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1.0 (W)EgoCity

Graduation studio

(W) Egocity Graduation studio

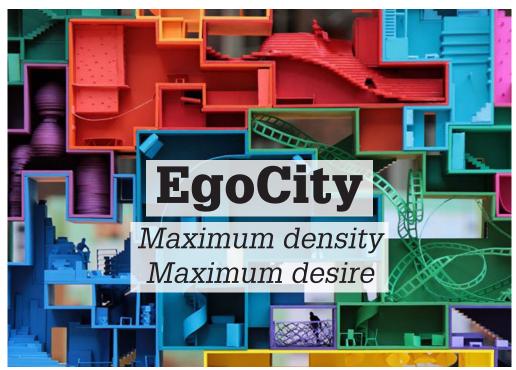
Architecture should no longer be a frozen moment in time. Fast changing demands in extreme densities require something else than fixation. We want to be personalized!. An upgrade of architectures cubical meter [M3] seems to be needed. We introduce TM4: Tailor Made over time

A perfect fit for everyone at any time

1.1 Co-Housing

Co-Housing with collective program



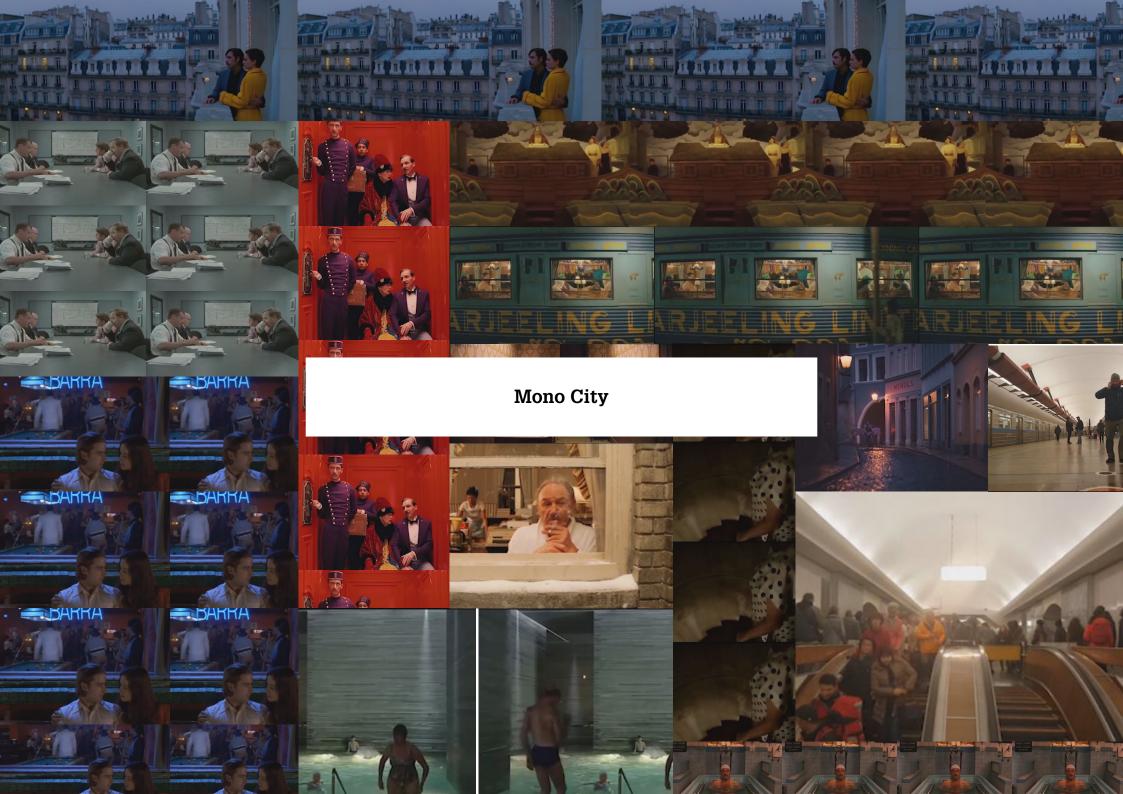


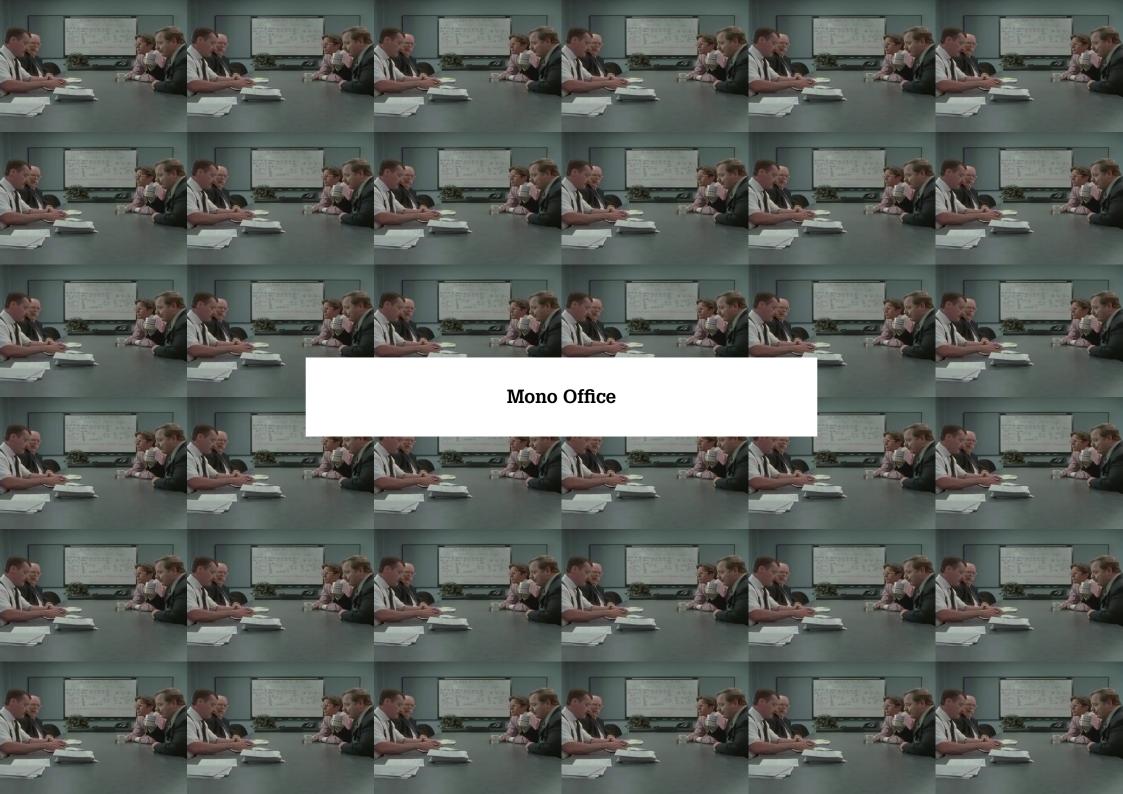
Bottom-up Co-housing

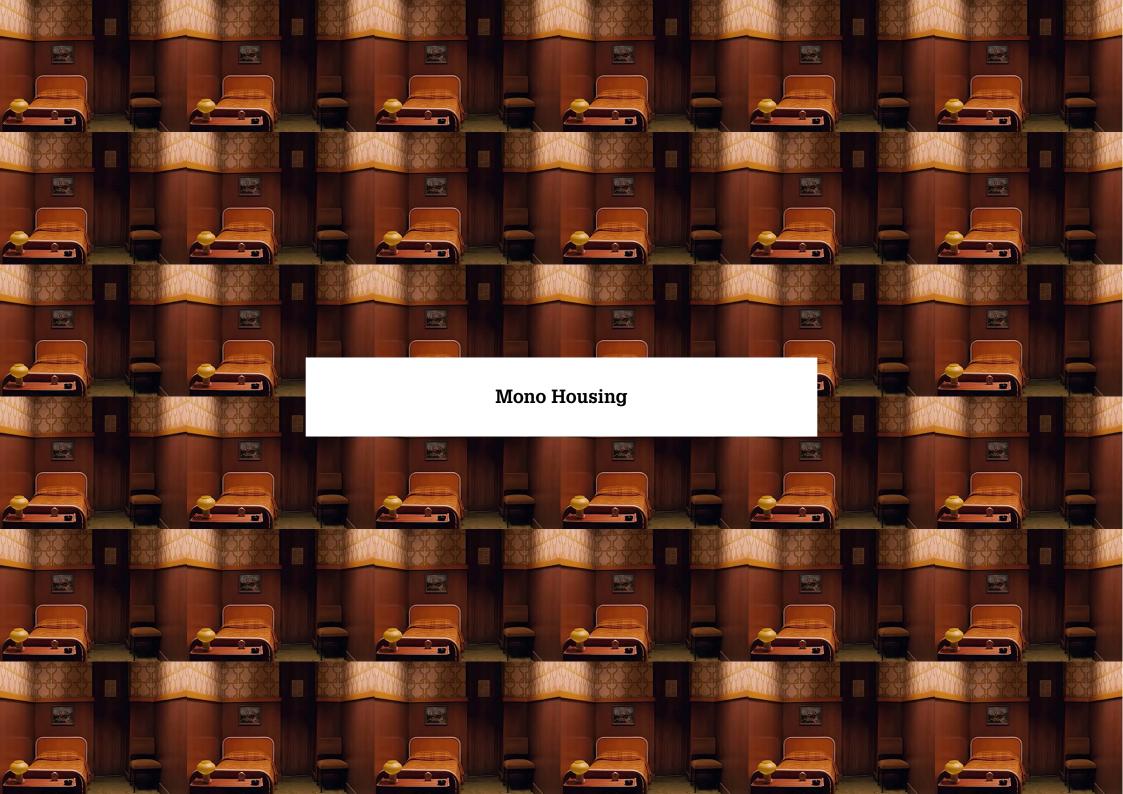
What's next?

