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MAHALLA AND ITS GARDENS

MASTER THESIS
MAHALLA



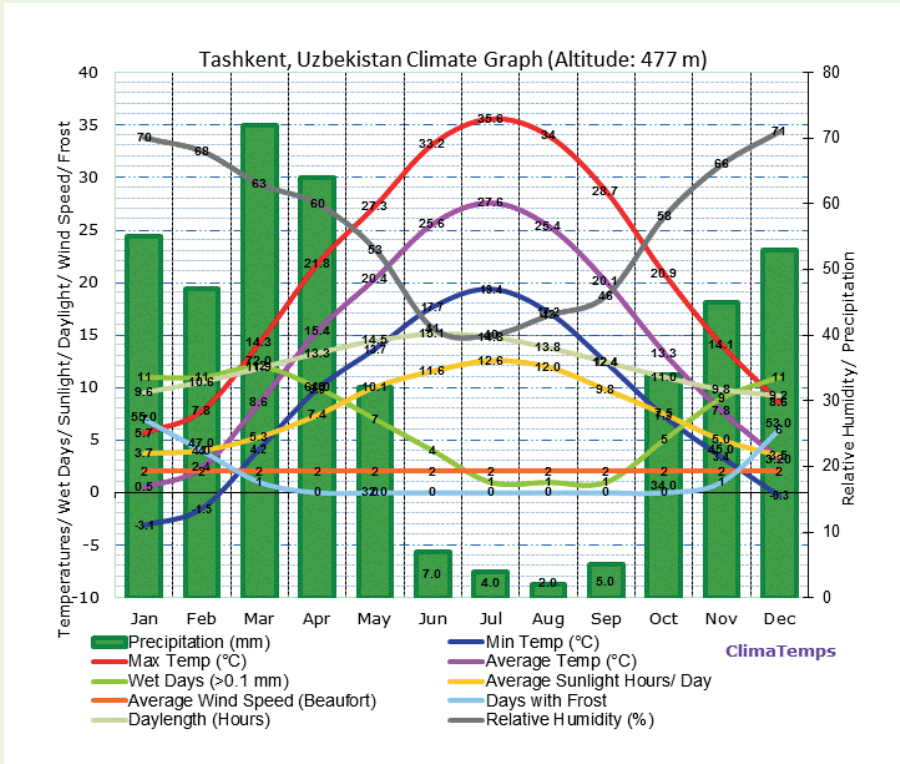
KATRIN RÖTHLIN

The mahallas are «neighbourhoods» in the middle of the old town of Tashkent with an urban-rural residential character. They consist of traditional courtyard houses, with the garden as the central feature. The gardens in the mahallas are of great cultural importance. They are not only a place of retreat or gathering, but also create a pleasant microclimate in the hot, dry summers through evaporation and shading of the plantings. The gardens also provide habitat for small animals, promote biodiversity and improve air quality in the city of Tashkent.

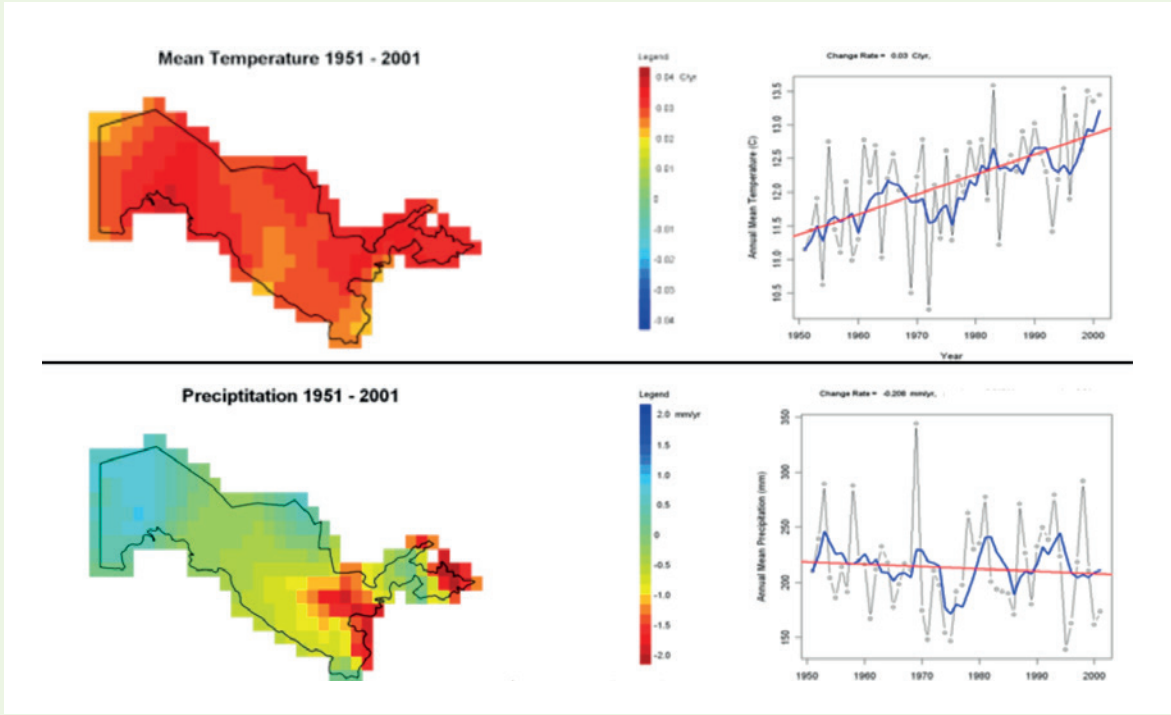


The Mahallas are under pressure from densification. The courtyard houses have to be extended or they will be replaced by modern development structures. In the process, the mahalla, its courtyard houses and gardens are slowly disappearing as a traditional form of dwelling. For the sustainable development and modernization of the mahallas, equal importance must be attached to the outdoor space as to the courtyard house itself, because they are interdependent. This Project aims at preserving the footprint of the courtyards in the mahalla, whilst increasing the density of the urban fabric.





