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Re-imagining Design for Affordable Housing in Mexico

Kenza Fernandez Dominguez

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RE-IMAGINING DESIGN FOR AFFORDABLE HOUSING IN MEXICO

THESIS PRESENTED BY

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IN PARTIAL FULFILLMENT OF A BACHELOR OF ARTS DEGREE IN ENVIRONMENTAL ANALYSIS

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ABSTRACT

Since the presidency of Enrique Peña Nieto, affordable housing developments in Mexico have been produced in a massive, unsustainable scale. The speed at which these developments are produced equates to the carelessness that goes into their planning. At large, the developments’ monotonous design is aesthetically dehumanizing and fails to promote a sense of community. These developments lack basic infrastructure, and their residents have abandoned them, which has incentivized increased criminal activity.

In this paper, I will be looking at successful models of affordable housing globally, exploring the histories of communal living, and function of architectural collages. Based on my findings I will propose and present aspects which I think are critical to consider before creating a master plan for a social housing development. To gain access to the most diverse audience possible, I have displayed these aspects in collages. Each collage will highlight a specific aspect of the built environment of which I present, for example, putting green areas at the forefront of design, communal kitchens and bathrooms, nightlights, community center/spiritual place.

INTRODUCTION

What is a Home?

Historically, home has been a physical structure that protects human beings from environmental hazards like the wind, cold temperatures, and rain. A physical home allows for privacy. Home is insulating. Yet, to have a roof over one's head is not the only component that makes up a home. Home is a place that gains more importance the longer it is inhabited. Home as an ideology is a space that provides cultural and social safety, in it we are able to express
ourselves free of judgement. Home is the first place where our values and beliefs are instilled, it is where our habits and behaviors are formed. Its features are necessary to our survival, for in it we recharge, decompress, feed ourselves, bathe ourselves, and sleep. A home makes us who we are. It can set us up for success as easily as it can set us up for failure.

Modernist architect Le Corbusier famously said that “the home should be the treasure chest of living.” A treasure chest represents a mission that requires years of scavenging and searching, this is the very difference between a house and a home. To build a house, you need external influences and knowledge: an architect, engineers, construction workers, plumbers, electricians. With all the right components, a house could be finished relatively quickly. To build a home though, that is a longer process that requires constant care and dedication. A home involves family and collective memories. A house serves function, a home influences emotion. The closer a house is to a home, the more gold the treasure chest has.

Home is also not a fixed term. The COVID-19 lockdown, for example, has challenged the ways society defines what homes are. The pandemic forced the entire world to stay inside and adapt their entire lifestyles, routines, and activities to finite / predefined squared meters. Now, instead of having designated spaces for each activity, spaces became multidisciplinary; kitchen tables became work desks and kindergartens, living rooms became gyms, and hallways became playgrounds. The first few months of confinement, when there was still a lot of uncertainty about the spread and effects of COVID-19, staying home guaranteed survival and homes were again literal shelters.
The Aim and Proposal of this Paper

By exploring different communal living models, I will argue that design is a critically influential factor for the perception of safety and overall quality of life of those who inhabit social housing developments. I believe that the most effective way to get spatial design information across to the most diverse audience is by using collaging techniques. Therefore, I will be creating a series of collages that represent what should be prioritized when planning a massive housing development. These collages are meant to disrupt the typical social housing model that has permeated Mexico’s suburbs this past decade.

I believe that there is harm in monotonous spatial design, especially when it comes to spaces where humans are supposed to inhabit and lead their daily rituals and activities. I value individuality and aesthetics as a driving force for change. If social housing were designed with its inhabitants as the main priority and target user, they would be more humane environments that encouraged connection. With this paper, I open a conversation about the importance of aesthetics and the possibility of creating beautiful, scalable, and comfortable homes at a sustainable rate, and how that can influence people to create communities. When building houses, especially social houses, at a mass scale, we must build them with the intention of them becoming homes.

What is a Community

A community exists when the results are greater than the sum of its parts. When people live in / form a part of a community, they mutually inspire each other to become better citizens,
activists, and people. The longer a community has collaborated, the more empowered they feel towards taking actions that move them in whichever direction they desire.

In an ideal community, people have mutual trust, safety, and respect. They trust one another, they feel safe, respected. The survival of a community relies on protection of their social compact. They know they are the best version of themselves, as individuals and as a group.

*Imagined Communities*

We are conventionally taught that home is familial, that it is a space we share with family. Still, I think it important to recognize that biological family itself is, as Benedict Anderson would point out, an imagined community. In 1983, Anderson published *Imagined Communities*, a book in which he challenged the idea of a nation, he claims that all communities around us are “imagined” because they are socially constructed. The comfort and safety we place on that community, because it is imagined, can extend far beyond the boundaries of a traditional family structure and household, and can merge with a larger system such as an entire neighborhood.

