

FACTORY CITY TIJUANA:  
TOOLING SPACE FOR WORK AND LIVING

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University of Houston  
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# Tijuana/San Diego

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## **FACTORY CITY TIJUANA:** Retooling Abandoned Space for Work and Living

In Mexico there is an estimated 650,000 social housing units that have been abandoned. Most will be demolished. Many of these houses are located in towns along Mexico's northern border. In Tijuana there are about 50,000 abandoned dwellings alone. Many of the housing developments that have been abandoned are located in the outskirts of Tijuana. Their isolated location along with increase rates of crime are reasons for the abandonment and deterioration of these houses. Half of the developments are created by Infonavit, with the goal to combat the erratic urban expansion of illegal settlements, built by citizens in need of homes.

Moreover, Tijuana has 570 out of 3,000 maquiladoras in Mexico. The maquiladora industry continues to grow in Tijuana despite its decline in other border cities. However, the working conditions in the maquiladoras remain unsafe and unfair. Many of these workers also live in illegal settlements or ineffective housing developments.

A new housing development model that focuses in quality of life and provides resources for former maquiladora workers and others who are self employed would be highly beneficial for the residents of Tijuana. Former maquiladora workers could practice their own trade using their former skills and residents who used to have their own business outside their homes can now have their own space for work and living.