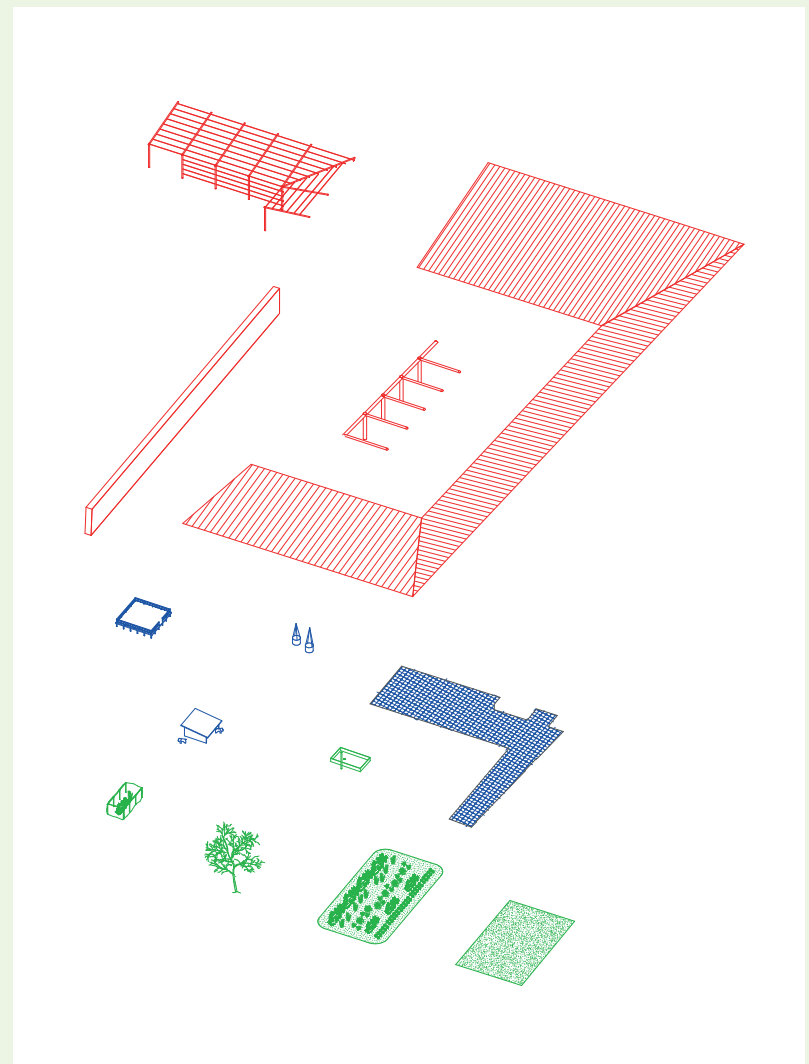
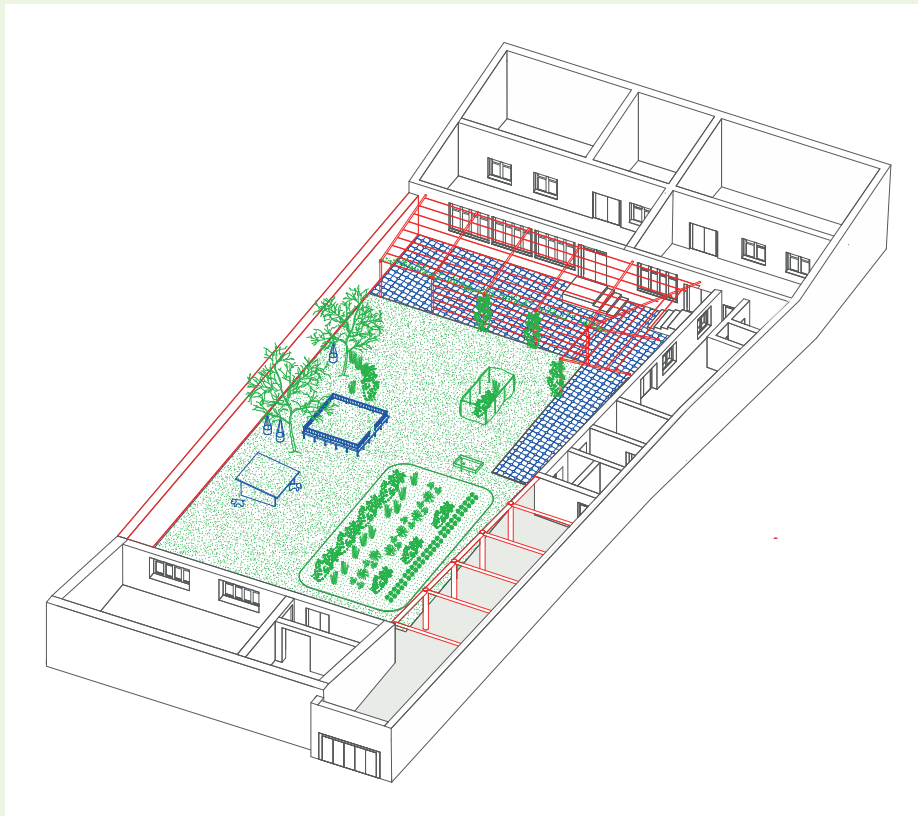
Tashkent Climate
Source: © 2009 - 2014 climatemps.com



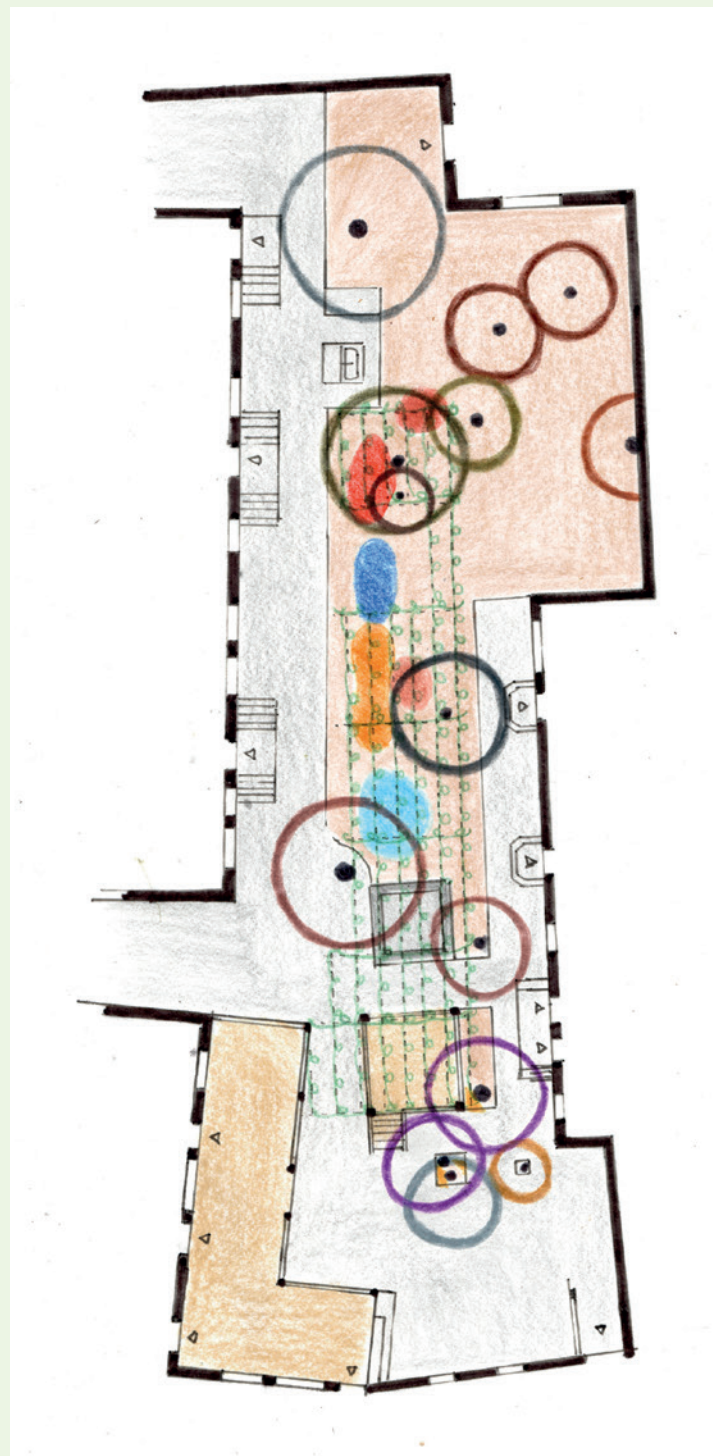
Temperature change and decreasing precipitation
Source: climatemwiz.org



