HOUSE IN PROGRESS
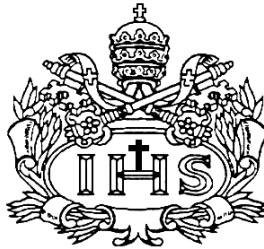
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DOBLE TITULACION

PONTIFICIA UNIVERSIDAD JAVERIANA
FACULTAD DE ARQUITECTURA Y DISEÑO
CARRERA DE ARQUITECTURA
Bogotá D.C.
2021

POLITECNICO DI TORINO
DAD DIPARTAMENTO DI ARCHITTETURA E DESIGN
MSc ARCHITECTURE FOR SUSTAINABLE DESIGN
Turin
2021

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AUTOR
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Presentado para optar al título de ARQUITECTO

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HOUSE-IN-PROGRESS

Laura Otálora

POLITECNICO DI TORINO

**MSc program in Architecture
for Sustainable design.**

Master's degree thesis
Academic year of 2020 - 2021

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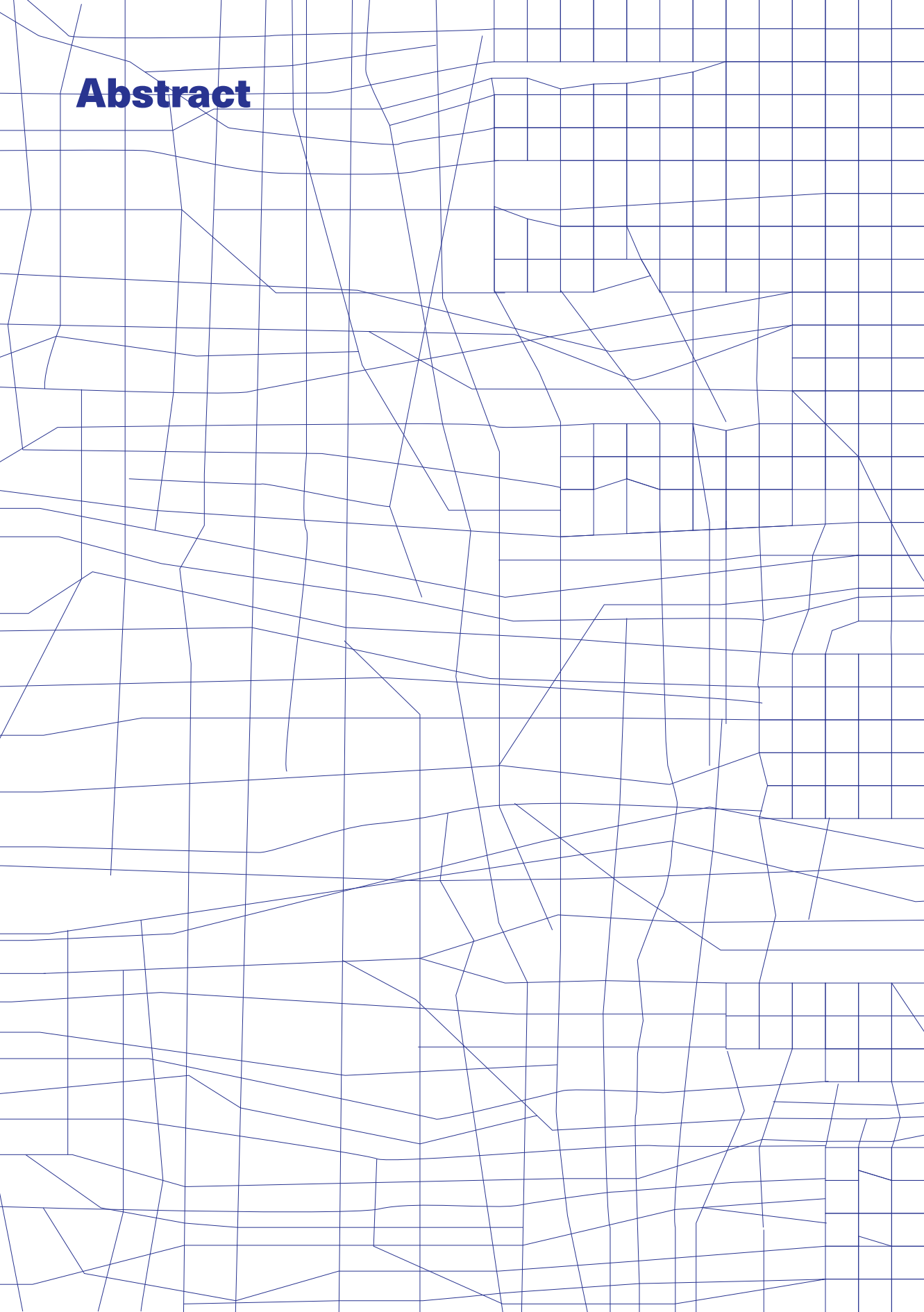
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HOUSE-IN-PROGRESS

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Abstract

The need for shelter is what organizes, gathers, and encourages the creation of informal settlements. It is born as a consequence of the government's inability to provide affordable and quality housing. Informal housing develops precariously and systemically in the available spaces of the city. They settle on vacant areas or in unused buildings, claiming their right on the illicit property.

In the first stage, these temporary shelters arise in an improvised and illegal way. The new inhabitants build makeshift shelters made of wood, recycled elements, or any material that they have at their disposition. With time and security of tenure, informal housing has a second stage of development. Using more durable materials settles permanently in the territory and gradually helps to consolidate new informal urban fabrics.

This precariousness and improvisation in which informal settlements develop have opened up different research fields in Latin America. These are focused on how to prevent their appearance and how to improve the living conditions of the existing ones through participatory urbanism and upgrading tactics.

Therefore, this research aims to address the step-by-step development of informal housing and emphasize that its creation is a seed in a continuous transformation process. Through the study of its strengths and weaknesses, potential tools are highlighted to rethink the informal house as a solution for affordable housing and as the starting point for exploring new forms of habitability.

Considering Bogota is one of the cities with the highest rates of informal settlements in Latin America, this thesis uses profiling and control applications to define a case study and propose a possible solution of affordable housing in a defined plot. Aiming for a resilient relationship between the formal and informal city.

Introduction
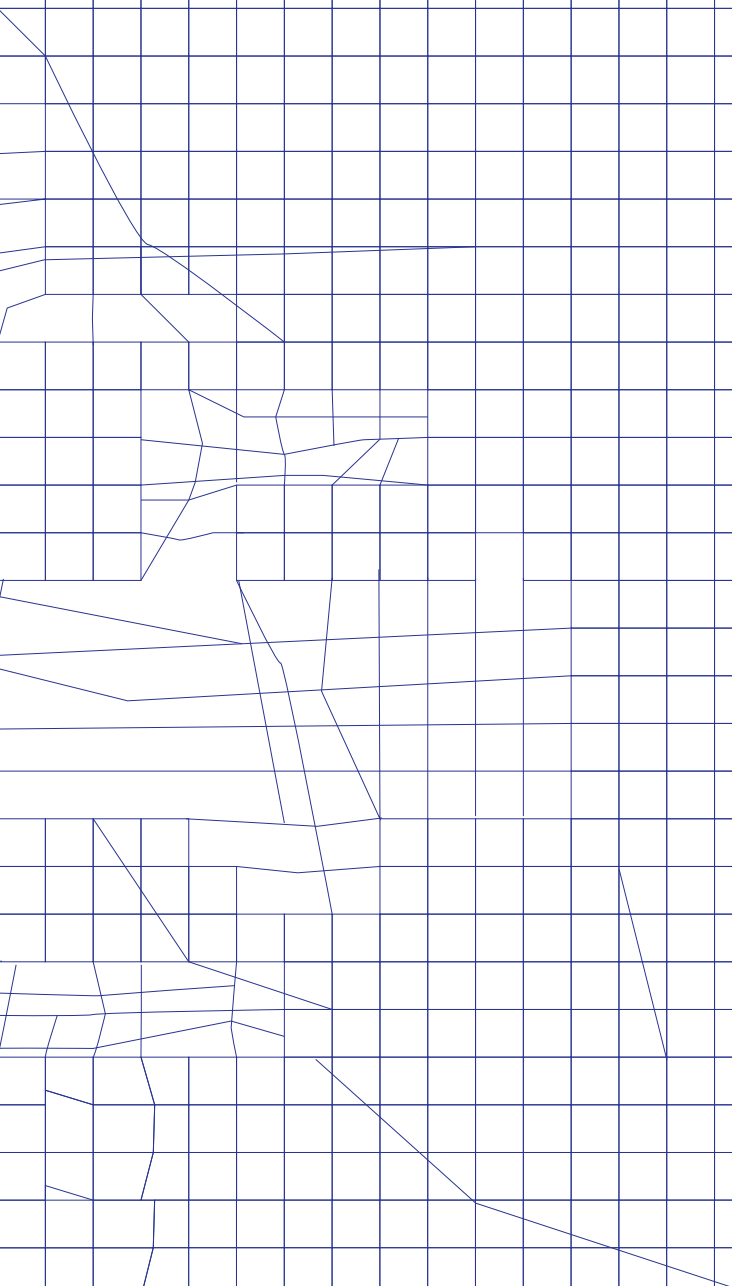
The United Nations estimates that approximately one billion people live in informal settlements around the world. By 2030, that number is expected to double due to accelerated growth in cities and the shift to a predominantly urban world, making the processes of urbanization and housing one of the main study topics in the XXI century.

Informal settlements are made up of the most vulnerable population from different places and cultures, which converge in cities searching for better living conditions and work opportunities. They are generally associated with the world's largest cities, especially in Latin America and Africa, settling down in their centers and peripheries. They result from informal or pirate urbanism that develops without following formal regulations or regularizations.
Informal settlements have become one of the main affordable housing solutions in response to governments' inability to provide sufficient, affordable, and quality housing.

Even though these settlements correspond to more than ¼ of the constructions in Latin American cities, they have been classified as illegal, precarious, and dangerous developments. They have developed without government guidance and support; they arise through collective work, self-management, creativity, and improvisation of their inhabitants' needs.

In recent years, strategies to address non-formal settlements have moved away from the slum clearance and relocation, which has been shown to exacerbate

and cause social problems. Instead, they have focused on seeking to integrate low-income communities into the urban fabric.

Unlike the formal city, planned from a macro scale to a micro-scale, informal settlements develop in the opposite direction, starting from the house to the city. Informal housing is the generating seed of the informal city. It is the initial element of the informal city consolidation. Therefore, it should be addressed as the central point of study and exploration of new ways of living.

Tazil Shafique, in his essay, the problem is the solution, informal settlements as affordable housing, declares, "why if we acknowledge their ways of producing housing? None of this is to romanticize poverty nor to validate inhabitable living conditions but to open up a space for seeing like a "slum" as opposed to seeing like a state, as Scott would put it. That can only happen when we exercise an intellectual form of empathy-of putting ourselves in their shoes- not as an act of pity but with a genuine interest to see the world otherwise."
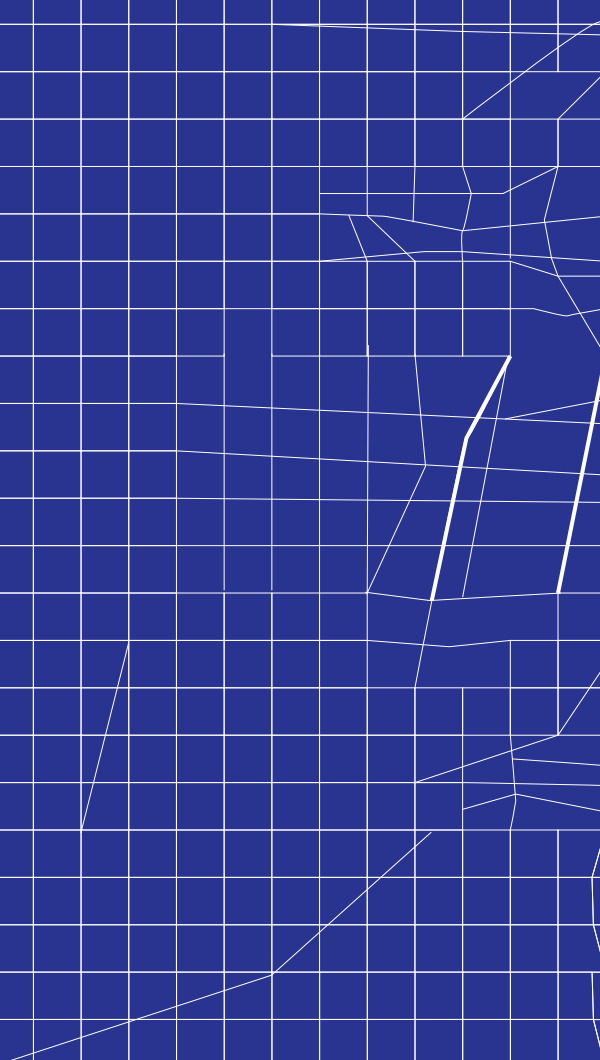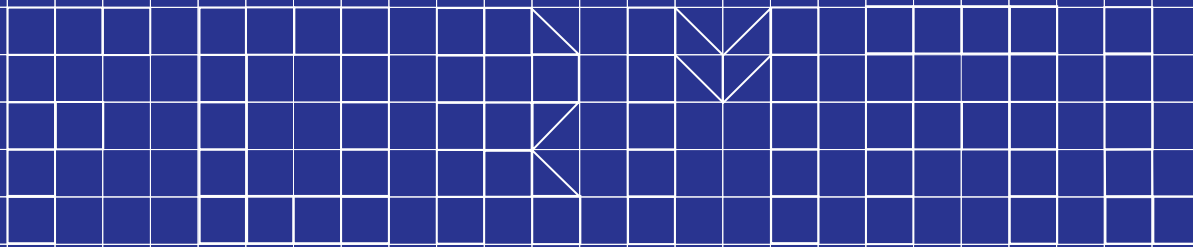
Dual city:
formal vs. informal

Today, in most Latin American cities, despite their essential differences in location, cultural influence, or the type of settlement in the territory, some phenomena unite them and make them an intrinsic part of their city structure. The constant migrations from the countryside to the city, the high levels of poverty index, inequality in income distribution, uncontrolled urban expansion are the evident collision of two forces: formal, informal.

The formal city and the informal city have been used to describe and theorize not only the physical appearance of cities but also their complex socio-political and cultural fabric.

In theory, the formal term represents the city made up of legal settlements. From the perspective of urban laws, those that agree with the criteria of urban construction and the purchase and sale of heritage assets. The formal city lies in the buildings designed by architects and the planned city's parts.
On the contrary, the informal city is all the buildings and parts of the city developed without architects' participation. It is the term used to discard everything that is beyond the control of the architect. They are unfinished projects in which the intervention and creativity of the occupant/builder is the central point. It is a city based on the temporal, many times built with recyclable materials, plastics, construction waste that modifies and reinvents itself.

For Raul Mehrotra, "the informal or kinetic city carries local wisdom into the contemporary world without fear of the modern, while the static city aspires to erase the local and recodify it in a written formal order. The issue of housing (slums, shantytowns, etc.) most vividly demonstrates the reordering process of the kinetic city by the static city. Flow, instability, and indeterminacy are basic to the kinetic city".(Hernandez 2010, XI)

Therefore, the informal city is a city in constant change, constantly rethinking itself, searching to correct or compensate the unequal distribution of resources in the urban space. Through its ability to absorb, recycle, provide services, establish connections beyond standard urban systems. It is a city born of recursion and invention within the limitation; it is built based on popular resources that allow it to transform opportunities into survival strategies.

Formal city.

¶ *synonyms:*
· ***Static city.***

► "The formal city is made up of legal settlements, those that, from the point of view of urban and legal laws, agree with the criteria of urban construction and the purchase and sale of heritage assets". (Tardin,2006,389)

► "The term "formal" is taken to represent the ordered city- in terms of its urban and architectural shape as well as its cultural, economic, political and social organisation.[...] " (Kellet, Hernandez, 2012,1)

► " [...] It is built of more permanent materials-such as concrete,steel and brick-and is comprehended as a two dimensional entity on conventional city maps and is monumental in its presence. Architecture is clearly the spectacle of the static city". (Mehrotra, 2010, XI)

► "The formal stands fot the buildings that have been designed by architects and the parts of cities that have been planned [...] ".(Kellet, Hernandez, 2012,2)

Informal city.

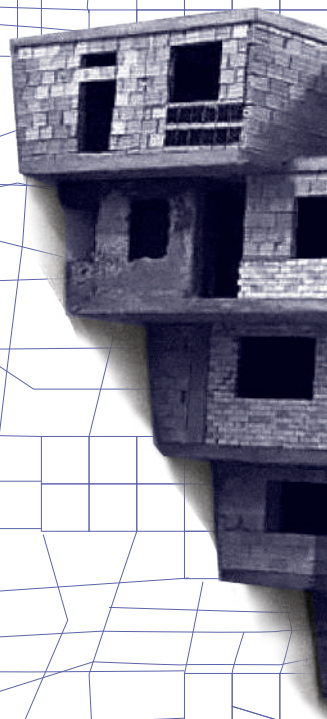¶ *synonyms:*
- Informal settlements.
- Kinetic city.

► " [...] the informal city is characterized by illegality, is made up of settlements that are outside urban planning laws (self-construction in most cases), with or without the legal possession of land, as they are, in Brazil , the favelas and the irregular lots. Informal settlements can still take on other characteristics, such as the occupation of abandoned and / or degraded buildings in urban centers or on the outskirts, the construction of barracks under bridges or the movement and / or ephemeral permanence of the "homeless" on the streets."
(Tardin,2006,389)

► " [...] the shapeless areas of the city where economic and socio-political structures are particularly unstable and in which culture is characterised by its apparent incoherence".
(Kellet, Hernandez, 2012,1)

► "The processions, festival, street vendors and dwellers, all result in an evertransforming streetscape-a city in constant motion. The kinetic city is imcomprehensible as a two dimensional entity and is instead perceived as a city in motion- a three dimensional construct of incremental development."
(Mehrotra, 2010, XI)

► " [...] the buildings and parts of cities that have developed without the participation of architects"."
(Kellet, Hernandez, 2012,2)

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Informal
settlements

Métodos de Construcción
by Mauricio Salcedo

Global context

Industrialization and changes in rural practice have caused an acceleration of the massive migration of workers from rural areas to cities. The shift towards a predominantly urban world makes urbanization processes one of the most significant trends in the 21st century. By 2030 six out of 10 people are expected to live in urban areas of which 90% will take place in Africa. Asia, Latin America, and the Caribbean.

The massive migrations from the countryside to the city, the rapid growth of the population, and the permanence of high levels of poverty are part of the challenges that the city must face to meet its housing needs. However, these problems have not received enough attention within the urbanization processes, and how housing is being produced and consumed has determined urban growth. In many cases, producing cities that are fragmented, inequitable, and dysfunctional leading to the proliferation of slums and informal settlements.

Today about 880 million people live in slums in developing countries. It is estimated that the struggle to obtain adequate and affordable housing could affect at least 1.6 billion people in a decade.

Access to housing has become a global crisis with negative impacts on people's well-being and the growth of urban inequality

The informal city emerges as a result of these problems and the ineffectiveness of the state for providing decent housing to the most vulnerable population. It is entirely built by its inhabitants in search of supplying one of the basic human needs, housing.

The informal settlements can present distinctions from one place to another; however, they keep in common the poverty and illegality that characterizes them. They usually settle on the periphery of contemporary cities and are known as favelas, invasions, or barrios, among other terms.

They are non-homogeneous settlements are generally comprised of people of different rural origins, different races, and cultural social groups, who live on the periphery but work in the city center or new industrial areas.

Housing acounts more than

70%

of land use in most cities and **determine Urban form and densities.**

By 2050 , 66% of the people are expected to be living in Urban Areas

● 0.5%

Cities occupied 0,5 % of the world's land but they account for and estimated:

70 % of economy activity
60 % energy consumption
70 % global waste
70 % greenhouse gas emissions

54% of the population lived in town or cities

"For too long we have put the economy and jobs at the Centre of city planning and development. People are what make cities and they would follow the jobs. It is now necessary to think about people's needs, including where they will live, and put them at the Centre of city development."20 (Joan Clos, Executive Director of UN-Habitat).

Informal Settlements
in Latin America cities

Venezuela

28.345 millions
population

Caracas

2.939 millions
population

50%

Informal
settelments

Mexico

125.9 millions
population

Mexico City

8.855 millions
population

40%

Informal
settlements

Colombia

50.882 millions
population

Bogotá City

7.413 million
population

37%

Informal
settelments

Argentina

45.195 millions
population

Buenos Aires

15.154 millions
population

10%

Informal
settelments

Brasil

212.559 millions
population

Sao Paulo

22.043 millions
population

47%

Informal
settlements

Informal settlements

1. David Tower, Caracas, Venezuela

2. Buenos Aires, Argentina

3. Favela Rocihna, Rio de Janeiro.

4. Barrio 31, Buenos Aires. Argentina

5. Kenedy, Bogotá, Colombia

27

Informal settlements

Latino American context

Bogotá, Colombia

Caracas, Venezuela.

Lima, Perú

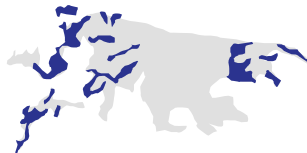**Urban
growth**

**Informal
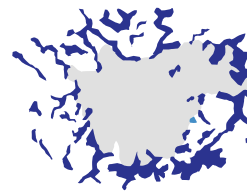settlements**

Mexico city, Mexico

The constant tension between the formal and the informal dimension in Latin American cities has existed even before colonization, but with the arrival of Europeans became more acute and has remained in the continent's cities ever since.

" The clash between indigenous and colonial cities was reinforced by the subsequent physical segregation of indigenous people who were not allowed to live inside the formal city but were pushed to its perimeter. Despite the fact that on the periphery indigenous settlements continued to develop-initiating the contrast between the ordered Centre and the so-called "informal periphery" which still persists in many cities-the imposed hierarchy meant that their architectures were not fully recorded and, consequently, never" historicized. (Kellet, Hernandez, 2012,4)

Sao Paulo, Brasil

Housing shortfalls

The lack of housing in qualitative and quantitative terms has led the United Nations to a continuous search for solutions around housing and related problems of those inhabiting informal settlements. According to the publication of The Global Reports on Human Settlements (Un-Habitat 2003) the policies to solve the conditions of the slum must go beyond the evaluation and the improvement of the physical conditions of the housing and its infrastructure. These should seek programs that support the livelihoods of the urban poor by enabling informal activities to tenure and flourish as well as to link low-income housing development to income generation. And condemn failure in attempts to provide social housing through large-scale social housing projects.

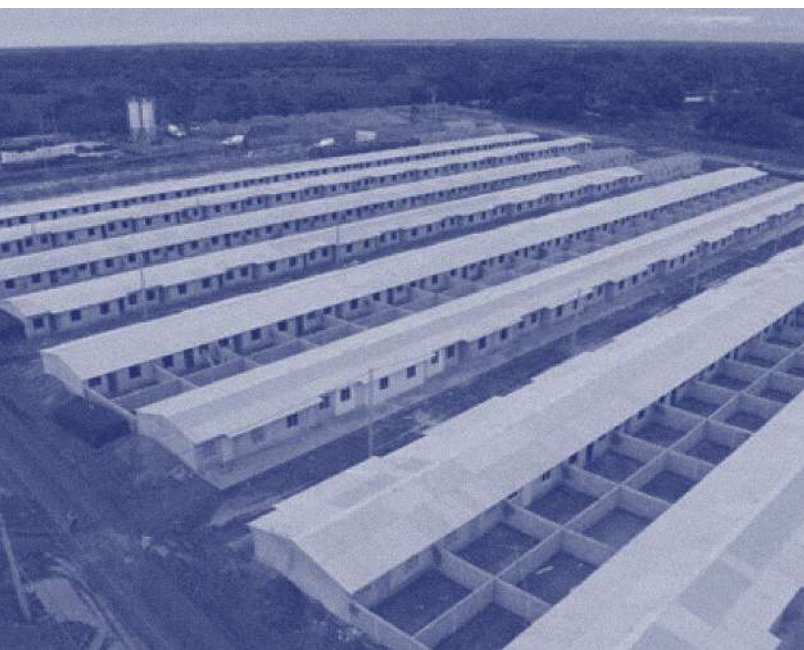"Until the mid-1970s informal, illegal, and unplanned settlements were generally regarded as health hazards,

in 2010

980million

urban households lacked decent housing, as will another 600 million between 2010 and 2030.

one billion

new houses are needed worldwide by **2025** costing and estimated US$650 billion per year.

6.
Social Housing, Mompox, Colombia
2016
1000 housing Units

a threat to social order and challenge to authority and, consequently, were subject either to benign neglect or actively repressive policies of eradication and forced removal. Such negative responses to the actions of the poor were sometimes paralleled by attempts to build "low-income" housing projects which were generally sponsored by state organizations". (Hernandez, Kellet, 2012, 11)

UN-Habitat has tried over the years to develop new and more dynamic methods of analysis and intervention to face the informal conditions that exist in Latin American cities. Promoting aided-self-help through improvement programs, as well as, in re-adopting the term "slum" as a collective category to identify the range of substandard housing, and therefore, granting measurement categories to define a scale of range in informal housing.

"The British architect John Turner believed that housing should be understood as a process, "housing as a verb". Through his work in Perú. Turner was one of the first to document how, in positive circumstances, informal settlements are gradually consolidated by their owner-dwellers who replace temporary shacks with solidly built houses and collectively organize themselves to install infrastructure networks. In some cases, these consolidated settlements can eventually become indistinguishable from formal settlements, especially where tenure regulariza-tion and upgrading programs are implemented"
(Kellett 2005).

"In English, the word housing can be used as a noun or as a verb. When used as a noun, housing describes a commodity or product. The verb "to house" describes the process or activity of housing. While the idea of housing as a collective noun is associated with housing activities, the word itself does
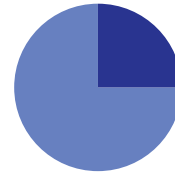
An estimated **25 %** of the world's urban population live in **informal settlements**

not generally indicate this fact. On the other hand, the activity of housing is difficult to conceive without including the houses promoted, built, or used". (John Turner 1972)

Due to their location, informal settlements, mainly on the outskirts of large cities, are spatially disjointed from the urban systems and opportunities that the city offers. Its location responds to the difficulty of the poorest to access land and affordable housing, generally are placed in high-risk lands, around industries, or in abandoned places. Unfortunately, Governments have progressively relegated their role as a provider of affordable housing to private developers, further limiting the needy population to access to decent housing and allowing speculative forces to end up benefiting the most affluent populations.

Towards Habitat III, UN-Habitat has concentrated efforts to re-establish the role of housing for the future of sustainable urbanization through the "housing at the Center approach which aims to shift the focus simply building houses to a holistic framework for housing development.

"Housing at the Center becomes imperative given the emerging forms of urbanism that are producing cities as places of exclusivity, rather than an opportunity. Cities, especially in the developing world, are growing fragment-ed, unequal, and dysfunctional with the current models of housing production and consumption at the core of these processes. While the most common problem is the shortage of adequate housing, other important challenges lay in the poor quality and location of the stock usually far from job and livelihood opportunities, lack of accessi-bility and services, unaffordable costs, and insecurity of tenure. Some countries have managed to provide afforda-ble housing at scale, regretfully however by often repeating the mass housing schemes, built on cheap and periph-eral land, where people usually have limited access to services, jobs, and opportunities." (UN habitat, 2015)

7. Torre David, Venezuela

Housing at the centre
Fundamental guiding principles:

¶ **Housing is Inseparable from Urbanization.**
Housing policies should be integrated into urban development policies and orchestrated with economic and social policies.

¶ **Housing is a socioeconomic development imperative**
Housing provision is important for improving livelihoods, standards of living and welfare. Housing make a substantial and prolonged contribution to socioeconomic development of people and cities.

¶ **National and local leading role.**
National and local authorities should reassume leading role in responding to housing needs and affordability constraints of the poorest population. Finance for housing should be established and increased

¶ **Twin track Approach**
Curative slum upgrading and preventive (new provision) housing policies and programs should be promoted.

¶ **Housing and slum upgrading**
Housing and slum upgrading policies should be accompanied by national strategies.

¶ **Human Rights principles and standards are for outstanding relevance for urban development.**

8. Riberas del rio Rimac,Peru

**Global
Housing
Agenda**

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Global Housing Agenda

Housing shortfall.

Informal settlements

19 70s

Social housing through direct State provision.

► **1976**
Vancouver Declaration and Plan of Action

► **1980**
Shelter poverty and basic needs

19 80s

Acknowledgement and upgrading of informal settlements

► **1988**
Global Sheltes Strategies

► **1992**
Agenda 21

► **1993**
Enabling housing markets to work

19 90s

The Enabling Approach to housing. Washington consensus and deregulation

► **1996**
Istambul Declarations on Human Settlements-Habitat Agenda

2000 ◄
MDG
United Nations
Millenium Declarations

**Emphasis on the
commodization of
housing. global
housing crisis**

**20
00** s

2001 ◄
Declarations on cities
and Other Human
Settlements

2001 ◄
UN-Habitat Global
Housing Strategy

post 2015 ◄
SDG

**Repositioning
housing at the
centre of national
and local Urban
Agendas**

**20
10** s

2016 ◄
New Urban Agenda
"Housing at the centre"

Gentrification

What does gentrification mean?