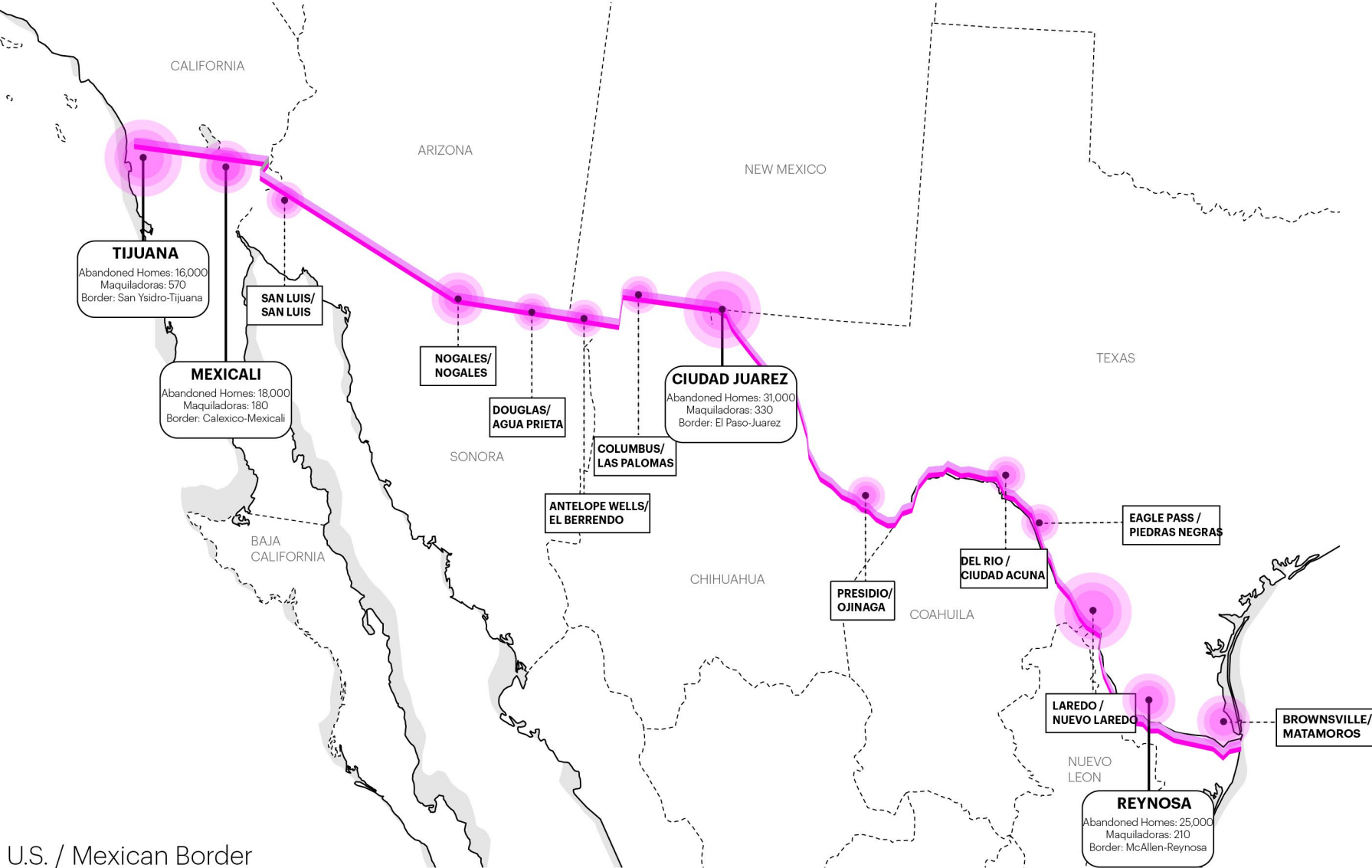


Abandoned Housing



Maquiladoras

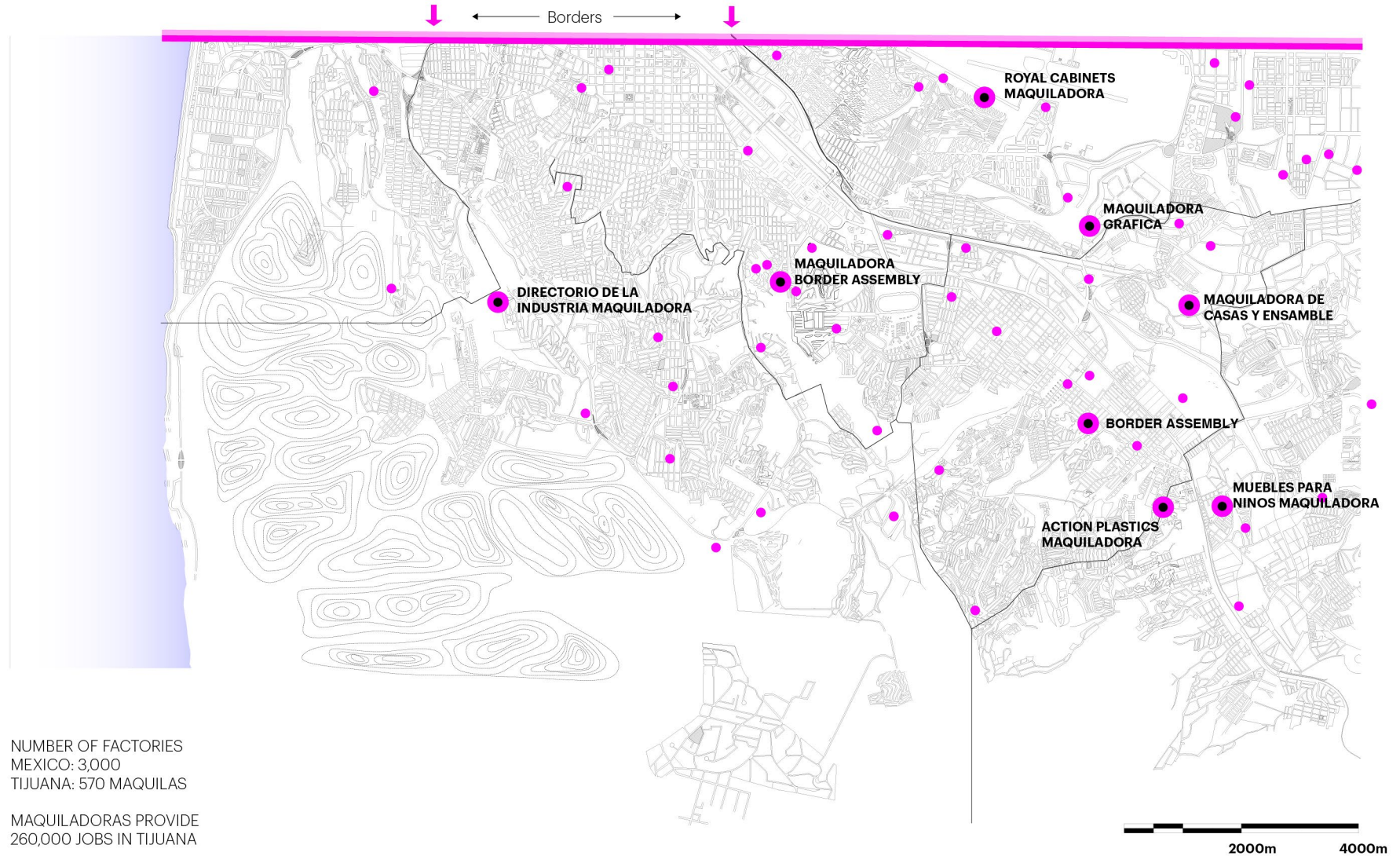




U.S. / Mexican Border



## Tijuana Maquiladoras



# Working Conditions

## Disadvantages of Maquiladoras

- Environmental negligence
- Living wages near or at poverty level
- Health risks
- Unsafe working conditions
- Poor labor protection laws
- Gender Inequality
- Verbal Abuse
- Inadequate housing for employees



Many abusive working conditions still exist in the Maquiladora Industry. Generations of workers have been underrepresented allowing for an unsettling cycle of near forced labor conditions. Some rigidly controlled maquiladoras where political partnerships between companies, government authorities, and unions disempower the workforce. Laborers are silenced from asking for safer living/working conditions, better wages, and fair treatment in fear of reprisal such as less overtime or firing. Very few choices are presented to the Maquiladora working class to improve their work environment placing the burden of improvement on the Maquiladora Industry itself.



## Maquiladoras and Gender Inequality

Unethical gender bias is a common occurrence within the maquiladoras industry. One can find that the majority of maquiladora's workforce is comprised exclusively by women. Supervisory positions are mostly reserved for men, and women often would be the subject of harassment and unfair treatment. Maquiladoras prefer women over men, believing women are less likely to report unfair treatment, harassment, or abuse for fear of retaliation or removal.



## Protest for Improved Working Conditions

Along the US-Mexico border, the growing wave of strikes and protests in sweatshop maquiladora factories marks a critical flashpoint in the struggle between the capitalist class and the working class over the global response to the coronavirus pandemic. Doctors across the border region report that hospitals are overflowing with sick and dying maquiladora workers.



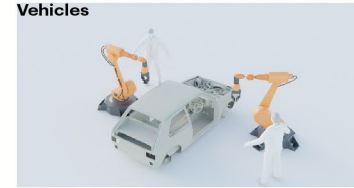
### Clothing



### Motors



### Vehicles

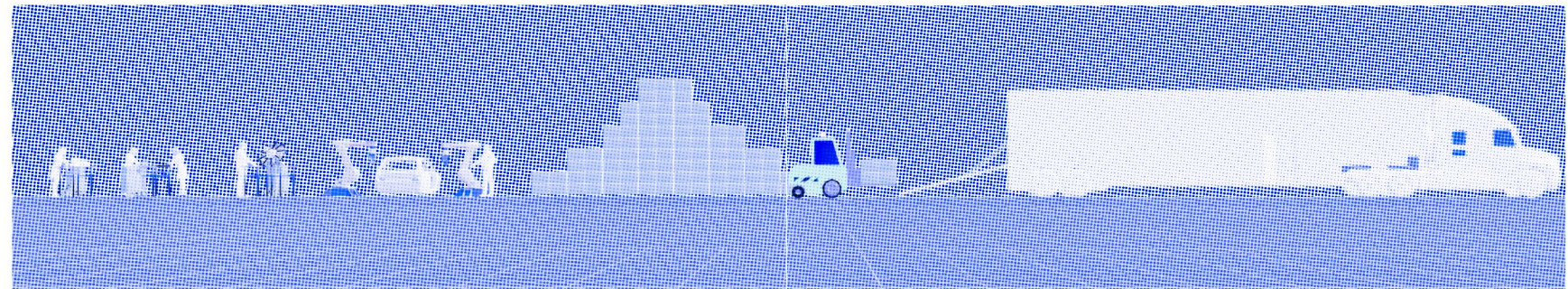


### Electronics



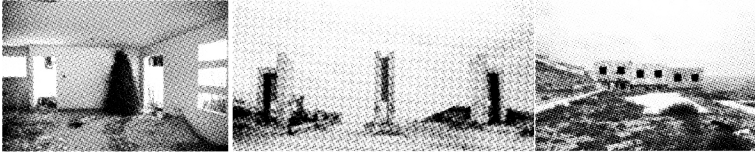
## Products Assembled

- Motorcycles
- Children's toys
- Clothing
- Computers
- Game systems
- Aircrafts
- Wristwatches
- Medical devices
- Printers
- Board Games
- Shoes
- Calculators
- Lithium-ion batteries
- Sunglasses
- Digital storage devices
- Suitcases and other luggage
- ETC.





# Abandoned Dwellings



## Tijuana's Housing Crisis

PROVIVE, agency that aims to rehabilitate abandoned homes, estimates that there are 600,000 abandoned homes across Mexico, 50,000 of which are in Tijuana.

Small and identical housing developments such as Villa del Prado sprang up in the 1990s. These type of suburbs were fueled by INFONAVIT, a government agency that finances mortgages for Mexican workers, seeking to combat the erratic urban expansion of illegal settlements.