COURTYARDS IN ALLON



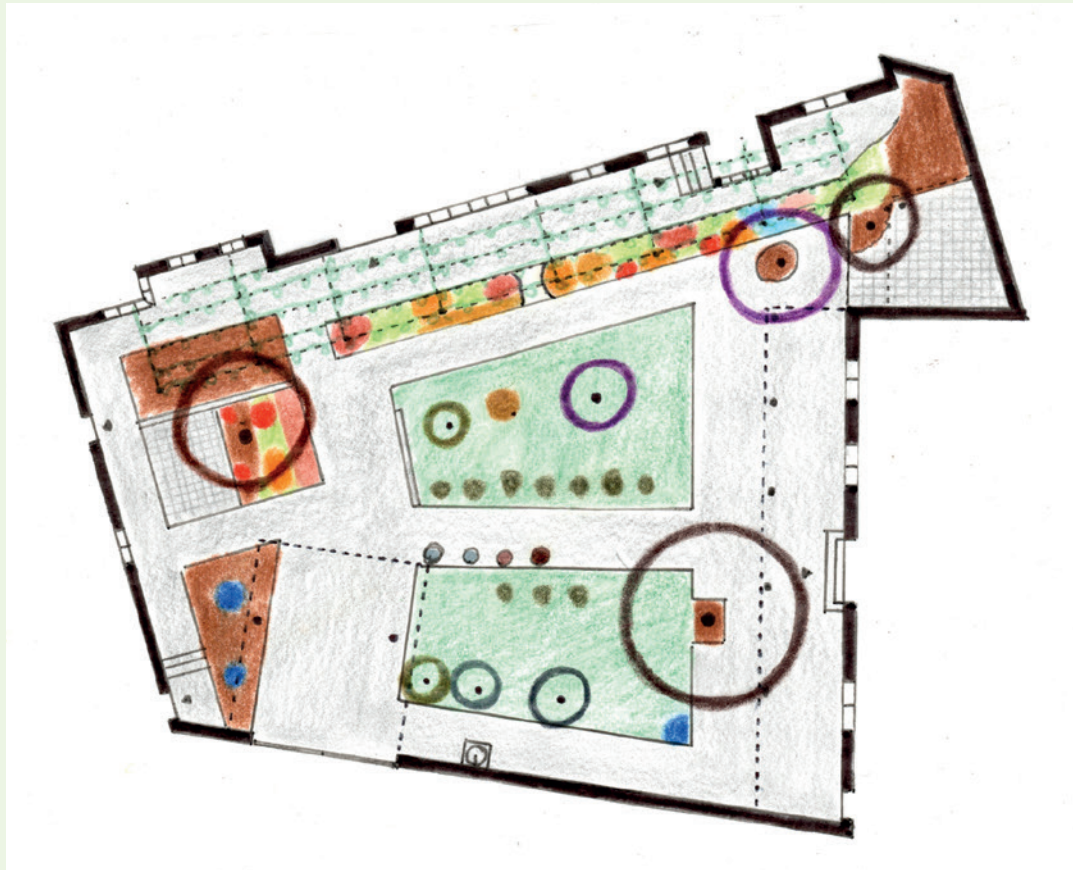
ELEMENTS OF THE COURTYARDS IN ALLON



- | | | | |
|---|---------------|---|------------------|
|  | grapes |  | hot peppers |
|  | apple tree |  | tomatos |
|  | fig tree |  | pumpkin |
|  | pears |  | garlic |
|  | apricot tree |  | carrots |
|  | walnut tree |  | potatos |
|  | cherry tree |  | celosia cristata |
|  | haselnut tree |  | tyhmian |
|  | pomegranate | | |



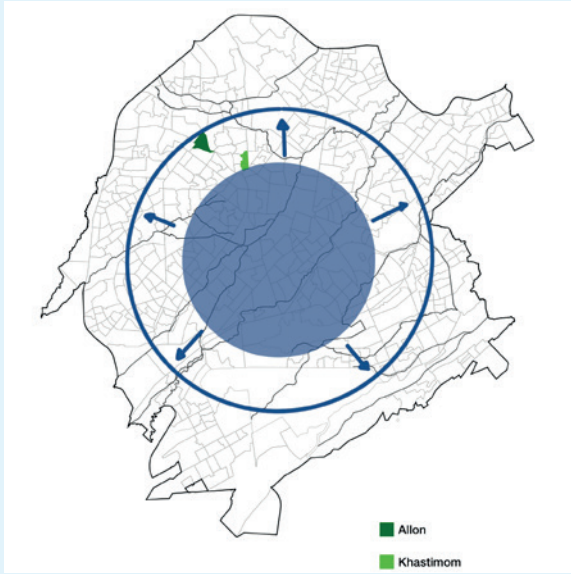
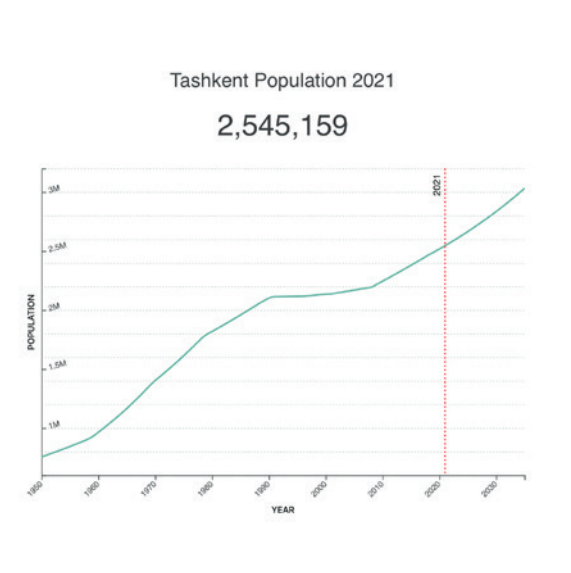
EXAMPLE OF A COURTYARD IN ALLON



- | | |
|------------------|-------------|
| flowers | pomegranate |
| celosia cristata | grapes |
| pumpkin | potatoes |
| flowers | pumpkin |
| flowers | rosemary |
| harmala peganum | apple tree |
| grapes | walnut tree |
| cactus | grapes |
| flowers | flowers |
| haselnut tree | rosemary |
| feeg tree | cherry tree |



EXAMPLE OF A COURTYARD IN ALLON



Tashkent Population, currently growing at a rate of 1.10% per year
Source: worldpopulationreview.com

