2.4 DENSITY

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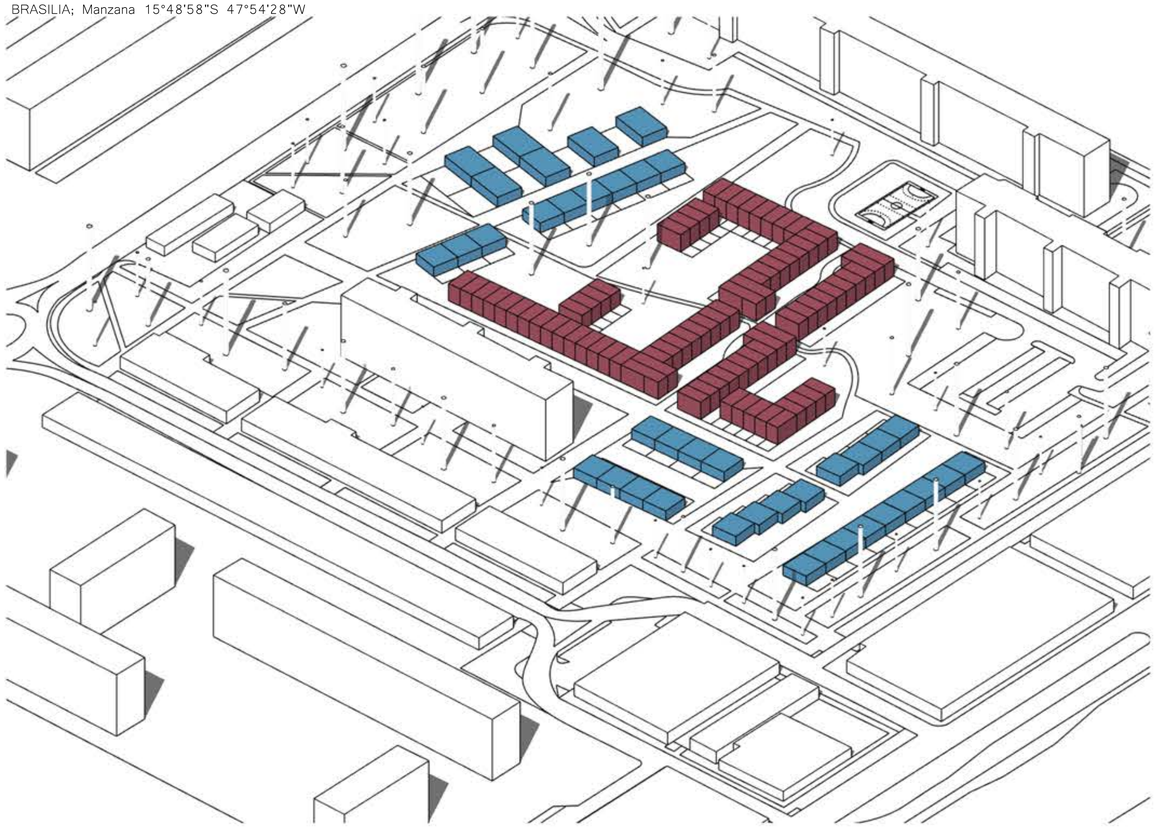
BRASILIA; Manzana 15°48'58"S 47°54'28"W



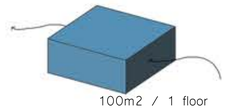
LOW-DENSITY MODEL

Regarding the 50% that we needed to preserve, it has been decided to include some perimeter buildings, the core parking area, and perimeter road elements, while eliminating other structures. By reducing the number of blocks, the overall density decreases, thereby reducing the need for vehicles. The pedestrian paths have been extended to maintain connection with the surroundings and to integrate with the new low-density urban layout. Small communal squares are occasionally created, opening up the built space and fostering community interaction.

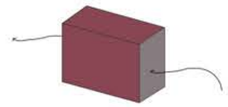
Two types of housing models have been established, each with a total surface area of around 100m². Some units are divided into two floors, while others occupy a single floor.

TOTAL WORK AREA: 40,000 m² (4 hectares)
PLANNING: 30 units/ha
Total: 120 single-family homes

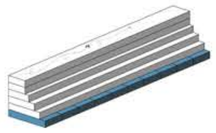
The homes are designed with cross ventilation and natural lighting. To achieve this, each unit is arranged so that at least two sides are unobstructed. Each home includes a private courtyard, which varies in size and layout depending on the model.