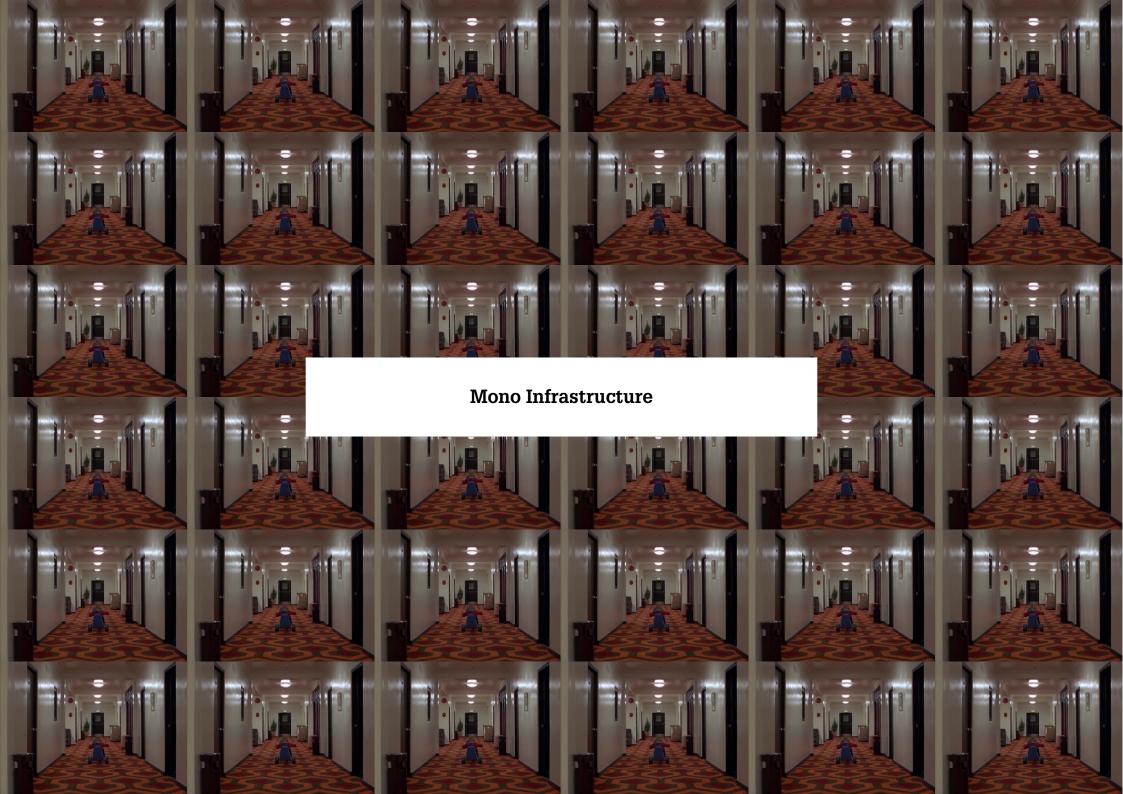
2.0 The Mono City

Monofunctional clusters with intensified mobility, leading to dumbness in the city.











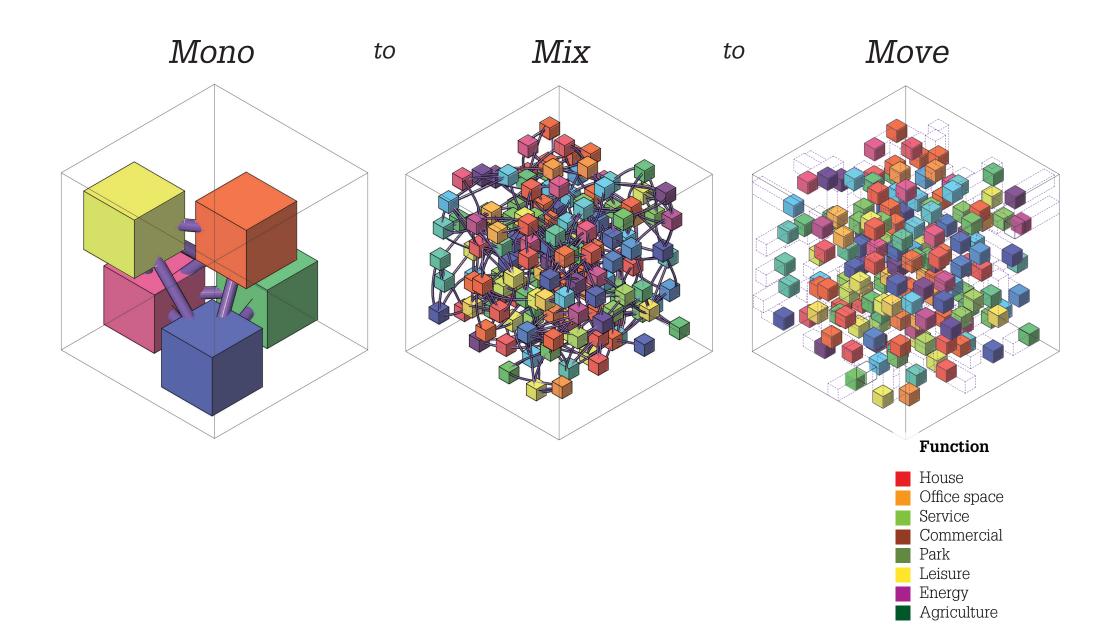
Can I have what I want, right next to me?