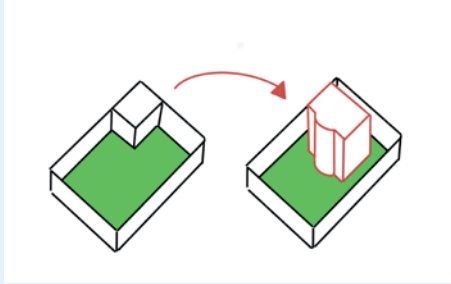
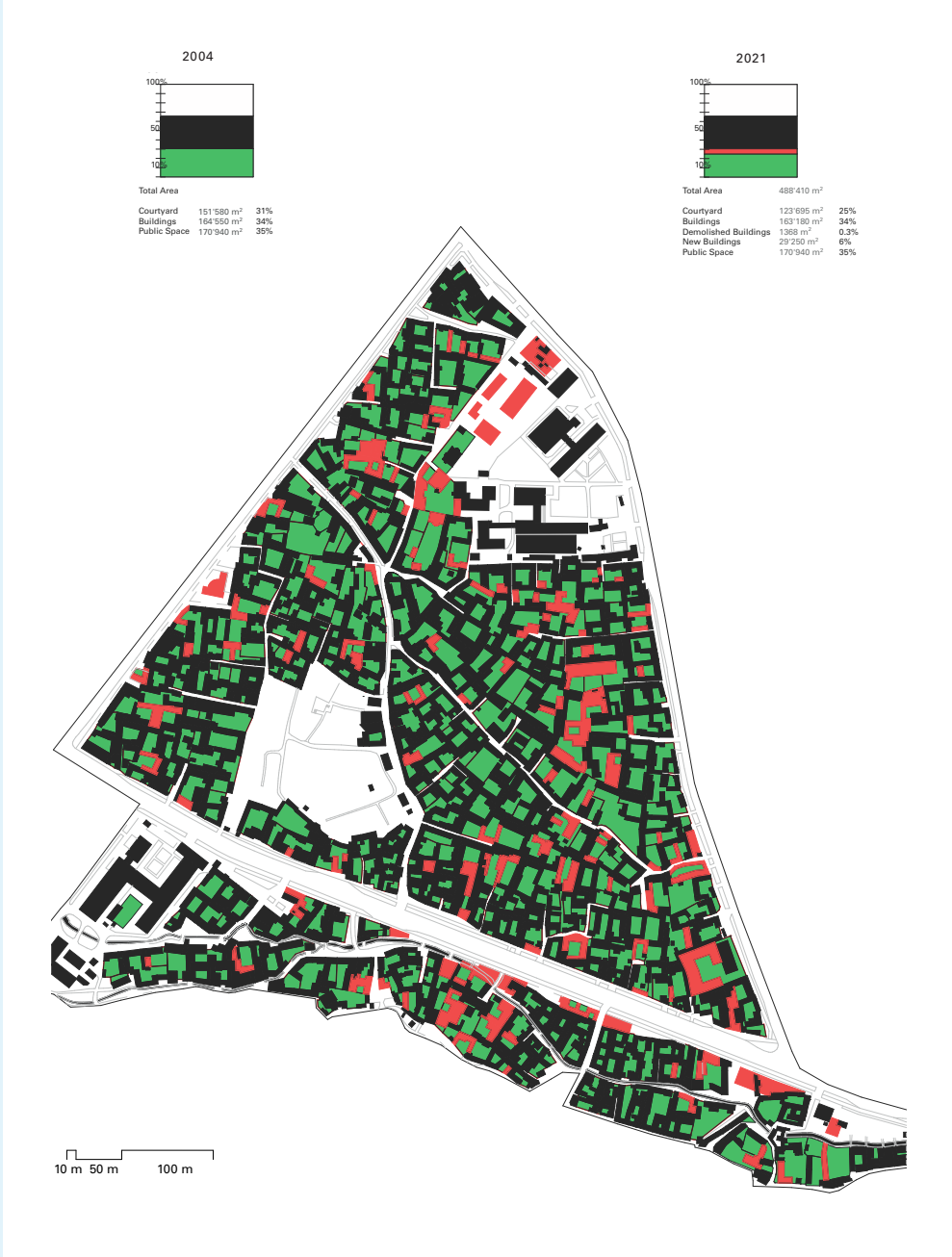
Mahalla Allon moves to the city centre



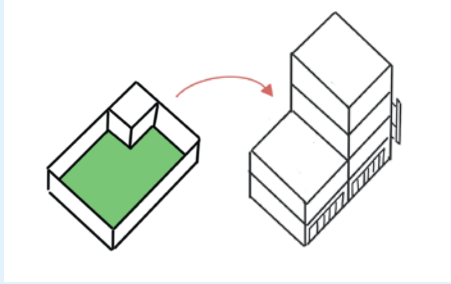
Mahalla Allon in 2004 and 2021
Source:Google Earth

Mahalla Khastimom in 2004 and 2021
Source:Google Earth

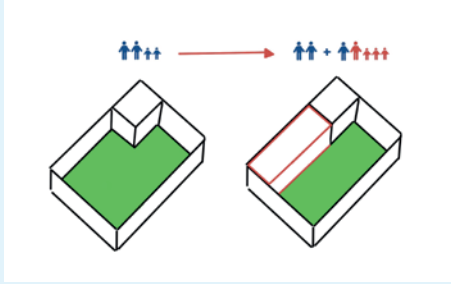
DENSIFICATION AND THE LOSS OF COURTYARDS