In Anderson’s book *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (1983), Anderson points out:

(2) The formal universality of nationality as a socio-cultural concept- in the modern world everyone can, should, will, ‘have’ a nationality, as he or she ‘has’ a gender - vs. the irremediable particularity of its concrete manifestations, such that, by definition, “Greek” nationality is sui generis. (3) The ‘political’ power of nationalisms vs. their philosophical poverty and even incoherence … It is imagined
because the members, even the smallest nation will never know most of their fellow-
members, meet them, or even hear of them, yet in the minds of each lives the image
of their communion. Renan referred to this imagining in his suavely backhanded way
when he wrote that “Or l'essence d’une nation est que tous les individus aient
beaucoup des choses en commun, et aussi que tous aient oublié bien des choses.¹

Based on Anderson’s theories, a community is created through shared ideals. Design can
help develop these ideals and create a greater sense of communal care, and care for the physical
space. Affordable housing units in Mexico should be designed with built structures that promote
for the creation of a greater community amongst those who inhabit these spaces. For example,
this can manifest in the form implementing communal gardens in these developments, which
could bring people together and encourage them to work together. Because a community can be
as small as two people and as large as an entire nation, without a community there cannot be a
home.

IDENTIFYING THE PROBLEM

History of Affordable Housing in Mexico

INFONAVIT

Affordable housing in developing countries is usually sponsored or created by governments.
Unfortunately, these houses are tailored to the best interest of the institution and the government
as opposed to meeting the needs of their residents. The acronym INFONAVIT stands for

Instituto del Fondo Nacional de la Vivieda para los Trabajadores, which translates to Institute of the National Fund of Housing for Workers. Established in 1972, INFONAVIT has become Mexico’s “backbone for mortgage financing.”  In the year 2000, President Vicente Fox ambitiously announced he would be building two million houses during his presidential term. Upon winning the elections he announced: “my presidency will be remembered as the era of public housing.”

By the end of his sexennial (six-year term), he successfully built 2,350,000 homes. At its peak production, these homes were being constructed at a rate of 2,500 per day. When Enrique Peña Nieto was elected president in 2012, INFONAVIT granted seventy percent of home loans, breaking historical records. What was astonishing about this is that sixty percent of the credits were granted to people between the ages of 14-18.

Let us think about these numbers again. 2,500 houses per day. By working at such a massive scale, architects and construction companies need to work at unrealistic speeds, which produced the outcomes and developments we see today: infinite replications of the same

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“shoebox”\textsuperscript{7} home over an inorganic grid of terrain. Those who planned these developments had no space or time to even contemplate adding a tree or two per hundredth house.

\textit{Aesthetics of INFONAVIT}

The minimum federal requirement per social housing unit is 43 squared meters.\textsuperscript{8} From an aerial view, it is evident that most developments stuck to that minimum requirement, because one can see the never-ending arrays of small houses that suffocate each other.

Zoom in to the suburb of any Mexican city on google earth’s satellite images and you will most definitely find signs of these sprawling suburbs. The process goes as follows: A plot of land is acquired and bulldozed, leaving no trace of any tree of bush. Once there is no trace of organisms and the surface is purely soil, the land is divided into equal sections. A lot of the time, the land is not leveled. Houses are leveled individually, and only if there are enough resources is the land itself flattened. Builders might cut through hills or mountains. Once the land is clear, main roads are paved. Finally, one unit design is built repetitively throughout the property. In attempts to maximize profit and space, developers try to squeeze in as many houses as they can per plot of land. People are handed their houses and move in sometimes before basic infrastructure, such as electricity, water, gas, and sewer, is fully installed.

Rarely, the development will include a church or chapel, a park for kids to play in, and a community center. But some developments will consist of only monotonous houses.

INFONAVIT prototype in development site

9 Corona Benjamin, Livia Two Joint Houses as Model Home. Ensenada, Mexico. 2000 - present
Abandonment of Low-Rise Suburbs

Carlos Martinez Velazquez, who is the director of INFONAVIT under current president Andres Manuel Lopez Obrador, announced that on average, eighty thousand houses funded and constructed by the INFONAVIT are abandoned every year.\textsuperscript{11}

In an article by Victoria Brunett, published in \textit{The Seattle Times} in 2014, Brunett interviews people who at the time lived in a community called Zumpango, located about two hours from Mexico City. A few years after its development, Zumpango was quickly abandoned.