3.0 What if everything comes to you?

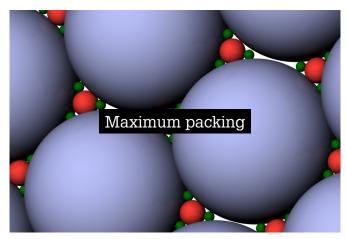
Potentials of non-stop mixing

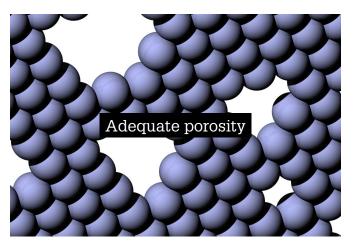
Let's unfreeze and move

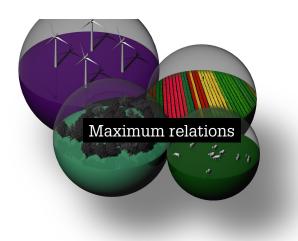




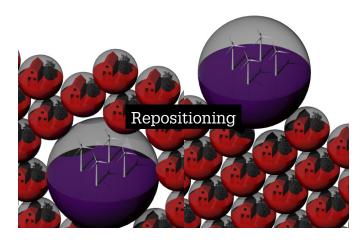


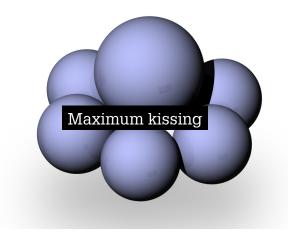


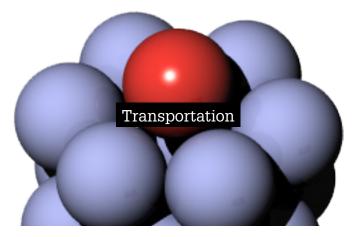


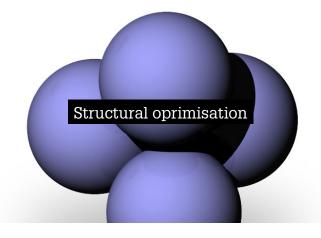










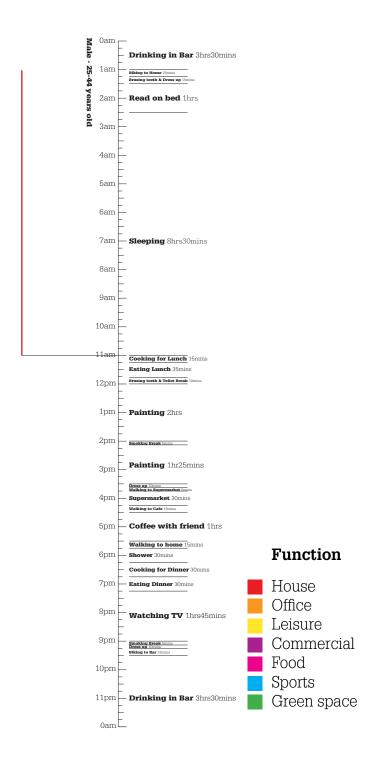




