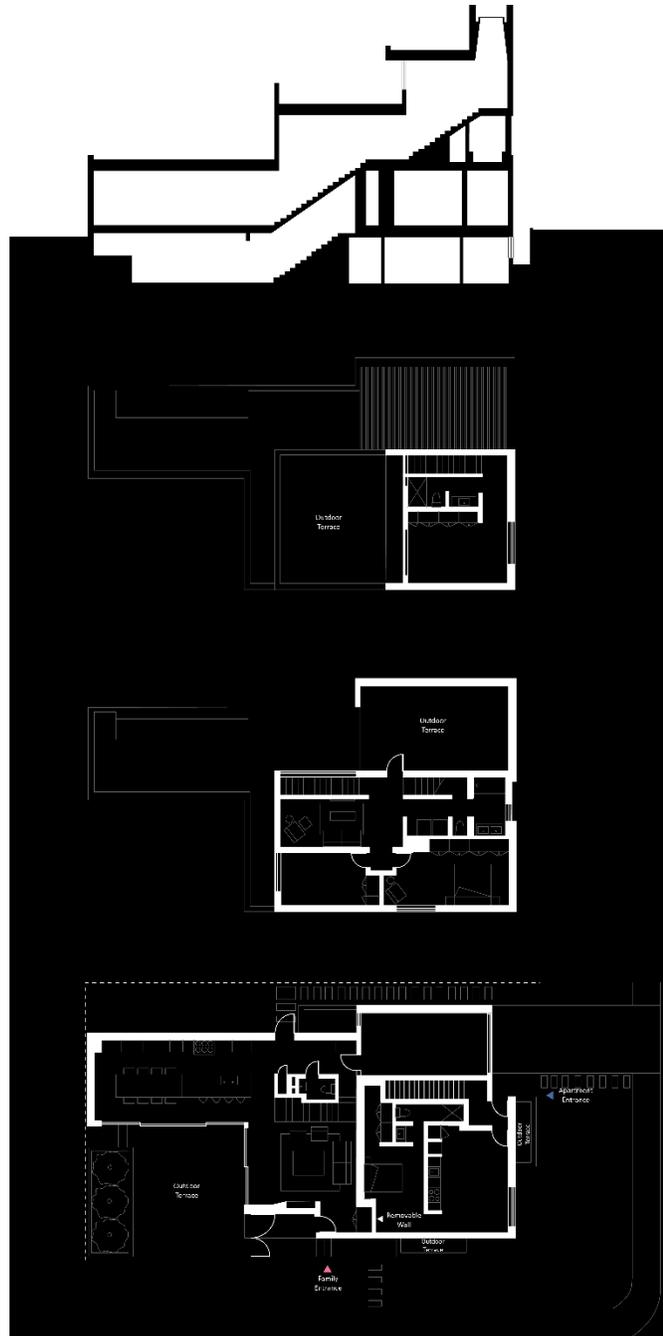


Figure 3: Floor plans and section.

(Williamson Williamson)



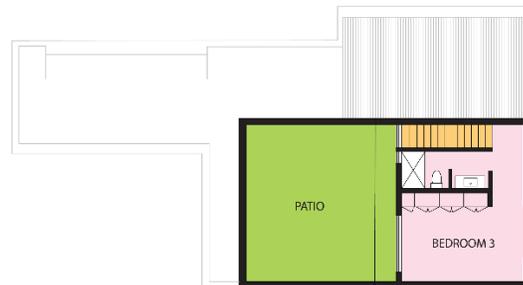
GROUND FLOOR PLAN - RENTAL UNIT



GROUND FLOOR PLAN - IN-LAW SUITE



SECOND FLOOR PLAN



THIRD FLOOR PLAN

Figure 4: Analysis of floor plans.

(by author)

The multi-unit and multi-generational house can adapt to future scenarios in many ways (see figure 5). When the child begins college, the parents can move into the rental apartment on the ground floor and rent out the main house and if the child moves back after graduating, they can move into the other rental unit or the parents can take back the main house while they rent out the ground floor unit (Figure 4).

SPACE, TIME AND MONEY.

To live multi-generationally would strongly suggest an early 'buy-in' to forecast the cost and commensurate usage of the home *inter-generationally*.

The Grange Triple Double is a prototype for multi-generational living - readily configurable to allow for the home's evolving and multiple blends of living arrangements.

Across one projected lifetime, a visual pro-forma for a home is suddenly more perceivable.

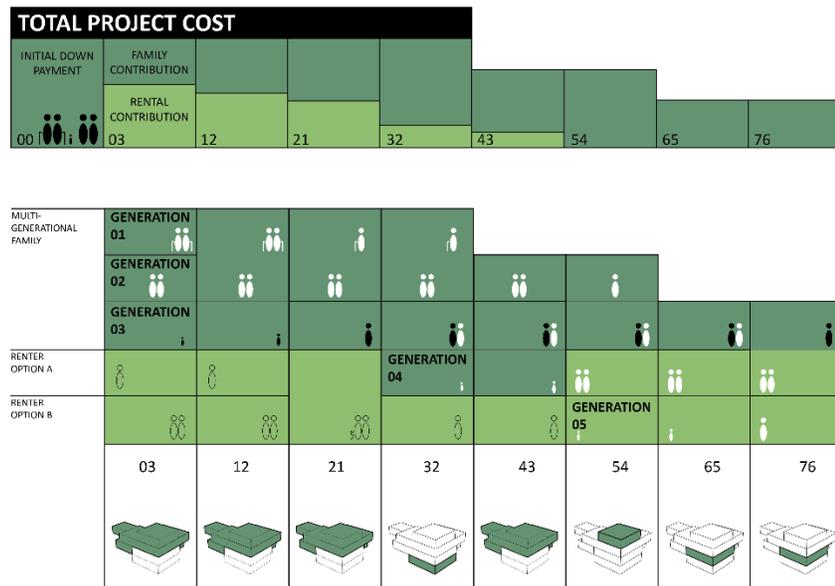


Figure 5: Payback of investment and visual of future configurations

(Williamson Williamson)

Many millennials are choosing to live back at home with their parents because they cannot afford a house of their own. In other cultures, it is very common for children to live in the house they grew up in as it gets passed down from generation to generation. This is a great model to think about for my design as the cost of living is high and this is a way for homeowners to have some financial assistance. It is predicted to take 32 years to pay off the home so once the child has children, they can pass down the house to them

with no mortgage payments required. This will be extremely beneficial especially if the cost of living continues to increase. A feature that I would like to implement from this model is that everyone who lives here can still maintain a sense of independence and have their own space but also spaces to gather when they want to.

3.1.2 The Adaptable House

As part of a development project of six single-family houses in Denmark known as *Mini-CO2* houses, Henning Larsen Architects focuses on how “a flexible design of a single-family house can save time, resources and CO2 in connection with conversions and extensions.” (Henning Larsen Architects, 2016) Families are constantly changing whether it is having children, children moving out of the house, couples divorce, a partner passes away or there is a need for an office space due to a global pandemic. This house is designed for these changes and needs that can occur at any point in a family’s life while reducing carbon emissions. To achieve this:

- The components of the house can be dismantled, and the house can be expanded without destroying existing components.
- The replaced components can be reused in new contexts.
- The components are fabricated in standard sizes from standard materials.

(Henning Larsen Architects 2016)

Not only is the house itself flexible, but the layout is as well. On the first floor, the exterior walls are the only load bearing walls while the interior walls and wall cabinets are movable (see figure 6 and 7). The walls can be configured to create 1, 2, 3, or 4 rooms. Studies show that “two out of three Danish families tend to say within the same local community.” (“Adaptable House / GXN + Henning Larsen” 2014) The design of this house allows for a second entrance to be inserted in the future for when the child becomes independent.

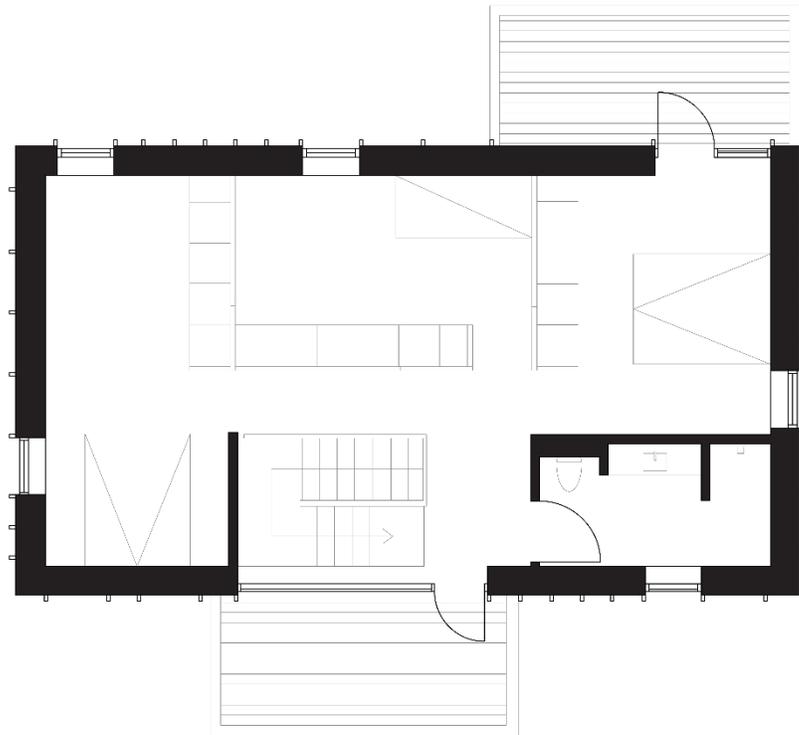


Figure 6: Indicating load bearing walls on the first floor

(Henning Larsen)



Figure 7: Displaying different layouts of cabinets

(Henning Larsen)

The 146 m² house presents significant CO₂ savings. The materials used for construction uses 5 kg CO₂/m²/year over a 50-year period which is very little for such an adaptable house. Based on a standard 170 m² house with an energy consumption of 60 kWh/m²/year, a family can save 26 tons of CO₂. Additionally, 33 tons of CO₂ can be saved annually for heating and operation. Due to the geometry, flexible layout and

utilizing the space to its maximum potential, the house consumes 36% less energy than a standard house. (Henning Larsen Architects, 2013)

I would like to implement the flexibility that this model offers. Families are always changing, whether they are growing or shrinking, and their homes should grow or shrink with them. The focus of this project was to reduce the carbon footprint. The structure is the immediate home for the family, but the Earth is also its home. We need to take care of our homes just as much as our Earth, which is just a bigger home without distinct walls.

3.2 Suburban Neighborhood

Suburban neighborhoods have a prominent place in our country. They are seen all over the country and most of them have homogenous characteristics to them. It is due to the fact that developers desire quick construction and cheap construction costs. This precedent review is looking at past suburban design and current ones. There are successful ones and unsuccessful ones and the reasons why it became unsuccessful. I am looking at these precedents to gain knowledge and ideas for what the community as a whole should be like aesthetically and socially.