100m2 / 1 floor

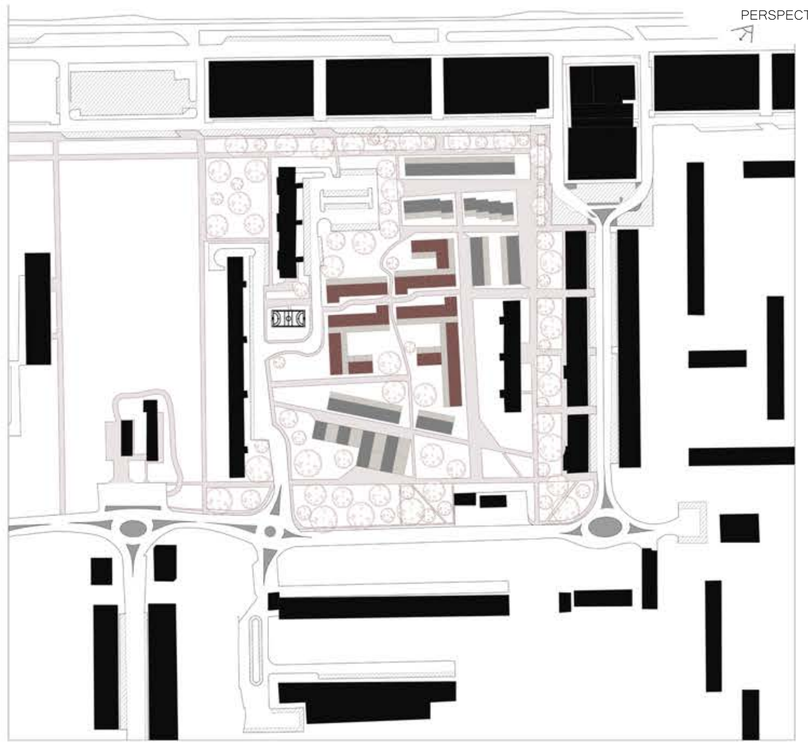


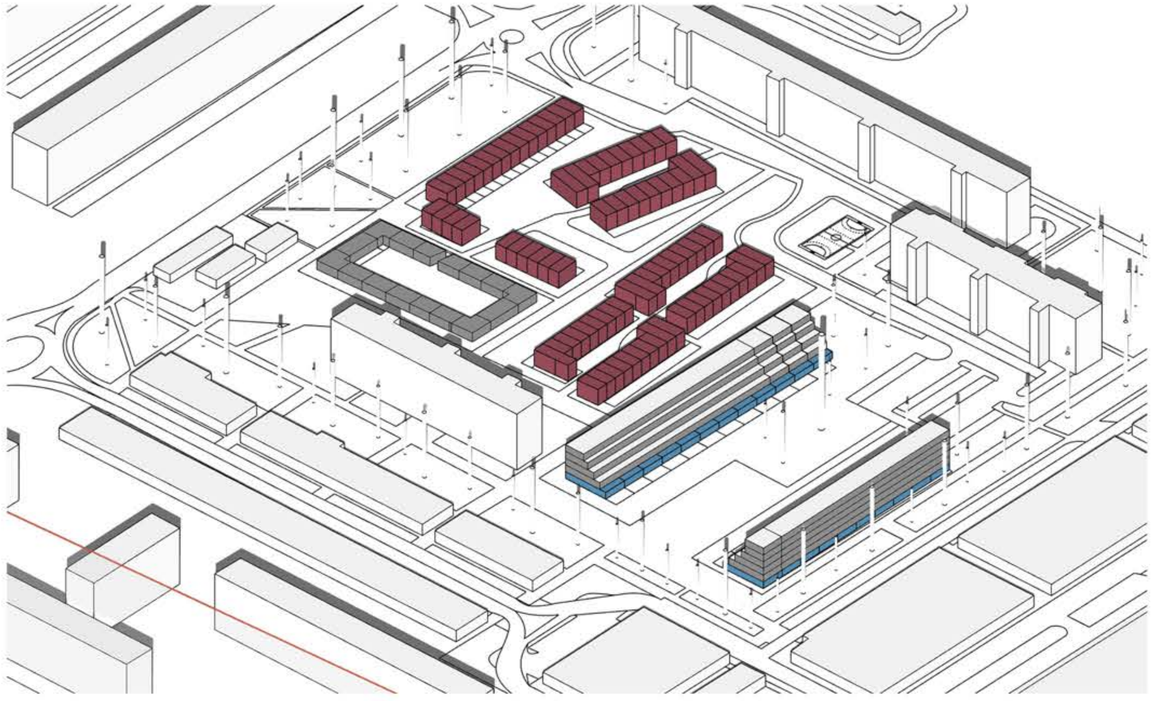
100m2 / 2 floors



This multifamily housing model consists of a ground floor with 100 m² units, each with a garden. As the building rises, it steps back progressively, allowing each unit to have a private terrace. The top floor, however, features a terrace on the rooftop.

PERSPECTIVE 3D





MEDIUM AND HIGH-DENSITY MODEL

Using the same methodology as before, this time we aimed to represent both models on the same