The term "gentrification" was first coined by British Sociologist Ruth Glass to describe the transformation of working-class London neighborhoods into middle and upper-class neighborhoods.

Glass (Glass 1964: xviii-xix) explained gentrification through the processes of urban change that were beginning to affect inner London. "One by one, many of the working-class quarters of London have been invaded by the middle classes-upper and lower. Shabby, modest mews and cottages-two rooms up and two down-have been tak-en over, their leases have expired, and have become elegant expensive residences. Victorian houses were down-graded in an earlier or recent period-which were used as lodging houses or where otherwise in multiple been up-graded once again. Nowadays, many of these houses are being subdivided into costly flats or "houseless" (in terms of the new real estate snob jargon). The current social status and of such dwellings are frequently in inverse relation to their status, and in any case, enormously inflated by comparison with previous levels in their neighbor-hoods. Once this process of 'gentrification' starts in a distinct It goes on rapidly until all or most of the original worlding class occupiers are displaced and the social character of the district changed". (Lees, 2008, 17)

For the council of Europe "Gentrification commonly occurs in urban areas where prior disinvestment in the urban infrastructure creates opportunities for profitable redevelopment, where the needs and concerns of business and policy elites are met at the expense of urban residents affected by work instability, unemployment, and stigmatization. It also occurs in those societies where a loss of manufacturing employment and an increase in service employment has led to the expansion in the number of middle-class professionals with a disposition towards central city living and an associated rejection of suburbia."(Council of Europe, 2020)

Gentrification has positive and negative aspects. It creates more development, rapid economic investment, and support of projects related to consumption and citizens' wellbeing. However, the gentrification process becomes detrimental when it forces the original residents to leave the neighborhood, exponentially increasing property pric-es. Original residents are forced to move where the land prices are lower, usually in the city outskirts where the informal settlements proliferate.

J.P. Byrne in the essay called "Two Cheers for Gentrification" (2003,205-206) argues. "The most negative effect of gentrification, the reduction in affordable housing, results primarily not from gentrifi-cation itself, but from the persistent failure of the government to produce or secure affordable housing more gener-ally. Moreover, cities that attract more affluent residents are more able to aggressively finance affordable housing. Thus, gentrification is entitled to "two cheers", if not three, given that it enhances the political and economic posi-tions of all, but exacerbates the harms imposed on the poor by the failures of national affordable housing policies".

As long as the city continues to grow exponentially and urban renewal process-es do not include the very low-income population within their strategic plans, the misery belts will continue to grow in proportion to formal con-structions.

Possitive	Negative
Stabilization of declining areas	Displacement through rent/price increases.
Increased property values	Secondary psychological costs of displacement
Reduced vacancy rates.	Community resentment and conflict
Increased local fiscal revenues.	Loss of affordable housing
Reduction of suburban sprawl	Unsustainable speculative property price increases.
Increased social mix:	Homelessness
Rehabilitation of property both with or without state sponsorship	Greater take of local spending through lobbying/articulacy
	Commercial/industrial displacement.
	Increased cost and changes to local services.
	Commercial/industrial displacement
	Displacement and housing demand pressures on surrounding poor areas
	Loss of social diversity (from socially disparate to rich ghettos)
	Under occupancy and population loss to gentrified areas.

Informal
place-making
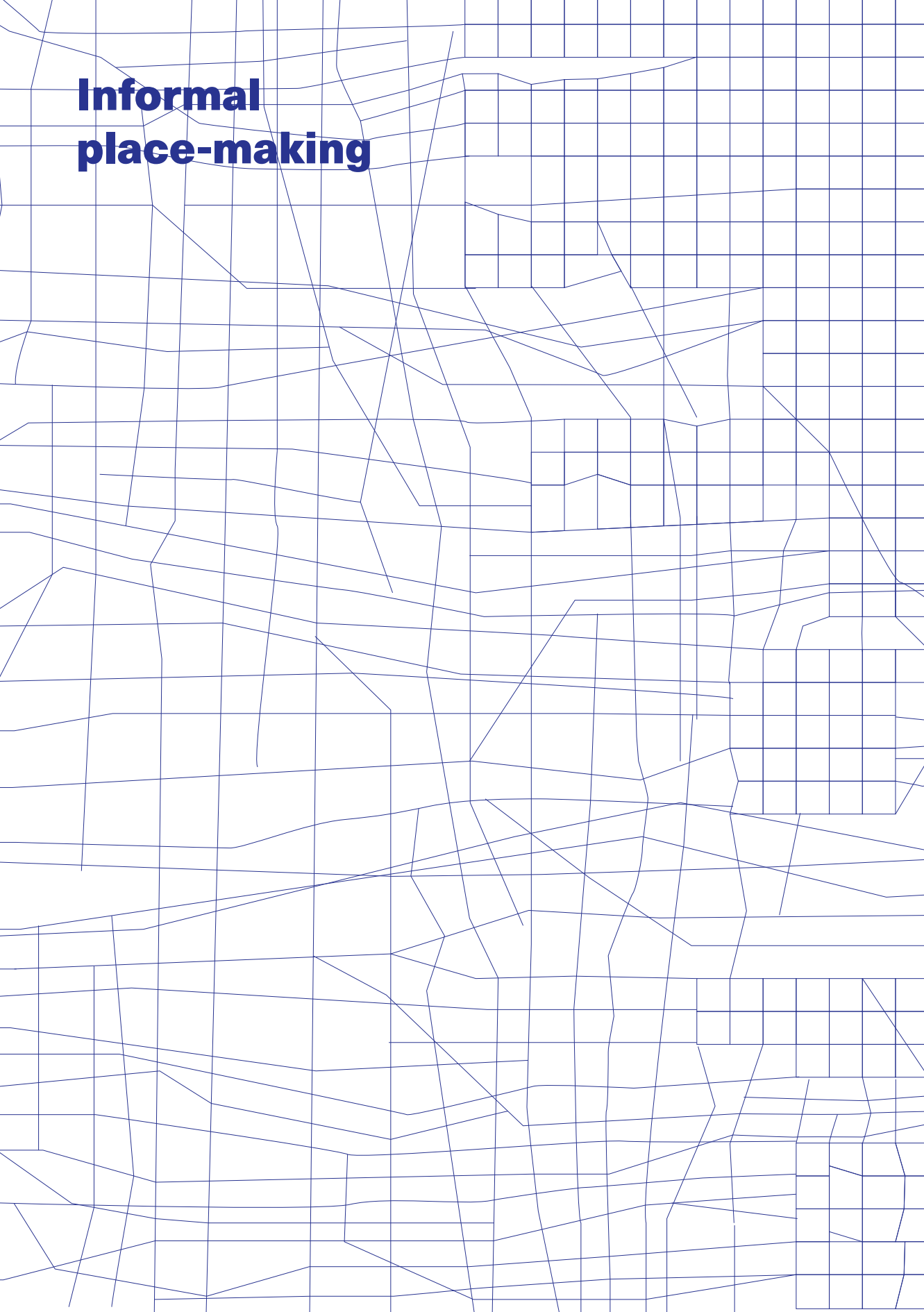
The formal city is the product of traditional urbanism. It is made up of three processes that take place in a linear and descending manner (from the city to the house): planning, subdivision, and building. In this city development, citizens are users who inhabit the space defined by the formality resulting from this set of processes.

On the other hand, informal settlements are emergent or ascending systems (from the house to the city). They do not have a defined sequence, but rather all consolidation processes take place simultaneously. The subdivision, urbanization, and building happen in parallel. In this city development, the occupation and intervention of its in-habitants take place from the first phase. The inhabitants are an active part of the city-building process.

However, many studies have focused on the informal city's problems from an urban perspective and leave aside housing's importance within the informal city development. Considering that informal housing arises from the need for the shelter of its inhabitants, it is important to highlight it as an essential and primary part of the informal settlements' piecemeal development.

This chapter explains the informal housing consolidation process in Latin America as the seed of the informal city. And it seeks to highlight the potentialities and disadvantages of its processes that, unlike formal housing, are capable of adapting and mutating according to the needs of its inhabitants
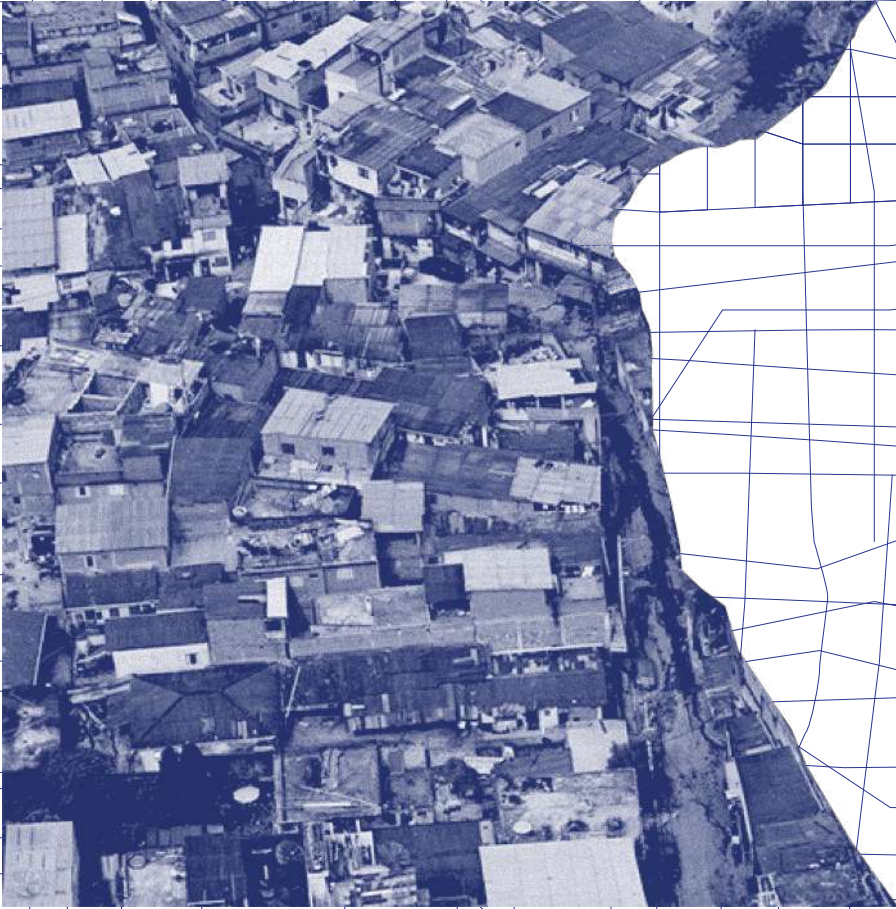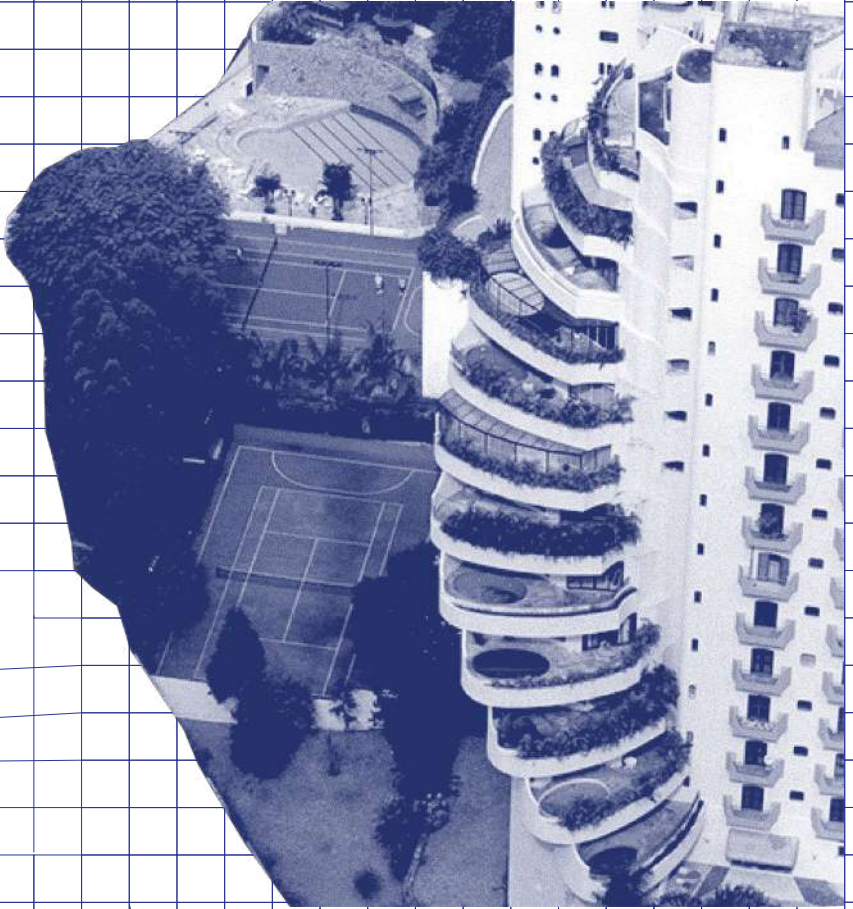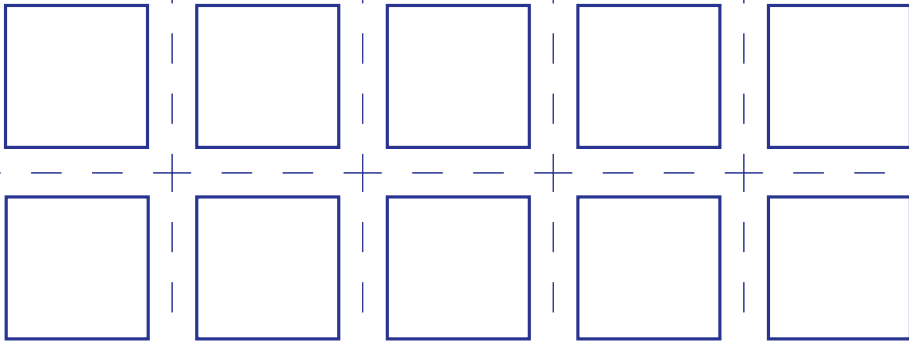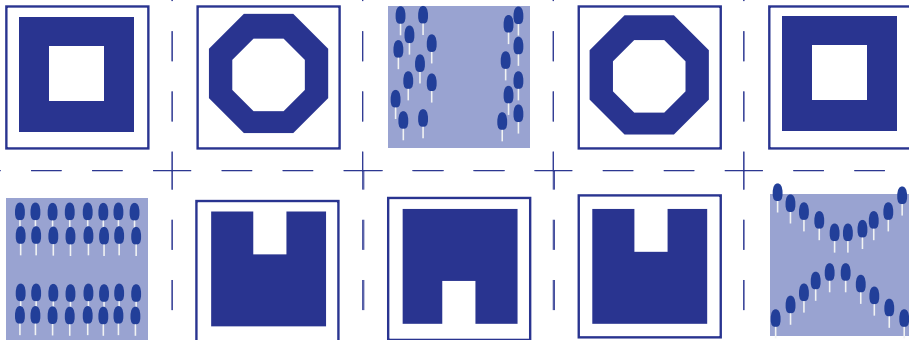
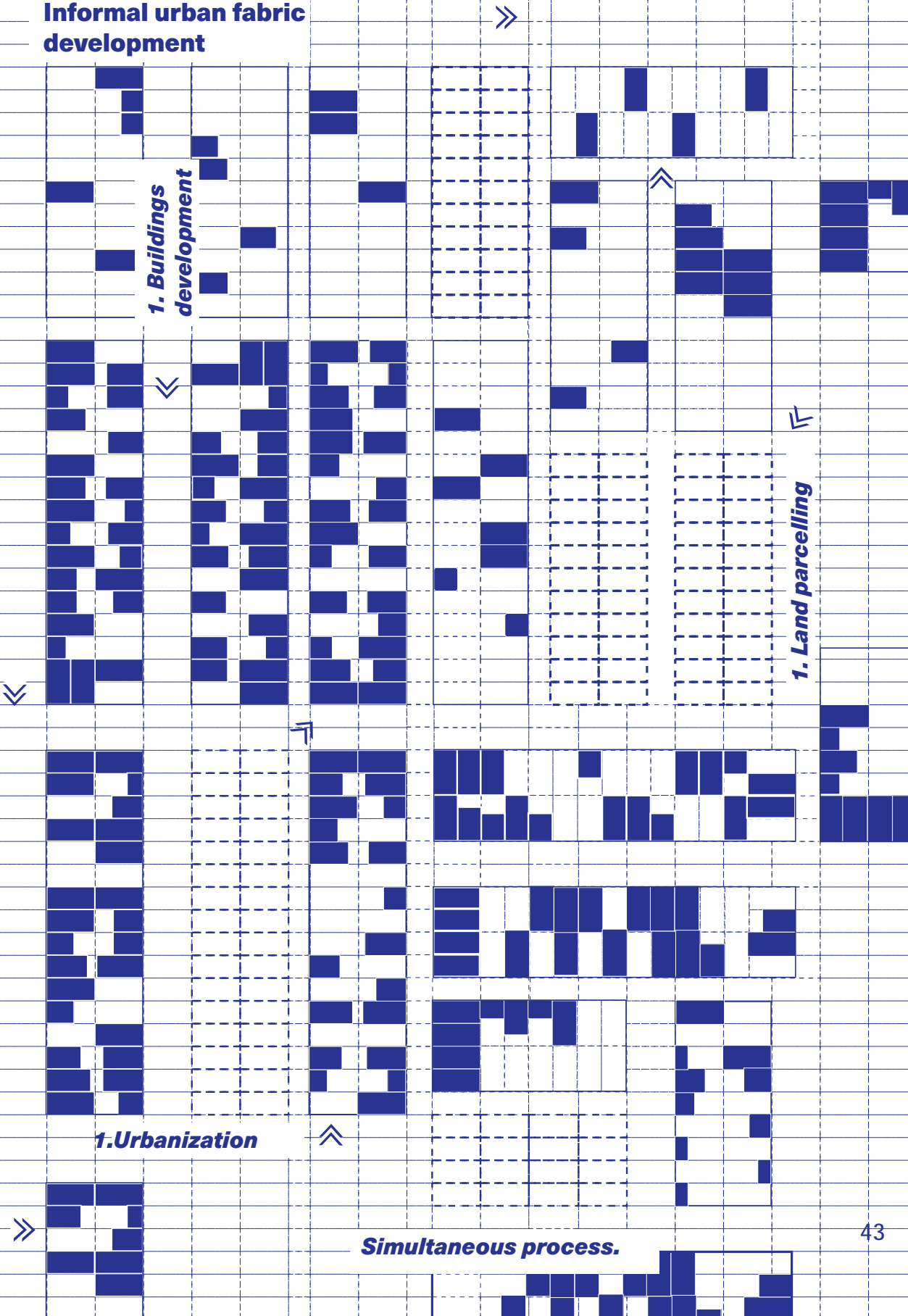**Formal urban fabric development**
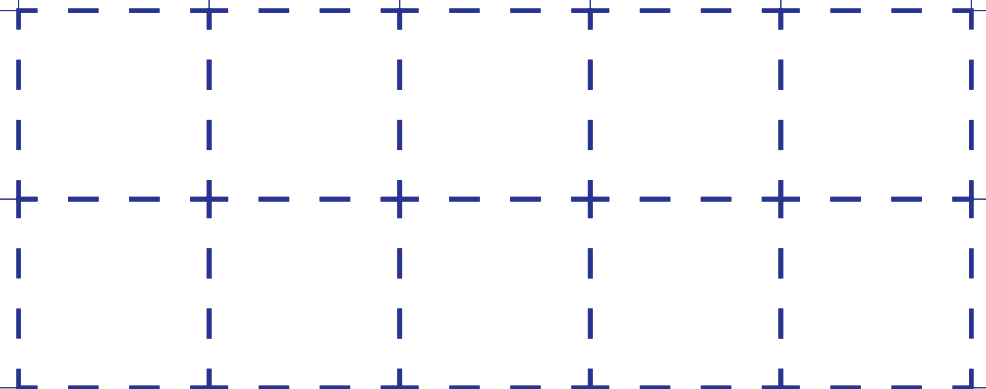
Informal place-making

1. Master Planning

2. Land parcelling

3. Buildings development

TOP-DOWN PLANNING
Sequentially organised

Informal urban fabric development

1. Buildings development

1. Land parcelling

1.Urbanization

Simultaneous process.

Informal
housing

▼Home creating processes

First Stage

1. **Illegal land invasion.**

2. **Land Subdivision**

3. **Temporal Shelter**

Ownership

Second Stage

4. House-making

4.1 Construction   **4.2 Structure**

4.3 Cladding   **4.3 Program**

Well Built Housing

▶ evolving program ▼

Informal housing:
an evolving program

Fragment of Embracing the paradox of planning for informaliy. by GEHL
Buenos Aires, Argentina

"Flexible architecture breeds economic opportunity.Homes in the villa are more than a place to live,they are platforms for economic progress. An immigrant family may start with a two-room single-story house. ***A gate or a window that faces the street is all they need to start a small shop****. Entrepreneurial ideas can be tested without the cost and risk of renting a commercial space. If the business fails, it can be converted to a new and better business idea at the same location. If business succeeds,* ***it may expand to fill the first floor while revenue from the business goes towards a second-story addition that becomes a home. A third floor with independent access becomes an apartment for a cousin or a renter and their partner to move in. The house is constantly adapting and changing; it can get subdivided when the family grows, or rented when a member moves ou****t. Many of the residents of the villa live outside of the formal banking system so a bigger house becomes both a form of savings as well as a revenue stream. Over time, a successful business can become a well-known neighborhood asset that allows people to meet their needs within walking distance. Today one out of every five buildings in Villa 31 holds a business. A single narrow street holds a produce market, an internet cafe, hairdresser, laundry, a sandwich shop and even a dentist office. Each of these business stands as a testimony of the entrepreneurial drive of the residents".*
(Madiz &Risom, February 8th 2018)

"Thresholds and boundaries are complex and fluid, changing both spatially and temporarily as households, dwellings and enterprises grow and evolve. ***The dwelling plays a key role in structuring both social and economic interactions, and through patterns of production and consumption links the micro domestic economy to broader macro-economic developments.*** *Therefore the home plays a role as a provider not only of physical security and safety, but also of fundamental economic sustenance, without which the household would perish.* ***The home thereby becomes not merely a container of human life but an essential shelter for those life-sustaining activities****. It is clear that the house not only structures social and economic interactions but also acts as a source of core symbols that constitute those interactions. In a study of the domestic economy in Colombia".*
Gudeman and Rivera (1990: 2)

Circulation
common space

Household

Household

Commercial
space

Rented
space

Commercial
space
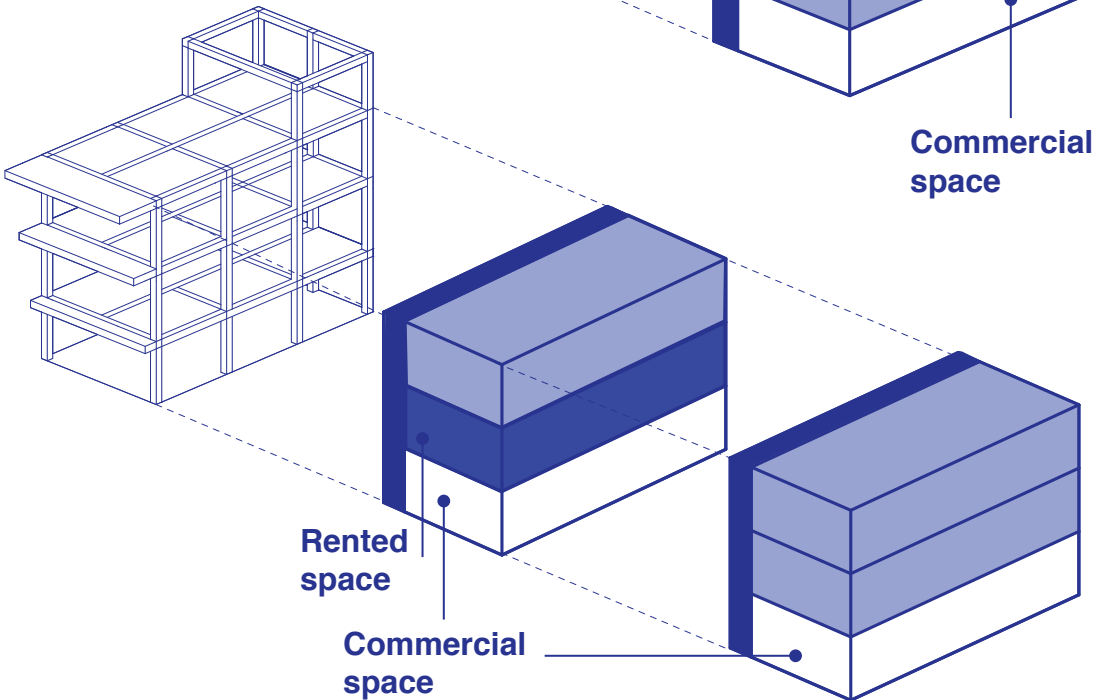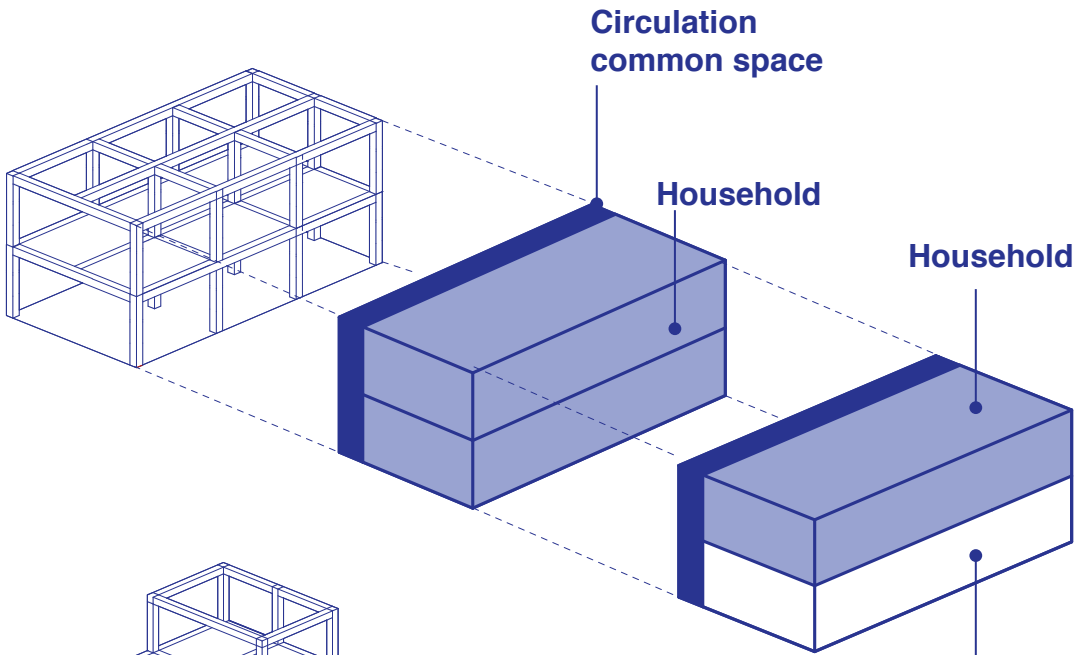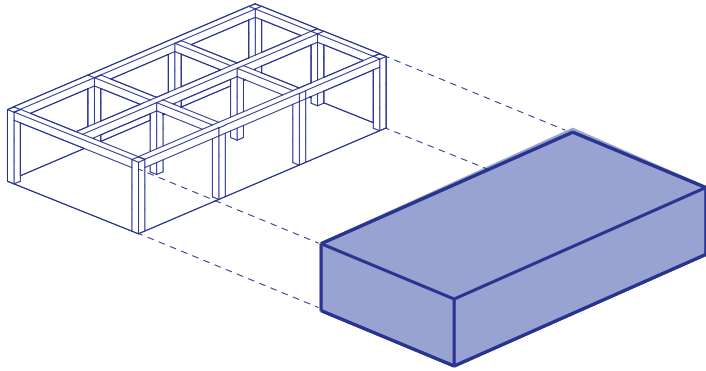
8.1 Ciudad Bolivar, Bogota