3.2.1 Levittown

In 1947, the first Levittown was built in New York because of the demand for housing for all the veterans returning from World War II. It is the first and largest mass-produced suburb. Abraham Levitt and his two sons, William and Alfred, had a building firm called Levitt & Sons and created the planned communities called “Levittown”. The

focus on the design was to create affordable housing that could be rapidly constructed. In Pennsylvania, the second Levittown, they were able to produce a completed house in 16 minutes. They built six models of houses that future residents could evaluate before purchasing. The six single-family homes (see figure 8) with lawns were called:

- The Levittowner
- The Rancher
- The Jubilee
- The Pennsylvanian
- The Colonial
- The Country Clubber (2003)

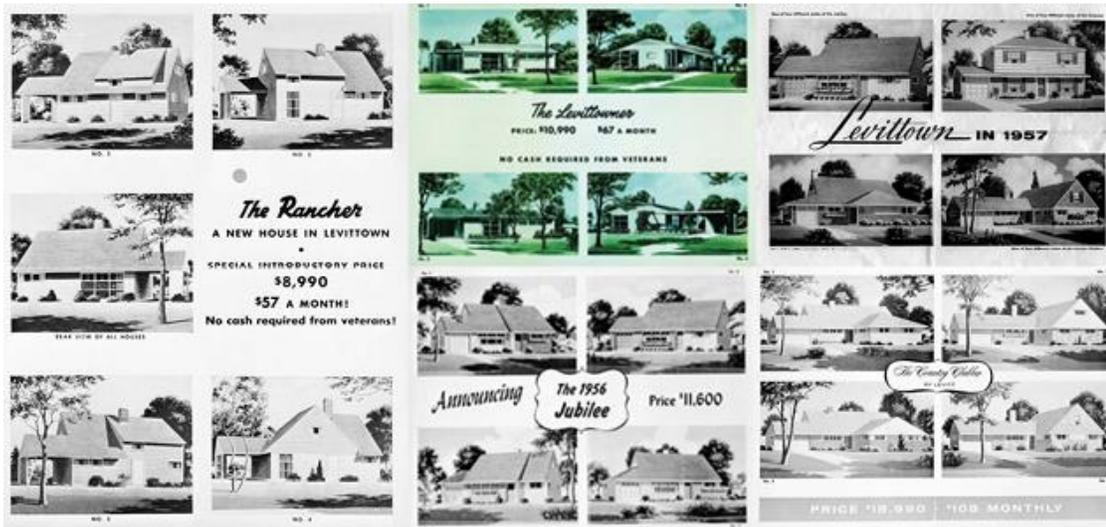


Figure 8: The six houses of Levittown

(Levittown Regional Library)

There has been plenty of criticism about the suburb. Levittown was the American Dream with the white picket fence, family structure and automobiles. They were newly built homes with new appliances and finishes and most importantly allowed many families to become homeowners. Although this was a symbol of the American Dream, there was no equality. In the first standard lease agreement, Clause 25 states that the house could not “be used or occupied by any person other than members of the Caucasian race.” In 1948, the clause was dropped after the United States Supreme Court declared it to be “unenforceable as law and contrary to public policy.” (Lambert 1997) Although it was dropped, Levitt & Sons continued to exclude African Americans, even veterans, from purchasing a home but in 1957, the first African American couple, William and Daisy Meyers purchased a home in Levittown, Pennsylvania for their growing family. There was daily harassment and violent actions taken against them which required the state authorities to get involved. Rightfully so, the Myers family felt that they had the same right to live here just like everyone else. The community is still predominantly white due in part of its history of racial segregation.

There has been criticism from designers and residents that the community lacks character. Out of the 17,311 homes that were built, there were only 6 models to choose from. (2003) People thought that it was too homogenous and lacked identity and individuality. Over time, residents began to build additions and renovate their homes to

fit their family's needs and wants. There are some people that see it as a desirable place to live and are proud of the historic status while others believe it no longer reflects the current society and a way of living.

3.3 Utilizing the Site

Most suburban neighborhoods consist of homes that have their own front lawn and backyard. There is a lack of communal spaces for residents to gather with one another. The site design precedents are looking at ways the site of the community and individuals can be utilized to a higher potential. They should serve a greater purpose than just for aesthetic reasons. The site, as a whole and individual, should create benefits for the residents and the environment.

3.2.1 Ecovillage at Ithaca

The ecovillage sits on 175 acres located in a seasonal environment of New York. Currently there are one hundred homes with two-hundred seventy residents, ages ranging from infants to octogenarians. There are three cohousing neighborhoods, two 30-home and one 40 home cohousing neighborhood. The residents come from different backgrounds and family structures, there are about 141 adults and 91 children who are living as families, couples or single. Their mission statement is to “promote experiential learning about ways of meeting human needs for shelter, food, energy, livelihood and social connectedness that are aligned with the long term health and viability of Earth and all its inhabitants.” (Franke and Chasin 2016) The mission statement derived from the

North American environmental movement which began in the 19th century. Unlike suburban neighborhoods, the community sought a neighborhood which preserved most of the landscape by having clustered homes, on-site food production, more recreational facilities, more biomass and biodiversity, and attracting native animals back.

One of the main focuses of the ecovillage is to have a sustainable and green community. They are always trying to improve their sustainability efforts and looking into the future. As of 2014, the U.S. environmental Protection Agency shows that these homes use approximately 90% less energy than a typical home while earlier homes use approximately 40% less (Manning, Palmer, and Powell 2014) The design of the site and homes allowed for these following environmental benefits:

- Retains 100% of stormwater runoff from developed areas of the site for up to a 100-year storm with no impacts on or connections to the municipal storm sewer system.
- Generates an estimated 61% less runoff than the conventional residential subdivision proposed from the site.
- Reduces annual nitrogen loads by an estimated 14%, phosphorus by 32%, and suspended solids by 10%, compared to the conventional residential subdivision proposed for the site.

- Reduces irrigation needs for turf by 95% compared to the conventional residential subdivision planned for the site. EcoVillage contains only 3.62 acres of turf.
- Avoided the release of approximately 1,330 tons of CO₂ by preserving 20 acres of woodlands. These trees also sequester 43 tons of CO₂ annually.
- Produces about 60,000 kWh per year with ground-mounted photovoltaic arrays. This supplies 42% of the FROG neighborhood's energy, avoiding 250 tons of CO₂ emissions annually. (Manning, Palmer, and Powell 2014)

3.2.2 Victory Gardens

During World War I and World War II, with the efforts of millions of Americans, any type of yard and vacant lots were turned into vegetable gardens. President Woodrow Wilson wanted to prevent any threat of food shortages during World War I. Victory gardens were encourage all over the news, books, newspapers, and magazines (Figure 9). Beginners were encouraged to plant “vegetables that took up little space in their gardens, such as tomatoes, carrots, lettuce, and cabbage. Soybeans, billed as ‘wonder beans’ or ‘miracle beans.’ required little room and served as a protein substitute when meat was rationed.” (2018) The gardens not only provided a significant amount of produce to the country, but it was also educational as well. There were gardens made at the school to educate children on appreciating nature and how to be producers as well as consumers. Children living in cities were able to leave the crowds and unhealthy tenements and come to learn about gardening. In May 1943, 40 percent of the produce in America was

supplied from victory gardens. (2018) There has always been encouragement for children to learn the ability to grow their own food.



Figure 9: Victory Garden Advertisements.

(Smithsonian Libraries)

Gardens are one of the most important components that I want to include in my design. Victory gardens should not have been temporary, but it showed how the residents of this country worked together to prevent food shortage which would have affected everyone. With the global pandemic, I think many people realized how important being outside and connecting with nature is to everyday life. Grocery stores have become even less appealing, especially produce as they are not packaged, and anyone can come into contact with them. A decent amount of our produce comes from other countries. By having your own garden, you know where the vegetables and fruit came from and know if they are safe to eat. It can bring a community together and educate one another.

CHAPTER 4

SITE

4.1 History



Figure 10: Levittown, New York.

(Flickr: Mark Mathosian)

The site is located in the original Levittown in the Town of Hempstead in Nassau County, New York. Abraham Levitt and his two sons, William and Alfred, developed their own building firm known as Levitt & Sons. William served in the navy and Alfred was an architect. When William returned from war, he wanted to create housing for fellow returning veterans. Together, they created the mass production of single-story

Cape Cod homes with an unfinished attic that could be used for storage. In 1946, they acquired 4,000 acres of potato farms known as Island Trees which was quickly renamed Levittown. They purchased the materials and finishes from the manufacturers directly to save on costs. Each house was built on a concrete slab which was against building code, but the town agreed to the permit due to the demand for veteran housing. As production began, they were able to reduce the steps of construction to 26 steps which resulted in 30 houses being built a day. (Jackson 2011) The production of Levittown led to others shortly after in Pennsylvania, New Jersey, and Maryland.

4.2 Selected Site

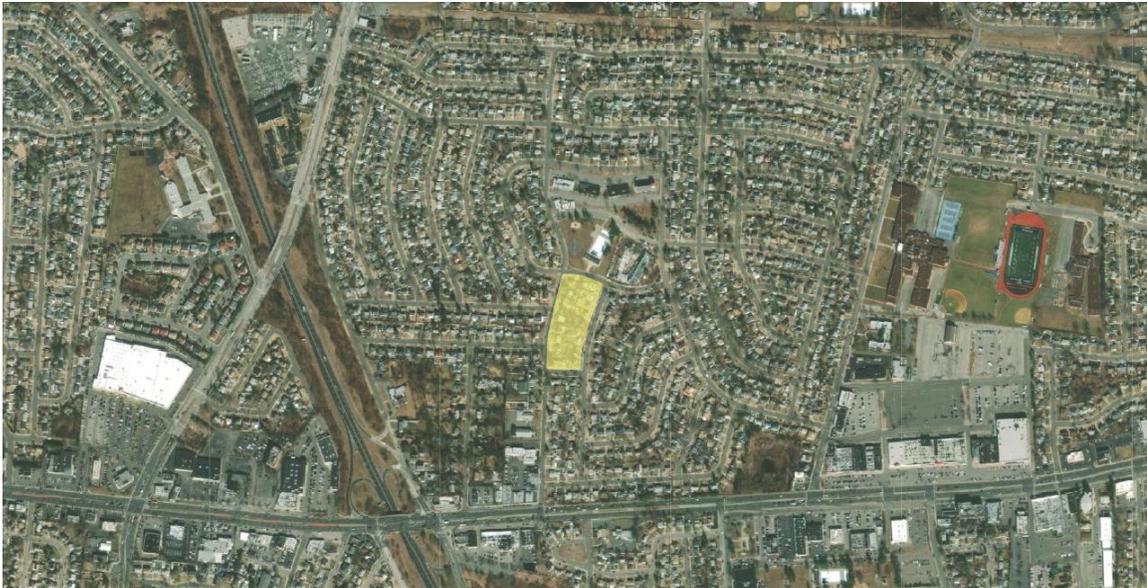


Figure 11: Selected Site.

(Google Earth)

The selected site, shown in figure 11, is about 2.7 acres with 18 single family homes. The average age of residents are 43 years old and the average family is about 3 people. For my thesis, I will be using the 1950's site conditions. There were five different

styles of Cape Cod Houses built throughout Levittown, New York. The houses are designed with the same floor plan of 750 square feet (Figure 12), but the facades vary (Figure 13). The houses consisted of two bedrooms, a bathroom, living room and kitchen. There was a central fireplace located in the kitchen. In figure 14, it can be shown the arrangement of these houses by style. At the time when these were being produced, driveways were non-existent, and vehicles were parked along the perimeter of the site.