\textsuperscript{10} Taboada, Jorge, \textit{ALTADEN99}, 2018 https://jorgetaboada.wixsite.com/jorgetaboada/alta-densidad
\textsuperscript{11} https://www.sinembargo.mx/06-02-2019/3532339
due to lack of basic infrastructure. An interviewee explained that “they brought the people first, and then they built the infrastructure”\textsuperscript{12}. This means that construction companies were commissioned to build the shoebox houses and people moved in as soon as the houses were up, yet, the sewage, electricity, water supply, had not even been installed yet.

Also, transportation to and from these developments was extremely unrealistic based on the salaries of those who occupied those homes. With four-hour round trips daily, some would spend up to one fourth of their daily income on transportation alone.

Aside from lack of basic services, these communities may be in unsafe areas, meaning areas of violence. Based on Estudio Diagnóstico del Derecho a la Vivienda Digna y Decorosa (Diagnostic Study of the Right to Dignified and Decent Housing) conducted in 2018, 345,000 people fled their homes from their homes because of violence. Also, uninhabited homes incentivize neighbors to leave, because the more abandoned homes, the more unsafe and unstable a community feels. Poorly planned communities create the inhospitable conditions they are meant to ameliorate. The very thing that is supposed to eliminate poverty keeps re-creating and expanding it.

Brunett notes that “about 14 percent of Mexico’s 35 million homes are unoccupied”. As of 2019, BBC\textsuperscript{13} reported up to 5 million houses uninhabited in Mexico. Nonetheless, according to the United Nations’ publication Business Call to Action, “6 million Mexican families still need to improve their living conditions”\textsuperscript{14} and reside in inadequate housing.

\textsuperscript{12} https://www.seattletimes.com/nation-world/residents-abandoning-mexicoorsquos-affordable-housing-sprawl/
\textsuperscript{13} https://www.bbc.com/mundo/noticias-américa-latina-47263282
\textsuperscript{14} https://www.businesscalltoaction.org/news/member-spotlight-chale-a-tu-casa
The Problem with Abandoned Houses

The problem with abandoned houses is that once they have been vacated, it is usually too late, in two distinct aspects. The first is that by the time a house is reported as empty, the infrastructure could already be depleted or re-inhabited by plant species and animals. The second is that once a group of houses is abandoned, cartels or criminal groups can inhabit them, which forces those remaining in the surrounding area to move out themselves. In other words, empty houses re-create the conditions they were built to solve.

Infrastructural Safety

The most prominent factor which affects social housing in Mexico is safety. Lack of safety does not only lead to abandonment of homes, as previously mentioned, but can also lead to chronic health effects.

In an article published in 2014, Neighborhood characteristics and leukocyte telomere length: The Multi-Ethnic Study of Atherosclerosis\textsuperscript{15}, Needham, et al. found that the perception of how safe a neighborhood or community felt to adults aged 45-84, was correlated to the rate at which their telomeres were shortening. Telomeres reside in the tips of chromosomes and are the most prominent indicator we have of aging so far. The shorter someone's telomere is, the more aged they will be, the more likely they are to develop chronic diseases that are linked to aging such as type 2 diabetes, Alzheimer's, and leukemia. This proves that perception of safety does in

fact influence people's wellbeing, and there are aspects of urban development which can influence the ways in which people can feel safer.

The easiest approach to making a place feel safer is light. As mentioned before, some Mexican social housing communities have infrastructure set up for light that was not followed through with and ends up not being installed, but some neighborhoods and communities (such as those TECHO chooses to prioritize for building) have no lights at all. Although light might be taken for granted in the United States and other first world countries, it is not normal for streets, especially those outside big cities, to be illuminated in developing countries. Walking past sunset then becomes unsafe, especially for women and children. When there is no light in sidewalks, there could be more criminal activity that would go unnoticed by the community.

Light also limits the amount of social activities that can be performed outdoors. When it gets dark and there is no light, children are not able to play in parks and vendors are not able to sell. This timed end to all outdoor activities forces people inside, and even with light, empty streets and neighborhoods will be perceived as less safe.

Whether or not a town or community is connected to a grid, a simple, affordable, and sustainable solution to combat darkness is plastic water bottles. In 2002, a Brazilian mechanic by the name of Alfredo Moser invented a technique that illuminates the interior of his house via sunlight refraction using only a plastic water bottle, water, and bleach\textsuperscript{16}.

The non-governmental organization Liter of Light adapted this same idea in 2013 and incorporated a lead acid battery and a 10-watt solar panel. Adding the battery and panel to

Moser’s design and a panel of galvanized steel makes it possible for the light to shine at night. The batteries of their streetlamps last up to five years.