8.4 Bogotá, Colombia.

8.2 Ciudad Bolivar, Bogota

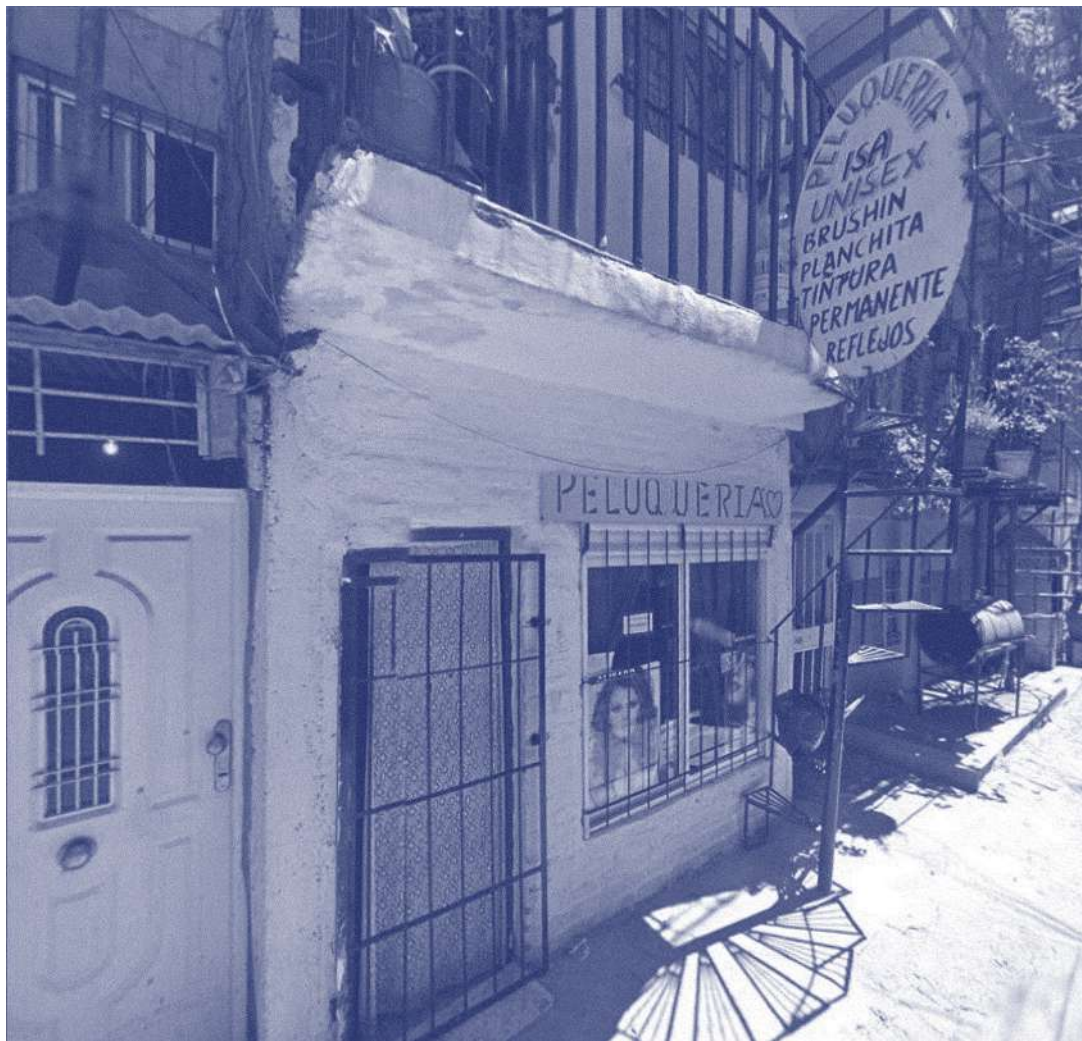

8.3 Villa 31, Buenos Aires.

48

8.6 Villa 31, Buenos Aires.
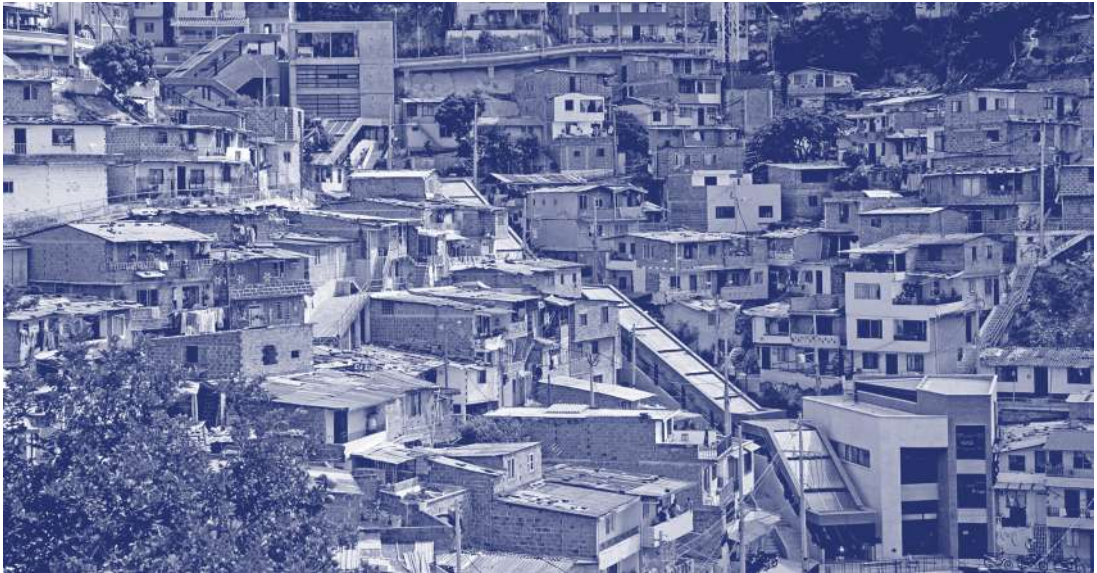

8.6 Villa 31, Buenos Aires.

Informal housing
place-making

" The cities of Latin America are expanding rapidly largely trough the energy and efforts of ordinary people who are creating their own dwelling environments in informal settlements with varying degrees of support or condemnation from municipal authorities." (Kellet, 2005,22)

9. Construction crew.

10. Comuna trece, Medellin , Colombia

The informal housing is generally developed without any kind of official control, regulations or laws. It is conceived and constructed by the occupants themselves in an urgent need of shelter and changes and transforms during time depending on the occupant/builder/owner needs and desires. At first sight the informal housing might look disordered, chaotic and unplanned, especially in the early stages of its development, this responds to the economic limitations the owner has, and is the result of the considerable ingenuity and creativity the builder is able to produce with limitless resources. Most of the times this first early stage of housing is constructed with building-sites left-overs, recycled materials, plastic sheets ,waste wood and scrap metal.

First stage

1. Illegal land invasions

"Occupation movements are providing shelter by *occupying* ***these residual spaces across the urban fabric*** [...] occupation movements address housing inequality through ***collective self-organization and construction***"
OSA (Monu#32,2020,77)
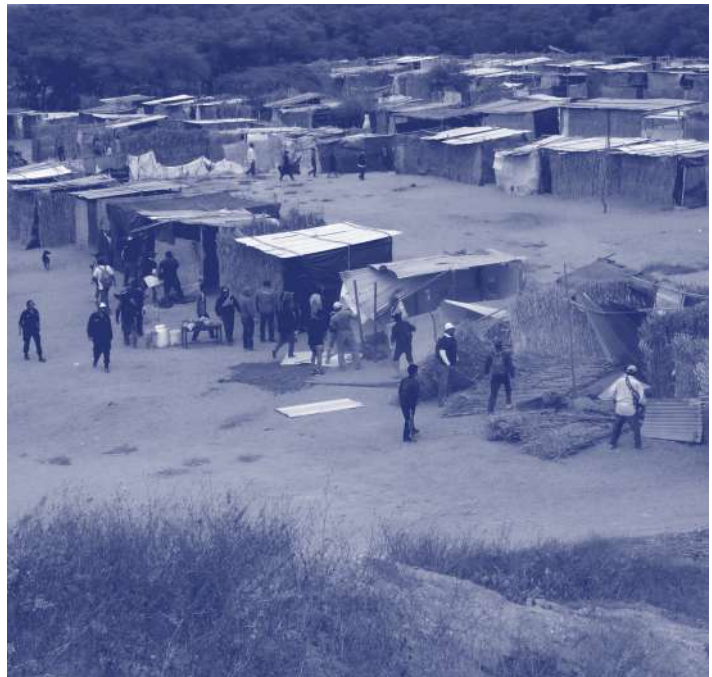
11. Land invasion, Peru

12. Land invasion, Peru

"The majority live in settlements which **begin as organised, ilegal** (sometimes violent) invasion of land" (Hernandez,2005). In brasil favelas and loteamentos are born from a process of illegal occupation "[...] favelas **tend to be built** on land that has been deemed by city officials not worthy of developing for a number of reasons, **including illegal ownership disputes**, problems associated with buildind on **abandoned farmland and dangerous inclines**" (Lara,re-thinking the informal city, 2010)

Land invasion turns vacant land into occupied land ,establishing a territory of resistance and collective ways of showing discontent about housing precarity. "[...] a group of about fifty sqatters entered a terrain in the district [..].Inmediately,and under alternative media coverage. a **common shelter and banner were erected demarcating the new occupation**" (OSA, monu#7,2020)

informal Place-making

2. Land subdivision

"***Land subdivision*** is carried out by the settlers who aim to ***create plots of equal dimensions*** within a conventional gridiron layout. ***Land invasion and layout are collective activities, but dwelling,construction and consolidation are largely done at household leve***l" (Lara,Re-thinking the informal city,2010)

13. Land invasion, Colombia

Land invasion and layout are collective activities.

Allotments of about 5-6 on 12 m²
organise the provisional shelters in an
orthogonal grid.

*"During this first moments,
the collective is omnipresent.
The common shelter forms
hereby the scene of thorough
communication,discussion,informing
and planning between movement and
the occupation's residents"*
(OSA, Monu,2020,79)

"The informal housing is usually in a process of dynamic change and demonstrate considerable ingenuity and creativity within limited resource constrains". (Kellett,2005)

3. Temporal shelter

"In the years following the terrain's entry the occupation turns ***into a stage of diligent self-construction***. A growing number of families ***piles-up makeshift shelters of plywood and corrugated sheets, as plastic shelters and wooden shacks gradually turn into ever-evolving dwelling***"
(OSA, Monu,2020,79)

Occupation and construction take place simultaneously, the site becomes a site of perpetual constructions and reconstruction until land tenure is secured. *"[...]continuous flocks of new inhabitants **moved in, as other moved out again** [...] Paradoxically interposed between seeking to lay **hold on the land by developing it,** and **minimalizing investments costs** as **everything can be lost** in the blink of an eye, occupants only **gradually replace** and complement wooden constructions with brickwork and concrete"* (OSA, Monu,2020,79)

Over time dwellers can change their temporary shelter into well-built houses. However, this stage of land uncertainty could last years until the inhabitants can secure tenure (through land legalization). Leading to years of poor quality living without basic services, poor sanitation, and continuous hazards.

*"Such changes occur
at varying speeds, with
numerous factors impacting
on the process, including
cultural background and
complex of residential mobility
which mean that different
households may occupy and
build at different stages in the
life of the dwelling."
(Kellett,1992)*

15. Temporal shelter
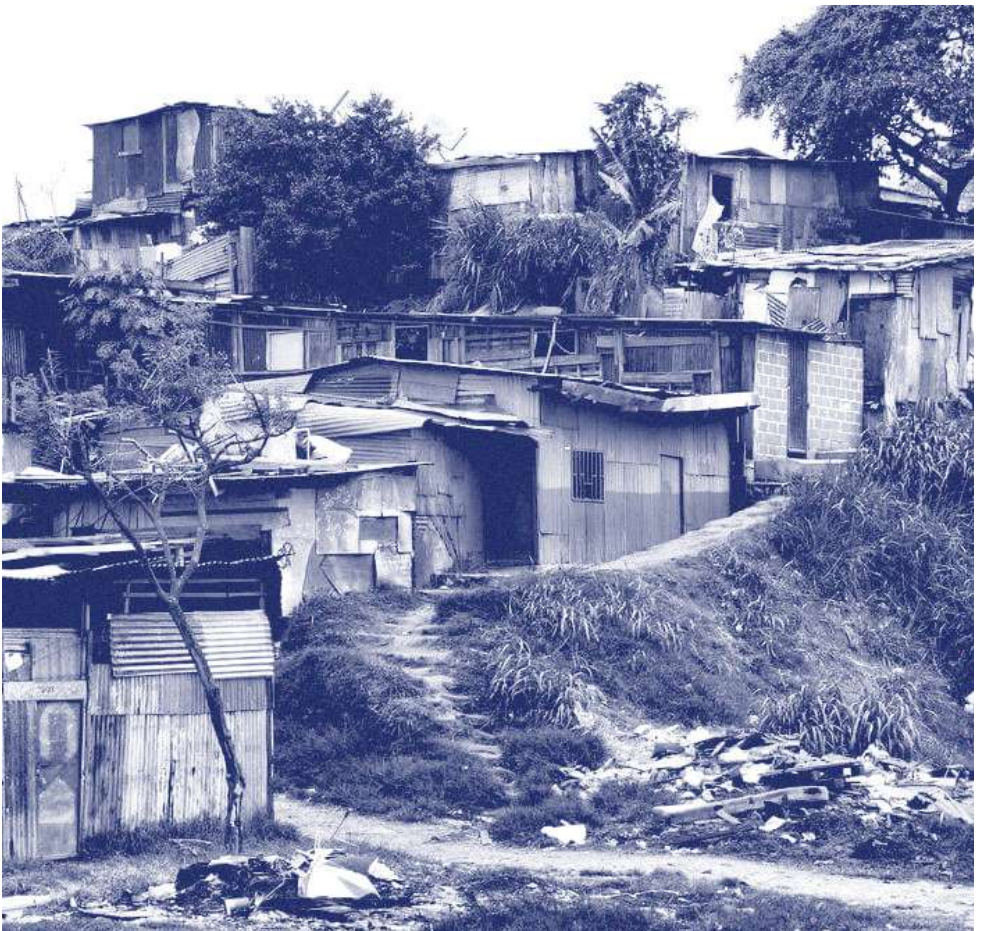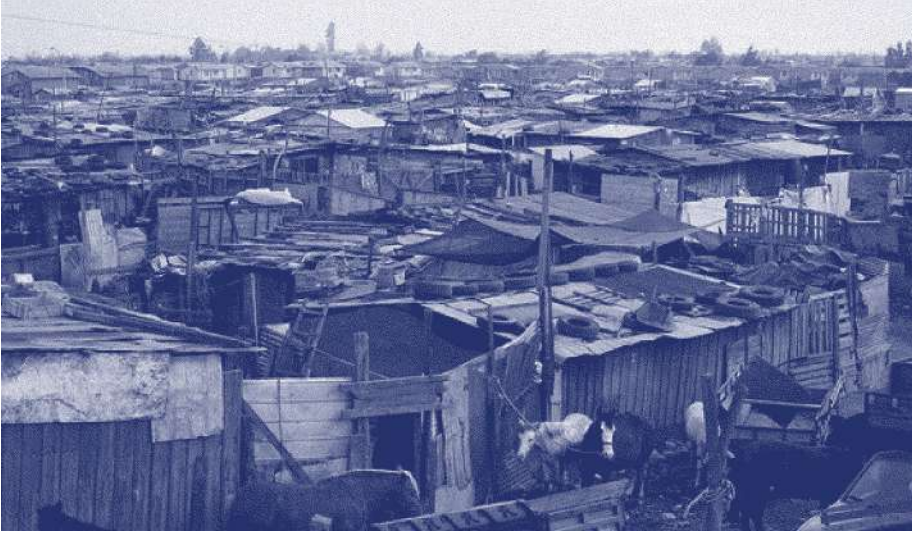
16. Temporal shelter, Argentina.

17. Temporal shelter, Colombia

18. Temporal shelter, Colombia

19. Temporal shelter, Colombia

20. Temporal shelter, Argentina.

Second stage

1. Well built-housing

When land tenure is secured *"*
a small piece of city is gradually
*consolidating, and **out of misery and***
***dispair**, new opportunities are in the*
making."(OSA,monu,2020,81)

"*Over time most dwellers are able to*
change their temporary shelters into
well-built,substantial houses:a change*
from small,single-room-unserviced
*dwelling towards **multi-room**,larger,fully*
*serviced houses **in permanent materials**"*
(Kellet,2005)

Normally the change from provisional
shelter to well-built units starts when
the family hired a local builder that is
selected on the basis of their previous
work and common acquaintances.
Contractor and client live in close
proximity and often belong to the
same community.. No formal plans
or contractors are signed, just quick
sketches and discussions about schedule
and budget, **Trust and reputation are**
everything in this stage..

"Although most buildings have not been designed by an architect, or had the input of an engineer in the strict sense of the term- they are no less logical than those which have been designed by professionals; they simply follow a different logic".
(Lara,2012)

21. Temporal shelter, Argentina.

22.Bogotá Colombia

LICENCIAS Y PERMISOS DE
CONSTRUCCIÓN ANTE
CURADURÍA URBANA

23. Cordoba, Argentina

24. Construction crew, Colombia.

25. Villa 31, Buenos aires, Argentina.

2. Construction phase

1. Agreement between the owners and the construction crew, led by a more experienced worker. The sketchy plans with basic measurements are used as a guideline for the foundations.

2. Design decisions are reduced to simple divisions of the space into rooms and later decisions about windows and door placement.

3.Given the standardization of cheap metallic windows (100x200) and doors (70x210) the main design decision becomes where to place such openings.

4.No consideration is given to solar orientation and/or ventilation strategies.

5. Furniture dimensions are not considering in the space division.

3. Structure:

Foundations are normally made of re-inforced concrete blocks, columns and beams are made of reinforced concrete cast in situ and a slab roof (also made of concrete cast in situ) tops everything. Normally columns are between three and four meters apart, giving a certain rhythm to the volumes.

Walls are made of exposed hollow clay blocks, always following the plans of the structural grid despite carrying no load. They are built before the upper beams which are poured on top of the last row of brick, even though the walls are not load-bearing.

All the materials are mixed on-site and very little prefabrication is used. The local stores deliver the materials on-site and from then on the construction crew is responsible for mixing, cutting, bending, welding, and connecting everything.

Structure

Well-built housing.

informal Place-making

"[..] similar ity with Le Corbusier Domino system is not a coincidence. In Latin America in general and in brazil in particular, modern architecture achieved a distinct level of identity [..] (Fraser 200:8)

Pros:
1. Makes a more economic and more quickly built structure.

Cons:
1. As the walls are built before the beams the options and advantages of an independent structural system become limited.
2. Choice of small windows, that do not take advantage of the reinforced concrete structure. (related with security reasons)
3. **Given a standard structure houses keep growing in height to the point of taking the foundation to its lim-its safe bearing capacity.**
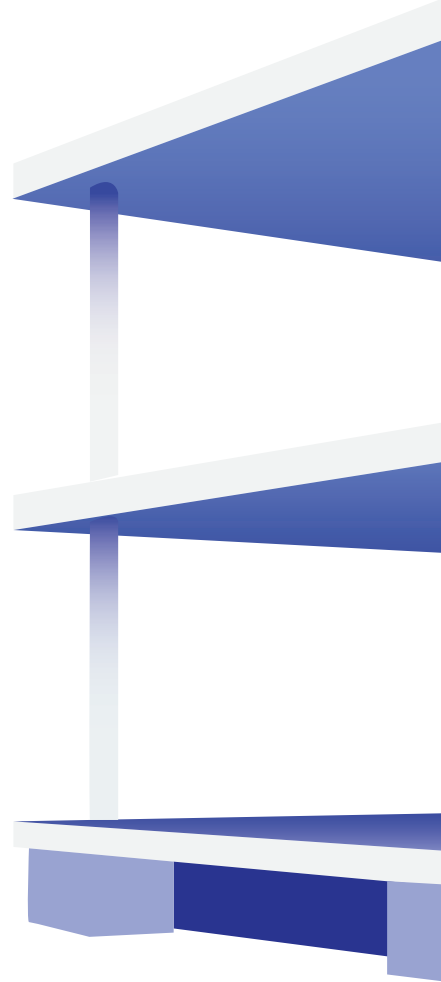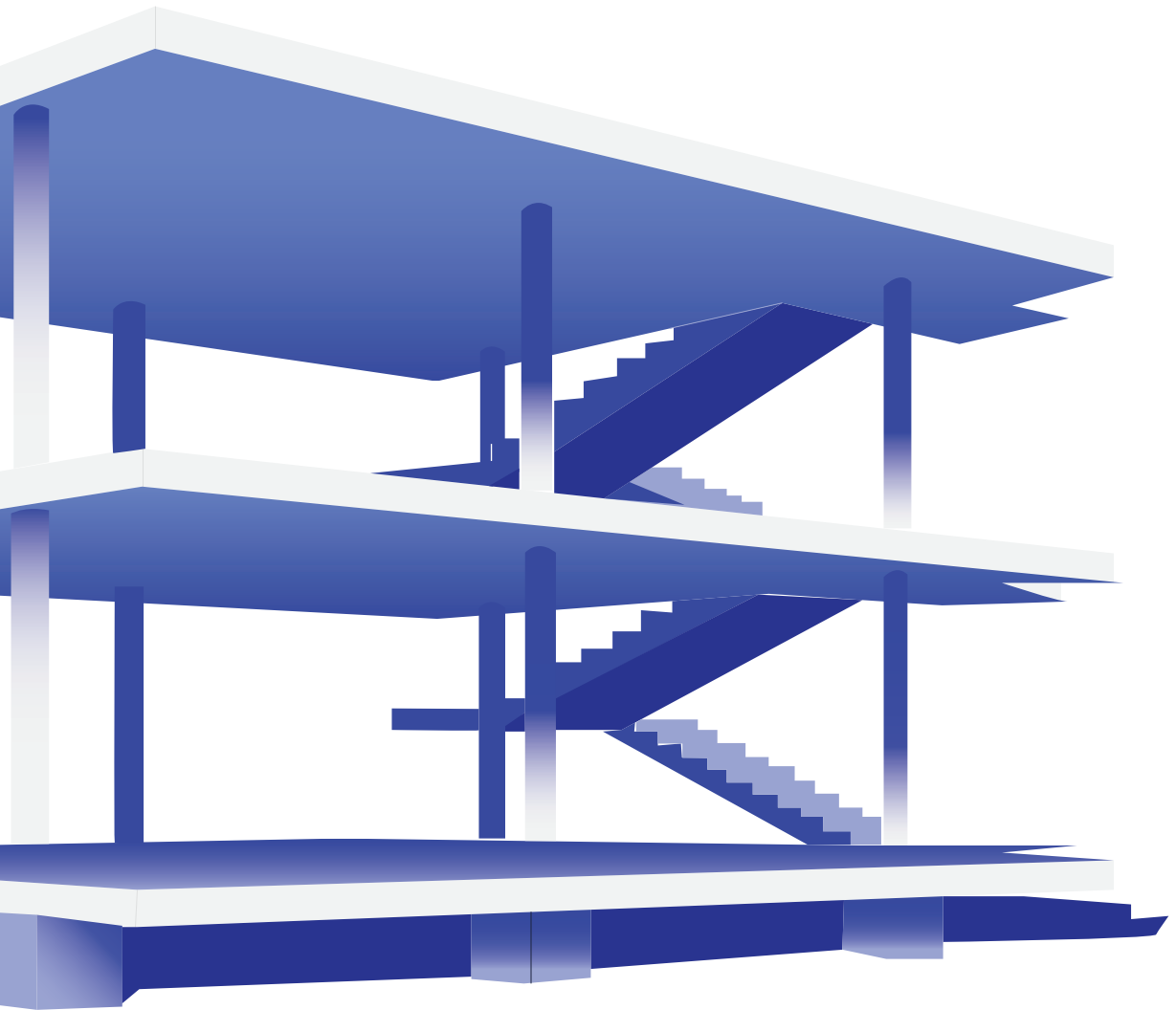
The vast majority of these Brazilian houses were not designed by architects. Built by the owners themselves, with help of a contractor and unskilled workers, the houses show an ingenious adaptation and application of a modernist vocabulary". (Lara, 2012:36)

House development:
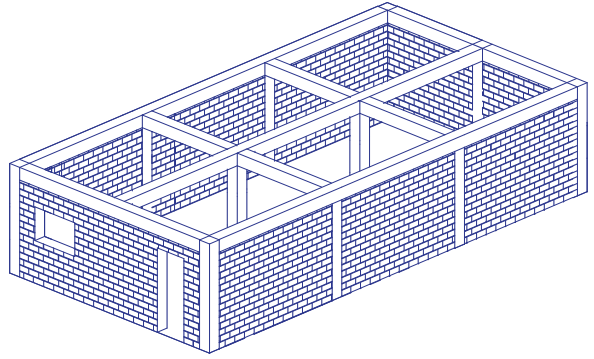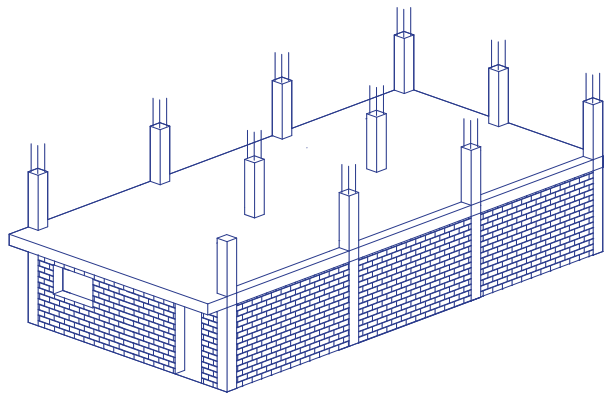
Phase 1
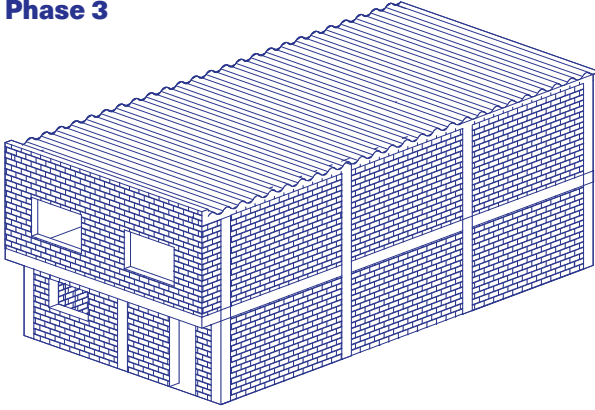
Phase 2

Phase 3

Phase 4
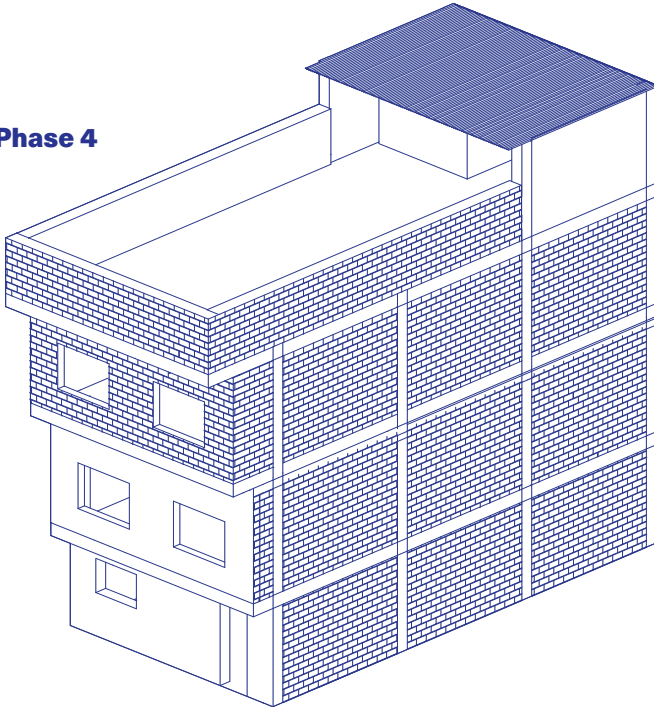
26. Villa 31, Buenos Aires Argentina

27. Villa 31, Buenos Aires Argentina

28. Buenos Aires Argentina

29. Villa 31,Buenos Aires Argentina

30. Villa 31 Buenos Aires Argentina

4. Cladding

Once the structure and the walls and spaces are defined, the owners/inhabitants/builders focus on how their home is going to present itself to the rest of the city. In many cases, the owners prefer to focus on the "beautification of their facades" rather than the finishes of the interior of their home.

The facade design determines a very important element within the construction of the informal city. Although the arrangement of the windows, doors, and openings in the facades often arise randomly and follow the standard measurements of these elements. The decoration and finishes of these present elements, symbolisms, and ways of life of a culture.

 The importance attached to the public side of the dwelling is strong in informal settlements. It is common to see small dwelling at the early stages of consolidation, where resources and efforts have been expended on addressing issues of the image instead of resolving more practical issues related to space and quality.

" [..] on one occasion in Peru, I well remember criticizing the local habit of building a more or less finished street façade even while the owners lived in a shack behind it, the homely lady I was speaking to, about the sense and economy of doing just that: how the preview of the street of finished homes confirms the faith of the builders and stimulates the realization of their expectation [...] "
(Turner 1974,15)

31. Bogotá, Colombia

Cladding

Well-built housing.