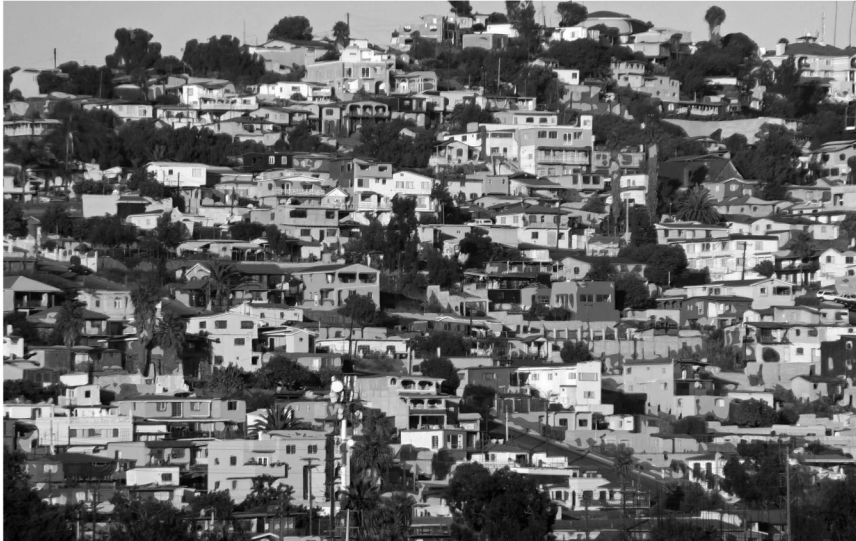
Recently the neighborhood has begun to deteriorate, abandoned and vandalized homes in every street. The isolation from commercial buildings and the increase of crime are the main reason why these neighborhoods are failing.



## Deterioration of Homes

Once of affordable and adequate homes for young thriving families many developments far the city center many developments lost government funding after the 2008 recession. In recent years crime has gone up in these developments despite their isolation. Delinquents sometimes take over abandoned homes. 1 in four homes are abandoned and the deterioration of homes occurs more often each year

## Squatter Homes



Located in the outskirts of Tijuana, Squatter homes are built without the city's permission. People from different areas in Mexico come to Tijuana to work in the Maquiladora Industry. Many of them create squatter homes far from the city center. City officials disfavor people creating homes in the outskirts of Tijuana. Instead of strategically mapping out new roads, sewage pipes, and telephone lines, city planners are constantly catching up to residents unsystematic way of building some of these homes are built on steep hills making it expensive and difficult for the city to give them pavement, sewage pipes and power lines.

## Home Businesses



Many residents run businesses out of their homes to make a living or earn a bit more money, Until government officials dissallow their use of the street. Home businesses are a necessity in many developments due to lack of jobs and distance from Tijuana's center.

# Concept

## WORK/LIVE Housing Development

A new work / live housing model in Tijuana Mexico, giving former maquiladora workers and self-employed workers autonomy to practice their own trade or business without the unsafe and unfair treatment many factory workers go through.

The Dwelling units will be constructed one by one as more people join the development ensuring no unit goes unused.



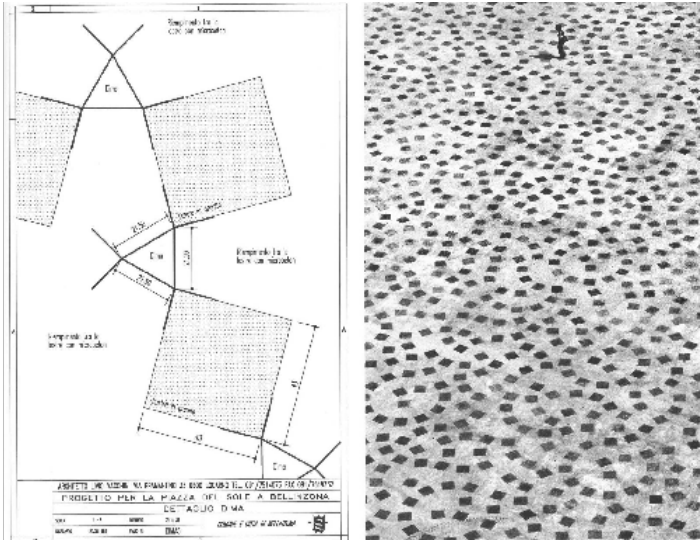


# Conceptual Approach

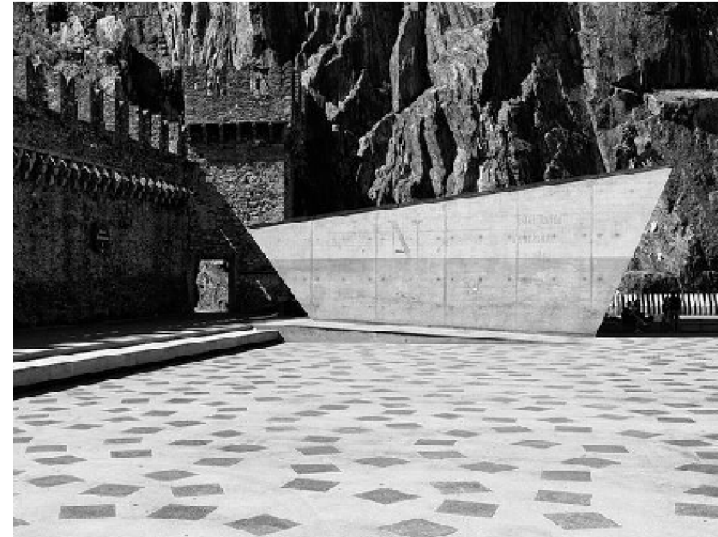
## CELLULAR AUTOMATA

Cellular automata (CA) are discrete models of space and time and typically involve interactions of cells across homogeneous lattice grids. Cells can take on a given finite number of cell states, which can change according to simple rules each cell executes in relation to its cell neighborhood.

### PIAZZA DEL SOLE, LIVIO VACCHINI



The execution outlines a scheme of granite slabs, 43 cm x 43, designed in an apparently random layout. Contractors were given a plan that had angular dimensions in which the squares can be placed.





## OLD APPROACH

In the early 2000's the Mexican Government and big corporations such as Wall street, the World bank and Infonavit poured billions of dollars to launch the largest residential construction boom in Latin American history.

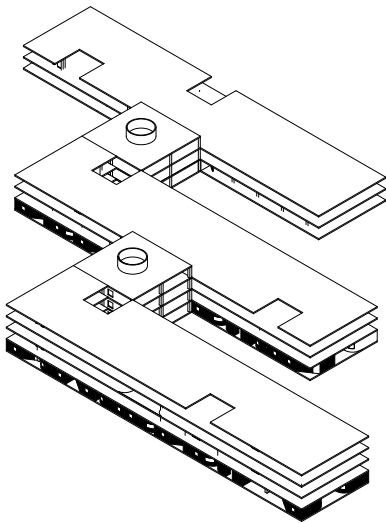
These developments were fully constructed, however once constructed most private builders did not put money back into the developments. Many of the housing units were not used due to overestimation of the need of these developments.