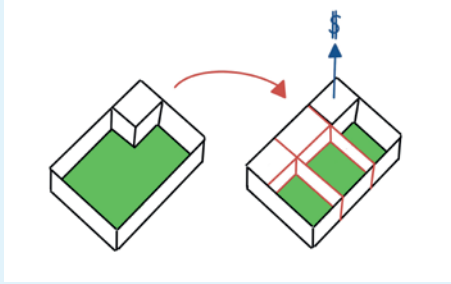
FAMILIES MOVING TO TASHKENT



FLATS AND COMMERCIAL BUILDINGS REPLACING COURTYARD HOUSE



FAMILY SIZES INCREASE AND NEED FOR MORE LIVING SPACE



SPLITTING UP THE LAND FOR REVENUE



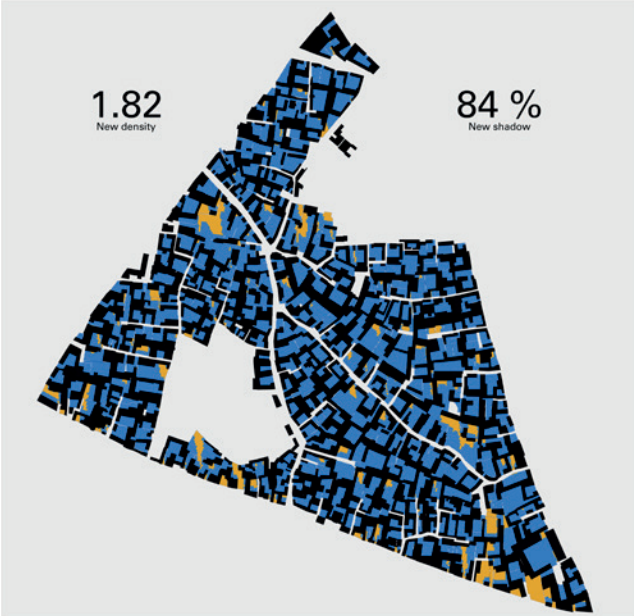
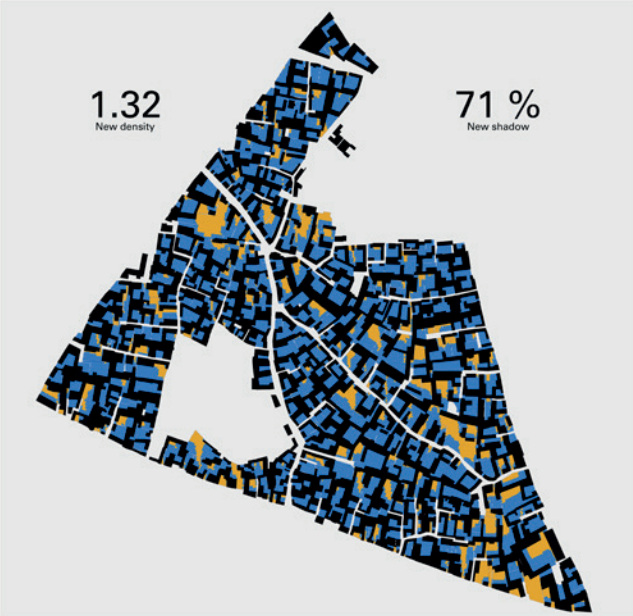
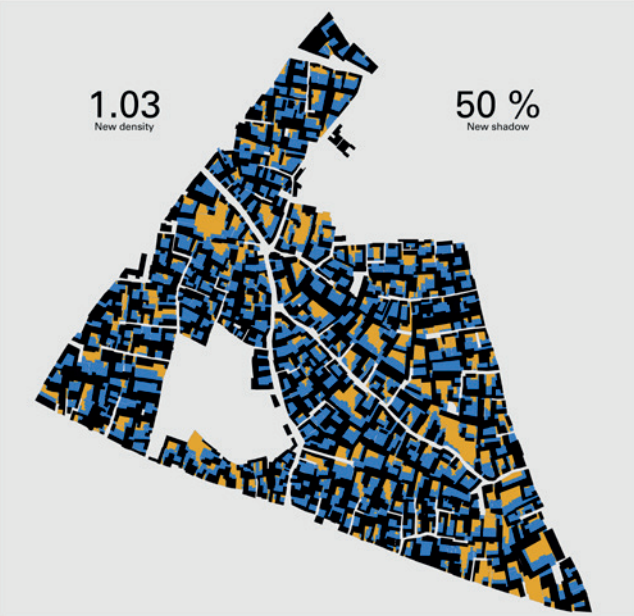
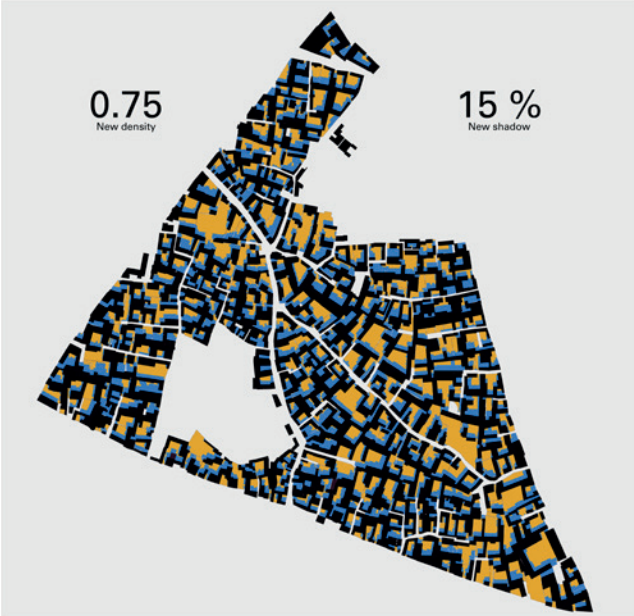
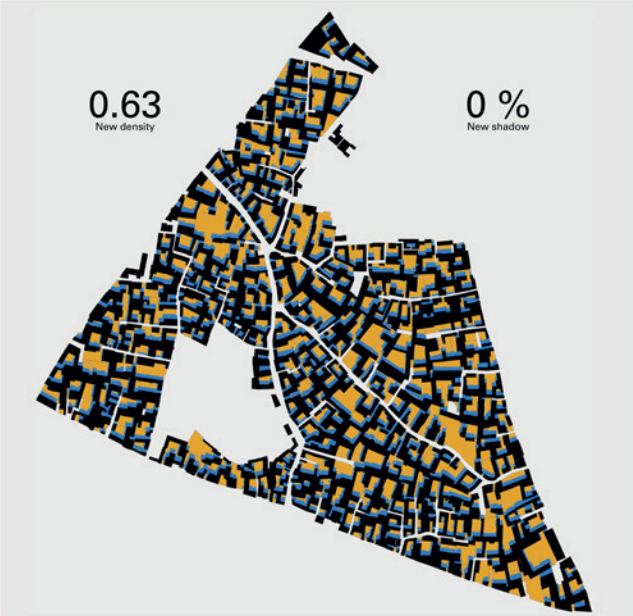
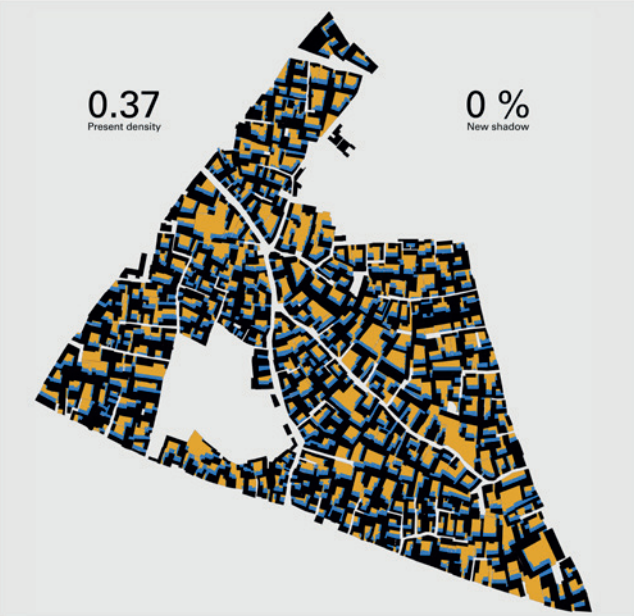
TREES FALL FOR BUILDING LAND