**Case in Tabasco**

In the state of Tabasco, thousands of homes were flooded due to the lack of infrastructure endemic to low-cost public housing in Mexico. Because of the corrupt nature of the government and most construction companies commissioned to develop these communities, there is little to no research on the site or location of the development. In the case of a specific development in the state of Tabasco, a simple rainfall flooded the entire neighborhood, because it was placed upon non-permeable terrain. If you pave all roads and remove all dirt, terrain becomes non-permeable and therefore there is no filtration.

The problem here originated from the lack of research prior to constructing. Placing houses directly over flood plains is extremely risky, unprofessional and disturbing.

*Flooded social housing community in Tabasco*\(^\text{17}\)

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\(^{17}\) **AFP / Fotógrafo autónomo, An aerial shot of a flooded neighborhood, November 4, 2007. Getty Images**
https://www.gettyimages.com.mx/detail/fotograf%C3%ADa-de-noticias/an-aerial-shot-of-a-flooded-neighborhood-of-fotograf%C3%ADa-de-noticias/94984311
Aesthetic Critique

*Alta Densidad: Project Analysis*

In 2010, a Monterrey based architectural photographer, Jorge Taboada, embarked on a project titled “Alta Densidad”, which translates to “high density”. This project would offer his audience a “silent criticism” of the repetitive monotony and lack of green spaces of INFONAVIT housing developments. What initially drew Taboada to photograph these housing developments was the beauty of their geometry and repetition from above. It did not take long for him to consider those who inhabited the houses as victims of the “depersonalization of housing and extinction of individuality.” In an article for BBC Mundo, he critiqued the houses by describing them as “time bombs” because they are “small concrete houses with have no backyard or green areas, and they are not prepared for the weather for which they are built”. Taboada’s aim for his audience was for the viewer to go through two different phases. The first one is fascination. As with most aerial photographs, it takes the viewer some time to decipher what exactly they are seeing in Taboada’s pictures. Because of the infinite repetition of the same shape expanding to all four corners of each image, the conjunction of all individual units become an abstraction.

Once one unit is identified, it becomes evident that what we see as viewers are concrete structures. Without knowing about Mexican affordable housing, someone might not be able to identify the units as houses. They could be mistaken for a military base, factory, or some other large-scale industrial facility. At this point, the second phase of viewing is perceived, when the

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18 https://www.bbc.com/mundo/noticias-america-latina-43593810
19 https://www.bbc.com/mundo/noticias-america-latina-43593810
audience becomes aware of what exactly they are looking at and the inhumane conditions of its
design. The audience is then able to understand what Toboada describes as “archeological
remains [where] people lose their face and identity and become invisible.”

When people are visually abstracted from the built environment in which they reside, they lose their sense of self and motivation to seek community.

**Two Million Homes for Mexico: Livia Corona Benjamin**

Corona Benjamin is a Mexican photographer that has been capturing how humanity is represented in the built environments of social housing in Mexico since the election of Vicente Fox. Her project, *Two Million Homes for Mexico*, began in 2000 and is still active. In her website, Corona Benjamin says that she “aims to form the space between promise and fulfillment” through photography. She also says, “I seek to give form to how these developments affect the experience of individual residents. What exactly happens in these two million homes? How do they change over time? How do tens of thousands of lives play out against this kind of confined cultural backdrop?” A lot of her photographs she names “overnight city”, which is the perfect articulation for what the creation of these cities represent.

This photography project differs from Toboada’s because aside from including aerial shots of the developments, it also opens a new perspective to the audience, that is the human perspective. By adding photographs of children and people interacting with these spaces, they become more tangible for the audience to grapple with. It is easier to put oneself into the shoes of the people Corona Benjamin photographs.

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20 [https://www.plataformaarquitectura.cl/cl/893152/paraisos-siniestros-fotografias-aereas-de-vivienda-de-interes-social-el-mexico](https://www.plataformaarquitectura.cl/cl/893152/paraisos-siniestros-fotografias-aereas-de-vivienda-de-interes-social-el-mexico)

21 [https://liviacorona.com](https://liviacorona.com)
Included below is a portrait which best communicates the realities of the non-human centered design that social housing communities. This image she titled *Student at Neighborhood Park. Fraccionamiento Cuatro Vientos, Ixtapaluca Mexico.* In it, we can see a child sitting at the bottom of a slide placed over a mound of dirt. In the background we can see land which was clearly bulldozed with the exception to one tree. To the right of the image, we can see four of the same houses. The child has his backpack next to him, which creates a narrative to tell the audience that he is on his way or returning to school.