Housing Units also began to deteriorate due to lack of funding and due to Infonavit's high interest rates on loans many people are in debt and some decided to abandon their dwelling unit entirely.

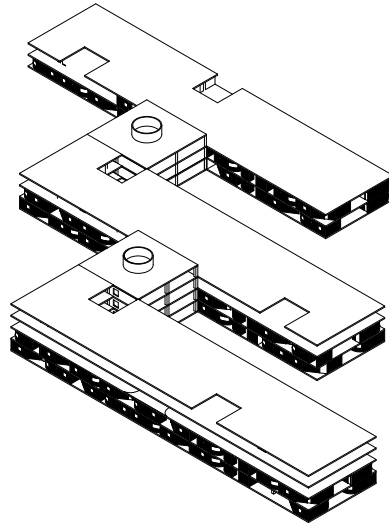
# NEW APPROACH

The objective is to create a new construction system that allows for growth, ensuring no unit goes unused. Each resident fully owns their unit once the unit is built and paid for. Dwelling units will have space for their business and residents will also have a facility center that provides resources such as a day-care and library to support families.

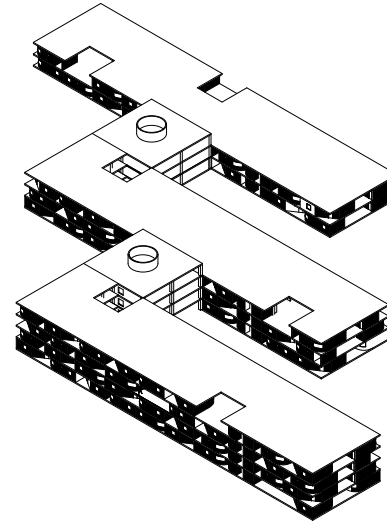
Cellular Automata can be used in this development approach. The Dwelling Units or “cells”, can grow as more residents come into the development, giving contractors a set of rules to follow as the housing units expand over the years.



2022



2025

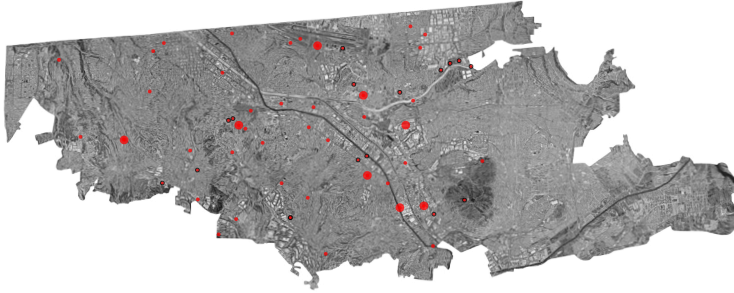


2030

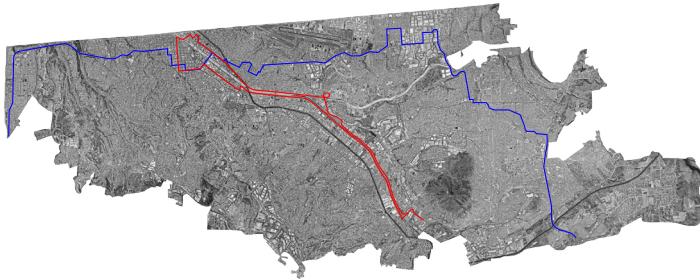


# SITE

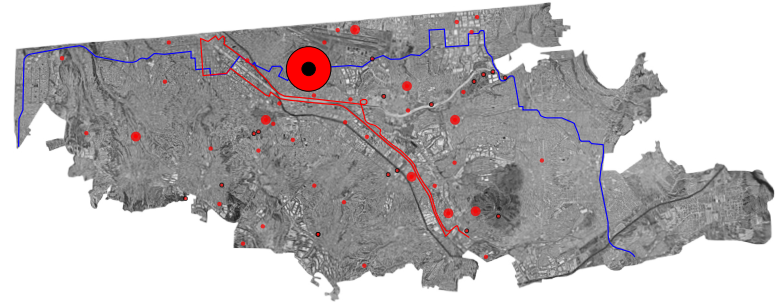
TIJUANA, MEXICO



MAQUILADORAS



BUS ROUTES



LOCATION

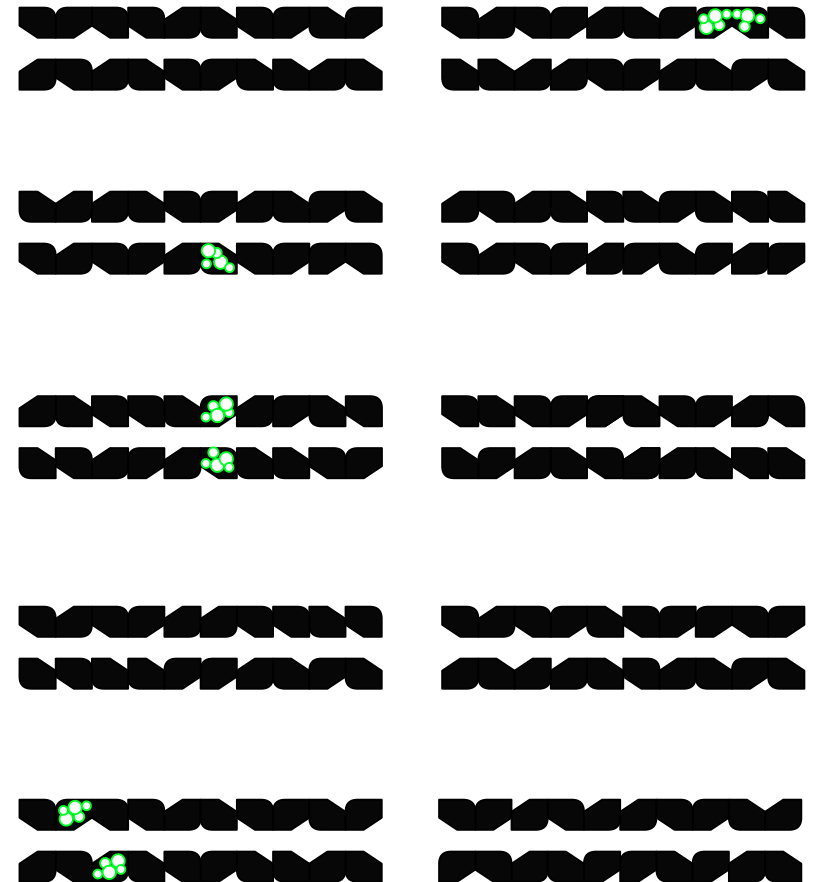
Many residents of tijuana live in developments and squatter homes, located in the outskirts. Children and parents have to travel far distances to go to school and work. The project is located in the intersection of two of the main busroutes in tijuana allowing residents of the proposed project to travel where needed.