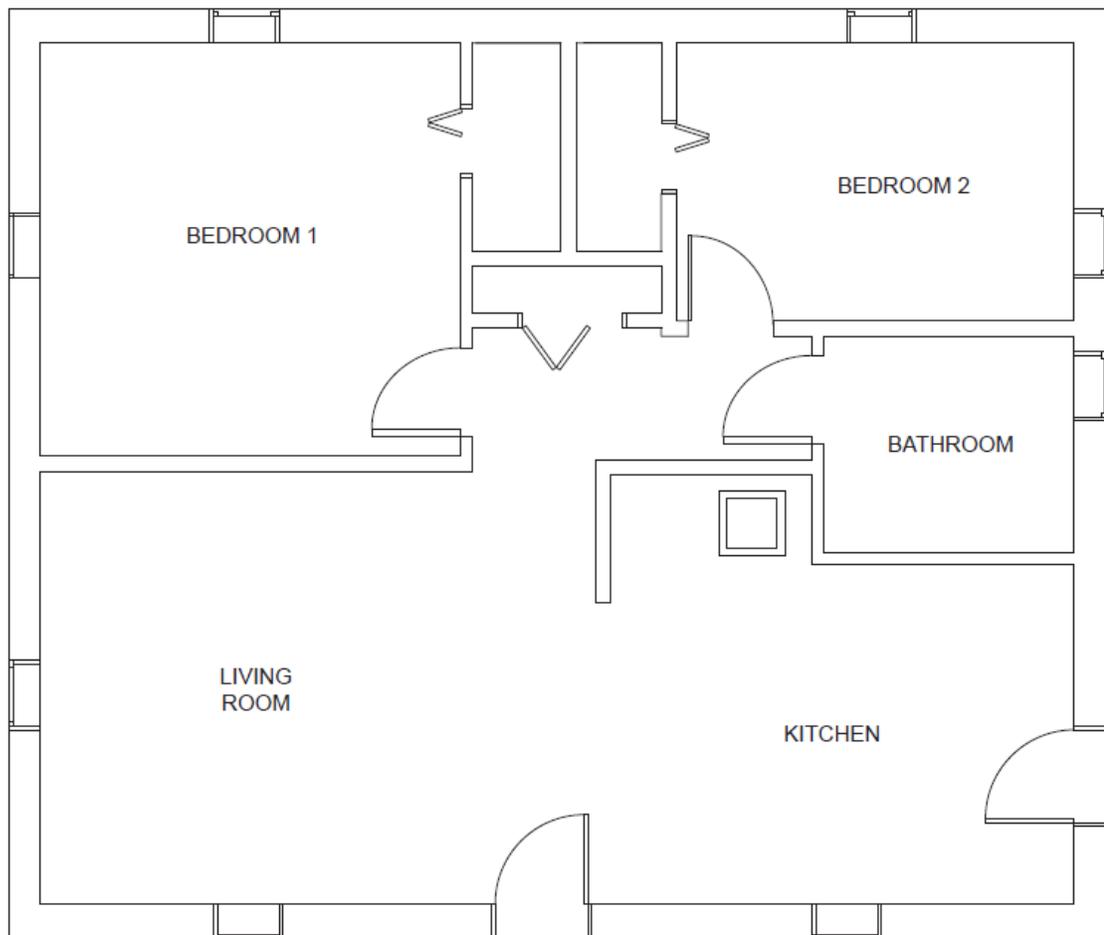


Figure 12: Floor plan of a typical Cape Cod Home.

(by author)

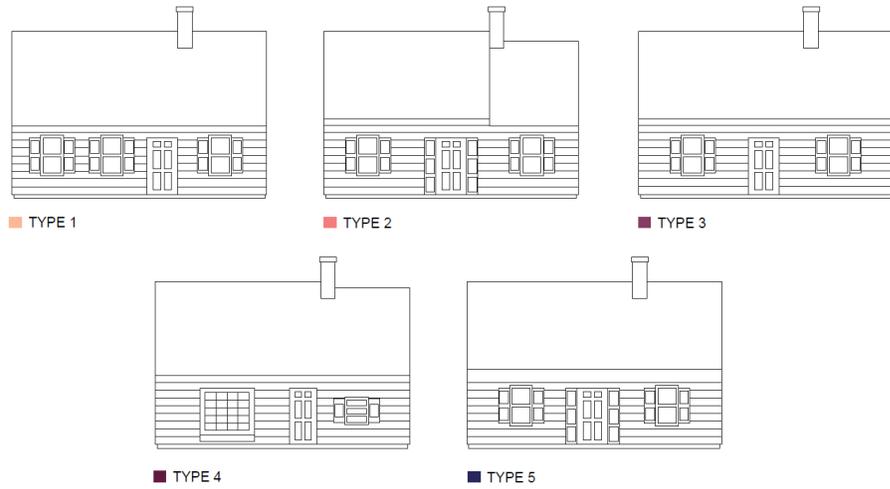


Figure 13: Different types of Cape Cod Styles.

(by author)



Figure 14: Arrangement of houses by style.

(by author)

These homes were designed for the typical nuclear family with a heavy reliance on the automobile. Each household had a vehicle that the fathers used to commute to work with. It was important for the town to have easy access to major highways to New York City (about 45 minutes to 1 hour) and John F. Kennedy International Airport (about 25 to 45 minutes) which are west of the site (Figure 15). The Wantagh State Parkway has a direct link to these locations. The site is adjacent to the Wolcott Road Pool which was part of the Levitt & Sons approach towards a planned community. They wanted to have public recreation spaces and community centers near these neighborhoods. The site is located near everyday amenities such as the grocery store, schools, recreational facilities, and places of worship (Figure 16). The convenience factor is becoming more important as this pandemic has forced people to work from home and children having school online. It takes a short 20-minute walk to purchase groceries or go to the local high school to play in the sports fields.

The immediate site has little to no change in topography, it is quite flat. The soil is categorized under the Hydrologic Soil Group B – sandy clay loam. The United States Department of Agriculture describes it as “solid having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained, or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate of water transmission.” (2016c) This type of soil is appropriate for root vegetables as it was used for potatoes in the past.



Figure 15: Highways located around the site.

(by author)

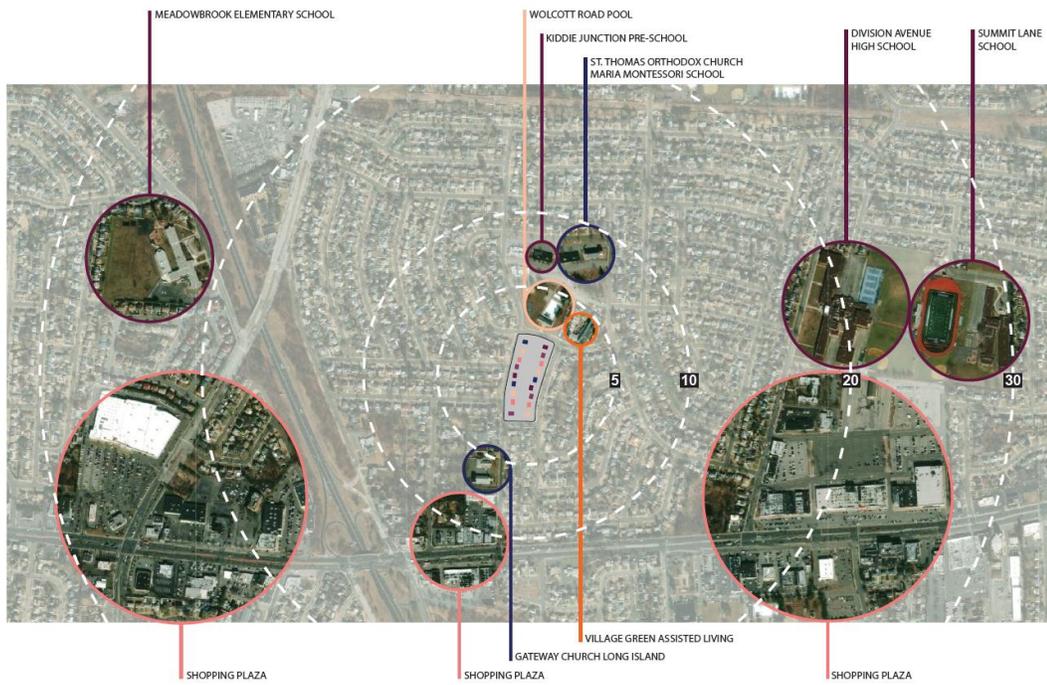


Figure 16: Site context.

(by author)

CHAPTER 5 DESIGN

5.1 Process/Philosophy

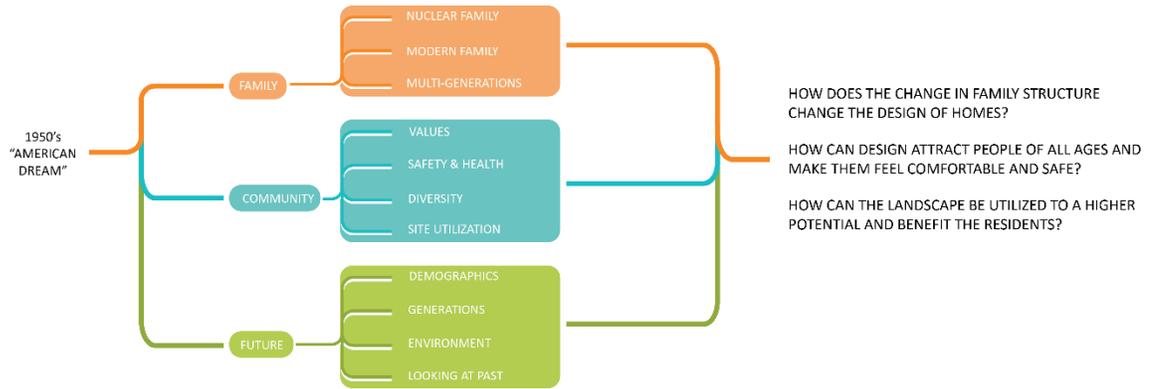


Figure 17: Process.

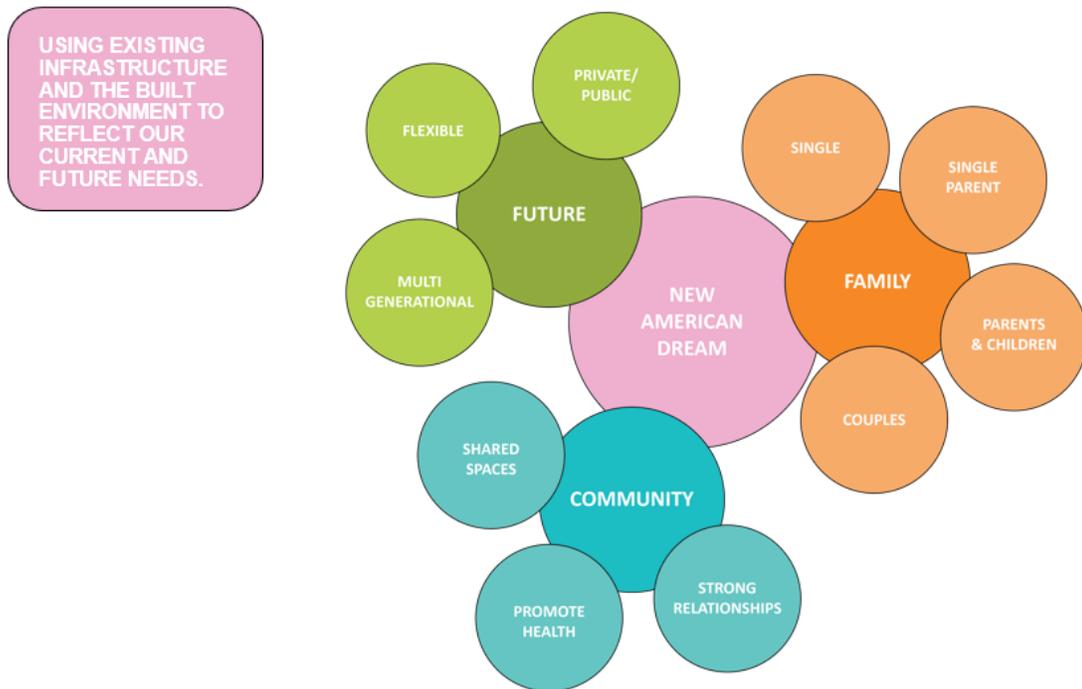


Figure 18: What is the New American Dream?