site to study their interaction. This setup highlights the necessary spacing to prevent shadowing, height perceptions, and the differing scale of public spaces based on typology and urban density. An important adjustment is that the block closest to the medium-density area has been reduced by one floor to avoid casting shadows and to lessen visual impact.

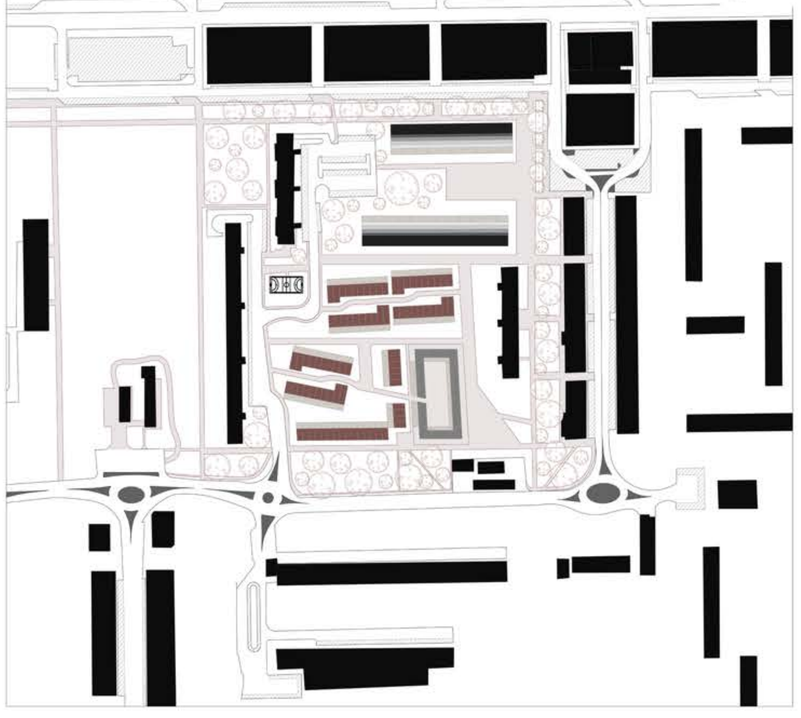
MEDIUM DENSITY

Total Work Area: 16,000 m² (1.6 hectares)
Plan: 60 units/ha
Total: 101 single-family homes
HIGH DENSITY