![One of Corona Benjamin’s portraits in social housing community playground](image)

Corona Benjamin used proportions beautifully in this image. Although we know the photo essay is targeted towards the “Two Million Homes,” having the child be the same size as the housing units in the background shifts our focus from the objective problem, unsustainable

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infrastructure, to the harsh realities that it forges. These 1:1 proportions pronounce that both issues should be treated with the same care and consideration. One cannot exist without the other. What is evidently missing in this image is the lack of green communal space (park and outdoor infrastructure). Captured is a design that excludes a community of children (which are a significant proportion of the population). If there are no built, structural resources that encourage community, how can a space feel like a home and how is it sustainable?

**Tatiana Bilbao Estudio**

In 2015, Tatiana Bilbao Estudio presented the Chicago Architecture Biennial with a social housing proposal for “Mexico’s poorest inhabitants.”\(^{23}\) Her proposed model was flexible enough that if the families that inhabited each unit ever grew, the houses could be easily adapted to accommodate the larger number of occupants. Her goals were to “develop a model that could allow people to have more space for the same [amount of] money”\(^ {24}\) as a traditional social housing unit. The layout of these housing units she designed can also be altered to fit each user’s best needs. This means that despite having uniformity in materials, color, and base design, each housing unit is different from one another. She emphasized that materials can also be interchanged based on location and weather, meaning the model can be adapted for anywhere in Mexico. She divided the construction process of each house into phases, allowing opportunity for expansion only when each phase had been completed. The Chicago Architecture Biennial notes that “the first phase of the house includes two bedrooms, one bathroom, one kitchen, and a


\(^ {24}\) [https://www.youtube.com/watch?time_continue=23&v=RAkraYElnE&feature=emb_logo](https://www.youtube.com/watch?time_continue=23&v=RAkraYElnE&feature=emb_logo)
16 ft. (5 m) high dining and living room. When completed, the third phase will provide space for five separate bedrooms.\textsuperscript{25} The total construction cost is under $8,000 USD.

For this design, Bilbao interviewed 2,000 current social housing residents. This approach is crucial because it places the user at the center of the design process. This is a practice found in human centered design. By focusing on the user and interviewing their experience empathetically (understanding the “why” as opposed to the “how”) one can focus on the problem and design based on that.

Her main takeaway from these interviews is that "nobody wants a flat roof anymore, they want a house that looks like a house." She explains that "the whole of Mexico is full of these grey houses with steel bars left out on the flat roof … In the past this meant that you were showing prosperity, you were showing that you were looking forward to growing. But right now, it's a sign of failure."\textsuperscript{26}

By designing with the user as the customer instead of the government, Bilbao was able to give her residents a home. Not only was the construction cheaper, but it also had a larger surface area and harmonized with the natural environment.

\textsuperscript{25}https://chicagoarchitecturebiennial.org/news/features/sustainable_house
\textsuperscript{26}https://www.dezeen.com/2015/10/06/tatiana-bilbao-low-cost-social-housing-mexico-chicago-architecture-biennial-2015/
Analogous solutions

*Vertical Living*

With population growth and city expansion, the easiest solution to prevent housing abandonment is vertical living. What this means is expanding vertically rather than horizontally. Instead of building individual homes, you build various townhouses or buildings. This way, space is optimized and transportation time to and from suburbs to downtown areas is quicker and cheaper.

Globally, the trend towards vertical living is being pursued to combat “increasing populations, rising house prices and growing environmental pressure.”27 Vertical living is the best way to avoid suburban sprawl.

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Although vertical living interferes with the Latin American idea of a conventional home (single story, open, surrounded by green area), so does the current concrete sprawl expansion of affordable housing developments. Scrapping down a plot of land completely before beginning a project will lead to an area having the same amount -or less- trees than an apartment home or building.

Vertical housing allows for more green areas in a development. There green areas can contribute to making houses feel like homes and building community.

**Garden Cities**

During the Industrial Revolution, in 1898, Ebenzer Howard wrote a book called *To-Morrow: A Peaceful Path to Real Reform*, in which he imagines cities that are “of limited size, planned in advance, and surrounded by a permanent belt of agricultural land.”  

Ideally, a garden city would need 6,000 acres of agricultural land to be able to thrive properly and house 30,000 people total.

The land is plotted in circles. The center would be dedicated to culture: “city hall, a concert hall, museum, theatre, library, and hospital…..Concentric to this urban core would be a park, a combination shopping centre and conservatory, a residential area, and then, at the outer edge, industry. Traffic would move along avenues extending along the radii and concentric boulevards.”

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29 https://www.britannica.com/topic/garden-city-urban-planning  
30 https://www.britannica.com/topic/garden-city-urban-planning
This proposed solution by Howard was very controversial because although it resolves the issues of sprawl and does provide lasting, green infrastructure for the suburbs, it fails to promote the further creation of community.

In theory, Howard’s ideas create community, but in practice they did not. Howard might have assumed that by constructing cultural infrastructure in the literal center of their design it would incentives community members to interact with each other. Placing the roads in the extremities of the circles allows for pedestrians to move around safely withing their respective circles.