(by author)

When I began my thesis, I evaluated the 1950's American Dream in terms of three parameters, family, community, and the future. In the 1950's, the ideal family was a nuclear family who was perfect in every way. The desired community consisted of single-family homes that were bordered by property lines and surrounded by green lawns. There were certain rules that society and the neighborhood community required people to abide by to maintain this perfect façade. There was no looking towards the future, the 1950's American Dream focused on the present and how it can provide and support the needs of this ideal family. Viewing our current state of society and community, these three parameters have changed and diversified since then, so what is the new American Dream (Figure 18)? As a result, my thesis will be answering three questions:

- How does the change in family structure change the design of homes?
- How can design attract people of all ages and make them feel comfortable and safe?
- How can the landscape be utilized to a higher potential and benefit the residents?



Figure 19: 5 Principles.

(by author)

The ideal standards and nuclear family structure no longer reflect our current society. Based off my research and analysis of the case studies, I developed a new

philosophy that is based on five principles (Figure 19): community, longevity, sustainability, diversity, and safety. Creating a community that inhabits a safe and inclusive environment that emphasizes relationships among residents. The sense of community has really heightened in the past year due to the global pandemic and racial injustice, violence, and hate towards African Americans and Asian Americans. Although these circumstances are devastating, it has brought many communities together to help and support the affected population.

The philosophy of longevity is creating an environment that can easily change throughout time depending on the needs of the family. Providing spaces that can serve multiple functions will allow families to adjust their spaces depending on their situations. Having multi-function spaces will encourage families to live in these homes through multiple generations while allowing family members privacy and to be independent. The flexibility can vary from everyday flexibility (i.e., office space to bedroom space) to future long-term flexibility (i.e., in-law suite or rental unit).

While using existing infrastructure is sustainable, there are additional sustainable attributes. Locally sourced materials are used on the new connections to reduce the carbon footprint. Modern systems will be implemented for the homes and site for solar and rainwater collection. Having sustainable features will help the environment and is a cost-effective method for the residents.

Diversity within the neighborhood is crucial for a successful community. As the United States is known for their mix of culture, the community should embody it. Not only should it include diverse backgrounds but family structures as well. There is no one prominent family structure anymore, so the built environment needs to reflect and

address that. It will also have multiple housing types to accommodate different levels of income.

Safety should be implemented in all environments. The community should not only be safe physically through site and residential design but also mentally. Residents should feel safe no matter what culture they are from or what they identify as or what their sexual orientation is. Residents should feel safe and comfortable within this community and be able to voice their opinions without fear.

5.2 Toolkits

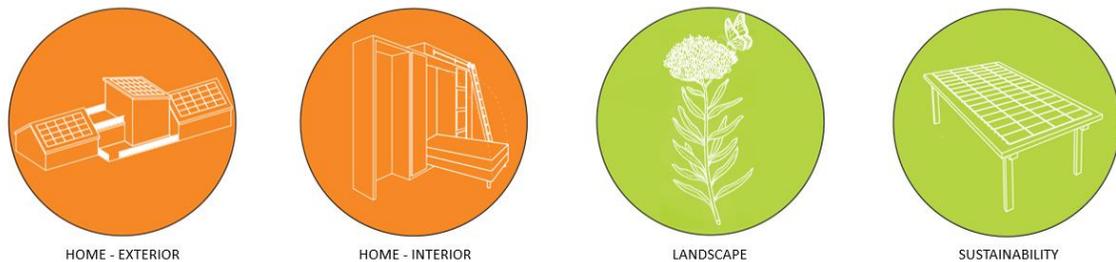


Figure 20: The four toolkits.

(by author)

Many suburban neighborhoods in the United States are influenced by the Levittown Model. The toolkits (Figure 20) that I have created to develop my thesis, can be applied to any neighborhood in Levittown made up of Cape Cod homes. The idea is that these toolkits can be a guide for other Levittown and Levittown inspired neighborhoods. There are four toolkits: home – exterior, home – interior, landscape, and sustainability. The toolkits create the new language and philosophy that I am implementing on my site.

5.2.1 Home – Exterior

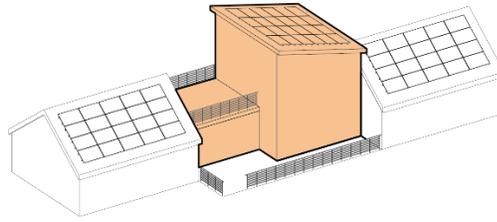


Figure 21: One to two-story connection

(by author)

Whether it is a one or two households design, the exterior will follow these guidelines. The new connection space should be one- and two-story, preferably in an “L” shape (Figure 21). The space that is one-story, is suggested to become the dining room space and the roof to become an accessible rooftop from the second floor. The two-story portion is a double height living room with a loft space on the second floor. The staircase will be placed in the double height space. The loft space will be multi-purpose as it can be a game room, study space, bedroom, or extra space that the family requires and will lead out to the rooftop of the dining room. Another purpose of having a one- and two-story connection space is that the two-story has the possibility of becoming a private unit.

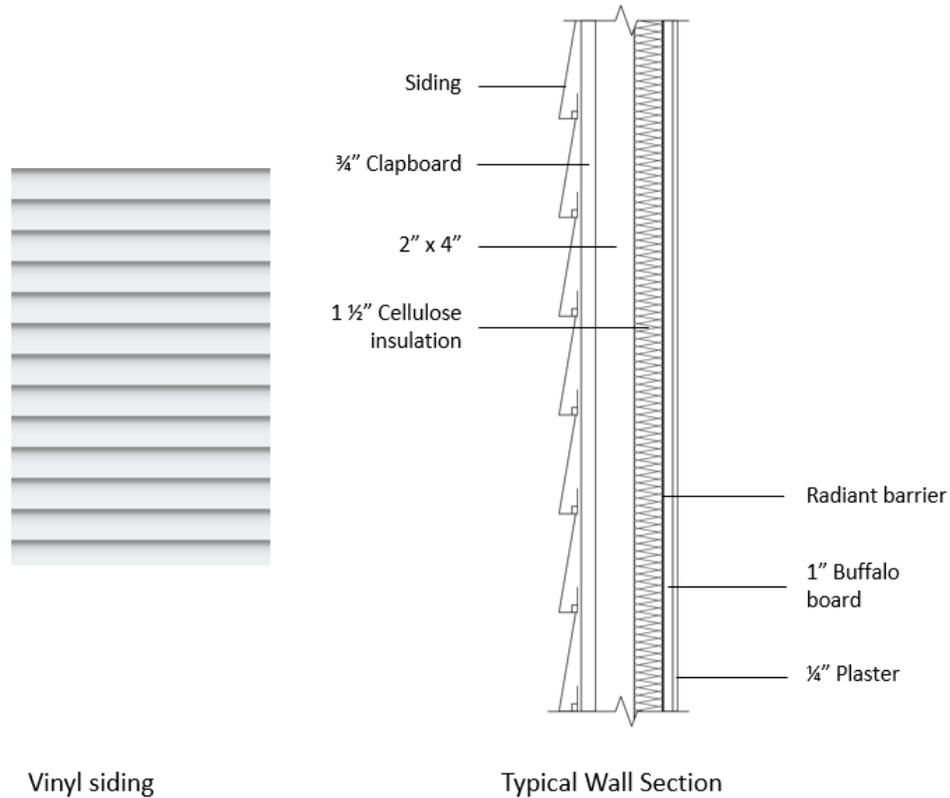


Figure 22: Existing façade material and typical wall section.

(by author)

As for the materials, the existing structures will maintain their vinyl siding (Figure 22) unless more than half of it is damaged and in need of replacement. The original proposed material for the new connection was wood cladding. Wood is a natural material; it carries warm tones and a strong connection to nature. Unfortunately, wood can be expensive in terms of purchasing and maintaining its durability, especially in a changing climate. So, for the new connections, the material that is being implemented are terracotta panels (Figure 23). The new material is sustainable, local, and durable. Terracotta panels are a renewable source made from a natural material, which makes them recyclable even after decades, and they vary in sizes and colors. Due to their diverse

appearances, terracotta panels can be designed to mimic wood. Terracotta panels are easy to install with clips.

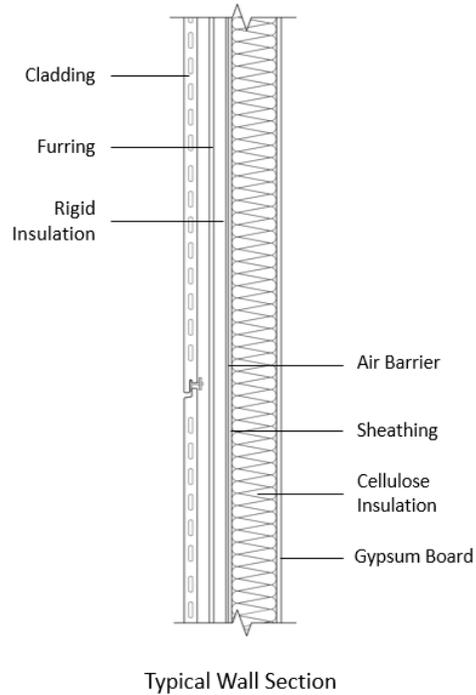


Figure 23: Proposed material - terracotta panels and a typical wall section.

(by author)

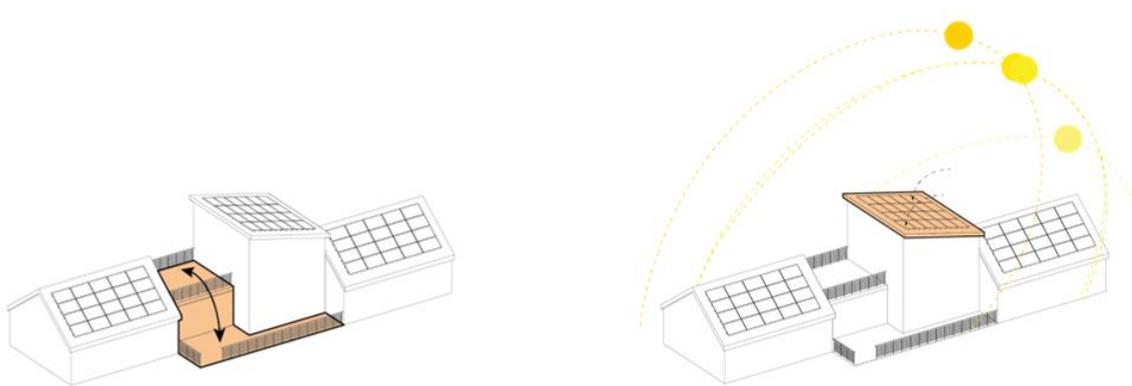


Figure 24: Outdoor deck connection and south sloping roof with solar panels.

(by author)

Lastly, the roof of the dining room should be flat as it will be accessible to residents but the roof on the double height space should be sloped towards the south (Figure 24). Solar panels should be applied to the roof at an average of 25 panels. Solar panels should be added to the existing roofs, south facing roofs are ideal for solar panels but west facing roofs can be used as well.