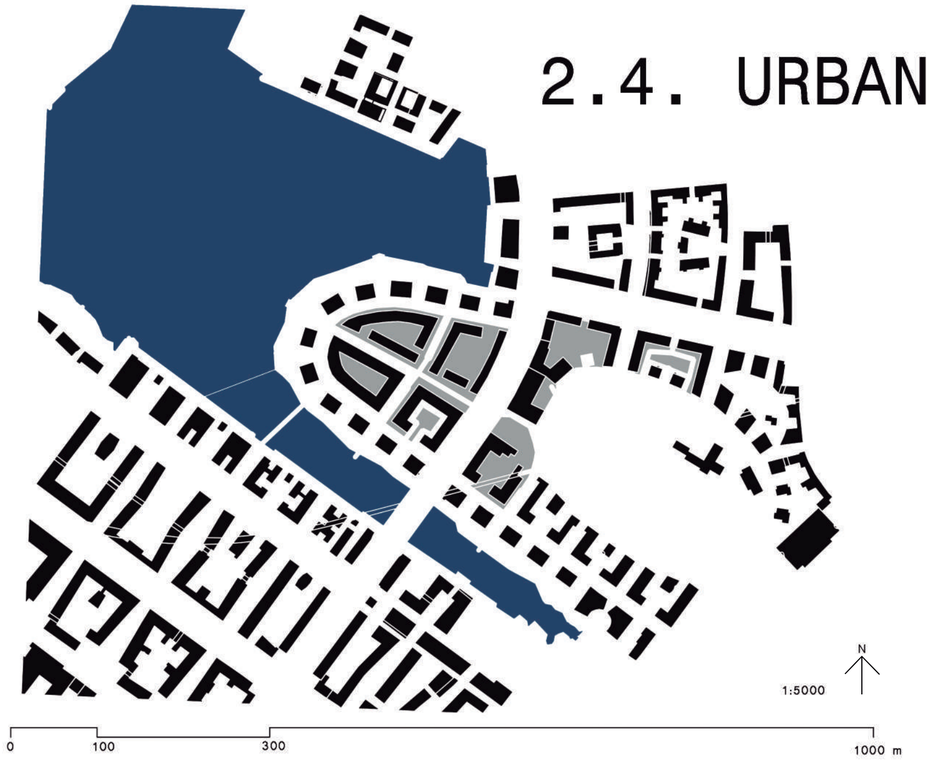
Total Work Area: 11,000 m² (1.1 hectares)
Plan: 100 units/ha
Total: 110 multifamily units

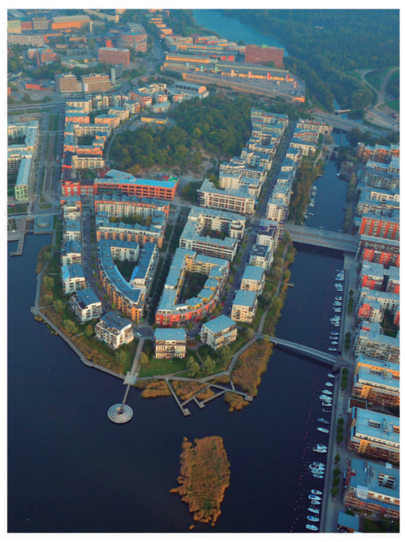
0 100 300 500

PERSPECTIVE 3D



2.4. URBAN TISSUES: HAMMARBY SJÖSTAD, STOCKHOLM





Hammarby Sjöstad is a great example of designing with sustainability in mind, featuring abundant **green spaces** and **waterfront areas** alongside a mix of **residential blocks** and **commercial equipment**. Its efficient public transport system, including **light rail** and **bike paths**, minimizes the need for cars and promotes easy mobility.

This design fosters a strong sense of community, with vibrant public spaces and local amenities that encourage social interaction. Overall, Hammarby Sjöstad offers an appealing quality of life, **combining environmental responsibility with a very well - conected urban fabric**

DENSITY METRICS

A (Base Land Area)= 18,732 ha

FSI (Floor Space Index) = 2,4 m2/m2

$$FSI_x = \frac{F_x}{A_x}$$

F_x gross floor area (m^2)
A_x area of aggregation x (m^2)
x aggregation (lot (l), island (i), fabric (f), or district (d))

GSI (Ground Square Index)= 0,33 m2/m2

$$GSI_x = \frac{B_x}{A_x}$$

B_x footprint (m^2)
A_x area of aggregation x (m^2)
x aggregation (lot (l), island (i), fabric (f), or district (d))

OSR (Open Space Index) = 0,33

$$OSR = \frac{1 - GSI_x}{FSI_x} \quad x \quad \text{aggregation x}$$

L (Layers) = 6

$$L = \frac{FSI_x}{GSI_x} \quad x \quad \text{aggregation x}$$

N (Network Density)= 0,03

$$N_f = \frac{l_i + \frac{l_e}{2}}{A_f}$$

l_i length of interior network (m)
l_e length of edge network (m)
A_f area of fabric (m^2)