32. Ciudad Bolívar, Bogotá, Colombia.

informal Place-making

33. Ciudad de Mexico,

34. Bosa, Bogotá, Colombia

35. Ciudad Bolívar, Bogotá, Colombia

36 Chile, social Housing - Elemental

Bogotá: case study

Informal settlements in Latin America develop following similar patterns and behaviors. However, they mutate and change in relationship with the culture and territory in which they are located. Therefore, the tools and actions must be tailored and adjusted on site.

Although Bogota is one of the Latin American cities that has grown exponentially in the last 50 years, its housing programs have not met the housing demand. By 2017, according to DANE data, the housing deficit reached 353,580 units. Of which 142,919 correspond to the quantitative deficit and 156,912 to the qualitative housing deficit. However, for the 2018 census, the figures revealed 96,947 households in quantitative deficit and 256,633 in qualitative deficit (DANE, 2020). According to Olga Ceballos, an explanation for the reduction of the quantitative deficit and the increase in the qualitative deficit can be associated with the increase in the supply of informal housing in Bogota, which continues to solve the housing need in the poorest households but maintains the quality deficiencies associated with the production achieved there (Ceballos, 2019).

"As governmental construction of social housing and the provision of subsidies have proven to be incapable in providing sufficient affordable and adequate housing, social movements take matters in their own hand by occupying abandoned and underused buildings and terrains in the city, thereby broaching the severe housing deficit and widespread precarious living circumstances by working towards alternative housing solutions." (OSA,2020)

This chapter takes Bogota as a case study. It exposes the city's urban growth concerning informal settlements, socio-economic aspects of its inhabitants, housing policies, and the tools the city has used to address them.

Bogotá, Colombia
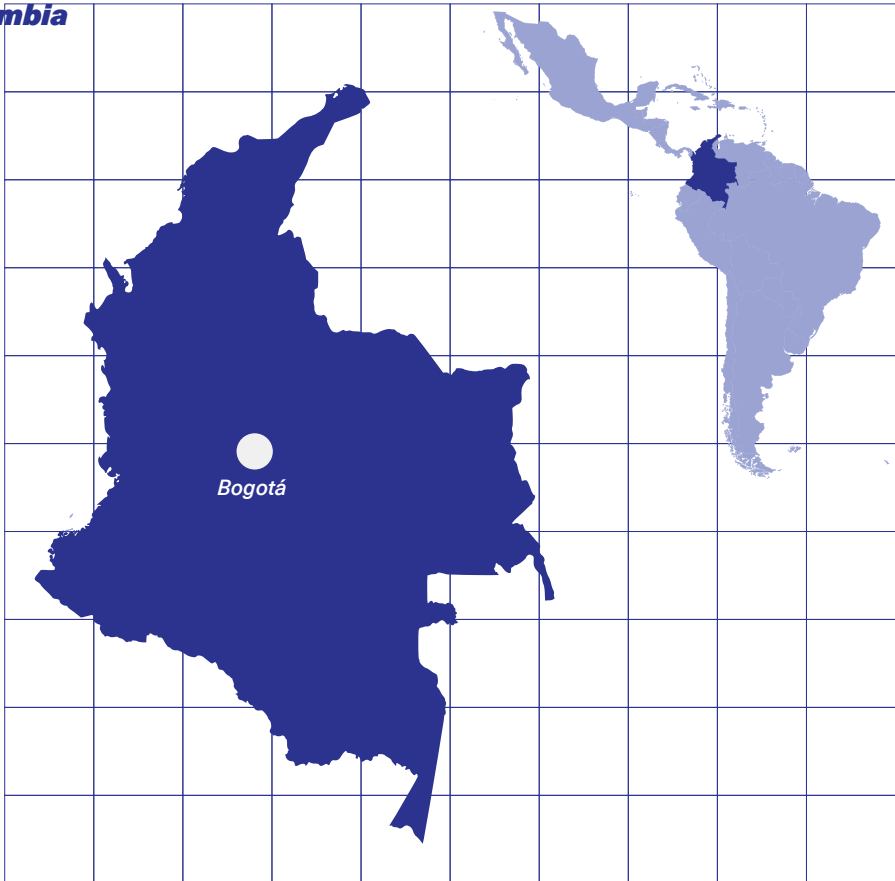
40. Bogota, Colombia

Bogotá is located in the south-eastern part of Bogotá savanna at an altitude of 2630 above sea level. The average temperature is 14.5 C° during the whole year. Dry and rainy seasons alternate throughout the year; its average precipitation is 1012 mm year. It has two geographical limits on the east, the Cordillera de Los Andes (Andes Mountains) and on the west Bogota River, explaining the city's elongated shape.

Bogotá is the capital and the largest city in Bogotá. Has 20 districts forming an extensive network of neighborhoods. According to the DANE, Bogotá receives every day an average of 203 new inhabitants.

16km

30km

Bogota river

Andes Mountains

Population

Urban Area
7,412,566

Metropolitan Area
10,700,000

79

Historical background

The urbanization process is the most relevant social and urban phenomenon of the 20th century in the whole world. Migrations from rural to urban areas occurred on a larger scale in Latin America countries compared to Europe. In the case of Madrid, Spain, the population multiplied by five in 100 years (from 575.000 in 1900 to 3.200.000 today) while in Bogotá, the population multiplied in 22 in half the time. (from 330.312 in 1940 to 7.412.566 in 2020).

The second half of the 20th century is marked by the development of Colombian cities, with the arrival of industries, new companies and massive migration of population from the rural to urban areas due to the armed conflict present in the countryside, that deepened with the so-called Period of Violence. Violence that was marked in different ways, the first one linked to the political sphere that refers to the confrontation between Liberales and Conservadores parties who disputed the hegemony of power during the 1940s and 1950s; during the 1960's the anti-imperialist wrestling brought the rise of insurgent movements as FARC, ELN, M-19 among others, which gave origin to what is known as the Colombian Internal Conflict. And, since the 1970s, Narcotraffic has been an important element in the physical, spatial, cultural, and political construction of many cities in Colombia and has led to a continuous and accelerated growth of the main cities in the country.

"The arrival of the 21st century reaffirms the advance of the urbanization process in Colombia, a process that will continue unfailingly given the continuity of the internal conflict that will continue to expel population from rural areas and the absence of public policies on human settlements in those areas, absence of a policy agriculture and the management of natural resources and, in general, the absence of real alternatives for the development of the population present in the Colombian countryside. With this panorama, Colombian cities have not managed to consolidate, nor have they resolved the accumulated problems and, therefore, their current state corresponds to a city under construction, without a shared city model, where the logic of segregation deepens and with uncertain future marked by the determinants established by the neoliberal model and globalization" (Torres, 2009, 53)

With the continuous city growth, the established of a POT (Plan de Ordenamiento Territorial) sought to formulate a comprehensive development model for each city, in which guidelines and mechanisms are established to achieve, balance, equitable and efficient urban land use. The POT contemplated six strategies to organize the

1. Conservation of the existing.
2. Consolidation of the existing areas that   allow densification.
3. **Improvement of informal settlements.**
4. Renovation of deteriorated urban areas.
5. Orderly development of expansion areas.
6. Protection of the main ecological structure.

existing city, as for the one planned in ten years.
This model implementation has not managed to solve the structural problems of cities, the development of urban informality (physical, environmental, economic, social, and ownership) tend to remain due to the poverty gap and wealth, along with the number of displaced people moving to the cities and unresolved problems in terms of infrastructure, and basic needs.

"[...] the model is not proposed as an alternative to solve the logic of segregation and exclusion of the city, the model is intended as a mechanism that allows a view and perspective of a sector of society that conceives the territory for the achievement for specific purposes. Likewise, and despite the manifest political will to add the informal to the formal and quickly incorporate it into the city model, starting from understanding the city as a whole and developing an integrationist policy, the informal has ended up being canceled, but at the same time once reproducing it while applying the urban logic that incorporates the excluded and segregated through politics, but does not contribute to the generation of opportunities and productive options, income and employment [...] " (Torres,2009,55)

The weak public policies, in terms of habitat and housing, the production and funding of social housing in the hands of real estate developers and the low-quality housing that is being produced have made impossible to the poorest population the access of formal housing. Forcing them to self-build their city and lead to the fast and continuous growth of the informal settlements.

The informal sector is one of the main housing developers in Bogota, it presents a continuous dynamism regarding the low action response from the government. This is the main reason why the study of informal settlements and informal housing should be addressed as an important topic of how Latin American cities are built, and

instead of denying them and seek for ways to erase them, it could be the chance to understand their strength and weaknesses and from there, start looking for better outcomes of city making.

**Historical
Urban
growth**

1970 ◄

By 1970 Bogotá had 2.571.548 inhabitants, which represented 12,4% of the total country population.

The city started growing towards the periphery, especially to the south-west direction with the construction of Ciudad Kennedy and North-west with Ciudadela Niza. The two neighborhoods were developed with formal and informal constructions.
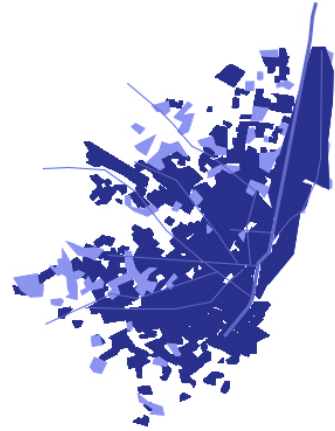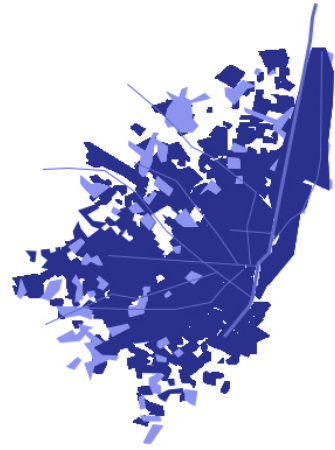
1980 ◄

By 1980 Bogotá had 3,982,932 inhabitants, which represented 14.3% of the total country population.

The growth of the city towards the periphery reached the west city limit, and the informal settlements in Suba and Usaquen kept growing.

The size of the city had reached the 24.046 ha and had a population density of 256.6 inhab/ha.

1990 ◄

Bogota had 4.945.458 inhabitants, which represented 14.9 % of the total country population.

The city kept growing towards the periphery, exceeding the city perimetral border demarcated by Ciudad de Cali avenue, which at that point wasn't completed.

The major urban growth took place in the south towns, Ciudad Bolivar, Tunjuelito, Rafael Uribe and in the north-west in Engativá, Suba, and Usaquen in Autopista Norte proximity.

Bogotá,
the informal city

The informal city has been developed in the well-known misery belt that surrounds the city, characterized by its difficult access through urban transport, and its lack of public services.

Nowadays in Bogotá, there are 125 informal settlements distributed in 11 districts, they are made up of people from different regions of the country, with different causes of displacement associated with the national reality

The development dynamics in Bogotá respond to the political and social context, the most common form of occu-pation by the inhabitants of these settlements is through invasions by "colonists" who later sell the land at prices lower than the of the common market.

According to the Techo report, 3% of the total population of Bogotá, that is, approximately 230,456 persons live in informal settlements. It also indicates within the communities surveyed, there are 55,458 households, with an average of 5 people per family. (Families made up of members of a single-family nucleus). And 41% of informal settlements are made up of at least 20 precarious dwellings or huts.

Historically Colombia has been the city that receives the largest number of migrants within the country because it offers a greater amount of facilities and job offers compared to the intermediate cities in the Colombian Territory. However, the continuous growth of population and the increase of migrations has overtaken the labor force need-ed in existing industries. Rising unemployment rates and forcing the population to settle in informal housing
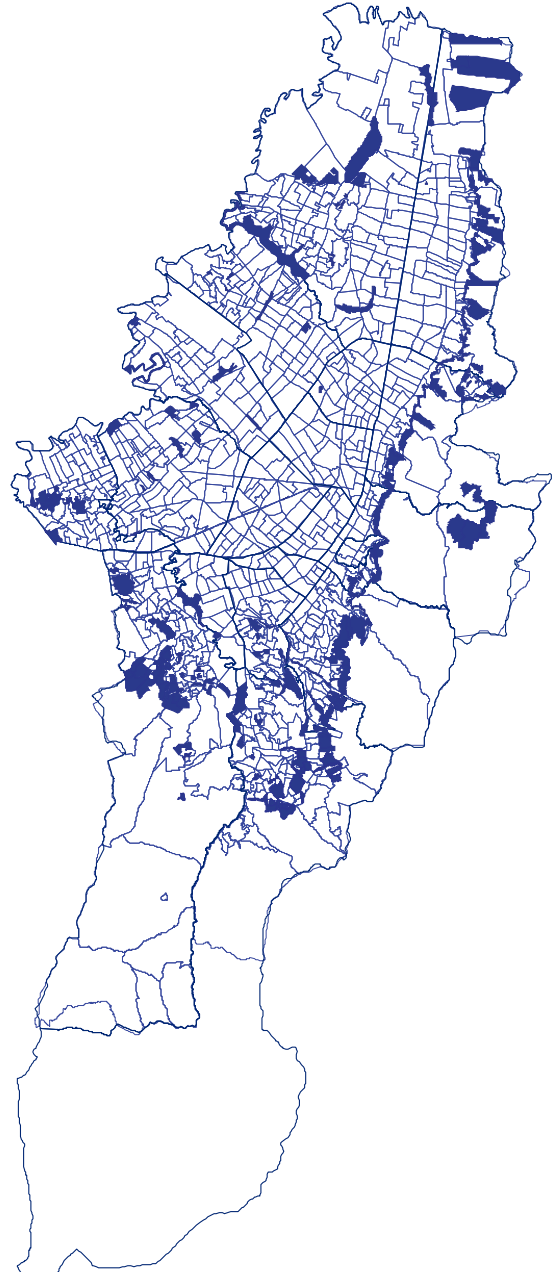
Informal settlements monitoring areas.

Informal settlements
2019

84

due to the high cost of land, the difficulty of accessing social housing. These conditions have been increasing over the years, for the year 2000 the urban growth rate was 2.3 %, which an important part has been generated by the in-formal sector.

65% of informal settlements were created between 1970 and 1990, which did not follow any specific pattern of location. However, during 1980 and 1990 the conformation of them increased mainly in the south of the city. 54 informal neighborhoods were located and in Ciudad Bolivar and Usme districts. And, from 2000 on, most of them are in Ciudad Bolivar.

Informal Settlements development by year

Year	N°	%
before 1950	9	7.2%
1950-1959	5	4.0%
1960-1969	14	11.2%
1970-1979	26	20.8%
1980-1989	29	23.8 %
1990-1999	27	21.6 %
2000-2015	7	5.6 %
2015 -	8	6.4 %

▶ **Formal settlements growth** *vs.* ▶ **Informal settlements growth**
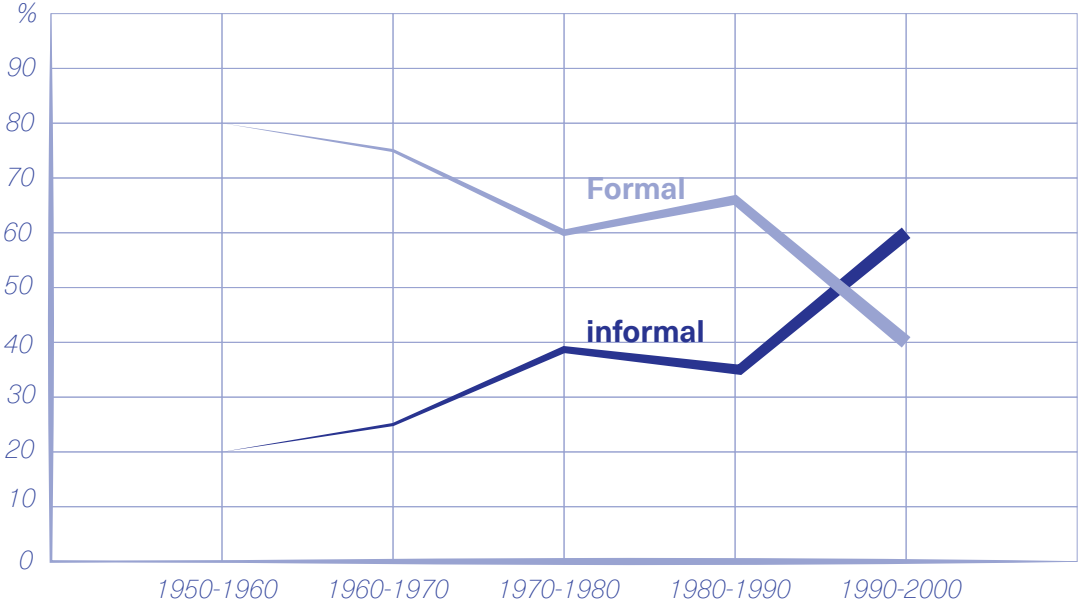
01. Graphic

Bogotá

▶ **Informal settlements in Bogota by district.**

19
Ciudad Bolivar
31%

5
Usme
28%

4
San Cristobal
8%

3
Santafé
8%

2
Chapinero
8%

1
Usaquen
4%

11
Suba
3%

7
Bosa
2%

8
Kennedy
2%

10
Engativa
1%
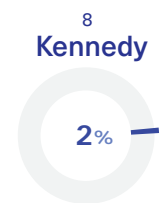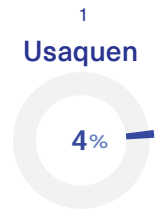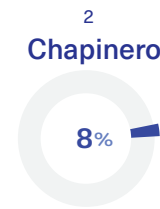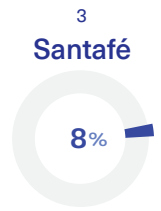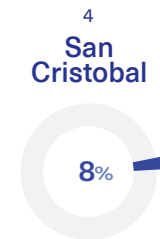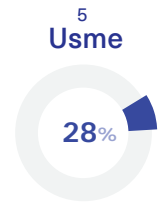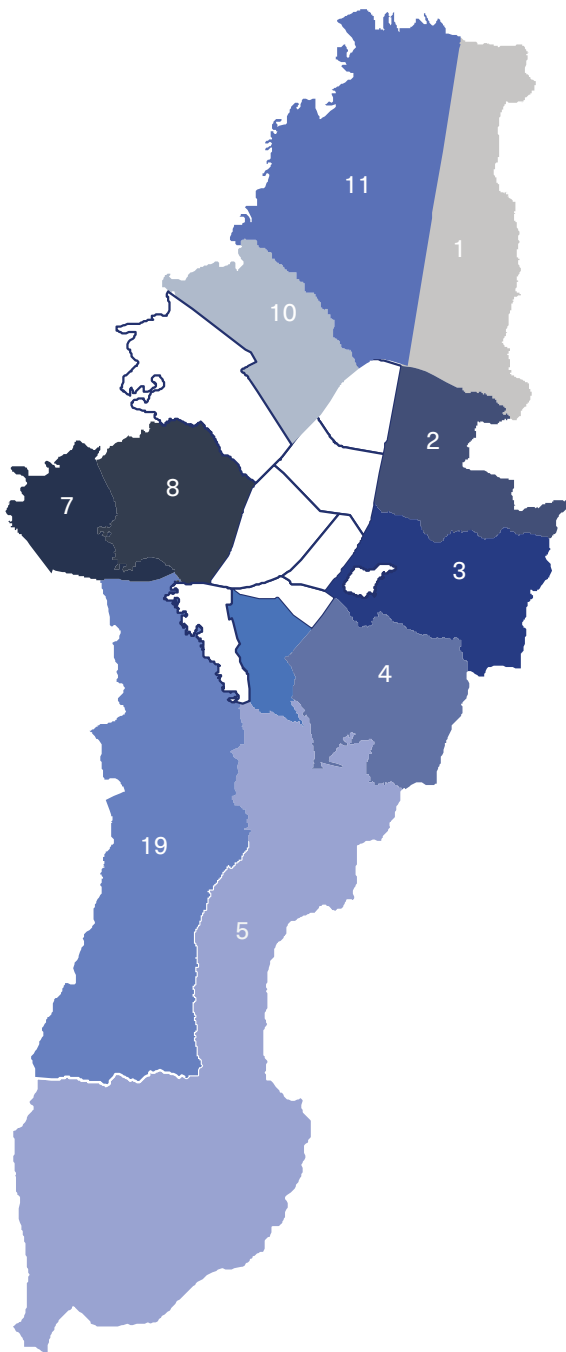
Social dynamics

Most of the activities carried out by inhabitants of informal settlements are associated with precarious jobs, lack of social insurance, low wages (below the legal minimum), temporary jobs or underemployment that further deepen social inequalities, or even create them.

The absence of secure income has driven the creation of informal settlements due to the fact that most of the needed population do not fulfill the requirements established by banks to access to credit rating, loans, and mortgages essential to acquire housing in the formal sector.

" Most of the inhabitants of the Informal Settlements have income from informal sector activities located inside or outside the settlement; many informal sector entrepreneurs, whose operations are within the informal neighbor-hoods, have clienteles that extend to the rest of the city. In this way, the inhabitants have low-paying occupations as a result of informal jobs in the textile industry, recycling solid waste, a variety of companies located inside their home, or jobs as security guards, home workers, domestic workers. , independent hairdressers or furniture manu-facturers." (UN-HÁBITAT, 2003).

41. Man selling vegtables in the street

42. Movable coffee bar

43. Woman selling orange juice.

44. Woman selling cigarettes and candies

Housing policies and ownership

Current housing policies in Bogotá are ruled by 2020-2024 city's development plan (Plan Distrital de Desarrollo PDD) and the Subdirección de Barrios's guidelines. These policies address the following goals: Urbanization legalization and regulation, informal settlements upgrading, and informal housing upgrading through the Plan Terrazas project.

According to the Secretary of Habitat, "Therefore, the proposed model does not seek to impose on a specific idea of a city, each phase being a constant dialogue and feedback that actively values the role of citizens, conceiving their participation beyond the traditional socialization scenarios. , through active participation in decision-making, in monitoring interventions, transforming the citizen role from recipients of actions to appropriators of actions, which involves providing them with the tools for their appropriation to depend less and less on public actions, and develop joint responsibility with the territories "(Secretary of Habitat, 2020)

1. Urbanization legalization and regularization.

► Promote massive legalization processes, titling, and recognition of existing buildings in the city, which have not met the requirements established by current urban regulation.

► Design and implement follow-up and monitoring instruments for neighborhood legalization, regularization programs, and land titling.

2. Urban Upgrading

► Establish comprehensive neighborhood improvement programs and establish action priorities that allow correcting and reordering the settlements' physical and environmental conditions.

► Strengthen the processes of articulation of public spaces with existing urban circuits.

► Design interventions in public spaces so that they adapt to different physical and environmental environments.

► Plan interventions in public mobility spaces that guarantee connectivity with the city.

2.1. Housing Upgrading

► Through state subsidies, the improvement of informal housing is sought to improve habitability and structure conditions.

► Plan Terrazas (Terraces plan)

•How does it work?

Offers technical assistance by professionals (engineers, lawyers, and architects) who support the study of each property's viability and provide the necessary support to the inhabitants to carry out a concerted and efficient execution.

Providing support and financial advice to grant the necessary resources for the execution of the plan

• Where?

Providing support and financial advice to grant the necessary resources for the execution of the plan

•To whom?

The subsidy for the improvement of housing and access to new housing aims to support low-income families who do not have their own home and wish to acquire a VIS (low-income housing) that does not exceed USD 39,000. Moreover, they need to prove, through a labor contract, a monthly salary of up to USD 1046.

It should be noted that these new policies the government intends to implement search to densify the city from what has already been built. It tries to recognize the informal settlements already constituted within the solutions for the production of affordable housing. The terraces plan initiative begins to understand informal housing's process and invites architects and engineers to participate in its development. This strategy is not a macro-level solution but, on the contrary, tries to understand housing as the fundamental element of city construction.

Control and profiling stratetiges

Habit App

This application works as a tool of the Secretaria Distrital de Habitat de Bogotá[1] for the management of the urban and rural territory, in which urban developments and illegal housing in the city can be captured and reported, based on the georeferencing of information by GPS and its location on the map of bogota.
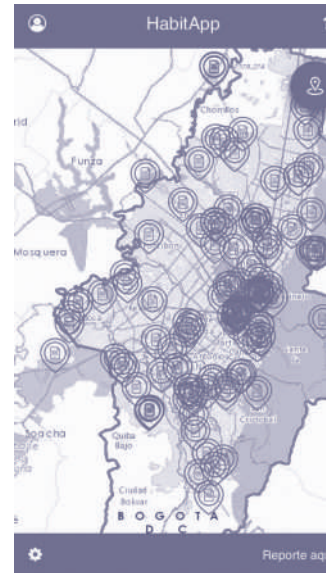
[1] Secretaria Distrital de Planeación de Bogotá is the entity in charge of leading the formulation and implementation of urban and rural territory management policies, within the framework of a development approach that articulates the social and economic objectives of land use planning and environmental protection, in order to to improve housing and urban planning in the Capital District.

e.g.

45. House under construction

Report types.

Plot:
Demarcated paths with enclosure materials
or where there is evidence of plots
ilegal sale.
Provisionals:
Provisional shelter made with recycled
materials, plastic, wood.
In progress:
Informal Houses under construction.
Established Houses:
Finished houses.

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Preliminary conclusion

What could we learn from informal housing in Latin America?

Informal housing is the honest expression of its inhabitants' basic needs and exists as an organic process that responds to its own requirements. Its constructions reflect a perpetual building site that is in continuous confrontation with the formal permanence of the city. Informal housing emerges between precariousness and improvisation, and the habitants' creativity and desire to improve their quality of life. Therefore, knowing the social and economic processes in which they are inscribed allows us to understand that it is a complex problem that involves factors outside the domain of architecture or urban planning.

Recognizing and analyzing informal housing's strengths and weaknesses do allow us to confirm that the solution to informal settlements is not the standardized mass production of social housing to accommodate the vulnerable population. We should embrace informality as another city-making process and seek more resilient, participatory, and exploring tools to accompany, organize, and improve the new urban fabric development.

The following table lists the strengths and weaknesses of informal housing in Latin America, highlighting those potential elements that should prevail and those that should be reevaluated.

What to learn from Informal housing

Ownership

► The illegal market allows access to plots and housing without loans, mortgages, and bank intervention.

► The illegal market provides the poorest population land tenure in a short period, unlike the formal market and government policies that have failed to provide quality and quantity of housing to the neediest population.

Program

► It is constantly adapting according to its inhabitants 'needs.

► Creates and re-enforce the sense of community through collective work.

► It is a process of dynamic change.

► It is a platform of economic progress.

► It is an unfinished project that re-invent itself throught time.

► It can hold as many programs as its inhabitants desire.

► Brings diversity to the urban environment.

Aesthetics

► Carries local wisdom into the contemporary world

► Allows people to project their personality onto the houses.

► It reflects authenticity and craftsmanship.

Construction

► Self-built practices.

► Materials and workforce come from local suppliers, neighbors, family members.

► Economic and more quickly built structures.

Structure

► The main generator of form is the chosen structural system.

► Structural system derived from simplified Le corbusier's Domino scheme.

► Use of and independent structural system that brings flexibility in terms of space divisions.

Spaciality

► Given an independent structure, spaces can be changed and re-defined.

► Permeables at the pedestrian levels.

What to improve or change....

Ownership

► Illegal land occupation.

► Informal construction with no planning permits.

► Occupation of urban land or in hotspots of natural hazards, such as floods, and landslides.

► Legalization and legal tenure of the land could take years to be granted.

Program

► Extreme poor living conditions and lack of basic necessities at the early stage of development.

► Poor access to urban infrastructure when the informal settlement hasn't been legalized.

Aestethics

► Un-detail construction and sketches end up in unprecise finishes and joints between materials.

► Continouos work-in progress appereance.

Spaciality

► Lack of attention to the design process.

► Design decissions are reduced to simply division of space.

► No consideration is given to solar orientation or ventilation strategies.

► Furniture layout is rarely considered into the design process.

Construction

► Poor choice of materials

► Misuse of the reinforced bars in columns, low quality of cement.

► Poor electrical and sanitary installations.

► Use of partition wall materials as hollow brick, as structural materials.

► Floor additions without taking in mind the structural load capacity.

Structure

► Weak and non-functional structures.Lack continuity and alignment.

► Deficient foundations

► Non-earthquake resistant structures.