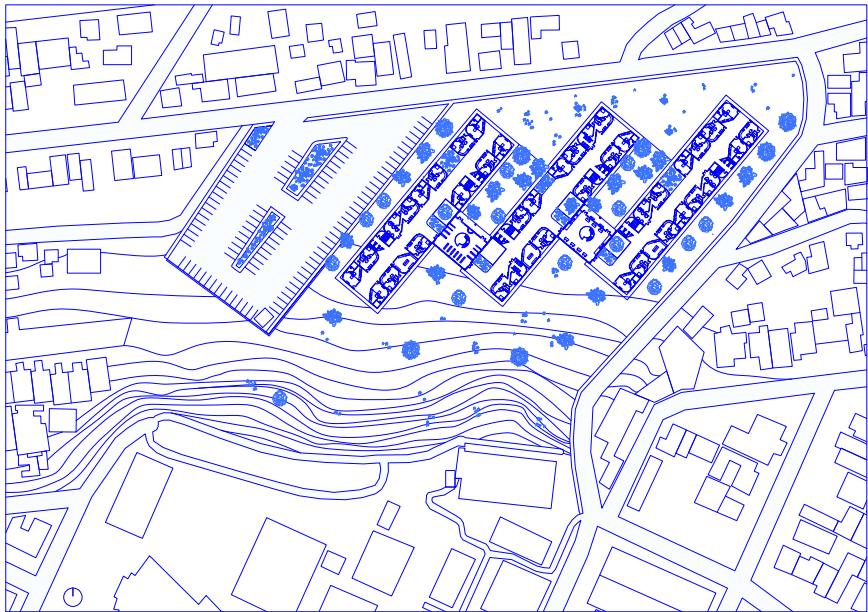


The proposed location is located in the city center, the site is walking distance of a university, a primary school, and hospital.