W (Mesh Width) = 66,6 m

$$w = \frac{2}{N_f}$$

B (Profile Width) = 18,26 m

$$b = \frac{2(1 - \sqrt{1 - T_f})}{N_f}$$

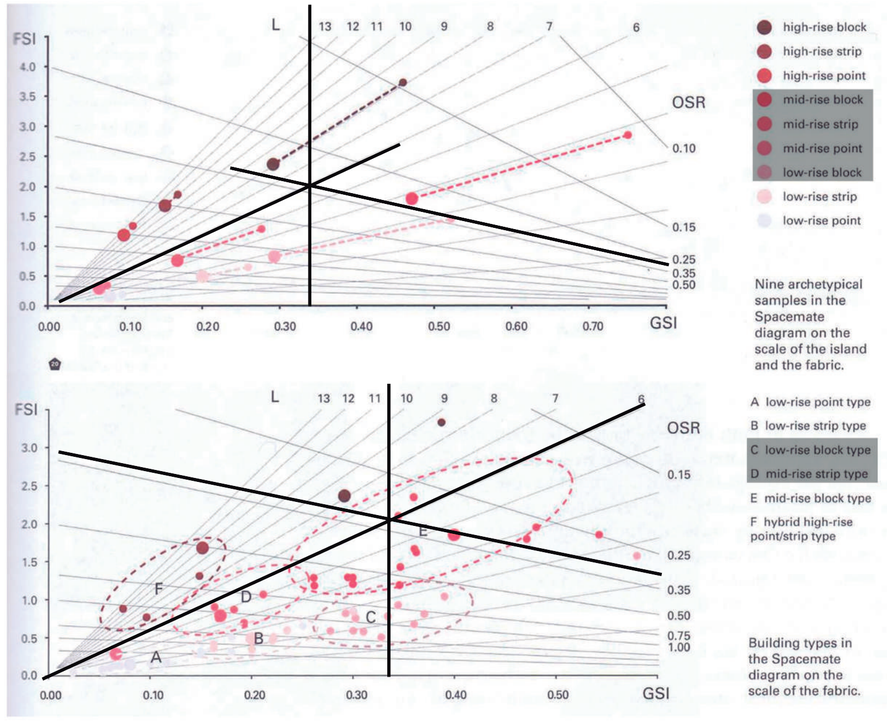
T (Tare) = 33%

$$T_x = \frac{A_x - A_{x-1}}{A_x}$$

x aggregation x
x–1 level of scale of the components of which aggregation x is composed

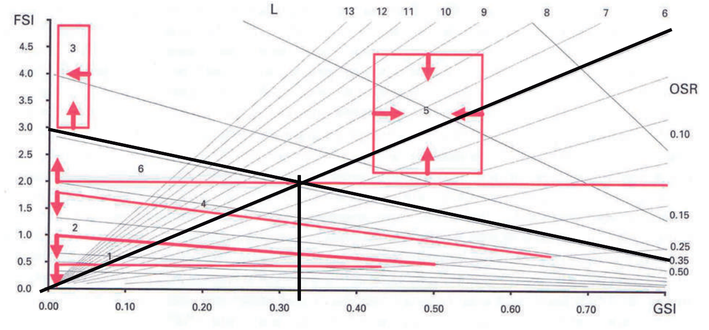
Thanks to the measurements taken from the current plan of Hammarby Sjöstad, we can perform calculations and analyze the density metrics of this area.

TOTAL AREA (m2)	187320
TOTAL BUILT AREA (m2)	374640
BUILT AREA (m2)	62440
INTERIOR NETWORK (m)	11750
EXTERIOR NETWORK (m)	2028
NON-BUILT AREA (m2)	124880



Nine archetypical samples in the Spacemate diagram on the scale of the island and the fabric.

Building types in the Spacemate diagram on the scale of the fabric.



Doctrines which have been argued for through history, polemically translated into density thresholds in the Spacemate.
1
Unwin (1912)
2
Hoenig (1920s)
3
le Corbusier (1920s)
4
Gropius (1930)
5
Jacobs (1961)
6
Lozano (1990)

Through analysis, we can confirm that the block density in Hammarby Sjöstad is **medium**, leaning more towards low, largely due to the extensive parkland the neighborhood offers. This observation is further supported by the second abacus.

This level of density closely resembles the model described by **Lozano** in 1990, but it is considerably lower than that of nearby neighborhoods in Stockholm, which do not feature as much public green space.