5.2.2 Home – Interior

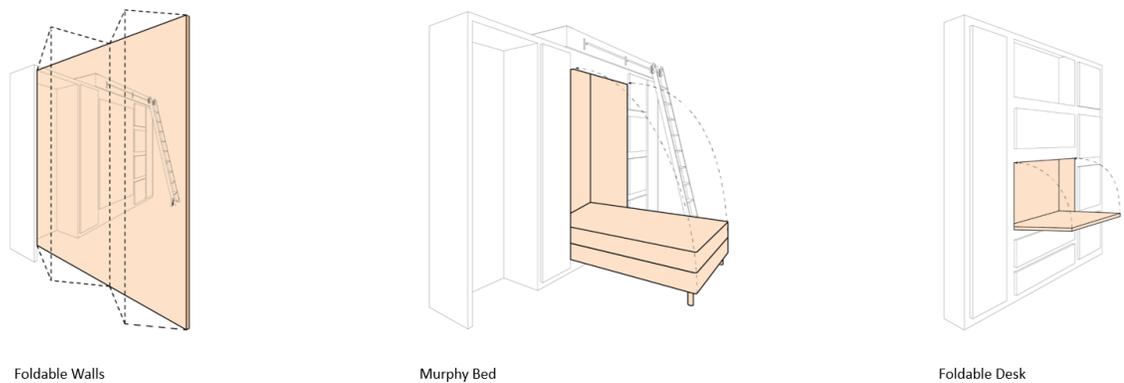


Figure 25: Flexible furniture.

(by author)

For the interior of the home, flexible furniture (Figure 25) is implemented to allow for multiple functional spaces. The flexible furniture will be built into the existing infrastructures. The built-in has a foldable wall that can be used to open or close a space. It has a murphy bed built in along with storage. This built in is usually located next to the main bedroom, as it creates access to the loft space above the main bedroom. There is a ladder that is attached to the built in and the loft space can be used for extra storage as these homes do not have basements. Another built in that will be implemented is the foldable desk along with storage. As the pandemic has greatly affected many work

environments, a hybrid work schedule will become more common. The foldable desk allows the space to become an office during the day and another space during the night or on non-workdays.

5.2.3 Landscape

The community is serving and supporting current and future needs, as well as promoting health. There will be bicycle shelters with green roofs for residents and visitors. Cars are almost a necessity for everyone, especially for those living in the suburban neighborhood as they were designed for commuters. As technology becomes more advanced and cars are moving towards being fully electric, solar parking stations will be placed throughout the site. The solar parking stations will have solar panels to assist the electric car charging stations. Every two groupings of homes will share one parking station, one parking spot per household.

For water, stormwater runoff should be managed through a rain garden. The rain garden will consist of native plants of New York such as arrowwood viburnum, soft rush, blue flag iris, inkberry, summer sweet, and New York aster. Other native plants such as butterfly weed, wild blue lupine, spotted beebalm and wild columbine will be used in the rain garden and throughout the site to attract local species such as the monarch butterfly, Karner blue butterfly, bees, and hummingbirds (Figure 26). As for the homes, slim water cisterns are placed nearby to collect rainwater from the roof. The rainwater collected will be used to water their personal gardens and the communal garden.



Figure 26: Native plants and plants that attract local species.

(by author)

Outdoor recreational spaces are beneficially physically and mentally to the residents. The recreation spaces will serve people of all ages and accessibility will be strongly considered. There is a playscape for children, a soccer field, a green space for other activities, and a hardscape area for residents and visitors that are unable to travel on non-impervious pavements. Having these spaces will encourage residents to spend time outdoors and to be active during warm spring, summer and fall days. During the winter, it can be used to build snowmen, snow forts and/or holiday decorations.

It is important to apply a lawn alternative to the site. In the past, when we were in a farming economy, lawns symbolized wealth. This association no longer applies today, although there is a fascination with lawns in our country. Lawns require weekly maintenance during the summer, which can be a strenuous task when there is a large surface area of grass and especially on a hot summer day. For my site, I have chosen to use creeping thyme as a lawn alternative as it is low maintenance. It does not require a

lawn mower as it does not exceed three to five inches in height. The landscape toolkit is heavily associated with sustainability.

5.2.4 Sustainability

Solar panels have become more common in households as it is easily accessible and affordable. Solar panels are applied to the south sloping roof on the new connection and to any existing south facing roofs. If a south facing roof is not available, they are applied on to the west facing roofs. The average output of one solar panel is 290 watts per hour. The average use of electricity for one household in Levittown, New York is 90 kwh per day. Based on the calculations (Figure 27), during the summer, the daily output is 97.5 kwh, the winter is 45 kwh, and the spring and fall is 82.5 kwh. The solar panels are grid tied. When the solar panels produce an excess amount of solar power, it will be stored and used when needed.

For the new connections, spray dampened cellulose insulation will be used for the walls (Figure 28). Blown cellulose insulation has an R-value of 3.5 per inch of thickness. It is made from “80% post-consumer recycled newsprint...the fiber is chemically treated with non-toxic borate compounds (20% by weight) to resist fire, insects and mold” (Fisette 2005). Dampened cellulose will have a stickiness to them, allowing them to adhere to the exterior sheathing and studs. Sprayed cellulose is airtight and solid, which will prevent any openings and cracks to occur. It can be used in addition to the existing insulation if it is not sufficient. It can easily be blown through an open wall cavity by removing the trim.

SOLAR PANELS	Average output: 290 watts per hour	Average use: 90 kwh/day
Summer Peak	Direct Sunlight: 4.57 hours per day x 290 watts per hour = 1325.3 = 1.3 kwh 1.3 kwh x 25 solar panels = 32.5 kwh x 3 roofs = 97.5 kwh/day	
Average length of Summer:	90 days (about 3 months) 1.3 kwh x 90 days = 117 kwh annually 117 kwh x 25 solar panels = 2925 kwh annually	
Winter Peak	Direct Sunlight: 2.29 hours per day x 290 watts per hour = 664.1 = 0.6 kwh 0.6 kwh x 25 solar panels = 15 kwh x 3 roofs = 45 kwh/day	
Average length of Winter:	90 days (about 3 months) 0.6 kwh x 90 days = 54 kwh annually 54 kwh x 25 solar panels = 1350 kwh annually	
Spring/Fall	Direct Sunlight: 3.79 hours per day x 290 watts per hour = 1099.1 = 1.1 kwh 1.1 kwh x 25 solar panels = 27.5 kwh x 3 roofs = 82.5 kwh/day	
Average length of Spring/Fall:	90 days (about 3 months) 1.1 kwh x 180 days = 198 kwh annually 198 kwh x 25 solar panels = 4950 kwh annually	
Total Annual Output: 9225 kwh x 3 roofs = 27,675 kwh		
*Data source from: Turbine Generator		

Figure 27: Solar panel calculations.

(by author)

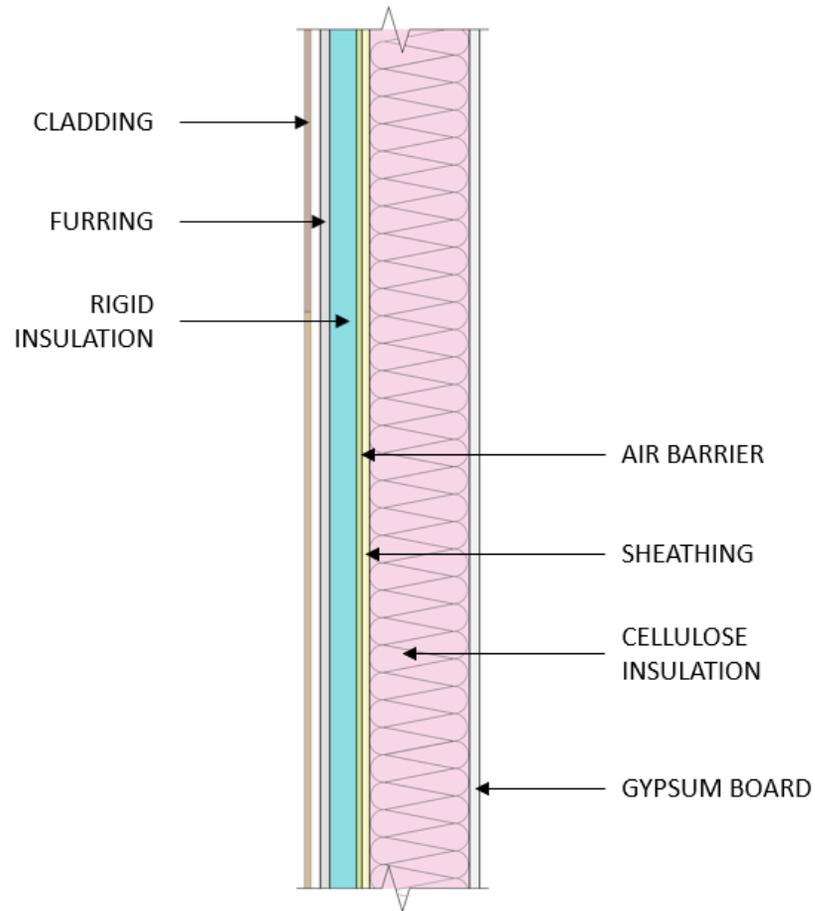


Figure 28: Insulation – standard wall section.

(by author)

5.3 Site Plan

For the site plan, I have implemented my five principles along with the landscape and sustainability toolkit. The existing site plan (Figure 29) consists of 18 single-family Cape Cod homes with their property lines. By applying safety (Figure 28), I have removed the road north of the site and connected the site to the public park (Figure 34). Vehicular traffic is directed to the perimeter of the site along with vehicular solar parking with charging stations. Bicycle parking is placed adjacent to the vehicular parking. The

winding walkway will allow residents and visitors to explore the site. The walkway connects to the Wolcott Road Pool entrance. I have removed the property lines to remove the division among residents. The community should be one space, to share responsibilities, resources, and experiences.

The homes will provide longevity and diversity (Figure 31). The new connections will allow the homes to last multiple generations due to their flexibility within the home. The homes vary in household sizes which connects to different levels of income. This community is designed to include people of all different backgrounds.

The new connections will be adding communal spaces within the homes. In terms of the site, outdoor communal spaces will allow residents to gather and enjoy one another's company (Figure 32). There is a communal greenhouse and garden that residents share. This can provide food for communal dinners or events that they have. It can become an educational environment, as adults can teach children how to grow their own food and some responsibilities in taking care of a garden. The playscape is designed to connect to the public park as younger children will utilize the playscape, while older children will utilize the soccer field and public park with the outdoor basketball court. So, all the children will be playing next to each other in one large area. This will make it easier for the parents or adults supervising children of different ages. There is a small green space on the northeast of the site which is meant for anyone to use. This could be used to have a picnic or to sunbathe or to have an outdoor yoga class, really any activity that would require some green space. South of this, is the hardscape communal area which is adjacent to the playscape and greenhouse. This space includes a firepit with semi-circle bench seating. This is where the communal dinners or events would take

place as it is accessible to all. There are tables and seats placed for lounging but they can also be removed for other activities. The site needs a space that children or adults can use for riding their bike or learning to roller skate or riding their scooters or skateboarding. It can be the place for teenagers to hangout since they have grown from children's activities.