While probably successful, all other aspects of the urban plan lead to minimal interaction between its members. Hindering the capacity of garden cities to sustain community across time is reflected in the segregation plotted in the land. Since the houses are at the extremities of the circular diameters, the plotted land lacks connectivity. Another problem produced by this design is the strict separation of housing, industry, agriculture and culture, which was a driving force towards an increased communal separation. The circular design and designated separation of the land separates people and reduces the opportunity for encounters.

Howard’s Garden Cities were successful because they put nature in the forefront of design allowing people to center themselves into a more harmonious way of living. An important takeaway to consider when building massive social housing living structures is that all aspects of life should be distributed uniformly and merge all throughout, as opposed to strictly separating infrastructure based on function.
TECHO: Affordable Prefabricated Living

TECHO, or Un Techo Para Mi País, was founded in Chile in 1997 with the aim to recognize popular settlements and provide them with dignified housing and a zip code. A popular settlement is a housing community that is not recognized by its respective government. These communities usually have no registered names, street names or house numbers. Two widely known examples of popular settlements are favelas in Brazil and ejidos in Mexico. Providing people with a formal domicile and registering their houses provides community

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31 Google Earth Capture, Brøndby Garden City https://earth.google.com/web/@55.63699597,12.39853881,9.72169099a,853.18643806d,35v,0.00000003h,0.27750265t,0r/data=ClkaVxJRCiUweDQ2NTI1NjNhMjAxNWU2NQ6MHgxZTk3ZjA1M2E0NTM3NjdmGZfTr77L0UtAITE0s0TCxhAKhZCcsO4bmRieSBiYXZlYnkgQWZkLiA3GAegAQ
members with basic infrastructural needs. Once registered, they have access to water, gas, electricity, sewage, jobs, and academic registration for their children.³²

The process of TECHO’s implementation into a community works as follows: First, a group of volunteers is recruited. In my case, in 2014 I signed up through my school along with another 150 students. The total number of volunteers is divided into groups of 7-10 people and from there they can decide how many houses they’re able to help a community build. A few people from each team are in charge of going to the community and interviewing its inhabitants to decide who most qualifies for a house. Volunteer groups are each in charge of fundraising the total cost of materials. Houses are prefabricated and are only $8,000 USD total. Finally, along with the inhabitants of the houses and community members, volunteers spend an entire weekend helping construct these prefabricated houses.

TECHO has a sustainability program in charge of making sure that inhabitants are empowered to maintain their community growth and improvement.

Prefabricated houses are a reliable and immediate solution for ejidos and slums to gain governmental recognition and transform them into dignified living environments. Since a lot of these communities already interact and collaborate every day and rely on each other’s help and shared resources for survival, building literal roofs they can have over their heads provides a structural house to their already established home.

³² https://us.techo.org
Ken Issacs

In 1974, American architect Ken Issacs published a book titled *How to Build Your Own Living Structures*. It is a recipe book that details the how to build different modular houses. His proposed houses range in price from $185 USD - $1,800 USD. The book begins by providing the most basic instructions on buying and selecting proper wood panels, knowing what hand tools are needed and how they are each used.

With the publishing of this manual, Issacs created a counter movement that democratized the architectural process. He provides people with the proper toolkit and skills for them to build their own houses and approaches construction in the most simplified terms.

When we think about the incorporation of his concept in affordable housing in developing countries, we can imagine a situation in which there is no architect, and no construction companies. People would build for their specific needs. This would be the ultimate
individualized and humane process. In reality, the approach that the government would take would be completely different because they would only have to provide people with land and basic infrastructure, this would a lot of money.

The two main concerns with allowing people to build their own houses would be the longevity of these structures and horizontal expansion. If the structures are not durable, then even the smallest earthquake, rainfall or other natural disaster could destroy someone’s only reliable living structure. The highest Issacs designs go are two stories, which would mean that there would be a horizontal expansion of sprawl instead of a vertical one, this would increase transportation time to and from jobs in cities, which would make it unrealistic for people to move there in the first place.

There would also have to be a strong consideration of the regulations that should be set in place by the government of sizes and materials that people would be allowed to work with. This would create a uniformity amongst design and differ from the stereotypical look of a slum (which are also self-made houses but constructed with scavenged materials.)