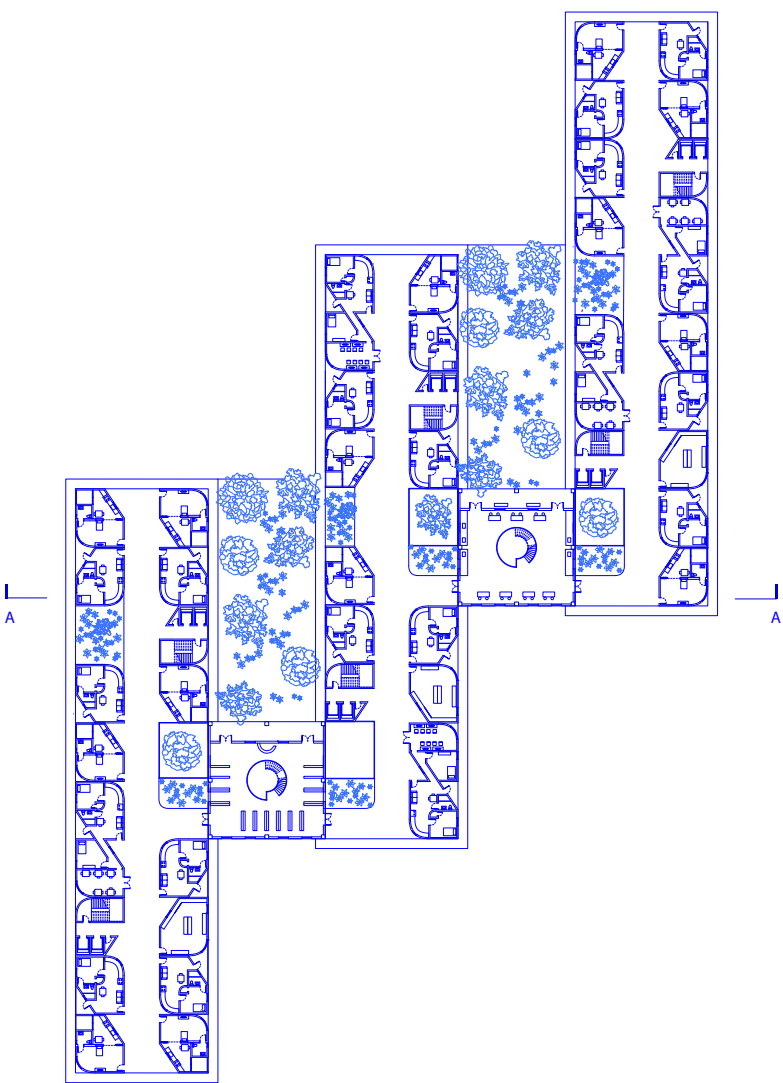


# Project Proposal



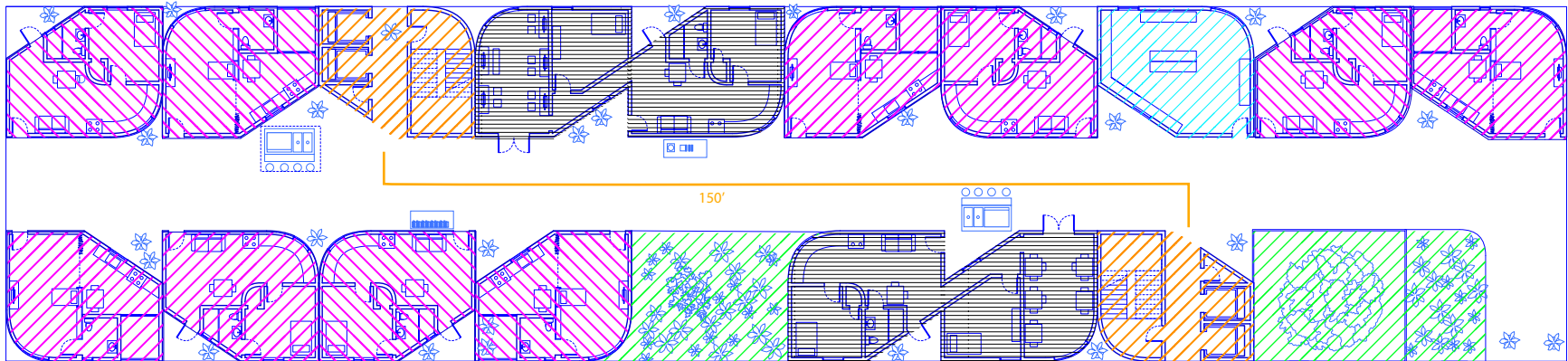
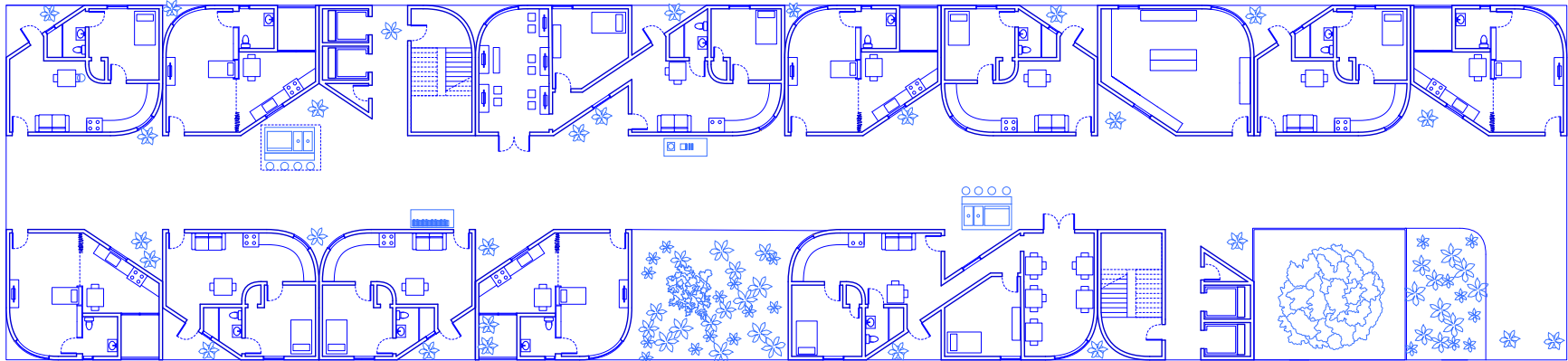


The project is made up housing units, 2 facility centers that provide resources for families, and 2 parks that provide families a place to rest and play after work and school. The orientation of the building allows for east prevailing winds to provide passive ventilation.



SECOND LEVEL

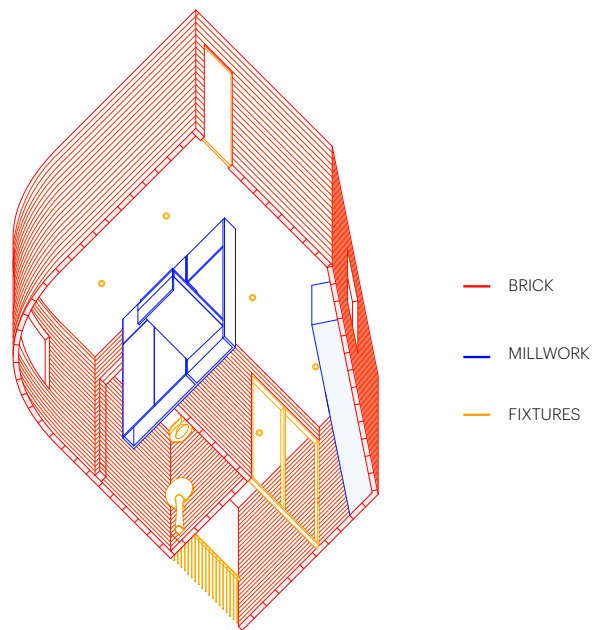




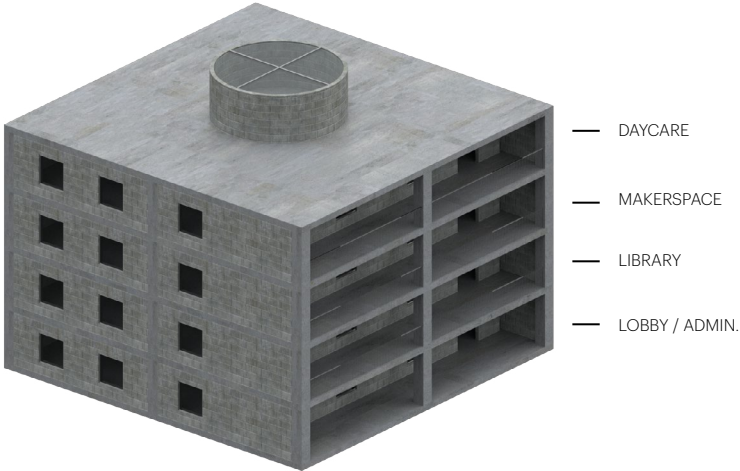
CIRCULATION CORE ARE LOCATED NO FURTHER THAN 75' FROM EACH UNIT TO MEET CODE, CONSTRUCTION CLOSETS ARE LOCATED IN EACH FLOOR TO SUPPLY MATERIALS AND TOOL FOR CONSTRUCTION WORKERS AND PLUMBERS AND ELECTRICIANS. SOLO AND FAMILY UNITS VARY IN EACH FLOOR.

- SOLO UNITS
- FAMILY UNITS
- GREENSPACE
- CIRCULATION CORE
- CONSTRUCTION CLOSET



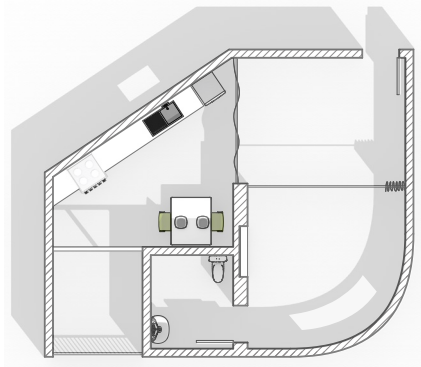


DWELLING UNIT

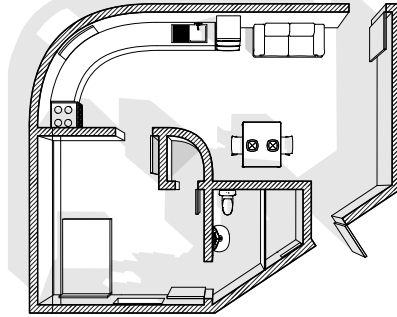


FACILITY CENTER

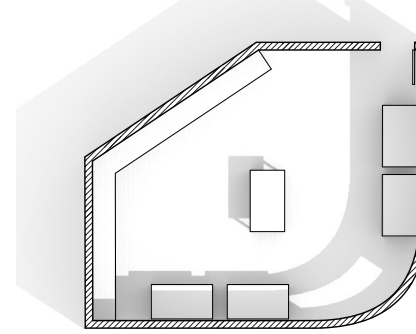
The project is made up of Housing Units that provide interior space for home businesses, and facility center that provide families resources that benefit students and workers.