Lastly, sustainability is applied in the landscape (Figure 33). The rain garden is located on the southern part of the site as the plants will want to have direct sunlight. The rain garden will help manage stormwater runoff by absorbing the runoff flow. It filters and removes the pollutants prior to entering the storm drains. As previously mentioned, the native plants will be planted here along with ones that attract local species (Figure 25). Slim water cisterns will be placed among the homes to collect rainwater off their roofs. Each unit will be given their own personal garden that they can use to grow foods for themselves and whatever food they want. Solar panels will be installed to the south and west facing roofs along with the parking shelters. Creeping thyme is planted throughout the whole site as a lawn alternative.



Figure 29: Existing Site



Figure 30: Applying safety principle to site.



Figure 31: Applying longevity and diversity.



Figure 32: Applying community.



Figure 33: Applying sustainability – complete site plan.

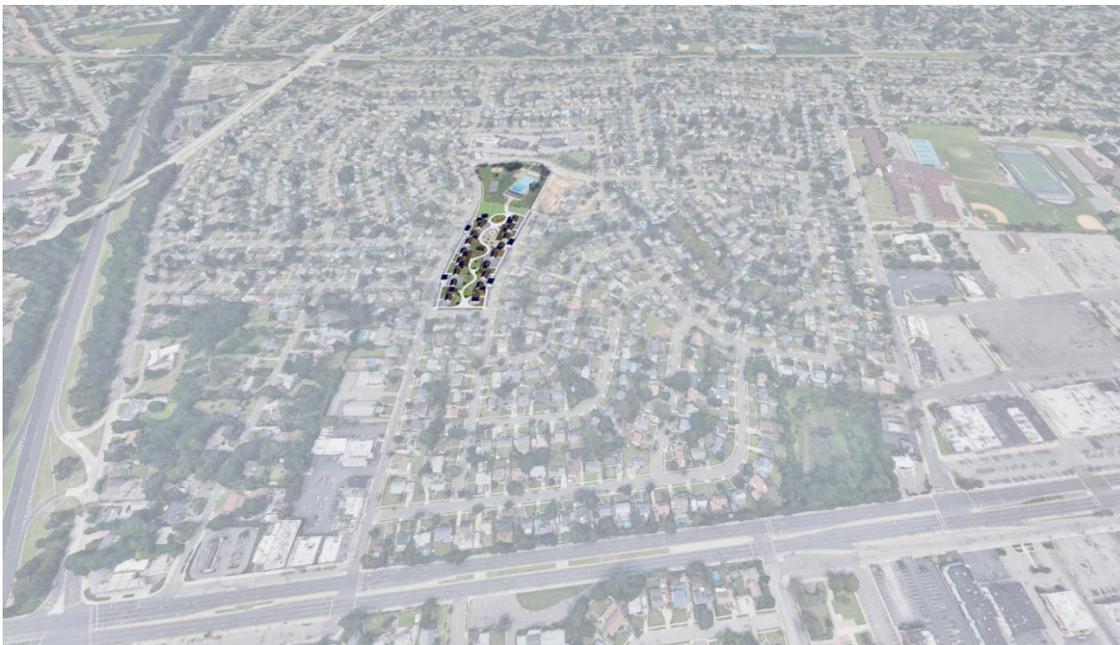


Figure 34: 3D site showing connection to public park and surrounding.

(by author)



Figure 35: Playscape during the afternoon.



Figure 36: Early morning in the communal spaces.



Figure 37: The rain garden during the late afternoon.

(by author)

5.4 Homes

The design of the homes is based on the five principles mentioned earlier along with the exterior and interior toolkits. To understand how longevity, diversity and the interior toolkit were implemented in these homes, each household has a narrative. The narratives will go through three decades, showing the changes in the family and how the home will reflect that.

5.4.1 1 Household – Lam Family



Figure 38: Street view at a 1 household home.

(by author)

Ms. Lam is a single mother who works at the local dentist as a dental hygienist. Ms. Lam has always rented a condominium since having her two children who are three and five years old. Ms. Lam has finally saved enough money to purchase a home for her family. Ms. Lam has always dreamed of owning a home in a communal neighborhood. Ms. Lam purchased the 1 household home and renovates the interior of the existing infrastructure (Figure 39). Although she saved enough money for the down payment of the house, she realized she would like some assistance in offsetting the cost. She decided to turn the left unit into a rental unit (Figure 40) for college students as Hofstra and Adelphi University are about 10 miles away. The unit is a one bedroom with a multi-purpose

space that includes the built ins from the interior toolkit. Ms. Lam’s family lives in the right unit and the new connection is their main common spaces (Figure 41). Ms. Lam’s bedroom utilizes the built in furniture. They share the back deck with the rental unit. The loft space (Figure 42) above the living room is a library for Ms. Lam’s collection of books. This is where she reads during her free time and where her kids attend school online. It has access to an outdoor patio that overlooks the rain garden.

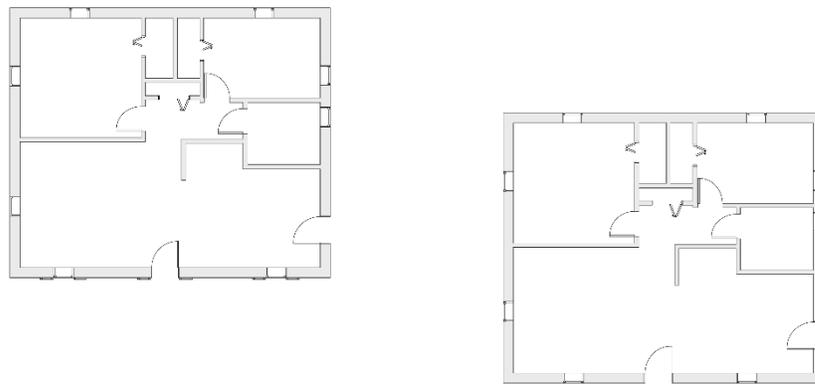


Figure 39: Existing infrastructure.

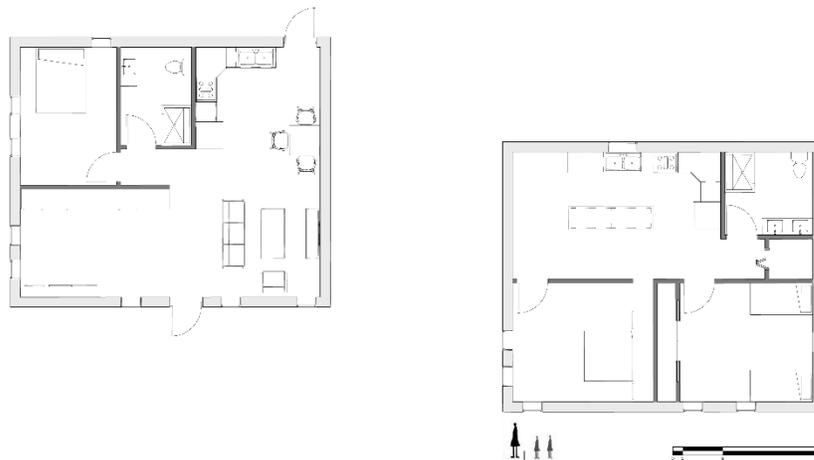


Figure 40: Renovation.

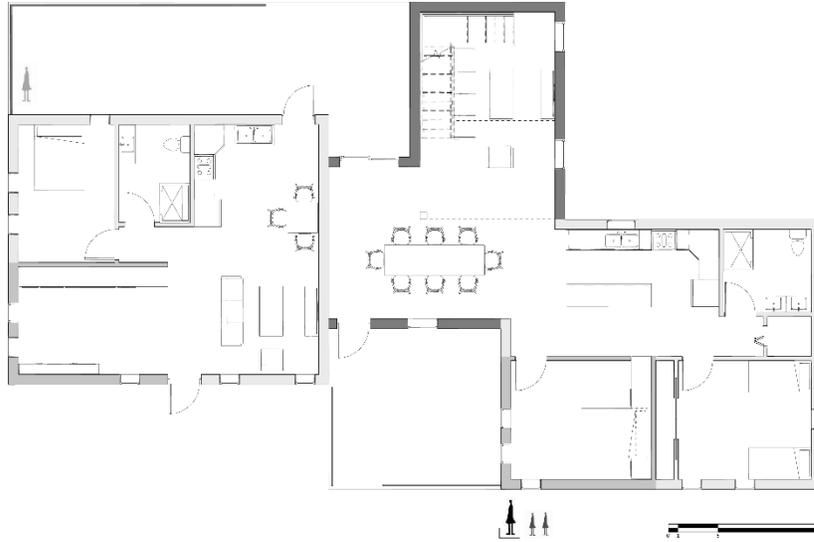


Figure 41: Year 1 – main house and rental unit.

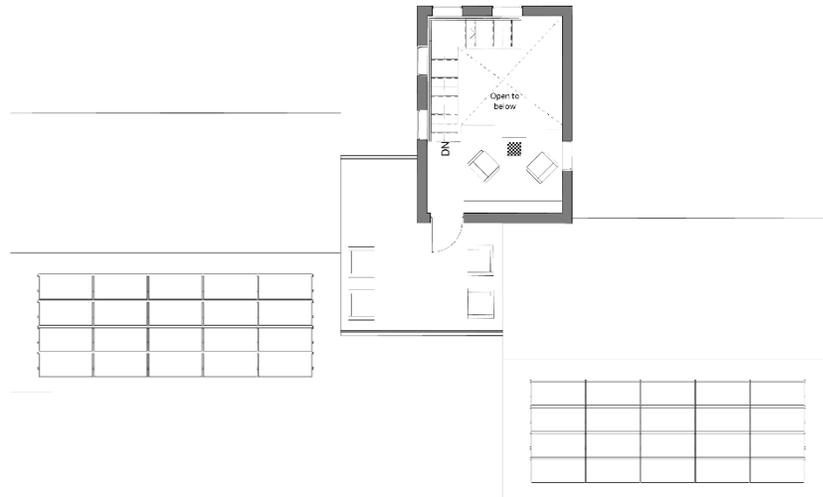


Figure 42: Year 1 – library.

(by author)

By the second decade, Ms. Lam’s father decides that he would like to move closer to help take care of his grandchildren as they are at the age where they are involved in extracurricular activities. Ms. Lam no longer needs assistance with offsetting the cost of

the home so she is in favor of having her father move in with them to help and make her father less lonely. Ms. Lam decides to connect the rental unit to the main house by opening a doorway next to the dining room (Figure 43). Her father can still maintain his own privacy when he is not with his daughter or grandchildren. The multipurpose space becomes his workspace where he spends time creating sculptures made out of recycled paper. The loft space (Figure 44) becomes a game room for the now teenage children. They often have their friends over after school and spend most of their time there during the weekend.

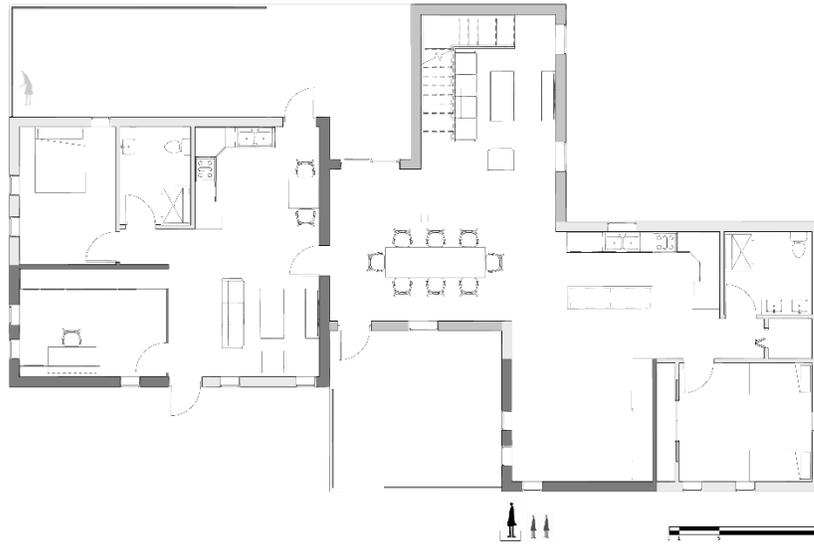


Figure 43: Year 10 – main house with in-law suite.