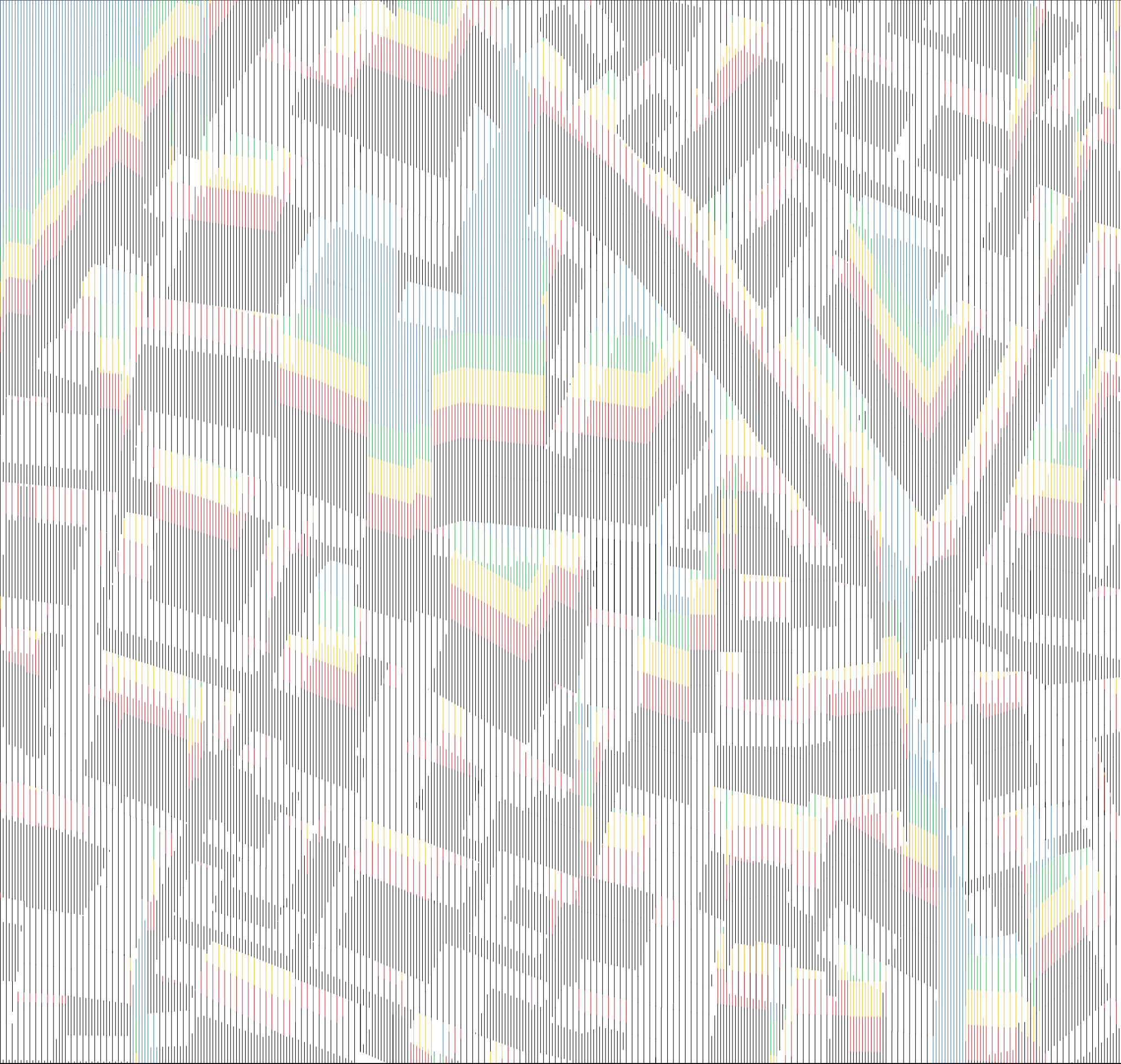
DURABILITY OF THE URBAN PLAN



DENSIFICATION SCENARIOS ACCORDING TO SUN VOLUME



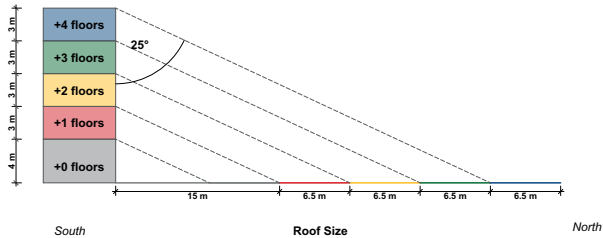
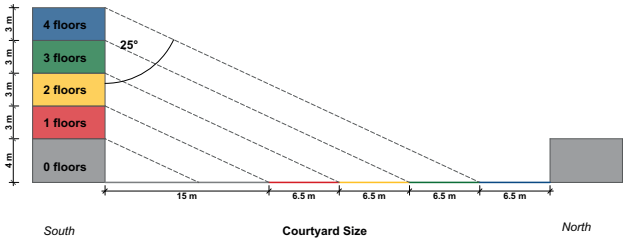
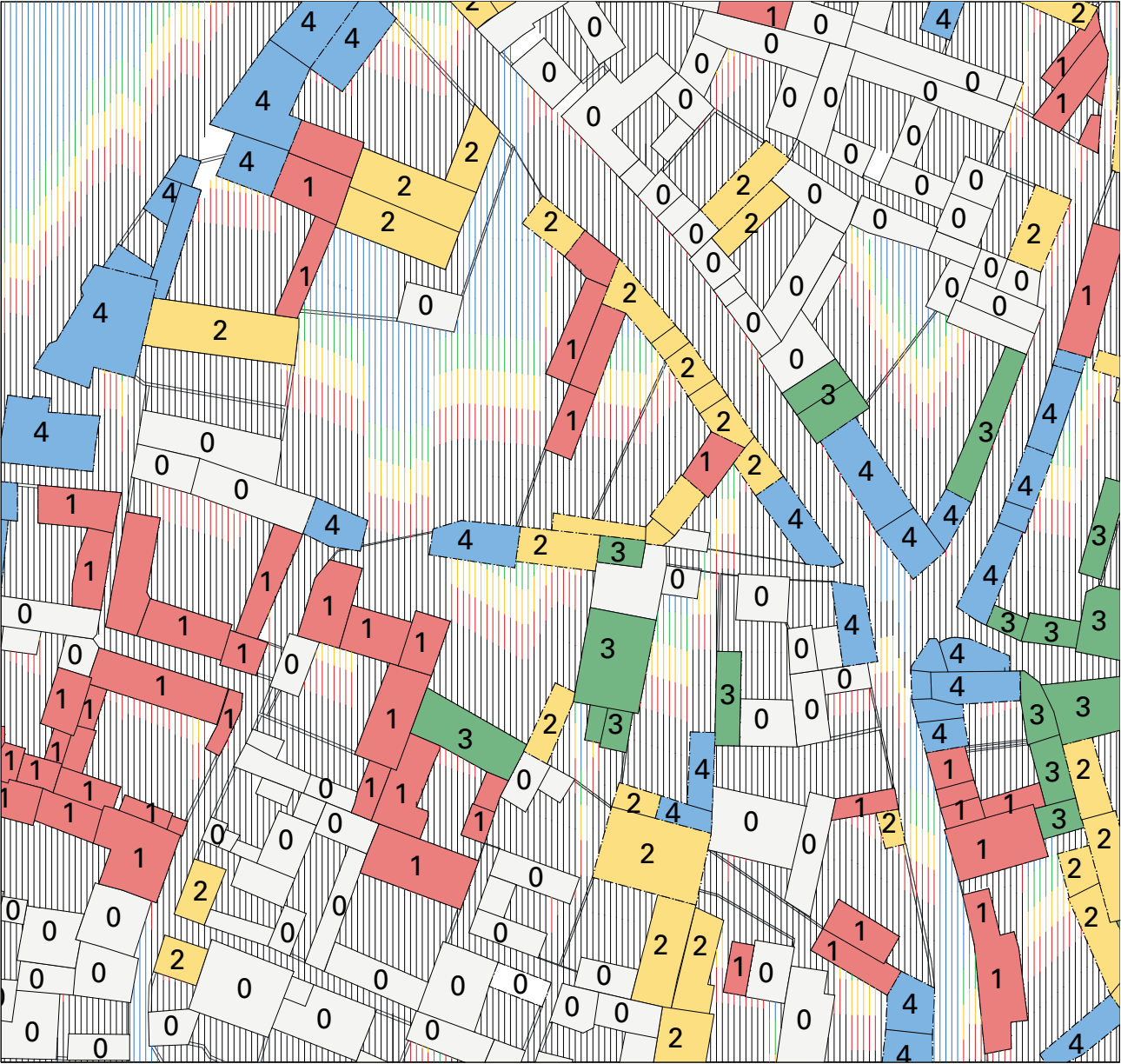
SHADOW CREATED ACCORDING TO DENSIFICATION SCENARIOS