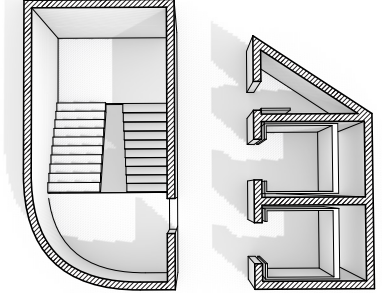
1  
DWELLING UNIT 1



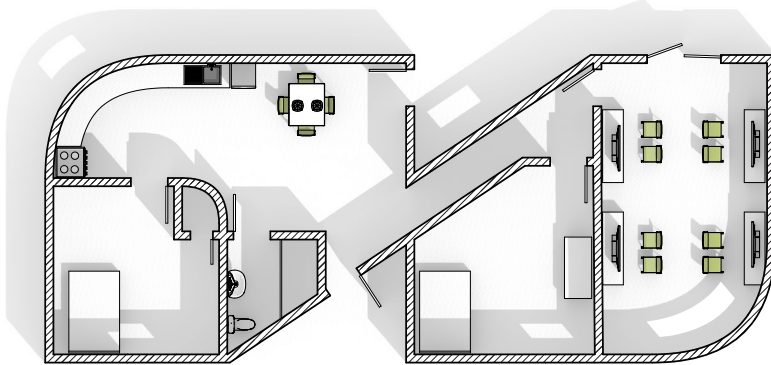
2  
DWELLING UNIT 2



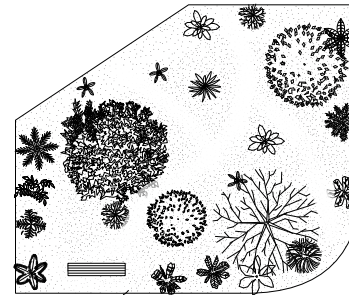
4  
CONSTRUCTION CLOSET



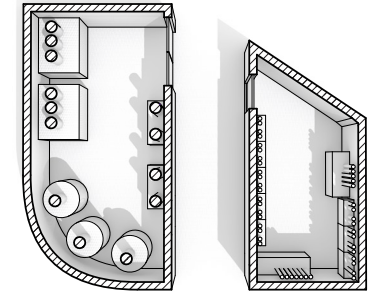
5  
CORE



3  
FAMILY DWELLING

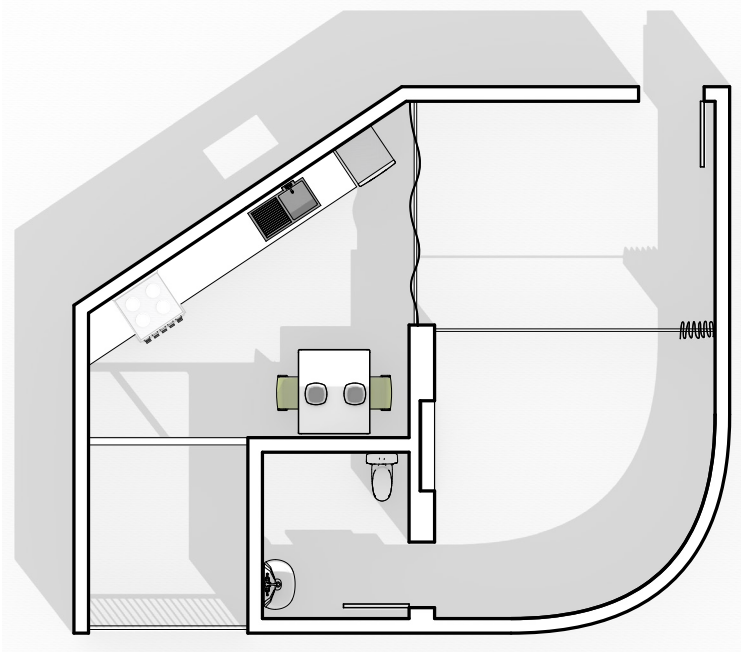


6  
GREENSPACE

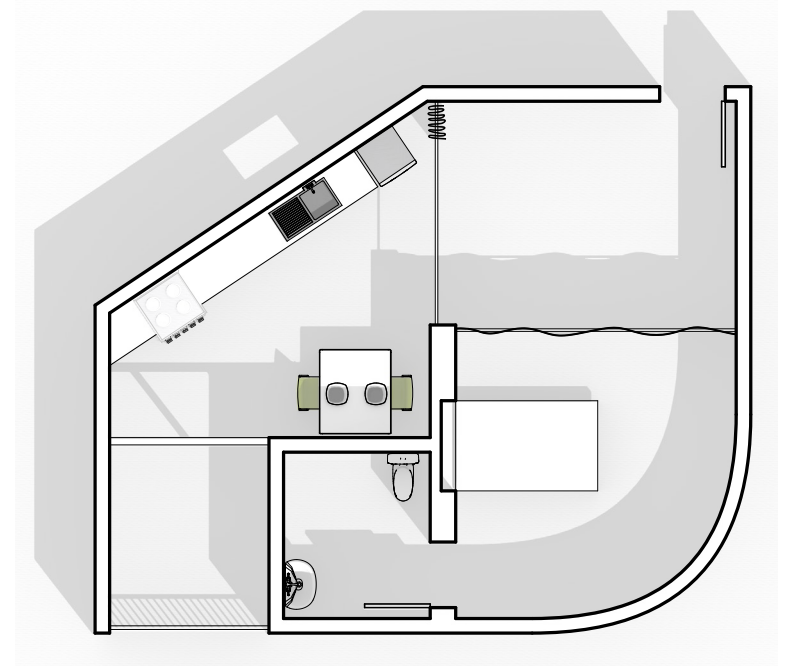


7  
M.E.P

**Units:** The project is made up of 7 units that come together in various orders and patterns, for the purpose of making a community that give residents autonomy.