Letting people chose what their housing priorities are and allowing them the liberty to build based on these needs is the ultimate human-centered design. This idea would be the opposite of the current INFONAVIT structures aesthetically because it allows for individualized exploration and execution. If people design and build their own living structures with help of their neighbors, this would create a stronger community and their respective spaces are most likely to feel like a home because they chose what they included.
The Farmhouse by Precht

Upon relocating their offices from urban Beijing to suburban Austria, the architecture firm Precht thought of ways in which they could bring aspects of their new location that embodied nature back to the metropolis. So, in 2019, they finally came up with a design which very adequately combined both vertical farming with modular housing. This idea brings people's relationship with food to the foreground, and rethinks the relationship of shelter and food from an architectural perspective.

In their creation process, Precht tried to make the most use of what the buildings already offer: “buildings create already a large amount of heat, which can be reused for plants like potatoes, nuts or beans to grow. A water-treatment system filters rain- and greywater, enriches it with nutrients and cycles it back to the greenhouses. The food waste can be locally collected in the building’s basement, turned into compost and reused to grow more food.33”

The entire building is prefabricated and flat-packed, ready for delivery. Each module is designed as a polygon with three sides, so if it is a single person residence, that one triangle could be enough for them to live there. As a family size grows, more modules are added per unit, and the conjunction of many modules vertically creates the entirety of the building. The intersection of these modules which creates upside-down triangles is the surface area which is used primarily for gardening, but each individual module also has a balcony or outdoor area that is meant to be used for food production as well.

This vertical farming and living model that Precht has created is important to keep present as we think about building affordable housing in Latin America because it demonstrates a realistic possibility of a self-sustaining lifestyle in a vertical landscape.

Farmhouse’s design requires collaboration for it to collectively sustain and survive. This collaboration creates community that eventually from that unfolds a home.

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*Farmhouse project. Modules and building.*

34 Precht, *Farmhouse renders*, 2019
Communal Living

Co-living is described as “based on participation and sharing”35 by architects Helen & Hard, who built a 1:1 model of what they imagine to be an ideal co-living home. Their purpose with co-living is that it will “help tackle various environmental issues, increase residential security and combat loneliness36”.

Privatization of Spaces

Some spaces that we nowadays interpret as extremely private have historically been and are still (in certain cultures) used as places of communal ritual. The best example I can offer is the bathroom. Although restrooms in public spaces are shared areas divided only by stall walls, in households, bathrooms are usually private and individual. The typical idealized western model of a household has more than one bathroom. Unless a building is very old there will be no such thing as a communal bathroom that is shared with other people in a household.

But, models of shared bathing have been successful historically.

A Hammam is a great historical example of a shared and successful bathing area. This bathing practice was utilized by the Greeks and Romans and gained its popularity in the Ottoman Empire37, which is why it is now also referred to as Turkish Bath. Its purpose was to purify. In

the present day, they are fundamentals for public health in Turkey, it is not only used for self-care, but also to heal ailments\textsuperscript{38}.

Other examples of communal bathing that are still practiced include but are not limited to Native American sweat lounges, Japanese Sentō’s, Russian banyas and Finnish saunas\textsuperscript{39}.

Although bathing is not as ceremonial in modern society, its ritual aspects remain. It is a place where repetition is practiced daily, and a quiet experience where one finds peace.

In social housing communities, there is opportunity to revive aspects of private space and make them communal. The benefits of this are not only spatial (maximization), but also social, because people can meet and come together and practice rituals in conjunction.

The success of this practice ritual is seen today in American modern society in college dormitories. Groups of students get to know each other by having to practice hygiene in the same places. Bathrooms become safe spaces through a shared vulnerability that is experienced daily. By the end of the semester, an imagined community is born amongst those who share bathrooms, and even if they have never spoken to each other before, it is most likely that students feel more comfortable with the people they share bathrooms with than with perhaps others in their classes. Sharing resources and spaces forces interactions that might have otherwise not happened. This builds trust and from that trust blossoms an imagined community.


Parks

On the other spectrum of communal living we have areas that have historically been designed for communal interactions. The most common and one very lacking in current affordable housing design in Mexico is parks and green spaces.

Like communal bathing spaces, parks are places where people are encouraged to interact by the nature of their design. They are great spaces for people of all ages and socioeconomic backgrounds to spend time together and interact, whether that is through children playing in playgrounds, teenagers playing soccer, or elderly playing chess. If the park has a communal garden, it creates a communal urge to work together towards the survival of such garden.

City parks and communal gardens allow people for access. They are direct exits to nature outside the vertical and direct pathways to emotional recharging and relaxation. Psychologically, parks have a big role in changing peoples moods and emotions. In 2018, the Psychological Studies journal published an articles that “presents people’s perception of the relationship between space quality of urban park and mood state after visiting urban parks”, they found that urban parks reduce stress and are beneficial to peoples health. What was super interesting was the how the moods of females differed from the mood change of males after spending time in the green spaces. What was very interesting was the different attitudes males and females had towards interacting with those green spaces.  