House-in-Progress
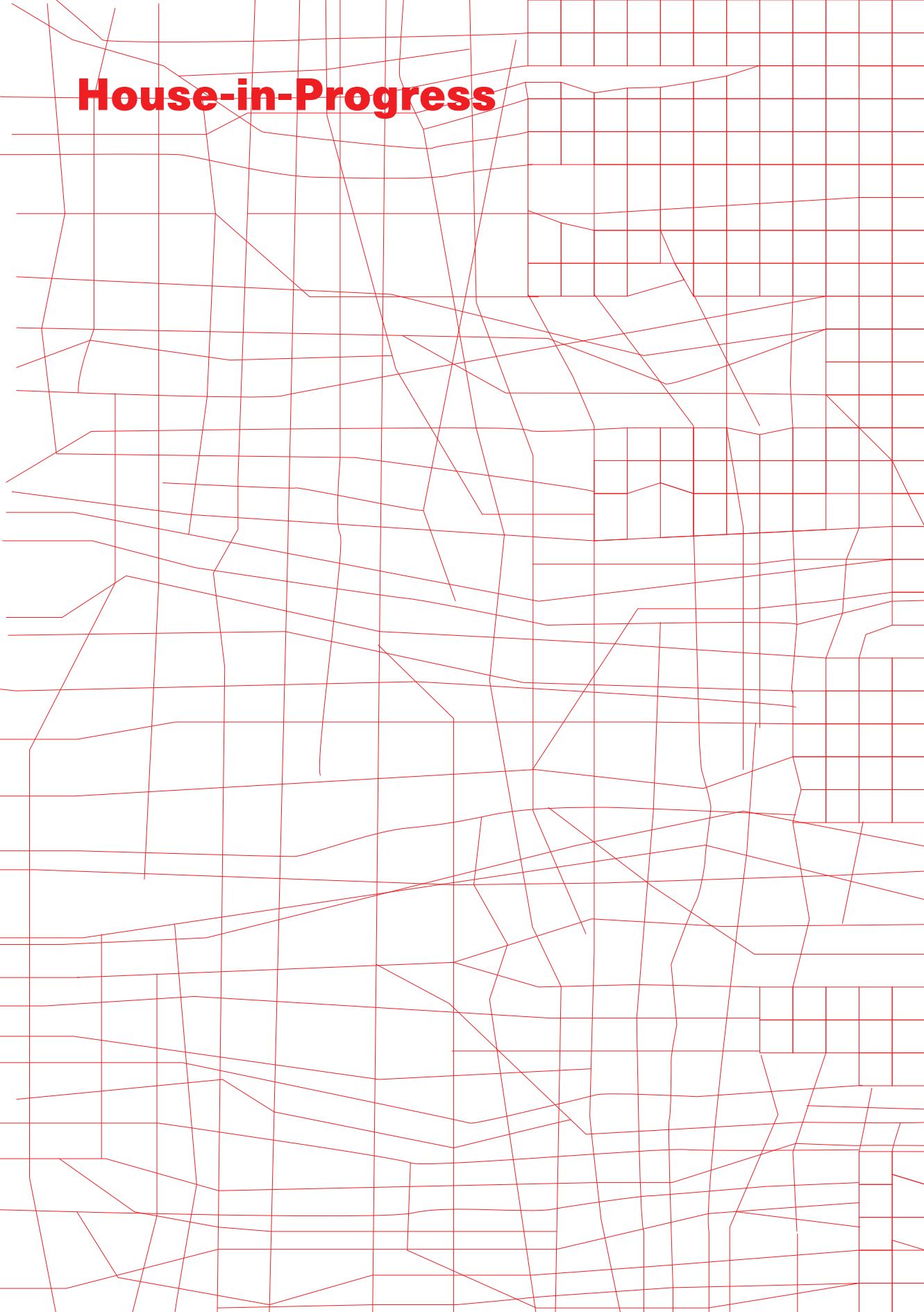
Scenarios

What could be the possible scenarios and intervention tactics to address the different informal housing stages?

The following table lists the informal housing consolidation stages and sets out scenarios, proposes spe-cific actions as possible solutions to the existing problems and, lists tools that can be used for each one of those actions.

Both actions and tools are linked to the community's participatory and resilient work. Therefore, they are complex systems that must be deepen studied and applied in a contextualized manner.

Ownership ► **Provide land titling[1] and land ownership**

Scenarios

House in progress.

Program ► **Informal settlements as a solution of affordable housing.**

[1]"Titling is a process by which informal tenure is integrated into a system recognized by public authorities. Informal settlements can beformed on public or private land, and their formationcould happen naturally or through a broker whoorganizes a group to occupy a piece of land"
New urban Agenda (UN-Habitat, 2020, 65)

Actions	Mechanisms and tools

Regularize tenure

1. Secure tenure through setting in place **community/collective** ownership of the land titles to ensure the community stays in place.

2. Emphyteutic lease:
The occupants obtain the right to **use the land in perpetuity or as a short-or-long term lease**. The owner only become **the owner of the building but not of the plot.**

► **National Urban Policies**

► **Land policies**

► **Housing and slums upgrading policies**

Participatory Urban Planning

1. Accompany land's planning and division to facilitate future government interventions on basic infrastructure and urban services, and together with the new inhabitants, contribute to the production of more sustainable and resilient settlements urban fabrics.

2. Involve the city's poor income population in the strategic and management processes of urban planning.

3.Provide emergency facilities to the vulnerable population while **seeking immersed participation on-site, organizing, accommodating, and accompanying the informal settlement's early stages.**

► **Participatory incremental urban planning**

Participatory Incremental Urban Planning. A Toolbox to support local governments in developing countries to implement the New Urban Agenda and the Sustainable Development Goals. (UN-Habitat, 2020)

► **Planning Labs**

Urban planning and design labs tools for integrated and participatory urban planning (UN-Habitat, 2016)

► **Integrated urban planning and citywide strategies**

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House in progress.

Program ► **Informal settlements as a solution of affordable housing.**

Actions

► UN-Habitat Support to
Sustainable Urban Development
in Kenya Addressing Urban
Informality
(UN-Habitat, 2016)

► **Digital platforms for urban plannig**

Decidim.org

Up-grading the informal

1. Mapping and profiling all informal settlements to understand how they develop and grow over time, their availability of public amenities and facilities, how they sat in the landscape, and their ways to connect to the city.

2.Through participatory in-situ settlement upgrading as a cost-effective way to enable informal settlements to transform into dense and liveable places.

► **Profiling tools**

Settlement Profiling tool a spatial analysis framework for settlements accomodating displaced populations.
(UN-Habitat,2020)

Urban Profiling Manual
(UN-Habitat,2020)

► **Participatory slums upgrading**

Practical guide to designing, planing,and implementing city-wide slum upgrading programs
(UN-Habitat, 2020)

Caribbean Strategy for Informal Settlements Upgrading
(UN-Habitat, 2020)

RE-using the formal

► **Adaptive reuse**
Re-using existing structures can saved time and resources compared to building completely new spaces

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Program

Well-built housing   ► **Informal housing as an affordable housing.**

Actions

Mechanisms and tools

► Adaptive reuse of office buildings: opportunities and risks of conversion into housing. Building Research and Information (42) 3, pp 381-390. Remøy, H. and T. van der Voordt (2014)

► Reuse into housing Olivadese, R., H. Remøy, et al. (2017)

► Adaptive reuse of office buildings into housing: opportunities and risks. Building Research & Information 42(3): 381-390. Remøy, H. and T. van der Voordt (2014).

Ephemeral architecture

1. Allow the community and encourage architects to conceive an architecture with an expiration date that aims to meet specific moment's needs, and where new types of housing, materials, and technologies could be explored.

► Architecture that has the potential to be deconstructed and fragmented over time

► Armada Jacqueline Sustainable Ephemeral: Temporary Spaces with Lasting Impact (2012)

Actions	Mechanisms and tools
Acupunture Housing + incremental housing	► Create an affordable project that allows high threshold of flexibility
1. Incremental Housing could be address as a construction methodology that provides dwellers with the basic elements of a house, allowing the residents to rearrange the fundamental parts to fit their needs, while at the same time reducing the cost of housing.	► Provides the structure and the precise support that allows for a range of infill patterns.
	► Provide toolkits of parts to ensure congruity instead of allowing residents to have full autonomy.
	► Participatory design process, work with the residents to create buildings that would meet their present and future needs.
	► Possibility to co-develop (developer and resident) the property.
	► Allow low-income families to pay for housing construction over time.

Incremental Housing Examples

► Quinta Monroy

Quinta Monroy is the first project developed under Elemental's own approach of incremental housing. It uses contractors to produce "half houses" that residents would later complete according to their needs and resources.

Elemental for this project focused on two issues, the first in reducing construction costs given the low budget of the project and at the same time providing the opportunity to its residents to realize their long-term housing aspirations.

Methodology:

► First Stage:
Provided two types of housing design that could be expanded into allocated spaces as the residents' resources permitted.

► Second Stage:
Conceive the project as a collective building rather than individual dwellings.

► Tools
Provide the main structure as a supporting framework to avoid any negatives effects on self-construction and facilitate the expansion process.

Provide half of the house (essential elements kitchen, bathroom, stairs) Elemental provided guidelines to help residents understand ways to extend the houses.

46. Quinta Monroy, Elemental.

CONS.
 With no formal governance structure overseeing the development, extensions on spaces not condoned or extra floors.

47. Quinta Monroy, Elemental.

► Expandable house.

• Architects rural systems.
Batam Indonesia

• Designed by the following principles:

• It has 3 development phases.

► First Stage:

Sandwich section:
   1.It provides a roof that can be hoisted, floor and foundations that can support three additional floors.
   2.The developer or state housing provides the roof and the foundations, and the residents provide infill.

Domestic density:
It encourages densification in a vertical dimension, seeking to reduce the settlement footprint and support the benefits of co-location of housing and employment.

Descentralized systems:
Rainwater harvesting, solar electricity, sewage, and septic tank system, and passive cooling principles are integrated locally with the expandable house.

Productive landscape:
 The expandable house integrates food and building material production. Integrating bamboo plantations and kitchen gardens into the programs of the house.

Seed package:
It is designed as a seed package containing technologies, material strategies, and planning guidelines.

48. Expandable House

► Second Stage:

Scaling up the expandable housing.
The house expanded to its limits of three floors (108m2).

All the technical systems as rainwater collection, solar energy, and domestic waste management have been successfully trialed.

49. Expandable House

► Third Stage:
Involve piloting the neighborhood and township elements such as alleyways, courtyards, public spaces, district cooling, among others.

Desing-thinking process for a House-in-progress

▼ **What to use and enhance from informal housing ?**

Program

1. Flexible and it **adapts** to its inhabitants' needs.

2. Container of **life-sustaining activities**.

3. Able to **grow and expand** when family grows or when an extra space is needed (to rent)

4. It holds a variety of programs apart from the dwelling.

Spatiality

1. Practical use of the plot area, each program stack one ot top of the other.

2. Construction and occupation happen at the same time.

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What to bring into the informal housing.

1. Add **new programs** such as **green open spaces and productive terraces.**

> *Even though the first house layout might not contain all the programs at once, it has to be considered in the design process as part of its further development.

*re-think the house as a work-in-progress instead as a final product.

1. Explore new programmatic organizations given the standard plot size 6 m x 12 m and its location within the block.

2. Consider **Ventilation and daylight strategies** into the design.

3. Re imagine **the room as an apartment** and create micro-zones..

4. Mutable layout.
All the spaces are temporal and contain different programs through time.

5. Use of curtains, movable panels and temporal walls that can be move or easily dismantle.

**Desing-thinking
process for a
House-in-progess**

Construction
Structure

1. Participatory and Self-built practices.

2. Materials and workforce come from
local suppliers, neighbors, family

3. Vernacular construction techniques.
members.

Aesthetics

1. Allowing the inhabitants to project their
personality onto the houses.

1. Bring **new construction techniques** and materials.

2. It has to be **simple assembled and easily constructed**

3. Sustainable use of materials

4. Support self-organised artisans, labourers, and local skills.

Program

Scenarios

House in progress
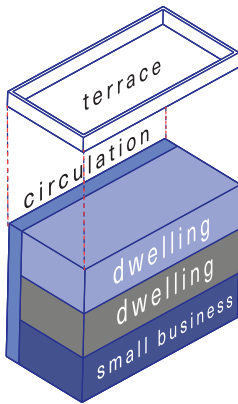
▲ Informal program layout
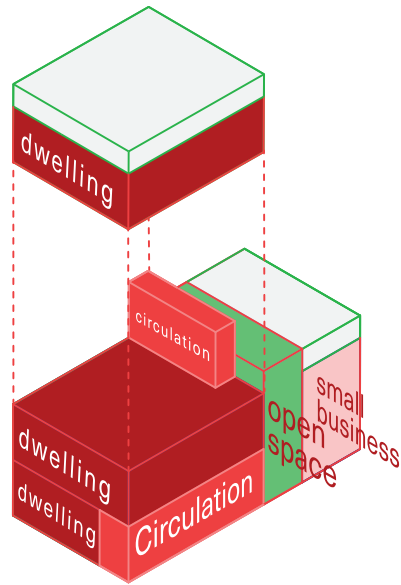
▲ Gardens and patios as transitional spaces between programs

*Usually the informal housing programs stack one on top of the other, connected by the vertical circulation. New configurations were studied to provide the programs needed and bring new programs into the house.

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Dwelling
Dwelling
open space
Dwelling
small business
Circulation
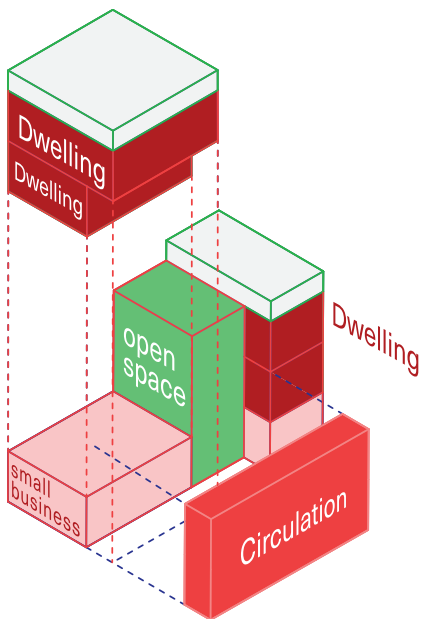
▲ Activate the plot with urban activities.

▲ Activate the terraces through urban farming programs.

dwelling
Circulation
dwelling
open space
dwelling
dwelling
small business
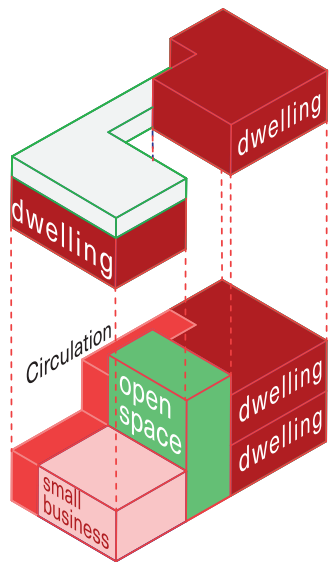
▲ Separate the house from the rent spaces and the work space

Spatiality
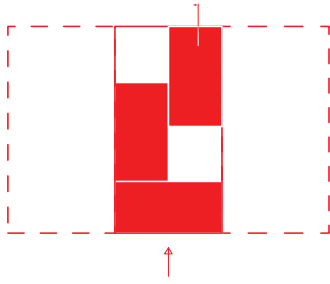
<div style="writing-mode: vertical">**Scenarios**</div>
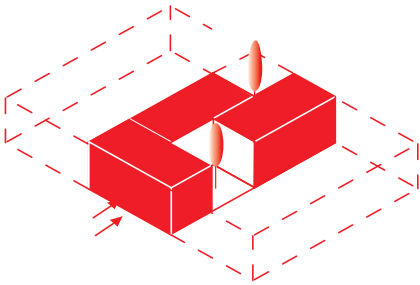
Given the plot's geometry, the standard size of 6m by 12, and the long rectangle shape, different spatial configurations were studied, seeking through open spaces and patios bring natural light and ventilation within the plot. Also, it was explored different options of stacking new volumes without losing the qualities of the first layout.
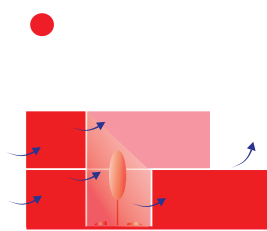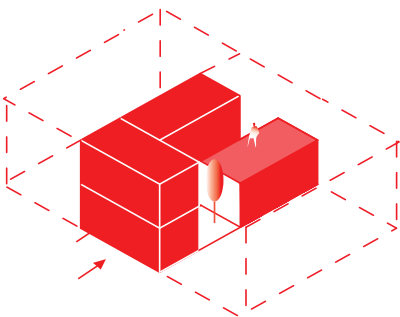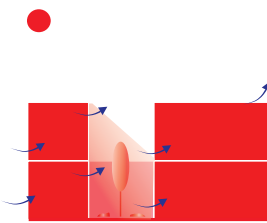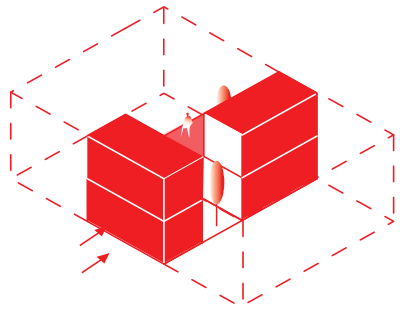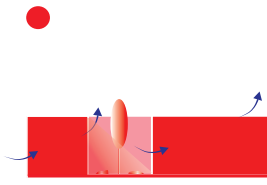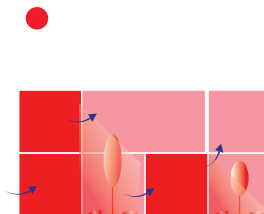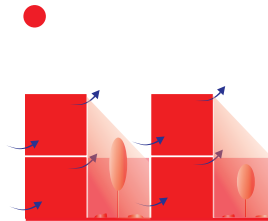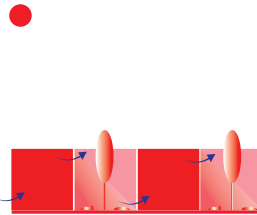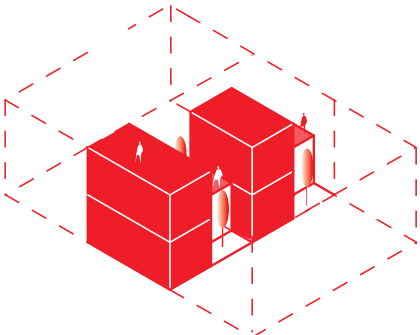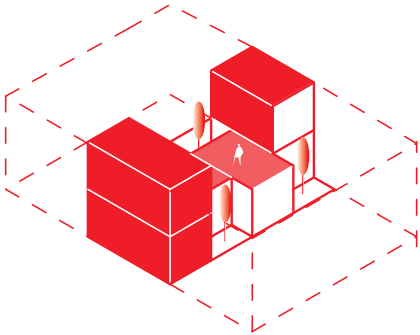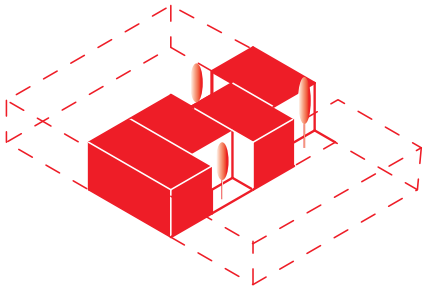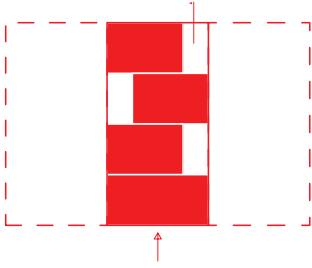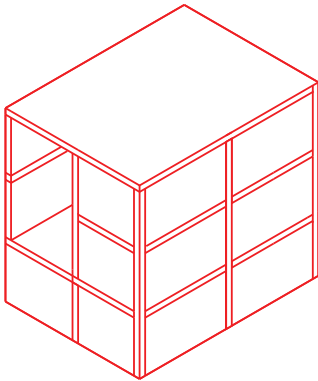
<div style="writing-mode: vertical">**House in progress**</div>

Construction Structure
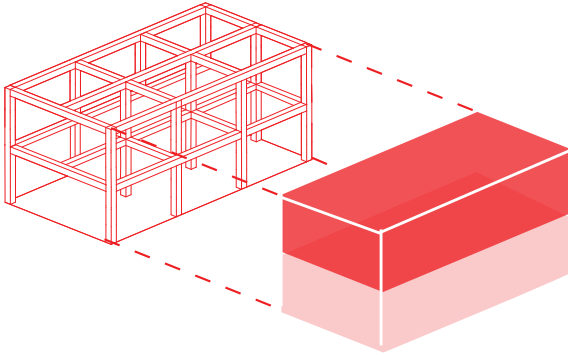
► Structure studies

▽ Beams and Columns

▽ Wooden frames

• These projects provide the main structure and "half house" the other 50 % will be completed by the residents.
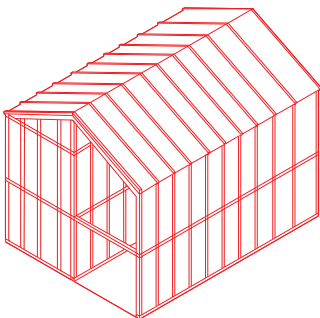
• Provide de roof and the ceilings

• **How to deal with house growth in time ?**

Provide the structure and half-house.

• **How can the house in–progress deal with house growth?**

Study of two types of strategies

1. Provide the main structure that will be infill with the programs the inhabitants desire over time.
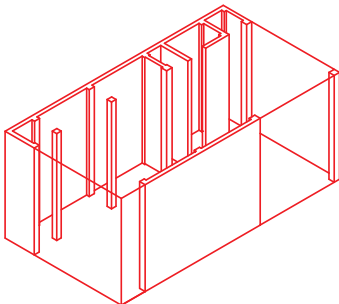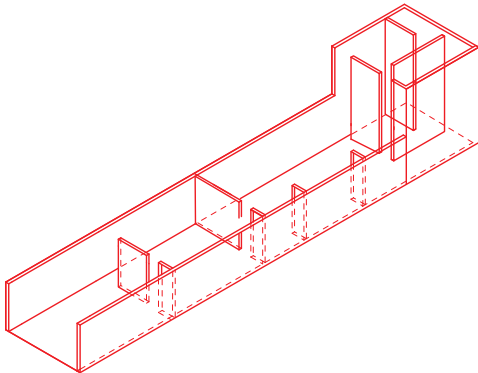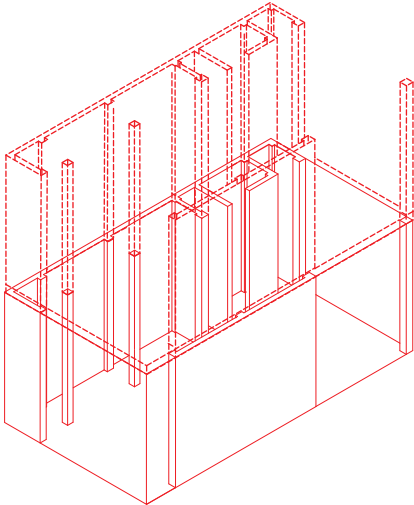
Ex: Monterrey housing, Elemental architects.

50. Monterrey,Mexico.

Ex: Villa verde housing, Elemental architects.

51.Chile

▽ Load-bearing walls

Both systems need the governance structure overseeing the development in time.

2. Provide the structure that will support in time a limit number of floors. The structure will grow with the new additions.

Ex: Villa Matilde, Terra e Tuma Arquitetos Associados.

52. Sao Pablo, Brasil.

**Ex: Expandable House, Urban Rural Systems.**

53. Nontsa, Indonesia.

Materials

· How does a house-in-progress select materials?

The materials selection should be based on location, vernacular skills, transportation, availability of the resources, environmental aspects, and local buildings regulations. It should always involve the inhabitant in either sharing knowledge about new construction techniques, materials or enhancing local techniques and artisans' labors.

► Sustainable infill materials.

Once the principal structure is provided, the materials used for the infills could be explore depending on the climate and the availability of the resource.
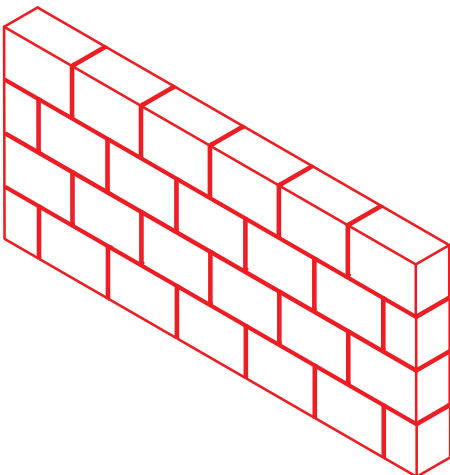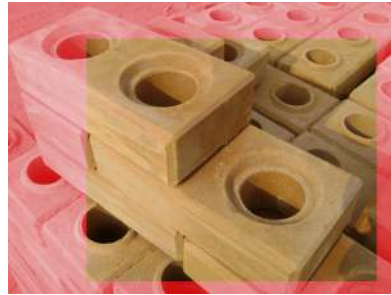
▽ Compressed earth bricks

1. Unfired, uniform building blocks, compressed from clay   retaining earth.

2. Produce by a mobile compressing machine.

3. Can be produced on site.

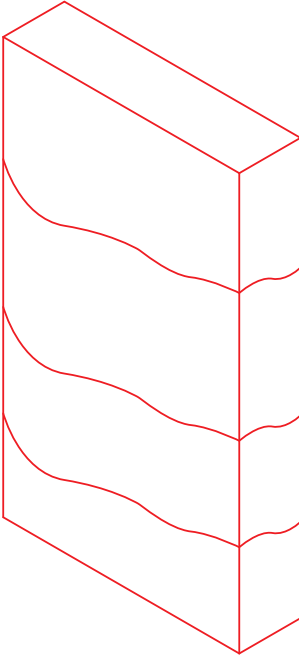4. Low-cost production

5. Can store heat and solar energy.

54. Plastic Earth Bricks.

▽ Plastic bricks

1. Made of recycled plastic.

2. No manintenance needed.

3. Easily to emsable and disassemble
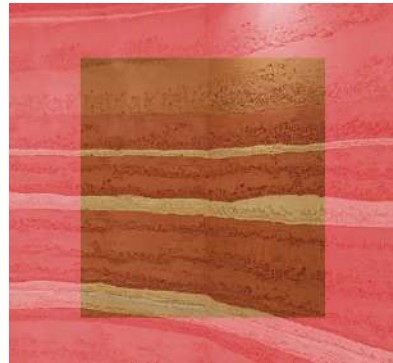
4. No need of skilled workforce.
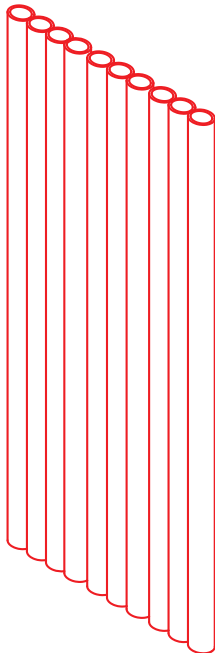

55. Plastic Bricks.

Rammed earth

1. They have low embodied energy and produce little waste.

2. Use local materials.

3. It works best in climates with high humidity and relative moderate temperatures. They need aditional protection against rain

4. It works best in climates with high humidity and relative moderate temperatures

56. Rammed earth.

▽ **Bamboo**

57. Bamboo.

▽ **Paper tubes**

58. Paper tubes.

Sample

The sample's objective is to propose a possible solution to affordable housing based on exploring an existing plot in an informal settlement. The selection of the plot is taken based on two main points.

1. Funding: Since Ciudad Bolivar is one of the districts with the largest number of informal settlements (31%), the government has focused on upgrading and controlling programs of the informal settlements in the district making viable the funding of this proposal.

2. Plot Type: The plot was selected using the monitoring tools created to control, report, characterized, and prevent informal settlements. This plot in particular belongs to the transitional phase from temporal shelter to well built housing.
This phase is a crucial starting point since it is the first phase that will define the Well-built house consolidation.
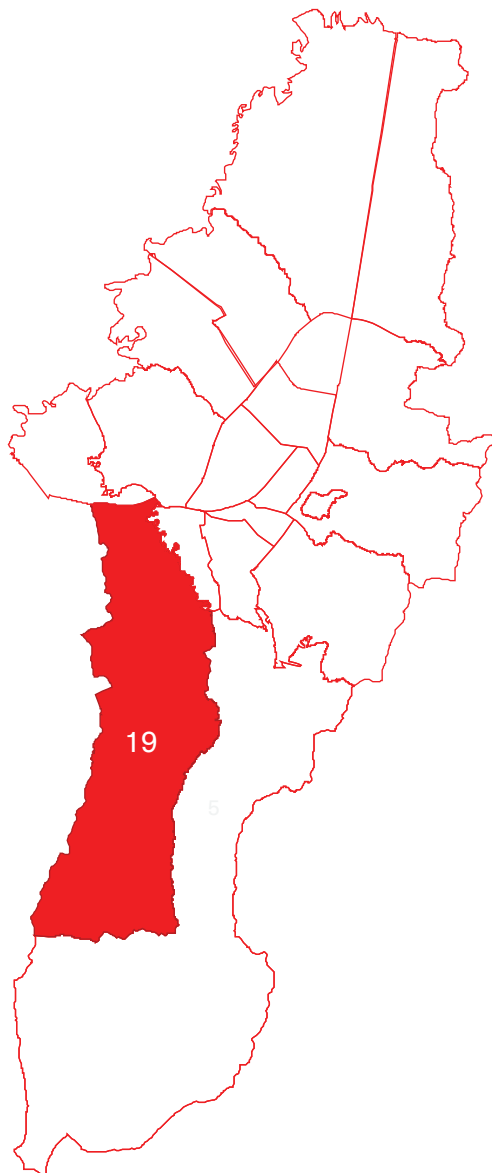
Ciudad Bolivar District

Ciudad Bolivar is the 19th district of Bogotá city. It has its beginnings in the 1940s with the consolidation of informal settlements in the territory. It was considered an illegal extension of the city until it became part of Bogota's administrative division with the Colombian Constitution of 1991.