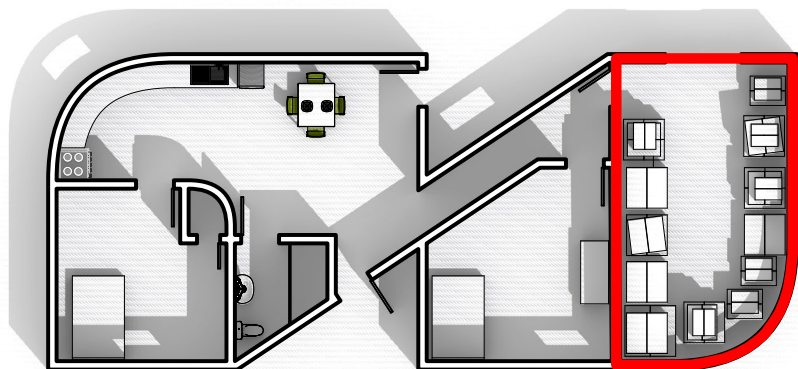
DAY



NIGHT

**Solo Unit:** This dwelling unit is designed to allow residents to occupy space for their business during the day.

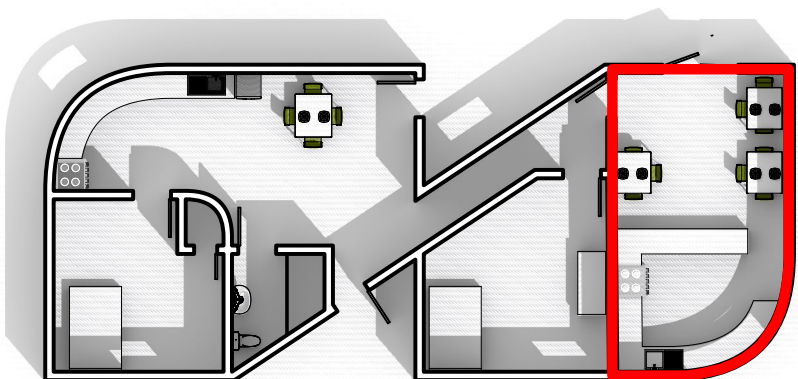




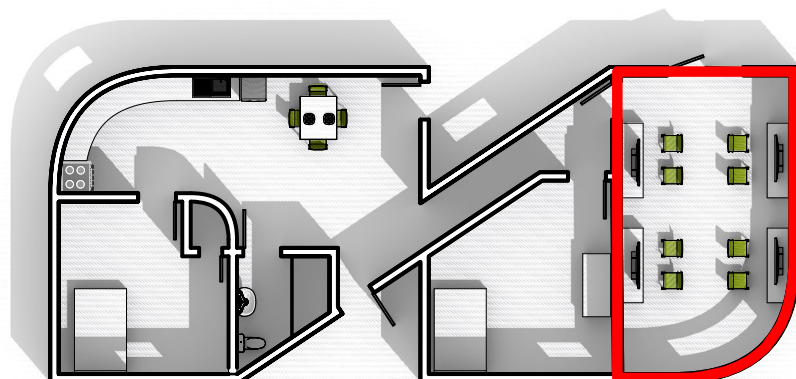
STORAGE (RENT SPACE)



WATCH REPAIR SHOP

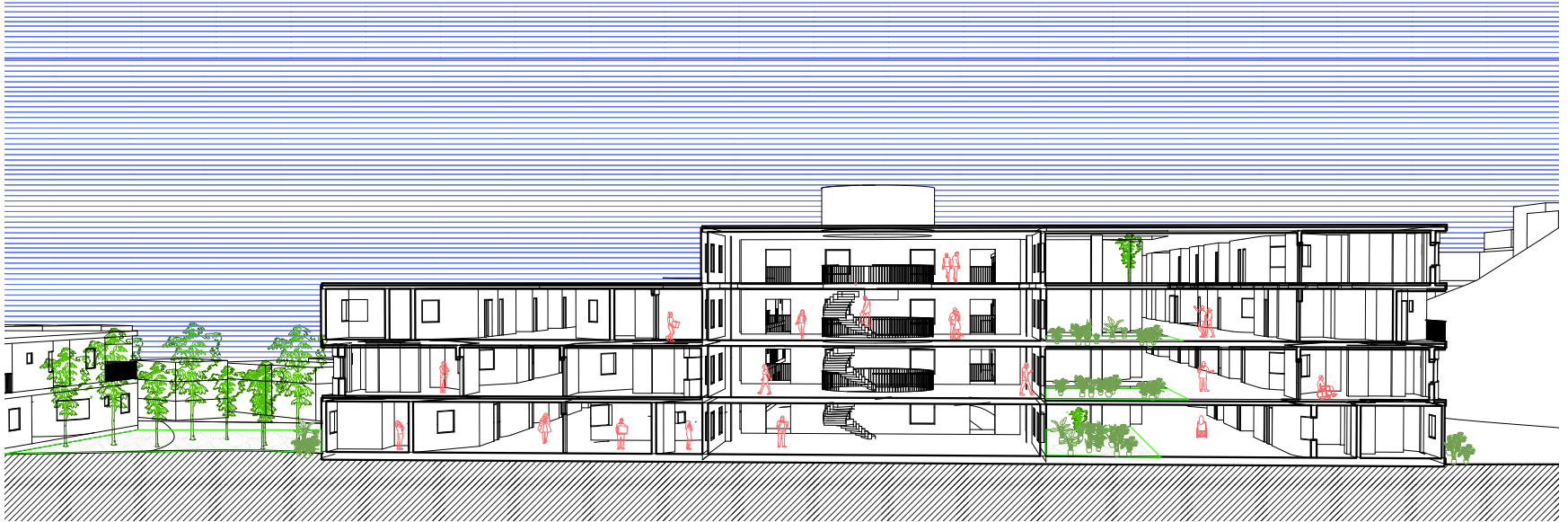


RESTAURANT



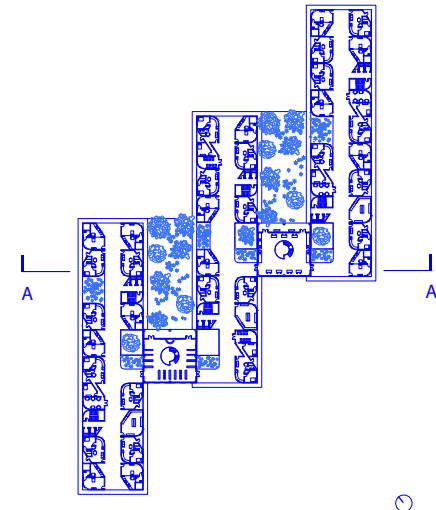
VIDEO GAME ZONE

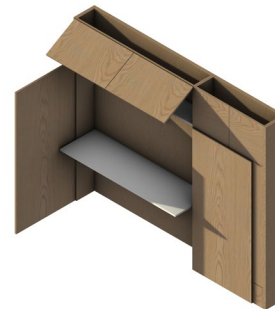
**Family Unit:** This Unit has a room dedicated for the families home business.



Section A

The project consists of facility centers, parks, and housing units. Providing resources and opportunity for families to succeed within the comfort of their homes.





**DAY**



**NIGHT**

Solo Units provide units provide the flexibility to transform the bedroom into a workspace during the day.





During the night residents invite customers into their homes to sell and provide their skills and products for a living.





## **Closing Statement**

Factory City Tijuana is an architectural response to the current working conditions and housing systems in Mexico. The project aims to find a new alternative approach to affordable housing that promotes quality of life and ensures residents have the tools and resources to potentially work and live in the same place. The project is one of many possible solutions to the current housing crisis in Mexico. Its main objective is to bring awareness to these two big issues and explore potential solutions.



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