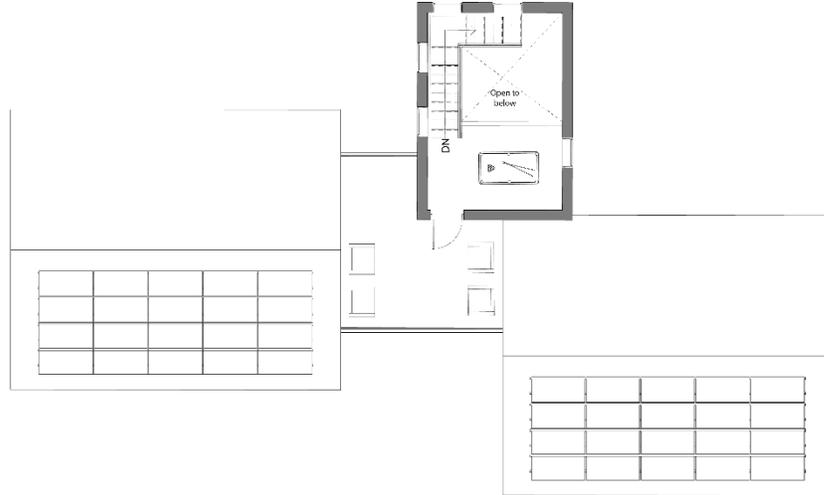


Figure 44: Year 10 – game room.

(by author)

After another decade, Ms. Lam’s father has gotten older and recently been diagnosed with Parkinson’s which requires care throughout the day. Unfortunately, Ms. Lam does not have the time to care for him all day so she has placed him in a nearby nursing home. Ms. Lam’s children are young adults now and would like to continue living in the area as they both found jobs here. So, Ms. Lam decides to turn her home into three separate units (Figure 45) to give her and her kids a sense of independence and privacy while still living together. Ms. Lam stays in the right unit and her bedroom is turned into the living room. The older child lives in the once in-law suite with their best friend. Their best friend’s bedroom is the multi-purpose space with the murphy bed. The younger child takes the new unit in the center that used to be the main living space. The upstairs loft becomes their new bedroom (Figure 46). After dinner time, they usually gather on the outdoor patio and have a cup of tea while watching the sunset.

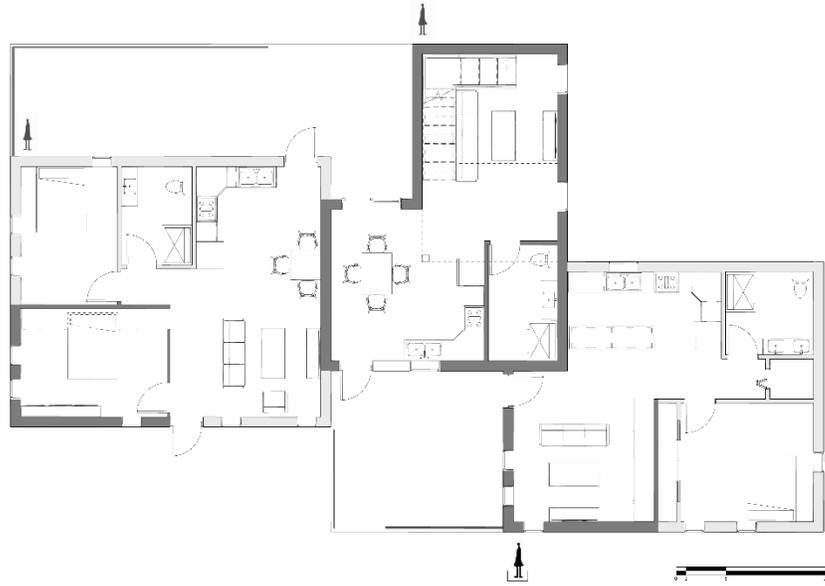


Figure 45: Year 20 – three separate units.

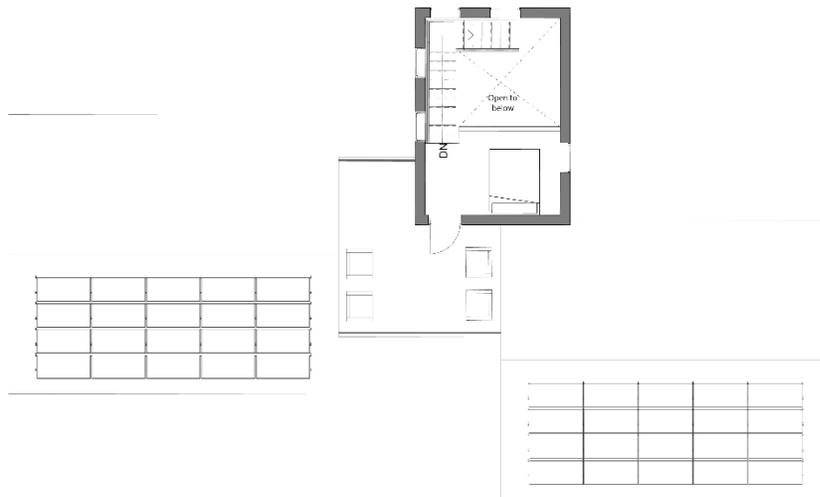


Figure 46: Year 20 – bedroom.

(by author)

5.4.2 2 Households



Figure 47: Street view at a 2-household home.

(by author)

Mr. Lopez is known and loved by many in this community as he delivers everyone's mail. Mr. Lopez has been a mailman for many decades and always lived in Levittown. He has been living on his own since his wife has passed away and his children have moved out into their own homes. He began to feel lonely and since he really loves his community, he decided he wants to purchase a home with another household. Mr. and Mr. Jones have been living in New York City for the past decade and due to the global pandemic, they decided they wanted to move out of the city. They wanted to move to Levittown because of its convenience to the city (about an hour drive) and to the Hamptons, where they vacation every summer (about an hour drive). They were intrigued with the idea of having a home with a shared space with the other household. Mr. and Mr.

Jones love to entertain but do not need the extra square footage for their everyday lives. So, they met Mr. Lopez and they all thought they were a great match for each other. Both units include multi-purpose space that Mr. Lopez uses for his daily stretches and exercises and Mr. and Mr. Jones use to paint and read in their free time. The two units are connected by a communal space that they share (Figure 48). They often have dinners together and Mr. Lopez will recommend a movie to watch every other week. The communal spaces are often populated during the weekend when Mr. Lopez's grandchildren come to visit during the day and Mr. and Mr. Jones have visitors for dinner. The upstairs loft (Figure 49) above the living room is a game room with access to the rooftop deck that is often used when grandchildren and guests are over.

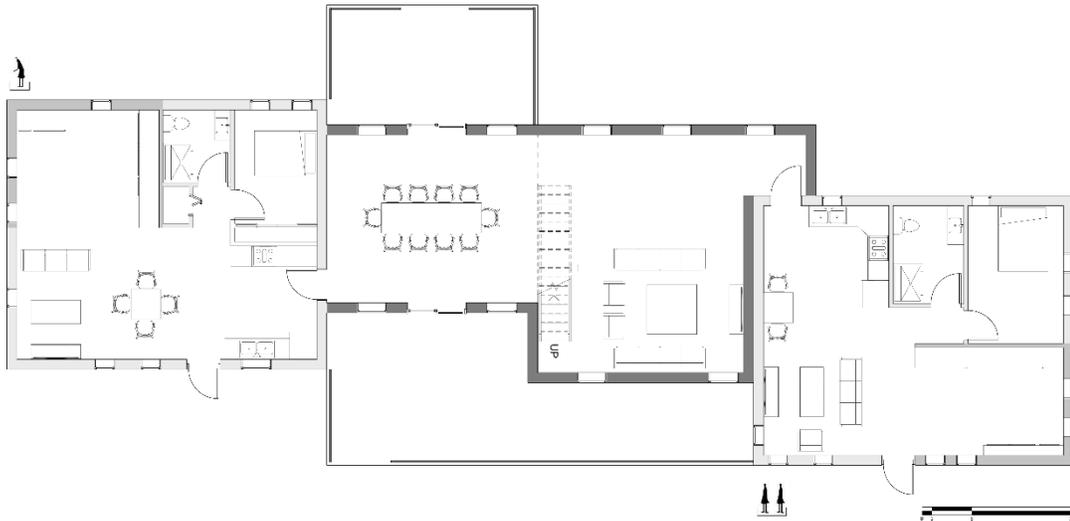


Figure 48: Year 1 – two units with connection.

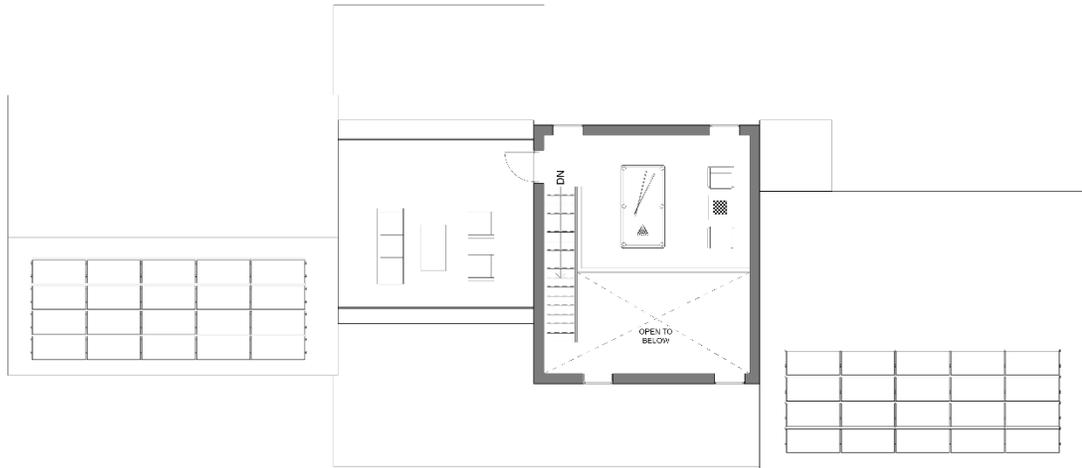


Figure 49: Year 1 – game room.

(by author)

A decade later, Mr. Lopez has retired and is getting older. His daughter felt that it would be helpful to move in with him so that her and her son could make him less lonely and help assist him. The multi-purpose space that was once his stretching and exercise room is now split into two smaller bedrooms that Mr. Lopez and his grandson sleep in. Mr. Jones' company has implemented a hybrid work environment so he decides to use the multi-purpose space as his office during the day (Figure 50). The loft space becomes a library space that Mr. Jones uses to do research for his work and where Mr. Lopez's grandson reads and does his homework (Figure 51).