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Avant Garde and Architecture

Founded in Italy in the 1960s by Gian Piero Frassinelli and Adolfo Nataline, Superstudio is perhaps the innovator and the most well-known studio that gave way to the art of visualizing utopian worlds through collage. They have offered a new perspective to architects and urban planners on how the built environment could be imagined and represented. At the time they started, their work was extremely radical and controversial, The New York Times noted that “the starting point of everything Superstudio did was dissatisfaction with the uniformity of modern architecture, which its left-wing members saw as an instrument of capitalism that disempowered the masses, robbing them of their individuality and freedom. Sometimes, they made fun of the status quo, or took it to absurd conclusions; other times, they imagined utopian futures”.  

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42 Superstudio, Supersuperficie, 1972 Archivo Superstudio
Superstudio’s work paved the way to a new way of interpreting and expressing spatial ideas visually. The power of their work is its literacy. Their collages inform my work because I am just proposing this re-imagined approach of affordable housing in Latin American to architects and urban planners, but also to those who work in completely different fields who are most powerful in funding and creating the future of social housing like politicians, business CEOs and lawyers.

Superstudio created a counterculture that questioned the field of urban planning. In 1971, Natalini noted: "if design is merely an inducement to consume, then we must reject design; if architecture is merely the codifying of bourgeois model of ownership and society, then we must reject architecture; if architecture and town planning is merely the formalization of present unjust social divisions, then we must reject town planning and its cities.”43 This quote challenges the very essence of building. His words reflect the realities of the predisposition that building and designing spatially creates socioeconomically, racially and socially. Based on this argument, we could counter Anderson’s ideas about imagined communities and say that in fact communities are not imagined, but created and curated based on physical infrastructure.

What is also most important to me is to make my work legible to those who inhabit these communities. Affordable housing serves various socio-economic groups, but it is designed for the lower classes, which are typically the classes with the least education or literacy rates. I want my work to inspire hope for those who currently live in these monotonous communities for a

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better and tangible alternative. If their eyes open to realistic housing alternatives, maybe they can demand change and aspire for better living conditions within their communities.

The last group I wish to target as my audience is children. These collaging techniques, aside from being eligible to those who are illiterate, are attractive to their eye because of their use of colors, shapes and compositions. At first glance, their informality and playfulness might not be taken seriously by adults, but it is most approachable for children. They are the future and I hope that through my collages they can see themselves in the created spaces and imagine ways in which their own communities could be improved.

My Proposal

Why Collages

Now, I will propose collages two that communicate the building blocks for what should be prioritized when imagining and planning for a sustainable community. I chose to communicate these issues in the form of collages because they most legible to the greatest audience. A blue print is only legible to an architect, a legal document is only legible by government officials, but collages are digestible by everyone. One does not even need to be literate to understand these collages.

This summer (2021), I spent three months working with Tatiana Bilbao Esutido and understanding their ideation process which stems from collaging. A few years ago, the firm decided they would be presenting all their work in collages instead of renders, and all their projects would begin with a collage. What this does erase the limits of what we conventionally think about when we imagine a built structure and open space for exploration that go beyond what is possible and tangible. Collaging for them is like brainstorming. They conceptually
visualize all the conceptual functions space should serve to its inhabitants for example, create community, stimulate peace and relaxation, inspire education. From that, they imagine all visual possibilities that go beyond physical realistic constrictions. Once they have their concept, they attempt to focus on what they can build based on that.

I want for my collages to kindle conversations about what affordable housing developments should feel like. Visuals are a great way to convey emotion, and I don’t want them to be a literal representation of what they should look like, which as mentioned before they should be dignified houses, I want instead my audience to be persuaded by pathos and feel empowered to seek that change in their own homes.
My Collages

Fernandez Dominguez, Kenza. Sketch of Collage 1. 2021

In this sketch, I placed the children and outdoor activities in the foreground to symbolize that their needs are what the design is built around. There is also a bicycle because I imagine these places to be as pedestrian-friendly as possible and I included a shared communal garden. Behind the trees (I included trees to show that my idealized social housing community does not wipe them entirely before construction) in pink, are the houses.
Fernandez Dominguez, Kenza. *Collage 1*. 2021
Conclusion

The main takeaway I hope people take upon reading this project is that we are a long way to achieving any major change in the way social housing is massively constructed in Mexico and very little interest in doing so. I was surprised as how small the conversation was regarding the aesthetical design of these spaces is dehumanizing.
Affordable housing in Mexico should be human-centered. The ultimate users should be those who will inhabit those spaces and not the government. Dignified social housing should involve infrastructure that promotes for the creation of community, if this is achieved, then the houses will be able to feel like homes.
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