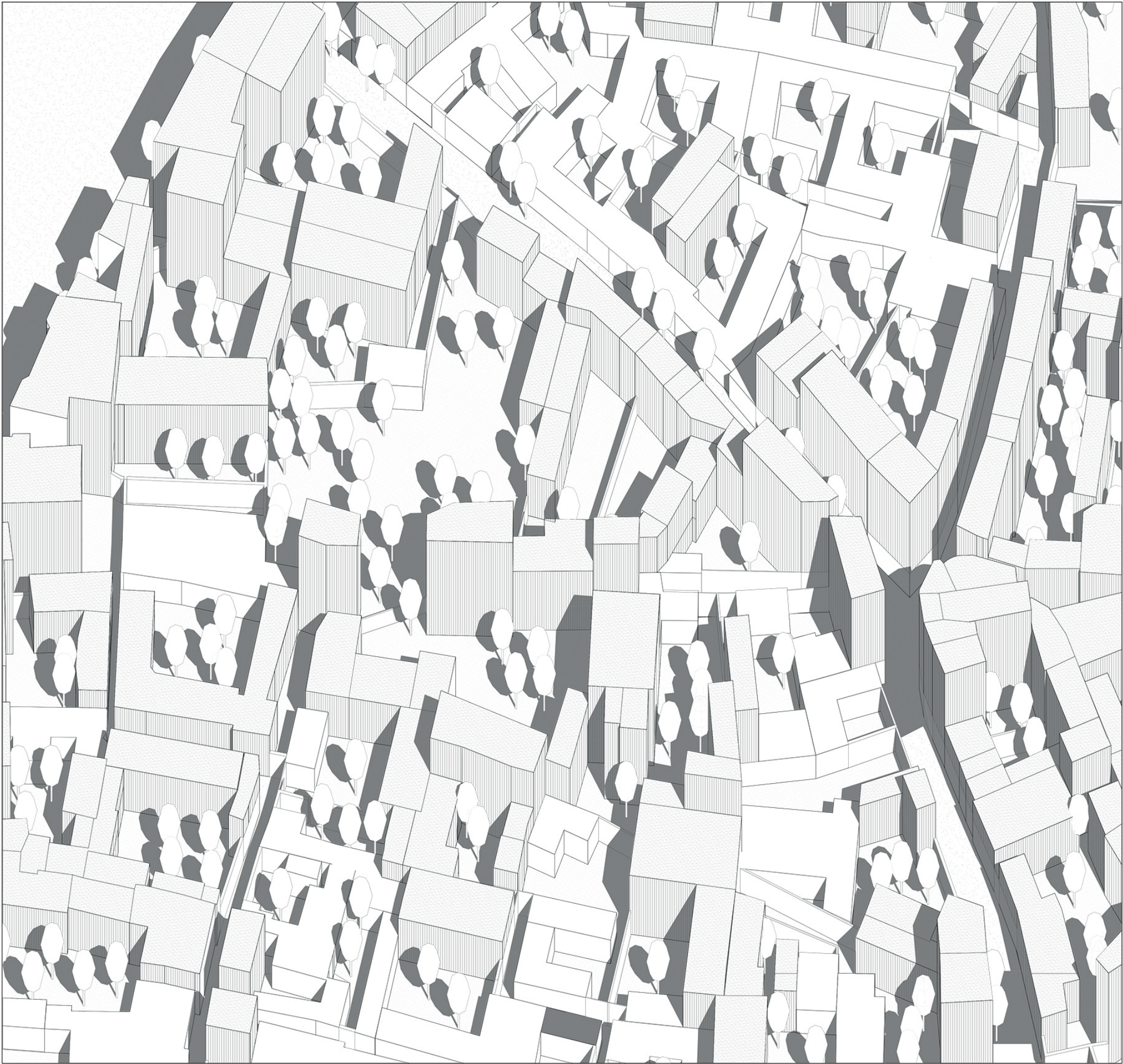
0 25

PATTERN OF SHADE ON DECEMBER 21 AT 25°





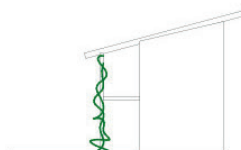
NUMBER OF FLOORS DEPENDING ON THE SIZE OF THE COURTYARDS DUE TO SHADE



DENSIFICATION FACTOR 3



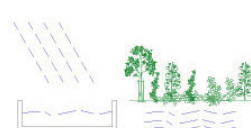
DENSIFICATION CREATES
SHADE FOR HOT DAYS