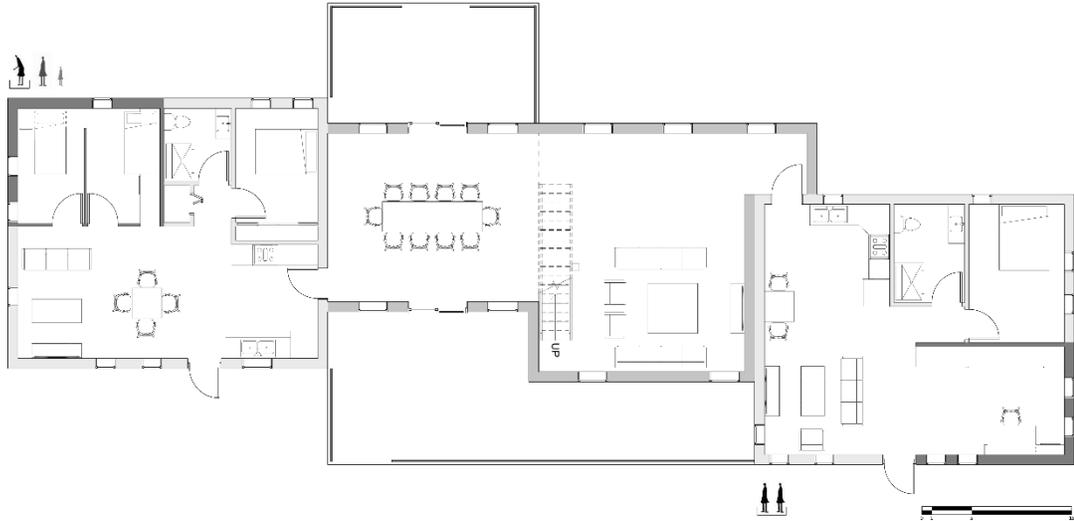


Figure 50: Year 10 – multi-purpose space used as a bedroom and office.

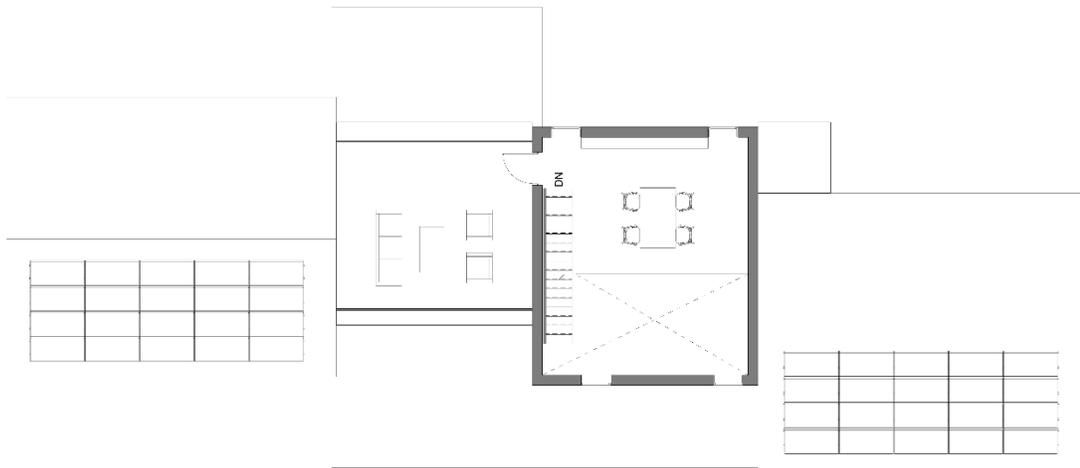


Figure 51: Year 10 – library.

(by author)

Another decade has passed and sadly, Mr. Lopez has peacefully passed away. Prior to his passing, he made sure that the ownership of the home would go to his daughter. The multi-purpose space that was once his and his grandson’s bedroom, becomes a bigger bedroom for his grandson. Mr. and Mr. Jones have retired from their

New York City jobs and occupy their time by having their family and friends over especially their nieces and nephews. The office space that Mr. Jones used for his work has now become a guest bedroom for all their visitors. Since Mr. Lopez's passing, his daughter is struggling to afford this home as she does not have a similar income to Mr. Lopez. So, his daughter and Mr. and Mr. Jones discuss on how they can create a co-beneficial solution. They decide to create a short-term rental unit (Figure 52) in the double height connection space since there are two universities nearby where students often choose off-campus housing. This short-term rental helps offset the cost for both households and provides housing for Mr. and Mr. Jones' visitors during major holiday breaks and the summer. The loft space becomes the bedroom of the new unit with rooftop access (Figure 53).

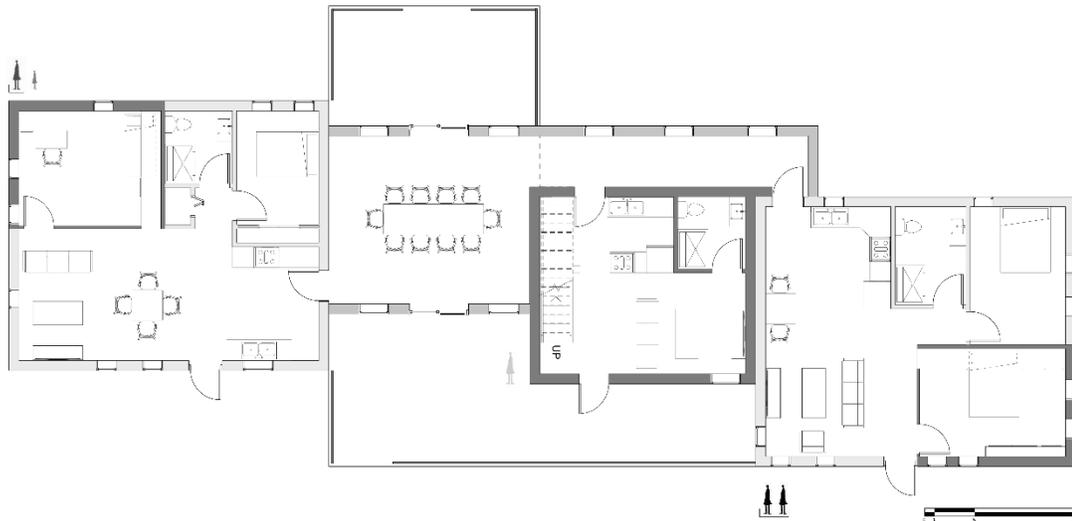


Figure 52: Year 20 – short-term rental unit.

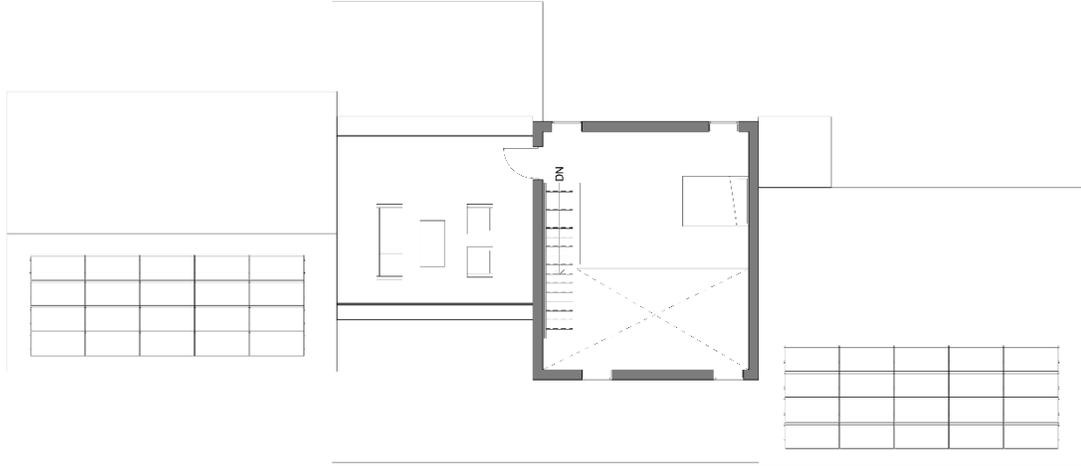


Figure 53: Year 10 – bedroom for short-term rental unit.

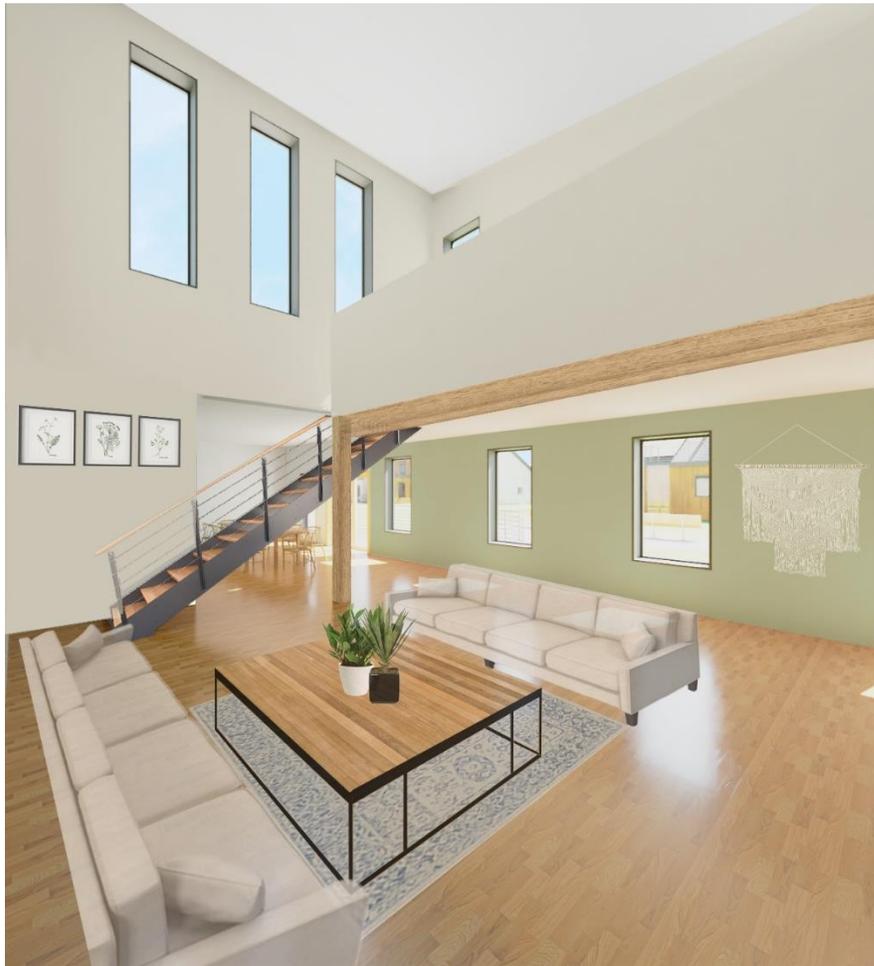


Figure 54: Connection – living space that can be turned into rental unit.



Figure 55: Multi-purpose - office space.



Figure 56: Multi-purpose – guest bedroom.

5.5 Conclusion

Creating a community among residents in the same neighborhood has become more important now than ever. When reflecting on Levittown, the idea behind it was very thoughtful and supportive in terms of providing a mass production of affordable housing for veterans returning from World War II. The 1950's American Dream is what society considered as ideal but it was only one vision. In our world today, everyone has a different vision of the "American Dream" but they include a community that they feel they safe and comfortable being a part of. The country has become diverse in not only its demographics but in families as well. The American Dream must be re-envisioned to reflect not only our current needs but our future as well. My thesis is one attempt at re-envisioning the American Dream. Using my philosophy and toolkits, it can easily be implemented and expanded.

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