The district is divided into 8 UPZ (Zonal Planning Units) classified into two categories: The industrial and facilities areas and incomplete residential urbanization areas. The El Mochuelo and Monte Blanco units belong to the first, and the Aborizadora, San Francisco, Lucero, El Tesoro, Ismael Perdomo, and Jerusalén to the second. The last category corresponds to 31% of the total number of informal settlements in Bogotá.
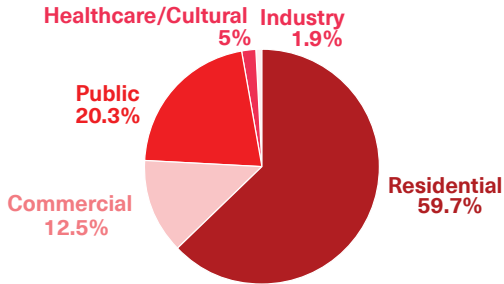
La Secretaría General de Hacienda, through the 2019 monitoring polygons, has followed up and monitored areas susceptible or in the process of illegal development in the capital. In this district specifically, this control has been carried out with 42 polygons and an area of 595.09 hectares.

Because it is one of the districts with the largest number of informal settlements, the city administration has tried to focus its action using programs to improve the settlements and has proposed participatory architecture projects.
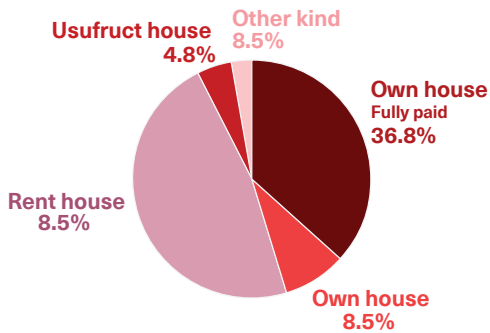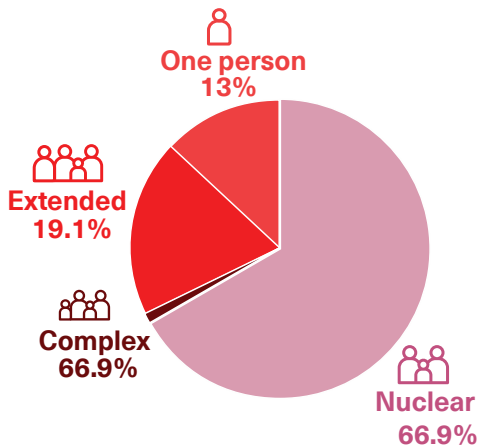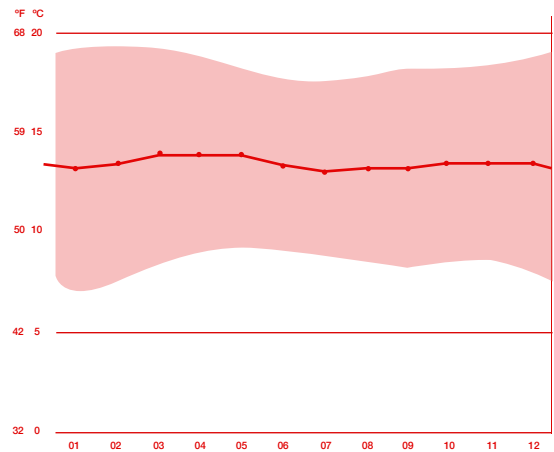
Bogota

General Information

► Land uses

Healthcare/Cultural
5%

Industry
1.9%

Public
20.3%

Commercial
12.5%

Residential
59.7%

► Housing Ownership Type

Usufruct house
4.8%

Other kind
8.5%

Own house
Fully paid
36.8%

Rent house
8.5%

Own house
8.5%

► Household

One person
13%

Extended
19.1%

Complex
66.9%

Nuclear
66.9%

► Temperature during the year

°F °C
68 20
59 15
50 10
42 5
32 0

01 02 03 04 05 06 07 08 09 10 11 12

Average temperature 14.5 C°

► Rain precipitation

°F °C   Altitude: 2586m   Climate: Cfb   °C: 13.5 / °F: 56.2   mm: 866 / inch: 34.1   mm inch
68 20   120 4.7
59 15   90 3.5
50 10   60 2.4
42 5   30 1.2
32 0   0 0.0

01 02 03 04 05 06 07 08 09 10 11 12

Annual precipitation 840 mm

Location

Ciudad Bolivar

Jerusalem UPZ

1:50000

*Informal polygon reported in
the monitoring polygons plan
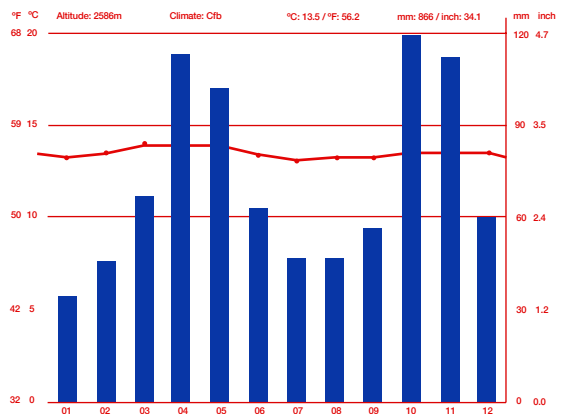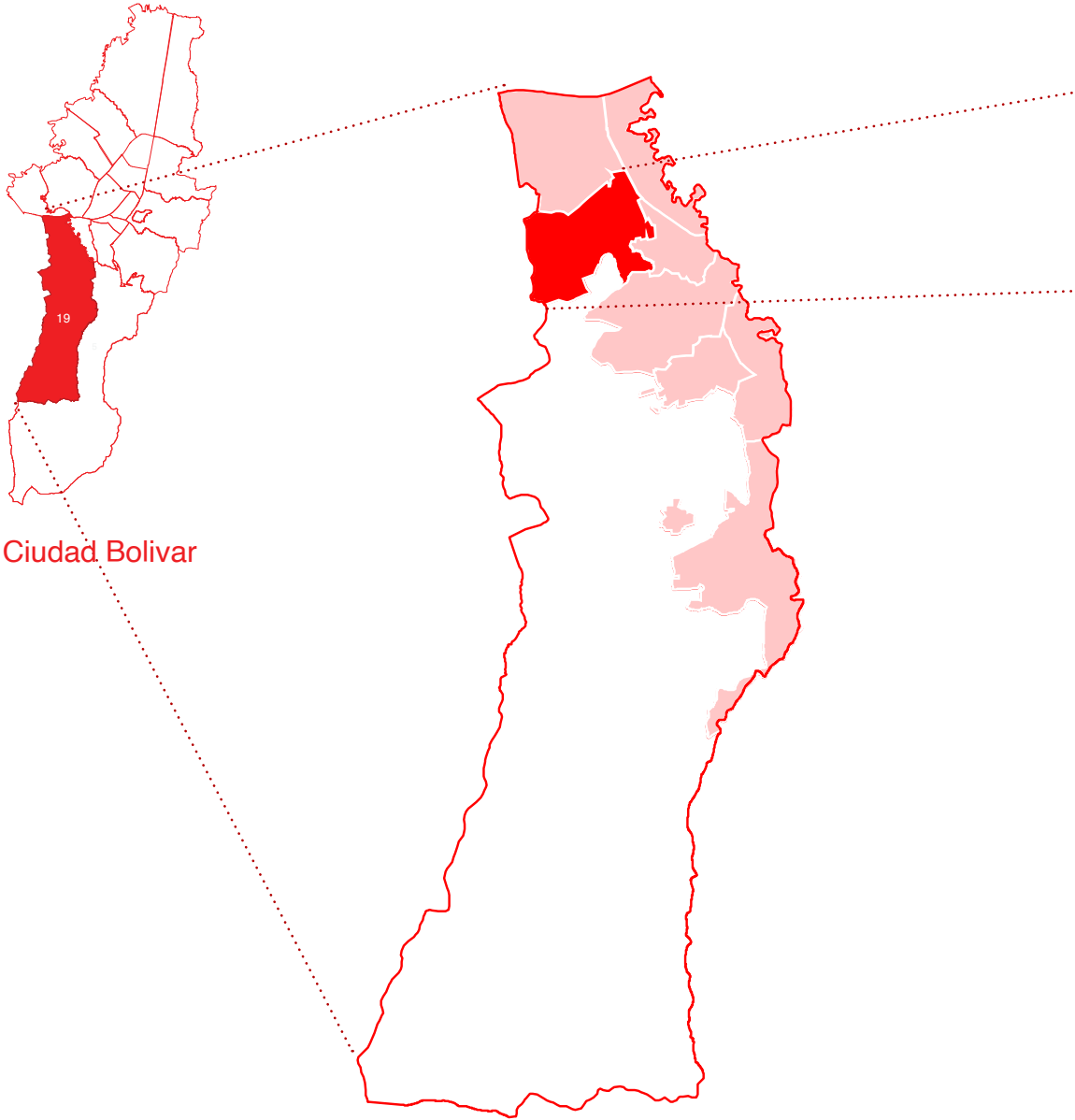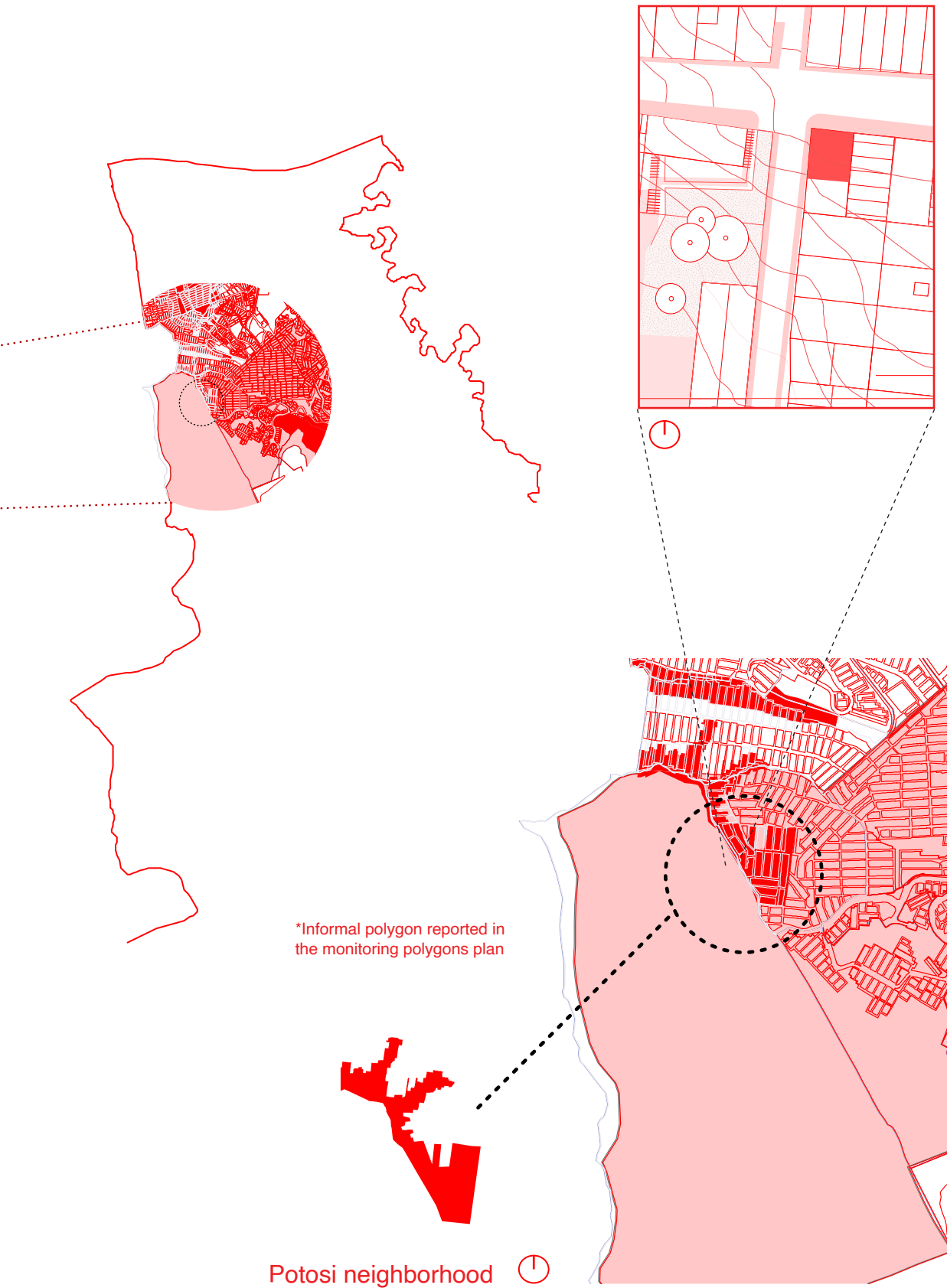
Potosi neighborhood

Potosí neighborhood

► Why here?

Potosí is a neighborhood located in the urban-rural limit of Ciudad Bolívar district in Bogotá, founded through informal urbanization processes in the 1980s. Its inhabitants are most population displaced by the armed conflict.

1.

2.

Sample location

128
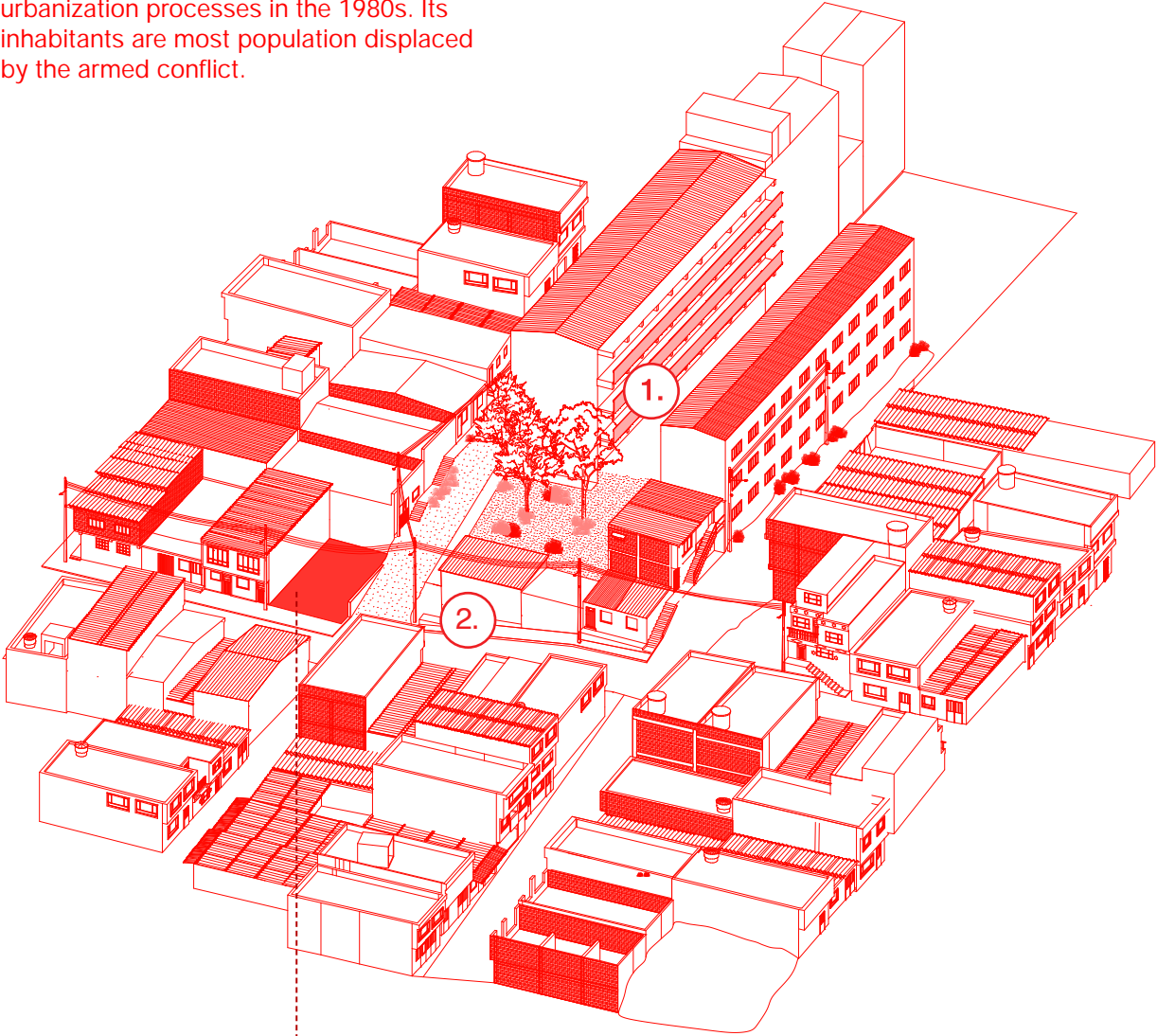
► Cerros del Sur Institute

59.

Under community initiatives of self-management and in response to the lack of social infrastructure and little intervention by the State, in 1984, the Cerros del Sur institute was founded as a cultural and community agent that focuses on discussing urban rights, culture, and education. Environment, public space, and housing.
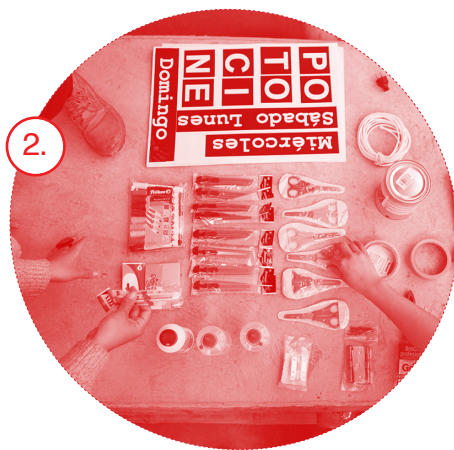
► Potocine

60.

Potocine was born from the need to have a cinema and a theater as logistical support for its activities and as a symbolic element for the community. *See references pag 140*

61. Sample Location.

62. Sample Location.

❚ Habitapp

Potosí neighborhood stood out among the other informal settlements in Ciudad Bolivar; its different self-management and participatory projects with different cultural and architecture groups have proven the community interest in re-linking the relationship between the formal and the informal.

The habitapp application was used within the neighborhood in order to trace the possible plots to be transformed.

The sample plot is located within the heart of the community center. It directly relates to Potocine (community cinema), Cerros del Sur institute, and one of the neighborhood's main streets.

Ciudad Bolivar District

Sample

House in progress
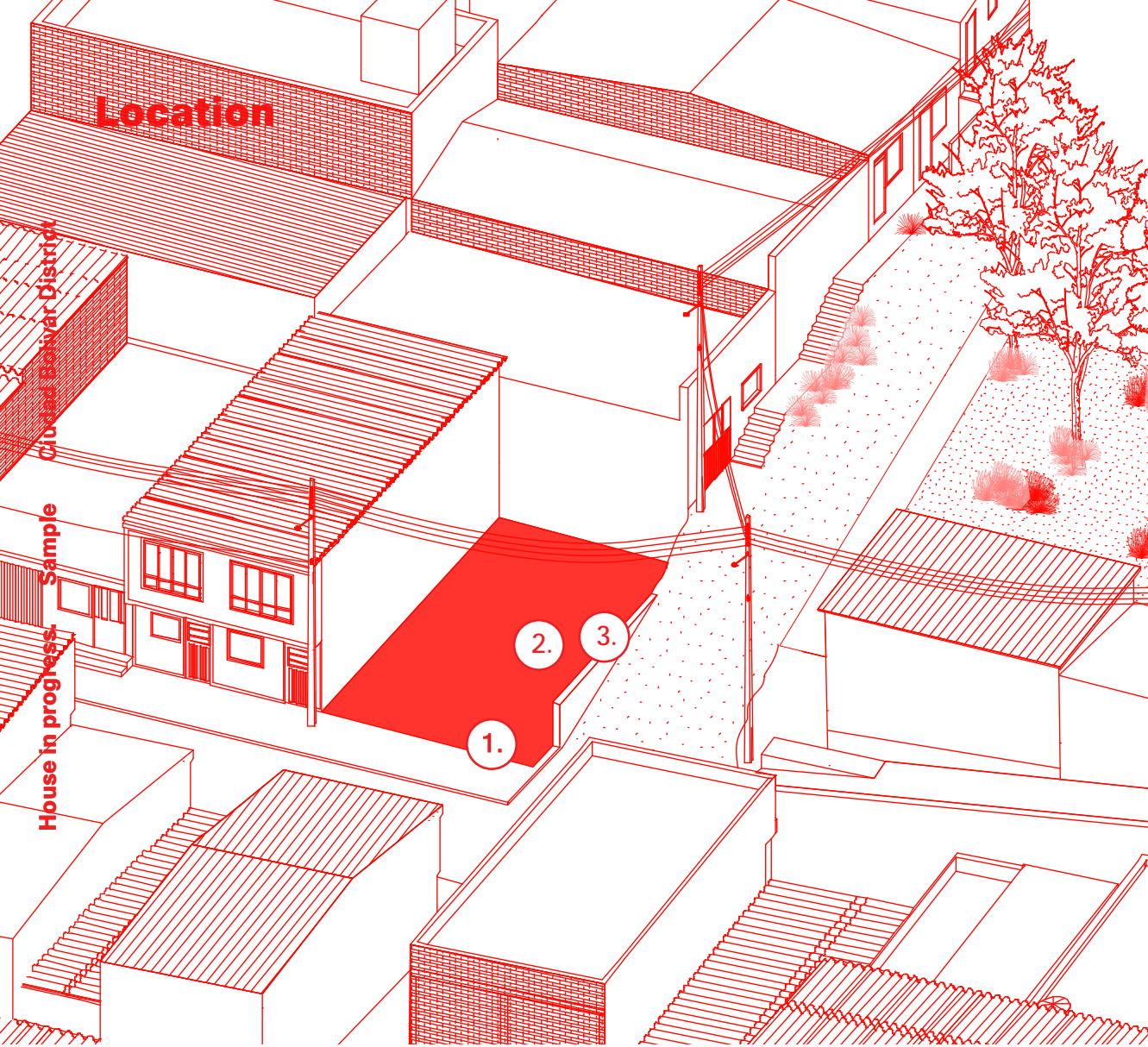
1. Direct relationship with the main street (carrera 44a).

2. Direct relationship with two community self-managment projects in the neighborhood.

3. Direct relationship with the institute's public space.

0   10   20m
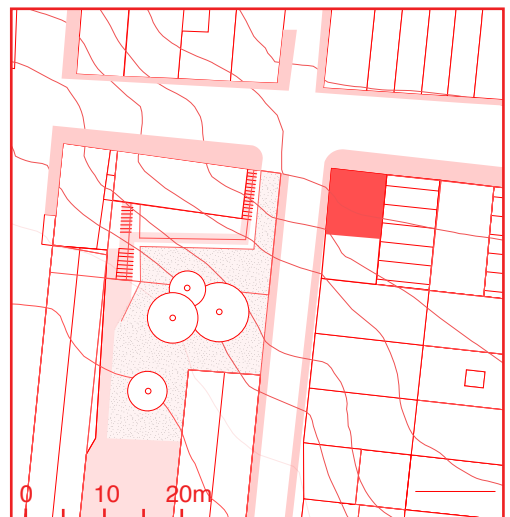
Concept

► Plot design explorations.

A box in a box, the outer box contains all the programs related to income production, while the inner one accommodates the household programs.

1.

2.

▷ Porous facade facing towars the institude's green space
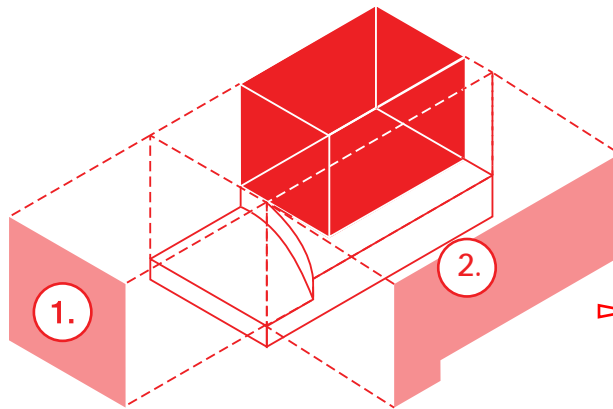
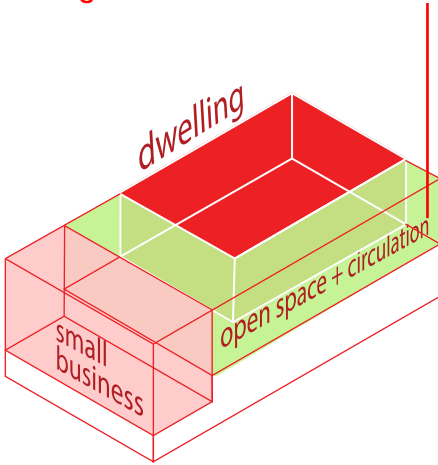▷ Closed facade facing to the main street

The developer provides the structure and foundations to allow flexible financing while the family provides division walls, window frames, and doors; this strategy relies on the Plan Terrazas subsidies policy.

Concept

► **Program**

1st stage

Circulation as
the core of the house

▷ This open space serves
as a transitional space
between the bustling
street and the family
home, and further
function as gathering
place.

▷ It works as a transitional
space between the
dwelling and the income
generating space.

dwelling

open space + circulation

small
business

▷ It provides a space that can be
use as a dwelling extension or
as a rent unit

▷ The rent unit and the small
business program face to the
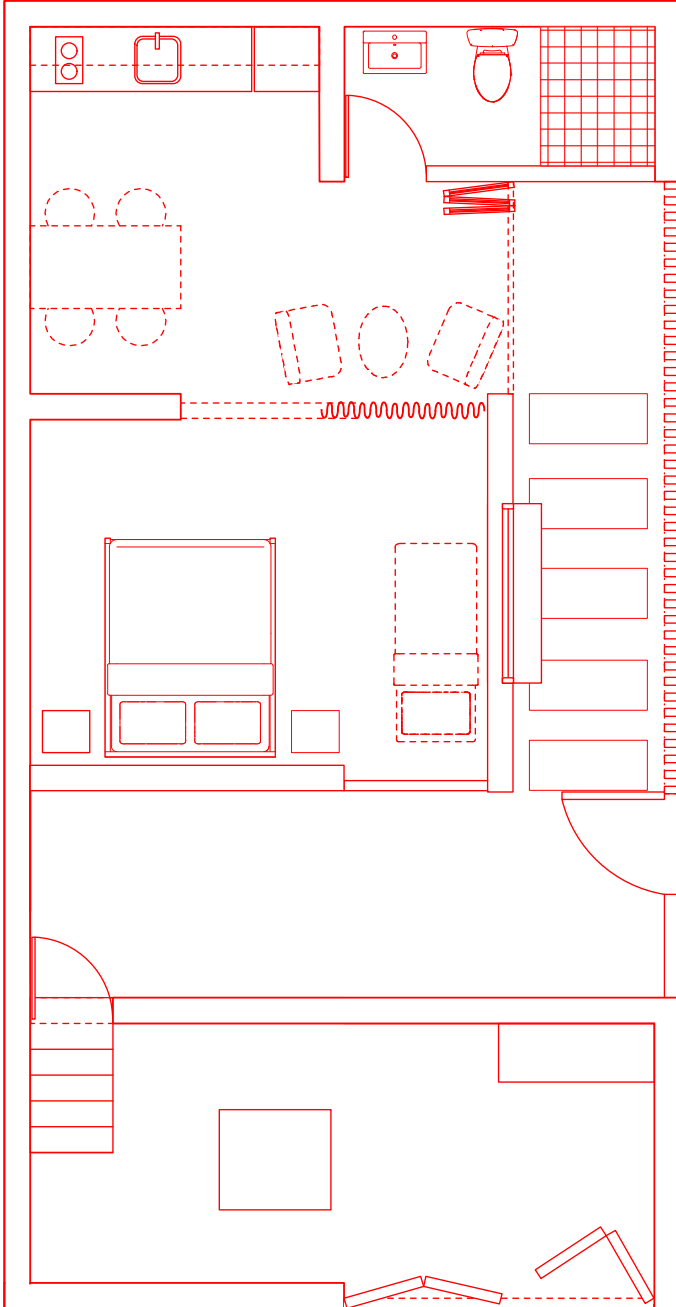main street, while the dwelling
faces to the institute's green
areas.

dwelling

open space + circulation

small
business

2nd stage

134
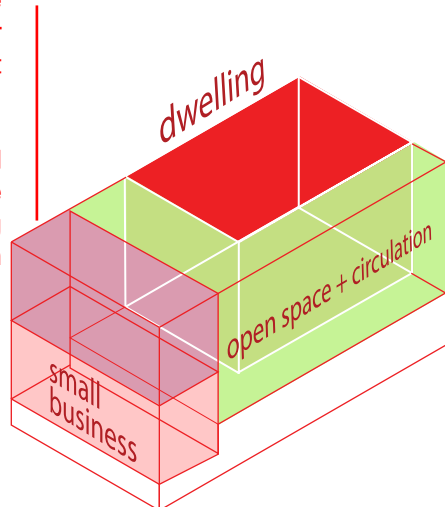
Proposal

Sample

House in progress

This first stage provides a flexible dwelling space of 35 sqm for a family of three an a second space,18sqm that can be used to generate income.