VERTICAL PLANTING



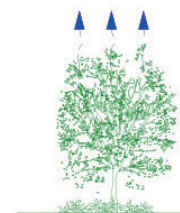
ROOF LANDSCAPE,
INCREASED ALBEDO



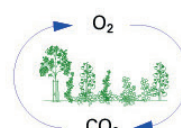
WATER STORAGE



BIODIVERSITY,
SELF-SUFFICIENCY,
NEWTREES

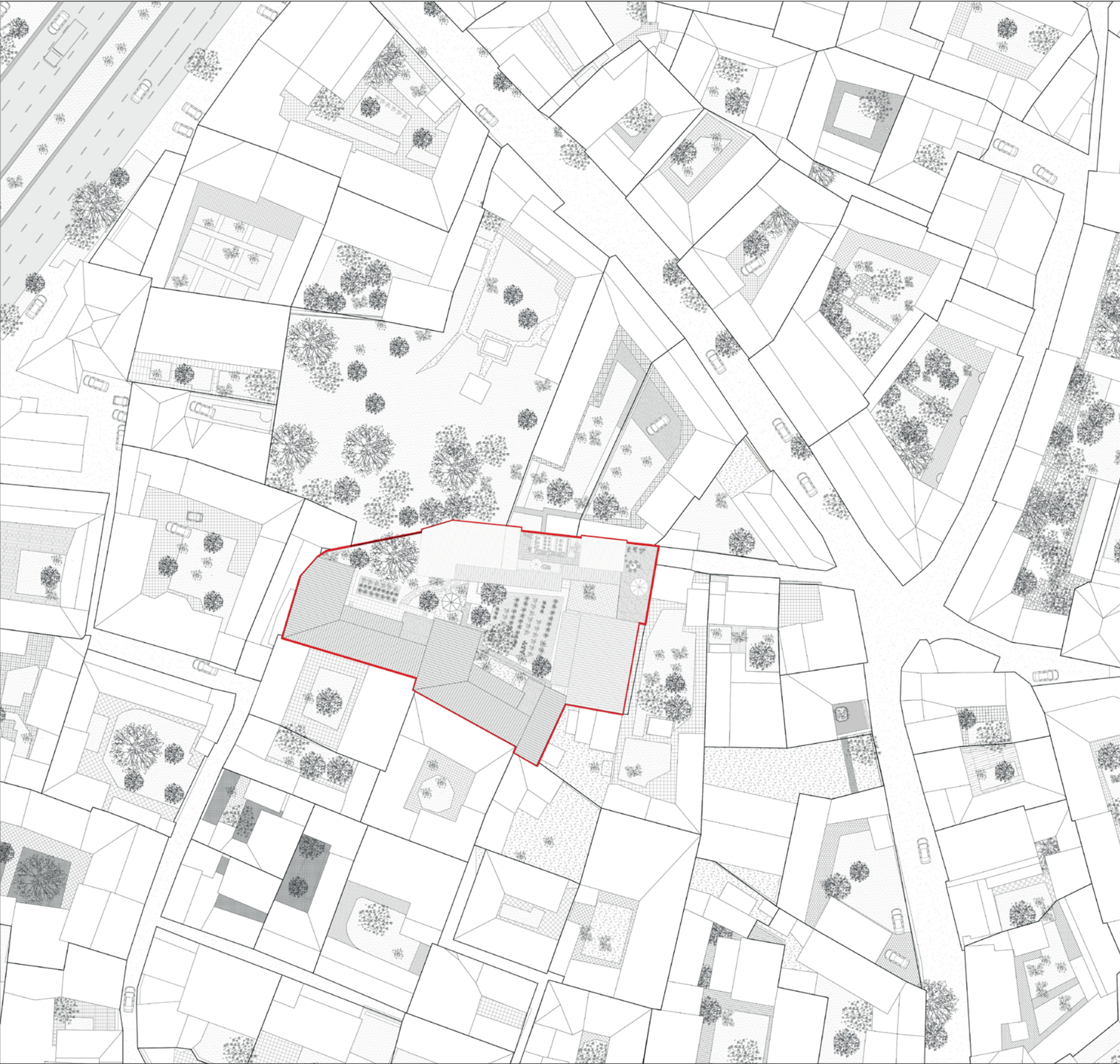


EVAPORATION,
COOLING



PHOTOSYNTHESIS

DENSIFICATION AND ECOLOGICAL CONCEPT





ENTRANCE TO THE COURTYARD AND THE GARDEN



0 10

1. FLOOR





0 10

SECTION A



COURTYARD



0 1 2 3 4 5 6 7 8 9 10

2. FLOOR





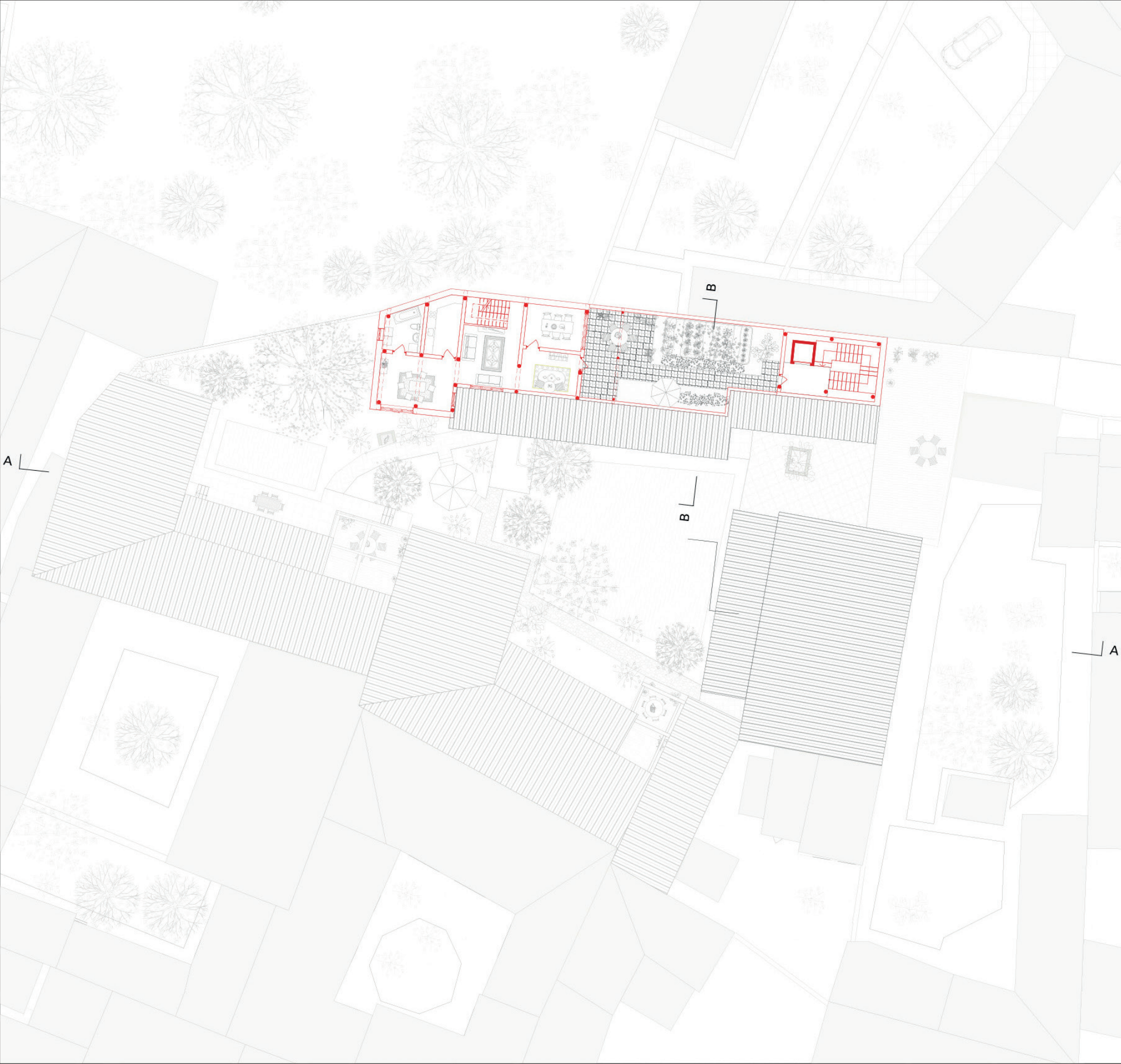
0 10

3. FLOOR





WINTER GARDEN



0 10

4. FLOOR





0 10

5. FLOOR





PATIO

Struktur:
- Stützen 240 x 240 mm
- Träger 240 x 340 mm
- Querbalken 160 x 200 mm
- Aussteifung Fachwerk in Wänden

Deckenaufbau:
- Holzboden 24 mm
- Trittschalldämmung 40mm
- Querbalken 220 x 90 mm, zwischenliegende Dämmung 220 mm
- Lattung 24 mm
- Holzfaserplatte 15 mm
- Balkenlage 240 x 340mm

Wandaufbau:
- Deckleisten 30 mm
- Lattenrost vertikal 40mm, Installationsschicht
- Holzwerkstoffplatte 12mm
- Holzständer, zwischenliegende Dämmung 220 mm
- Hinterlüftung 40 mm, horizontale Lattung
- Lehmplatten präfabriziert 100 mm

Dachaufbau:
- Bepflanzung
- Substrat 450 mm
- Filtervlies
- Wurzelschutz
- Abdichtung 2 lagig
- Holzfaserplatte 400 mm
- Wärmedämmung 220 mm
- Lattung 24 mm
- Holzfaserplatte 15 mm
- Balkenlage 240 x 340mm



0 2.5

SECTION B



0 2.5

DENSIFICATION CREATES MORE GARDENS