Given the informal settlements' lack of infrastructure, the house-in-progress has to be self-sufficient through decentralized systems such as rainwater harvesting, solar energy, and passive cooling. It also aims to support local brick factories located in the surroundings and try to be an example that it is possible to provide an affordable, flexible and resilient house using the same informal housing's cheap materials.

First Floor
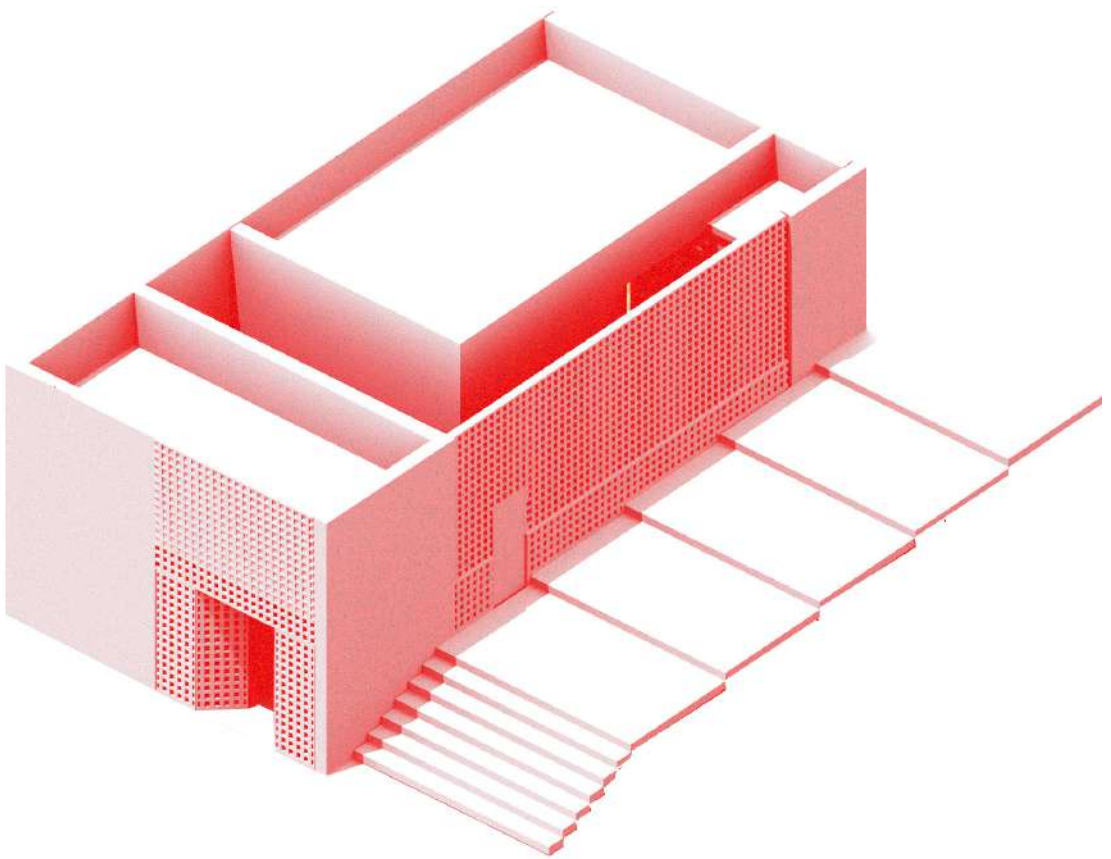
(1.) **Living Space**

(2.) **Space for retail**

Load-bearing walls.
Structural bricks

It can support
three aditional
floors

Sample

House in progress.

1.

1.

0   1   5
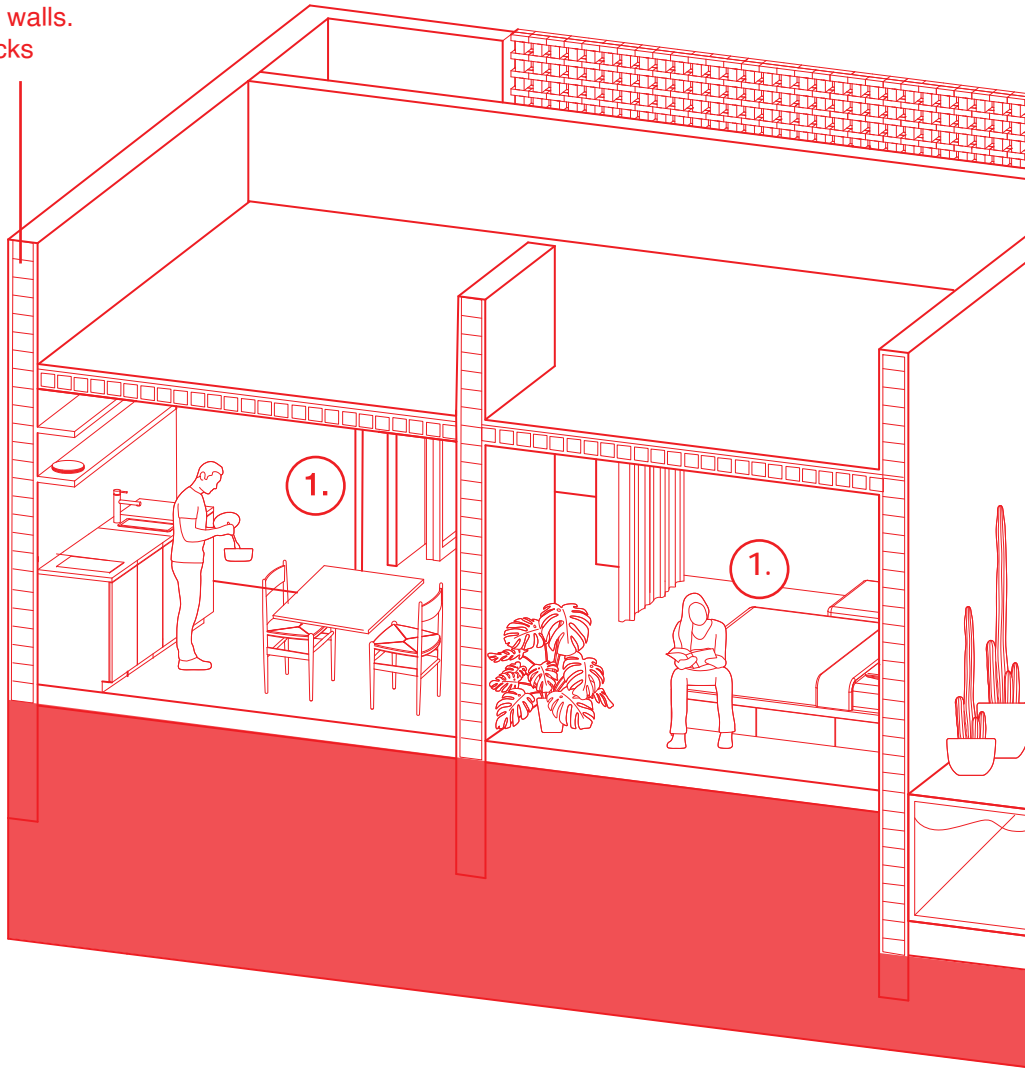
(3.) **Open Space
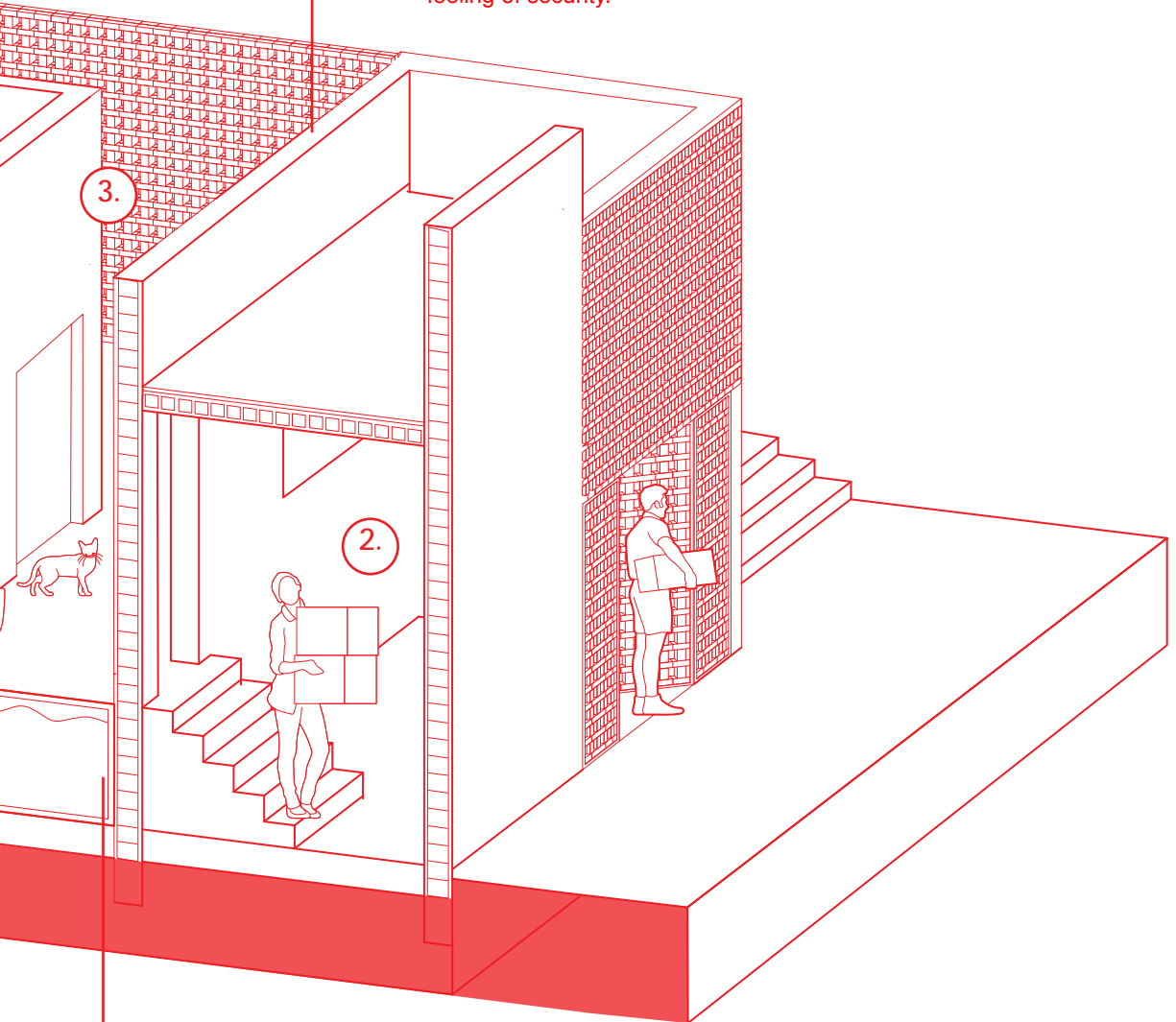+ Circulation**

Brazilian brickwork

it aims to blur the real between the exterior and
the interior, while at the same time provides a
feeling of security.

3.

2.

Rainwater Tank Collector

Sample
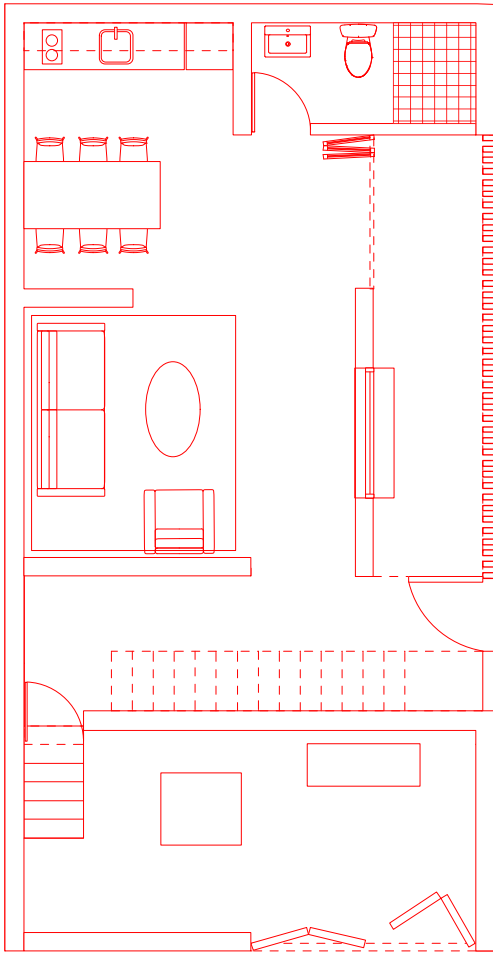
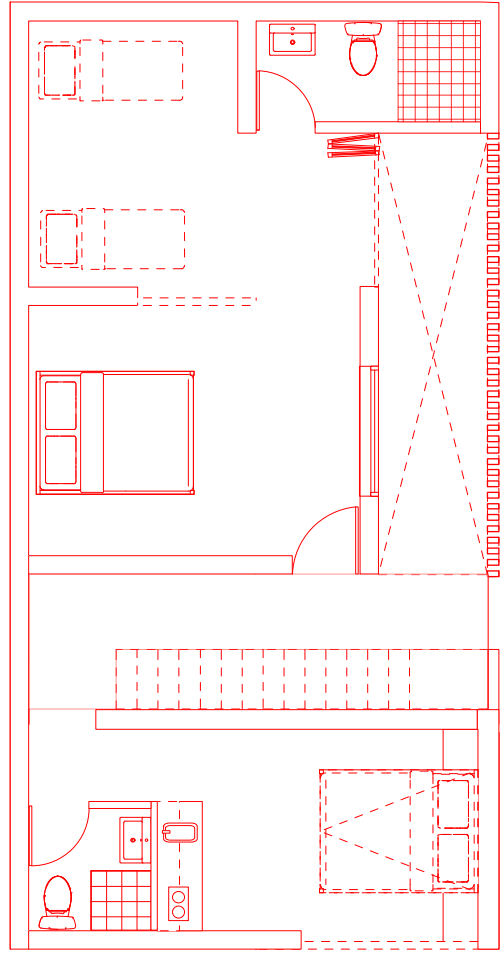**House in progress**

First Floor
72sqm

Second Floor
72sqm

1 household
70sqm

+

Tenant or a
relative
18 sqm

+

Space for
retail
18 sqm

+

Productive
terrace.
18 sqm
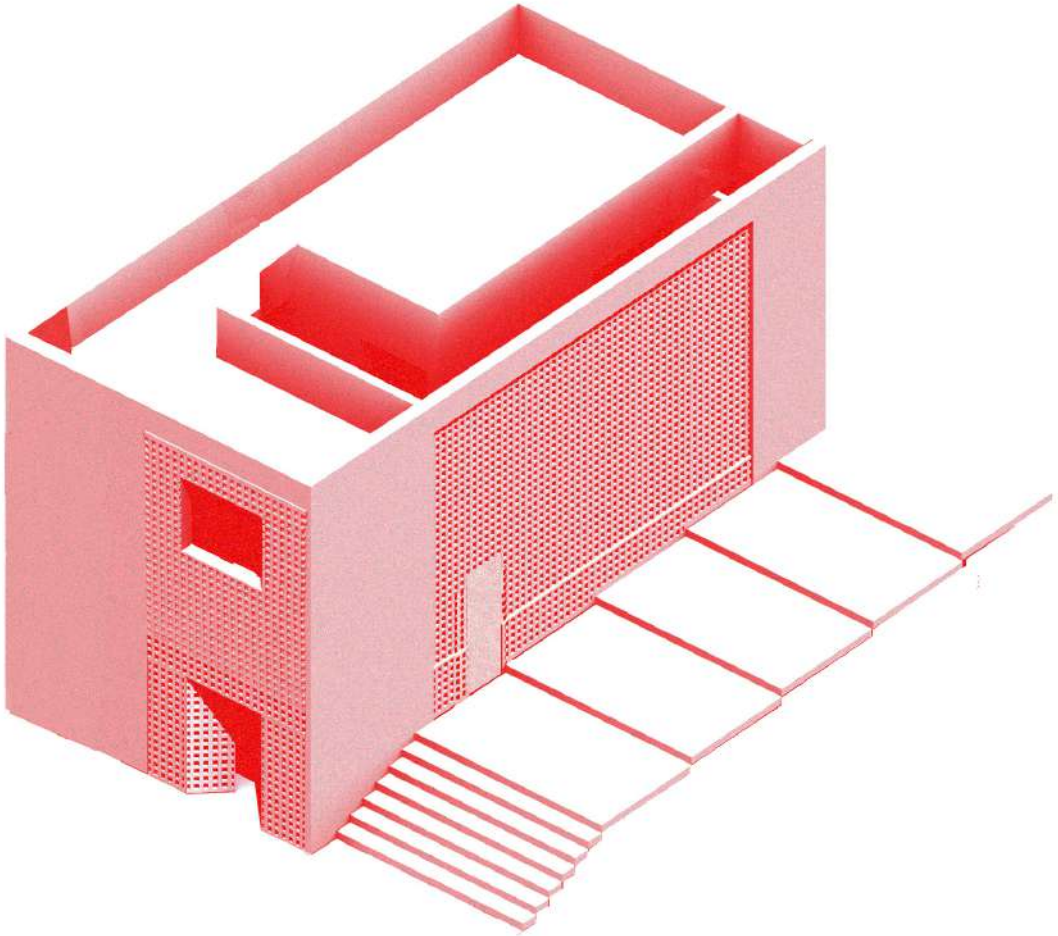
1. **New floor adition**

2. **Rental unit**

Solar panels

Sample

House in progress

1.

0   1   5

142
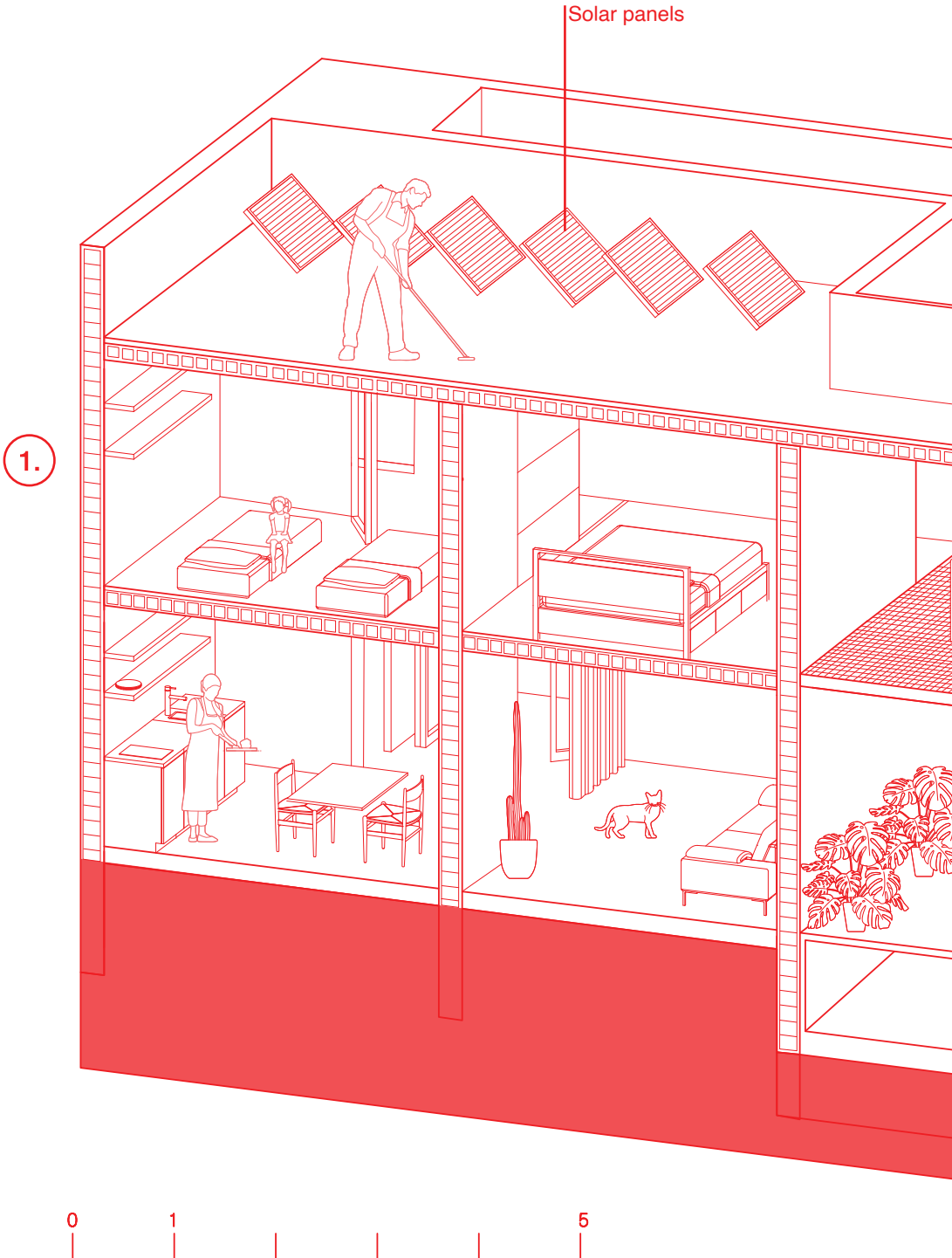
2nd Stage

3. Productive urban garden

4. Space for retail

3.

2.

4.
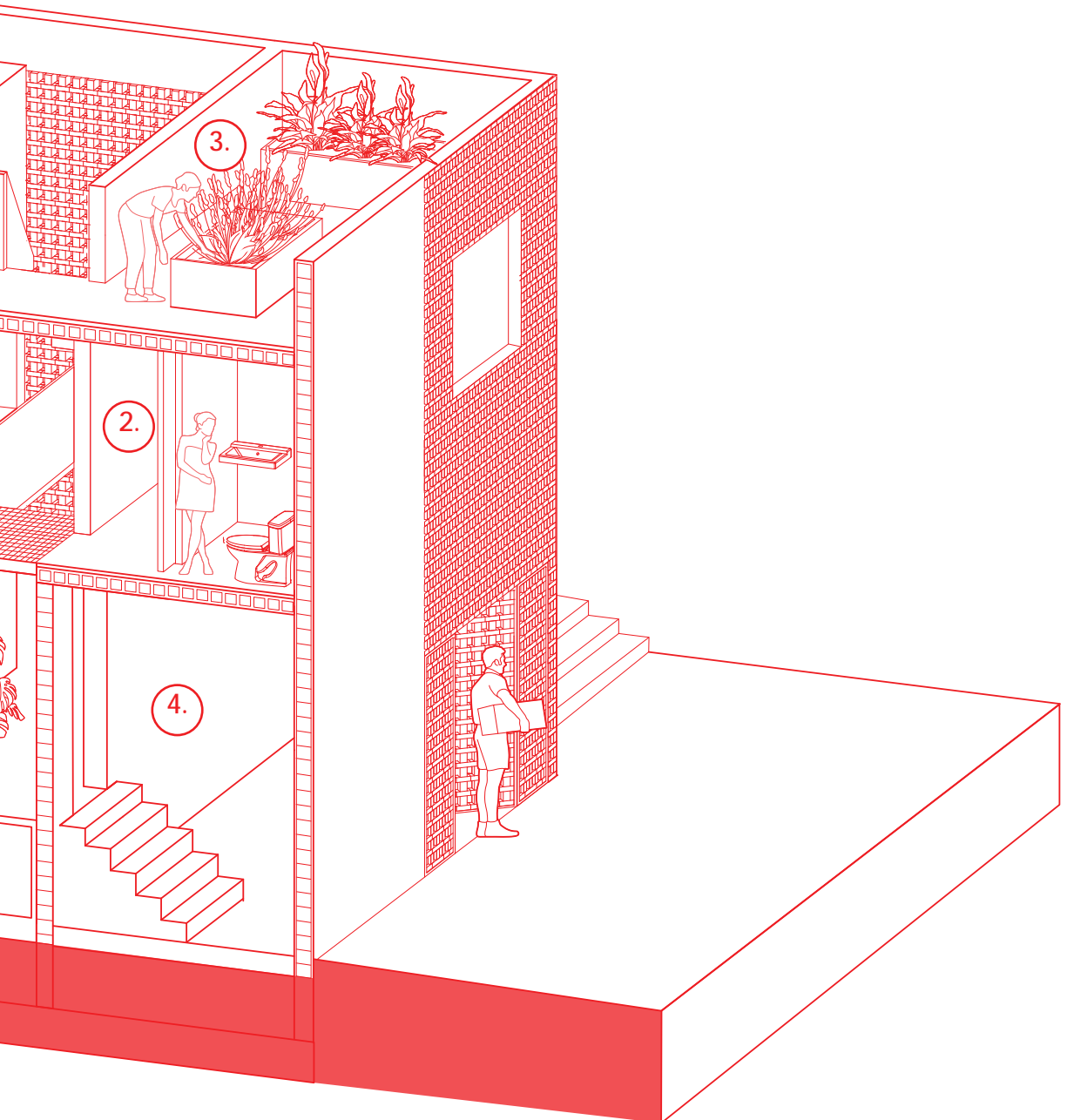
Materials

► **External walls/ Structure**
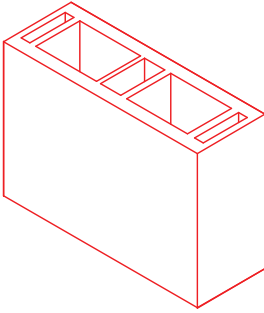
► **Ceiling**

Structural clay brick
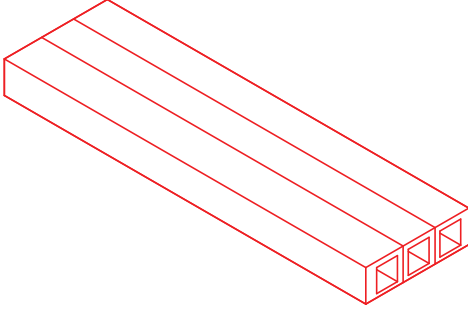
Hollow-core clay slabs

Why clay bricks?

1. Locally made

2. Ease Maintenance

3. Low cost

4. Use of local resources

5. It provides a wide range of colours, and textures.

6. Given the proximity to the resources, the transportation climate impact and transportation fare is lower.

7. Material known by the community

8. It doesn´t need of skilled workforce

Sample Location

Brick Factories

Brick Factories

Brick Factories

Ciudad Bolivar district
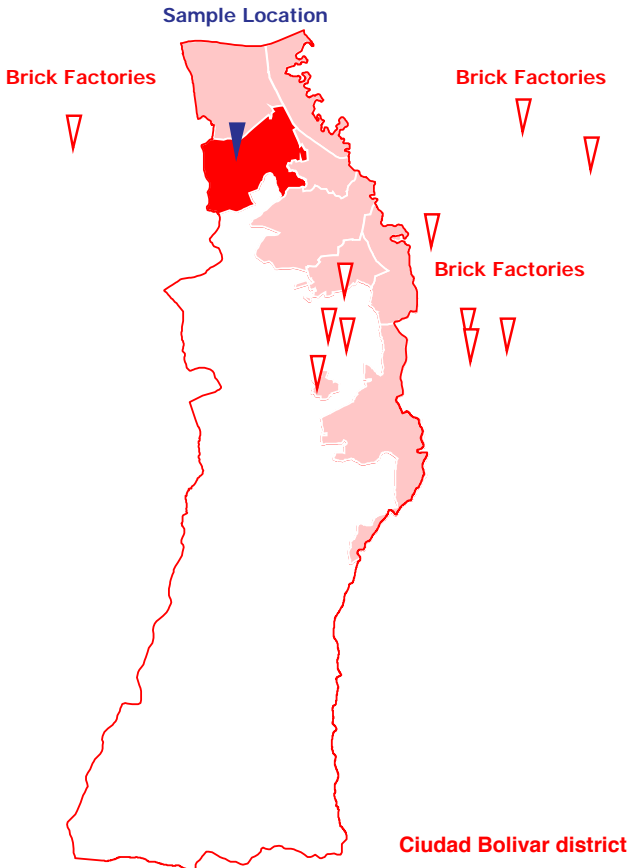
Layers	Thickness	Density	Specific heat capacity	Thermal conductivity
Cement screed	1.5 cm	1858	837	0.4
Clay Bricks	11.5 cm	1920	545	0.8
Cement stucco	2 cm	1858	837	0.04

Thermal Transmitance 1.8
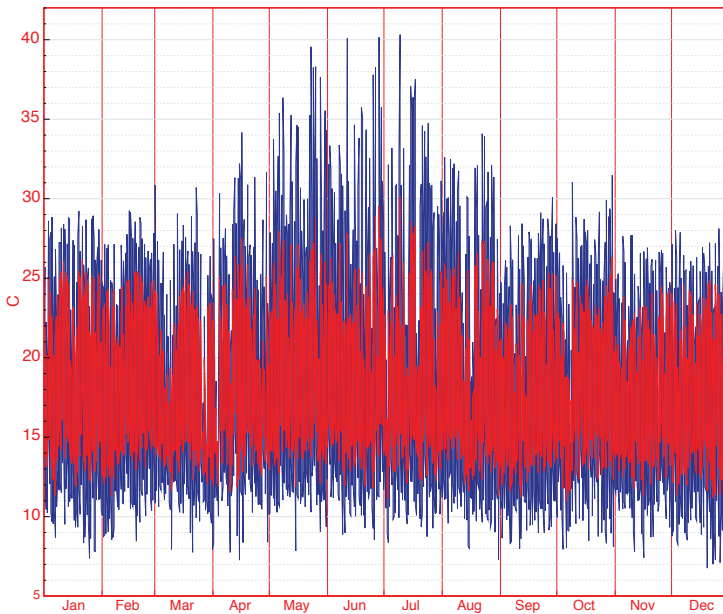
Outside face
temperature
8 - 35°C

Indoor face
temperature
13- 24°C
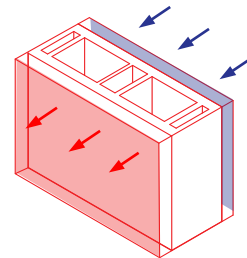
House indoor temperature
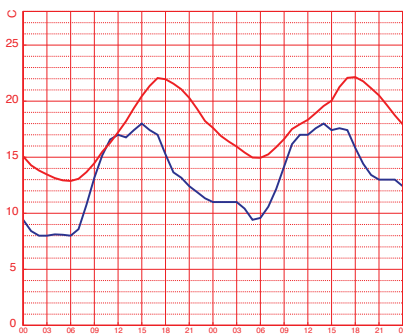
Outdoor - Indoor temperature
June 21-22

Indoor temperatures in a " summer day"
varies between 13º-22ºC. This range is
located into the temperature range to
provide thermal comfort.
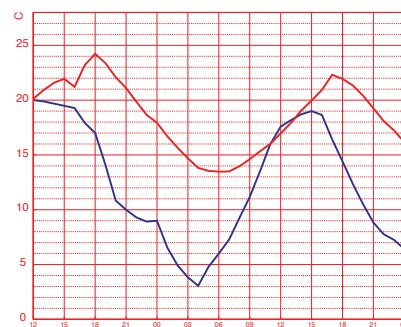
Outdoor - Indoor temperature
December 21-22

Indoor temperatures in a "winter day"
varies between 13º-22ºC. This range is
located into the temperature range to
provide thermal comfort.

Water harvesting

► **Water Underground tank system**
Annual need of water

Daily consumption per person
16 lt/day

$\dfrac{1lt}{16lt/d}$ $\dfrac{0.001m^3}{x}$ x= 0.016m³

Annual need
0.016m³ * 6 (persons) * 365days = 35.04 m³

Ecotank Tanquestricada

Volume: 1.95 m³
Size: 115 * 115 * 190cm

$\dfrac{2.69\ m^3}{1.95}$ $\dfrac{100\%}{x}$ x= 72.51% coverage

Theoretical volume of the
water tank: 2.69 m³
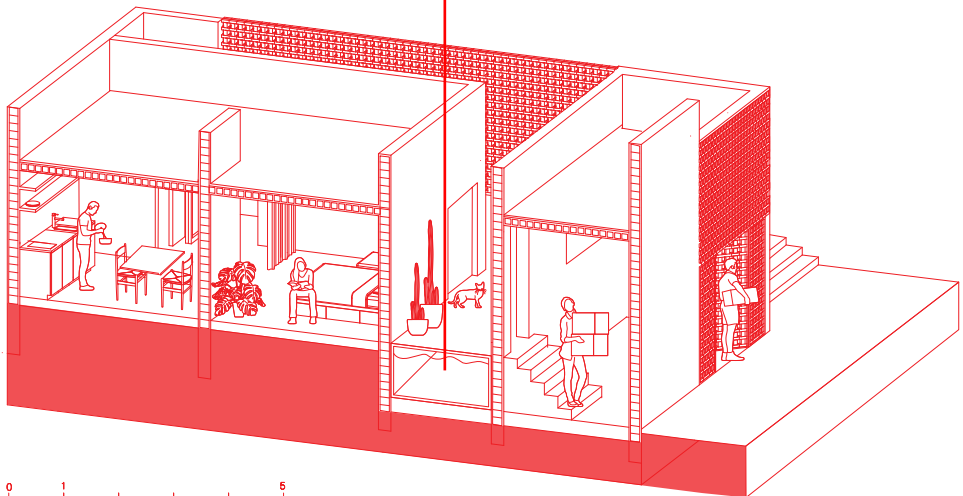
Energy Cosumption

► **Photovoltaic Panels (PV)**
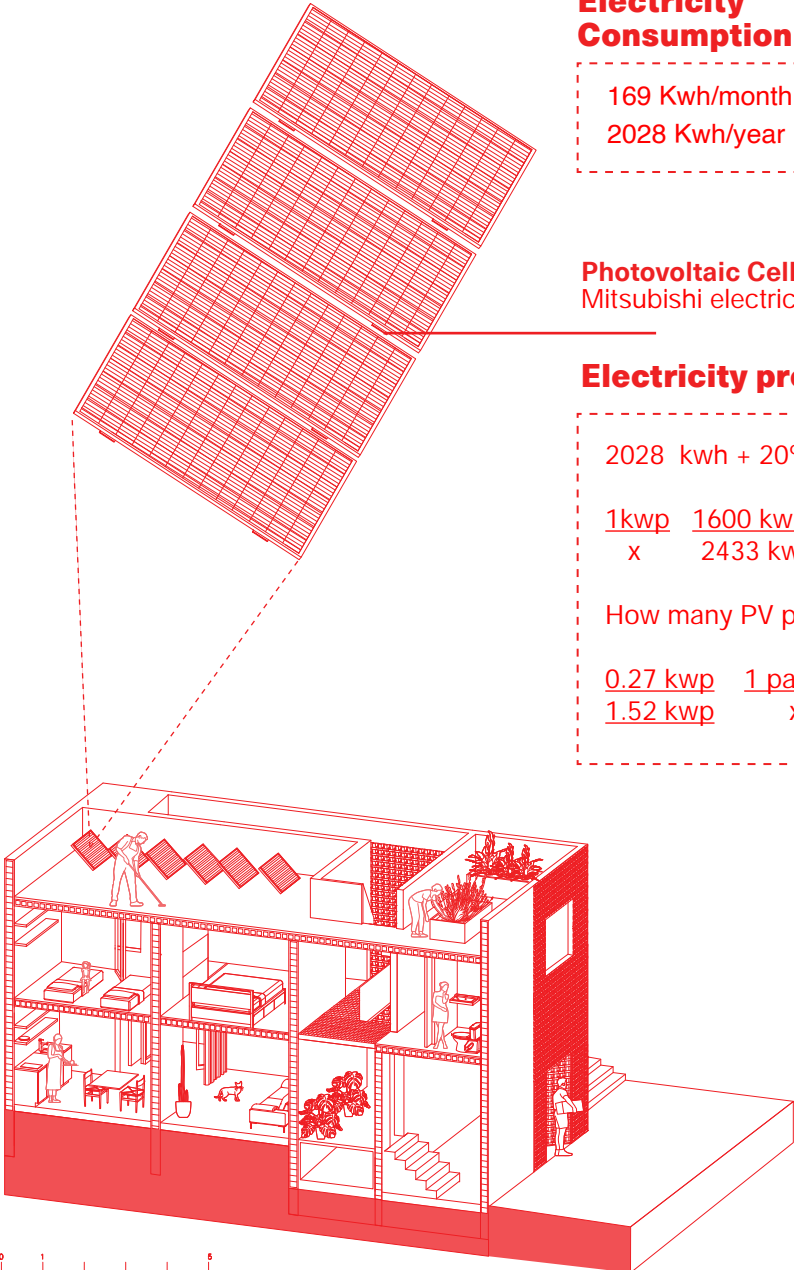
Electricity Consumption Bogotá

169 Kwh/month
2028 Kwh/year

Photovoltaic Cell 270W
Mitsubishi electric

Electricity production PV

2028 kwh + 20% = 2433 kwh year

$\frac{1kwp}{x}$ $\frac{1600\ kwh}{2433\ kwh}$ x = 1.521 kwp

How many PV panels are needed?

$\frac{0.27\ kwp}{1.52\ kwp}$ $\frac{1\ panel}{x}$ = **6,22 Panels**

Natural Ventilation

► **Passive Cooling**

AHC 30 - 40 air change hour

$V = 30 \text{ AHC} \times 96.185 \text{ m}^3 = 2885.55 \text{ m}^3/h$

$V = 2885.55 \text{ m}^3/h \times 1\text{m}^3 / 3600s = 0.8 \text{ m}^3/s$

$V = 0.8 \text{ m}^3/s$

Minimal area required for good air quality

$A = V / 0.5 \quad A = \dfrac{0.8\text{m}^3/s}{0.5\text{m/s}} \quad A = 1.6 \text{ m}^2$
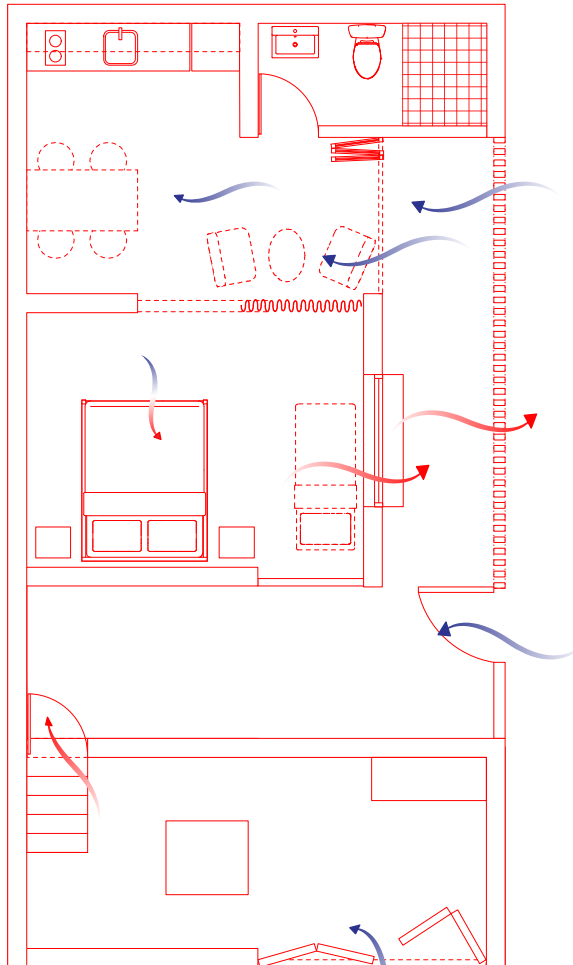
Windows and shadowing

June 21   9 am
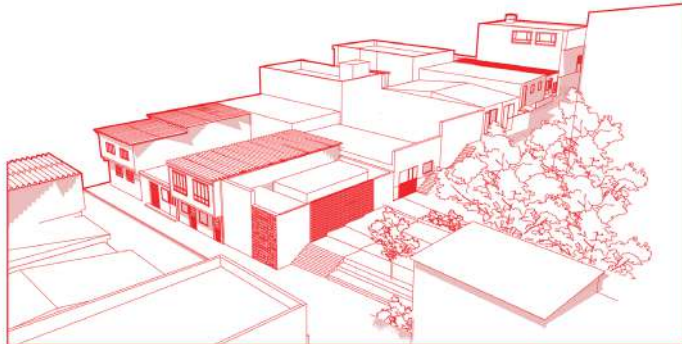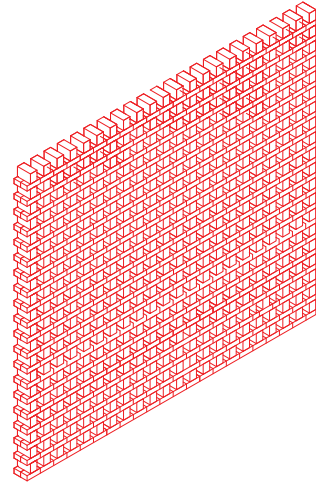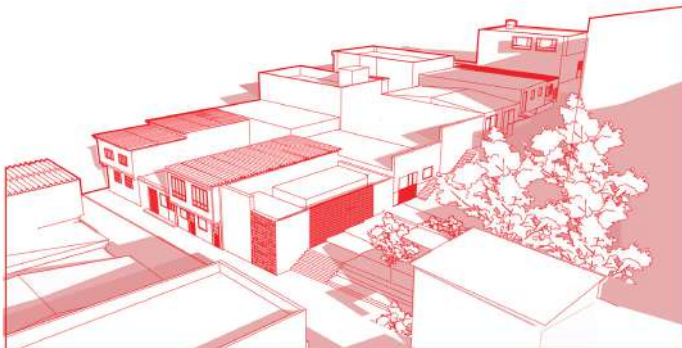
June 21   12 pm

The western façade has the highest incidence of sun throughout the day, for this reason a façade with Brazilian brickwork is proposed which allows an indirect visual relationship with the street, and diffuses sunlight throughout the plot.

June 21   4 pm

References

Ephemeral urbanism
Rahul Mehrotra and Felipe Vega

Kumbh Mela is a religious festival that takes place every twelve years in India. It accommodates a total flux of 19 million people during three months, and seven Million people simultaneously present at the festival's peak moment. An entire city i**s built by the government to house the visitors for 55 days.** It has all the characteristics of a real megacity; **it is provided with water supply, sewage, electricity, social infrastructure like clinics, hospitals, and community services. It is an entirely temporal formal city made by Skinning material (fabric, plastic, or corrugated metal) bamboo, rope, and screw**. This materials kit allows creating a tent that might house five or six people to temples that can accommodate 500 people.
At the end of the festival, within a week, the whole city is disassembled.Living not a single trace of the massive occupation in the territory.

The importance of the documentation undertaken by Rahul Mehrotra and Felipe Vega which besides capturing the religious cultural richness, has also extracted lessons on the ability to deliver a settlement at incredible speed with individual and collective initiative balance. Understanding urbanism as an elastic condition and asking if architects and urbanistt are making permanent solutions for temporary problems.

63. Kumbh Mela Festival, India

64. Kumbh Mela Festival, India

65. Kumbh Mela Festival, India

Torre David
Caracas, Venezuela

Torre David is an unfinished office tower in downtown Caracas. It was abandoned in 1994 due to the economic crisis in Venezuela The building sat vacant for over 12 years until families began to occupy the tower in 2007. Today it is the improvised home of a community of more than 750 families, living in what would be the tallest informal settlement.

Urban-think Tank at eth Zurich spent a year studyng the pysical and social organization of this ruin-turned-home. Where some only see a failed development project, U-tt has conceived it as a laboratory for the study of the informal. .. The architects argue that the future of urban development lies in collaboration among architects, private enterprise, and the global population of slum dwellers.

The most exciting thing about Torre the David is the adaptive reuse of an existing formal building. Soon after the first occupation, people cleaned the floors, organized a fair distribution of the spaces, constructed balustrades, divided the communal spaces; then, several shops like barbershops, cyber cafes, small factories, and grocery shops started to emerge. The community operates under strict rules imposed by the informal tenants. For example, each household pays a monthly fee of $15 to the cooperative for water, electricity, cleaning of public spaces, and security. Also, no families own their place. They only own the investments they make in their respective apartment. When a family decide to leave, incoming tenants often buy the modifications made to the improvised apartment.

House in progress

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66. Torre David

67. Torre David's grocery store

68. Torre David's gym

Reference
Potocine
Office: Arquitectura Expandida

Bogotá, Colombia
Ciudad Bolivar District

Potosí is a neighborhood
located in the urban-rural
limit of Ciudad Bolívar district
in Bogotá, founded through
informal urbanization processes
in the 1980s. Its inhabitants are
most population displaced by
the armed conflict.

Under community initiatives
of self-management and
in response to the lack of
social infrastructure and little
intervention by the State,
in 1984, the Cerros del Sur
institute was founded as a
cultural and community agent
that focuses on discussing
urban rights, culture, and
education. Environment, public
space, and housing.

Potocine was born from the
need to have a cinema and a
theater as logistical support for
its activities and as a symbolic
element for the community.
Through self-construction, the
inhabitants' organizational,
collective, and exchange
dynamics are explored, seeking
to reinforce community links
and empower them through
more sustainable and resilient
projects.
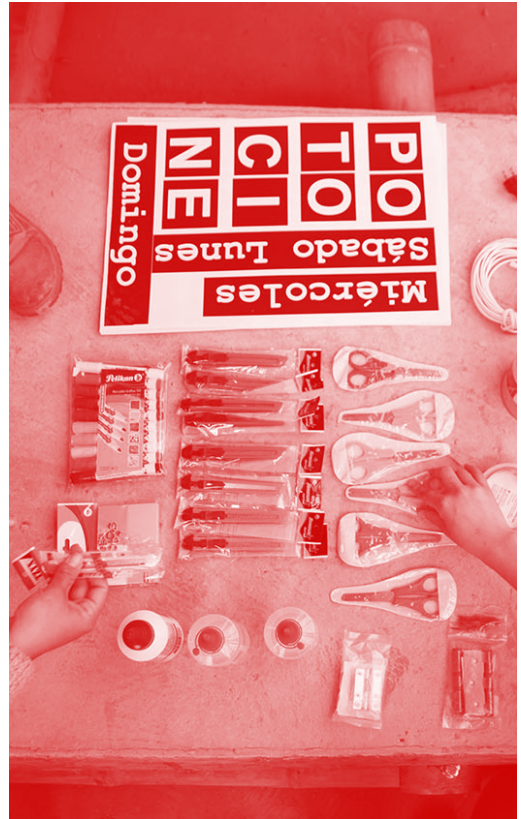
69. Potocine Cinema.

70. Potocine cinema.

71. Potocine cinema.

Paper Temporary Shelter
Office: Shigeru Ban
Turkey

73. Paper log detail

72. Paper log House

74. Paper log House

Sao Paulo, Brazil.

Shelters made from paper tubes
and beer crates as a foundation.

Reference

Casa Techo.
Office: Sebastian Contreras Rodriguez.
Bogotá, Colombia.
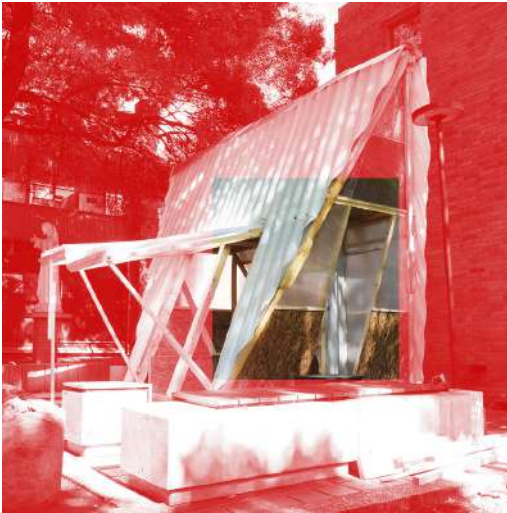
75.Casa Techo
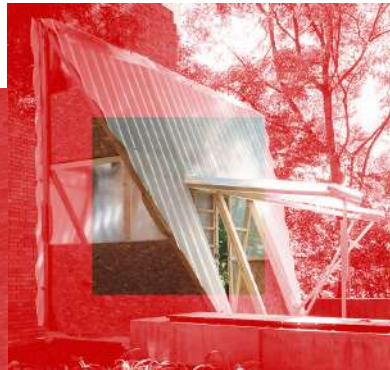
76.Casa Techo

77.Casa Techo

78.Casa Vila Matilde

79.Casa Vila Matilde

80.Casa Vila Matilde
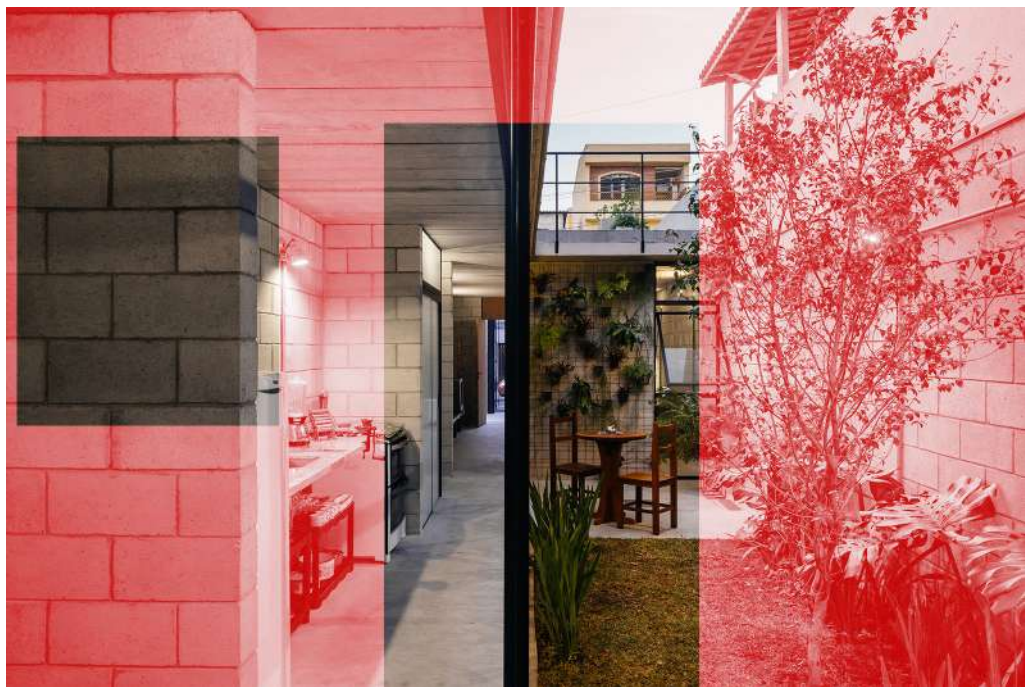
Conclusions

House-in-progress was born from the need to discover and understand the duality between the formal and informal city. As a Colombian, coming from Bogotá, the dual city has been present for most of my life, and over the years at the university, this topic became part of my continuous questioning about the architect's position in a city mostly built by its inhabitants. This first approach started while attending a social and informal housing atelier in Bogotá and Mexico City. I realized how similar the informal development was and how even though the inhabitants' cultural differences, the low-income population's responses to affordable housing were so alike. after that, I started questioning if: the architects and designers know the actual inhabitants' needs? And if we truly understand why government initiatives to address housing shortfall continue to fail while, on the other hand, informal settlements continue flourishing in Latin American cities?

This thesis recognizes the complex step-by-step development of informal settlements and emphasizes housing's relevance as the informal city's generating seed. House-in-progress allowed me to understand that there are no permanent or definitive solutions; Each phase of the informal housing development functions as a complex system that has to be approached as a process and continuous work in progress.

Therefore, the scenarios, strategies, actions, and general tools proposed in this research must be thoroughly studied in relation to the particular context that is intended to be addressed. Not all informal settlements can be intervened under the same actions.

Approaching informal housing from a place-Making point of view allowed me to understand that even though it is born from improvisation, limitless resources, recursivity, and the claim to the right to housing, the informal house evolves through time and becomes the representation of a way of life in which the inhabitants can express their wishes, needs, and desires. It also clarifies that even though informal housing arises from scarcity, it also fulfills over time the habitational and economic needs of the city's low-income population.

How to interweave the formal city with the informal city?

It is a fact that informal settlements will continue growing in the future. It is necessary that governments and housing policies go beyond the up-grading of existing settlements and instead focus on addressing them from the temporality in which they emerge. So, instead of providing static and definitive solutions, they should focus on integrating the informal settlements as a solution and as enhance new urban fabrics and self-management housing strategies that ensure the city's growth and, above all, the right to affordable housing.

What is the position of the architect in informal settlements? Is informal housing a solution for housing shortfalls? How can it be made possible?

The challenge of the design and planning professions is to acknowledge and learn thoroughly about informal settlements' reality before arriving with permanent and generalized solutions. Also, being aware that, although informal housing is a problem that goes beyond the built envi-

ronment, it is the perfect field to explore and re-think new types of temporary cities, ephemeral architectures, incremental housing projects, and other types of tools that allow the arriving populations to access to affordable housing.
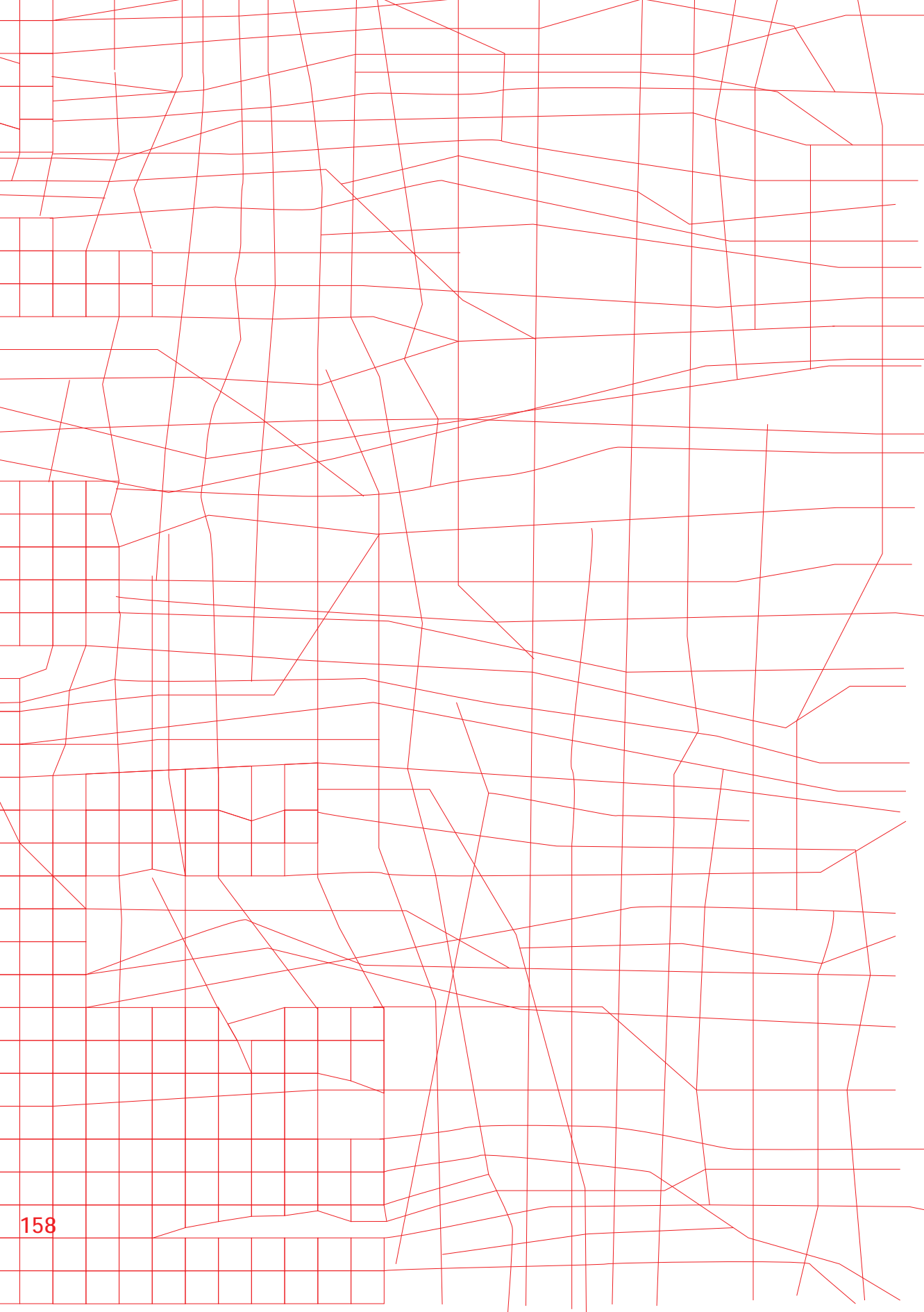
Finally, house-in-progress lands in a specific plot in Bogotá and, using the concepts of incremental architecture, proposes a possible solution to affordable housing on a unit scale. This last research process seeks to connect all the information acquired through the use of control and monitoring tools with the recognized strengths and weaknesses in the development of informal housing and its viability within the framework of the incentives of current housing policies (terrace plan). However, it is important to highlight that participatory work with its inhabitants was impossible due to the current global situation. Therefore, my future interest in this proposal is to re-think it with its inhabitants to create a trustworthy, horizontal, and sincere dialogue in the search to blur the existing duality in Latin American cities.

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