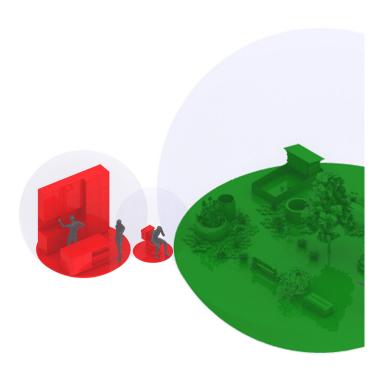
3.1 Timeline of daily routine

Places passing by

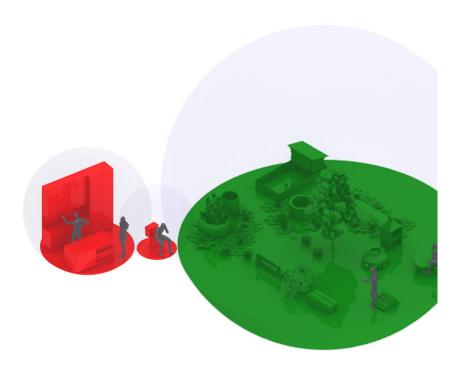




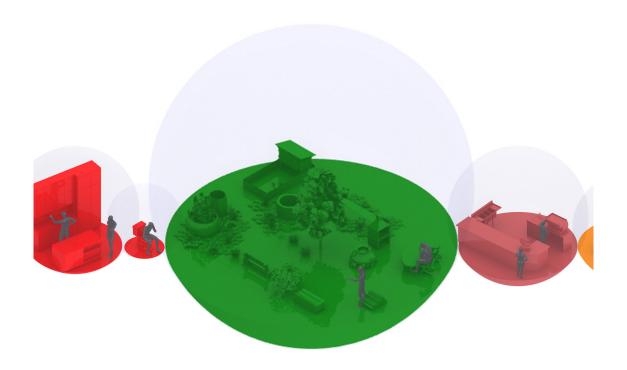
Eating in the Kitchen



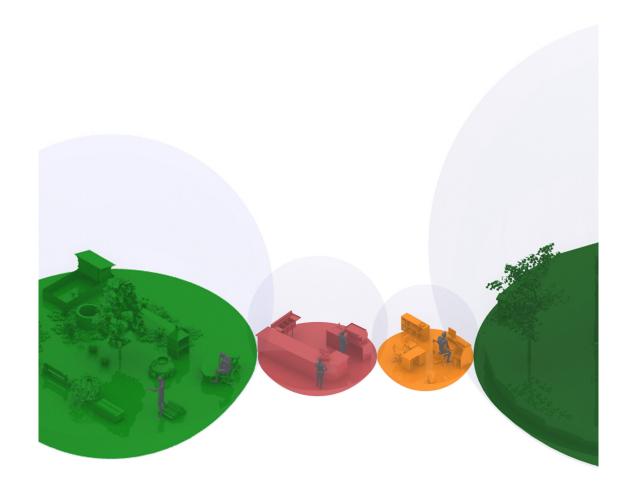
On the toilet



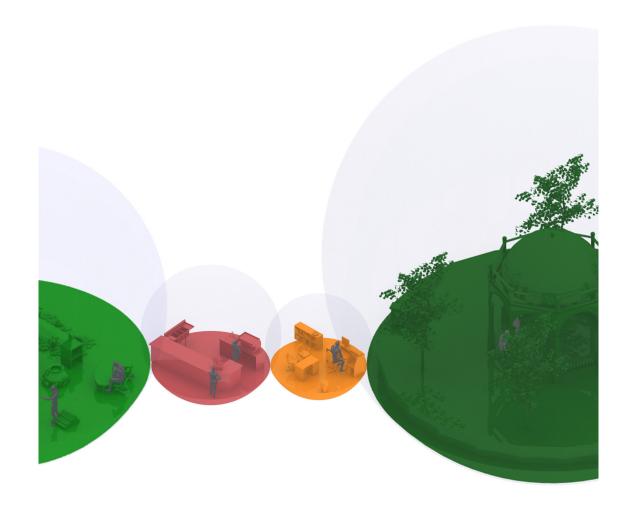
Meeting a friend in the Park



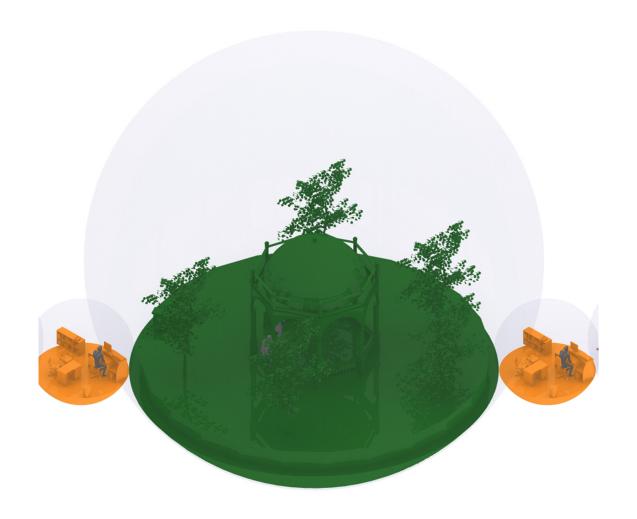
Espresso at the coffee corner



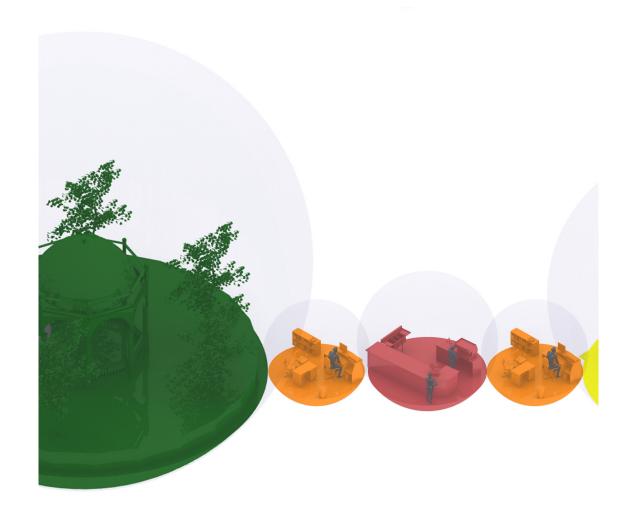
Working on a desk



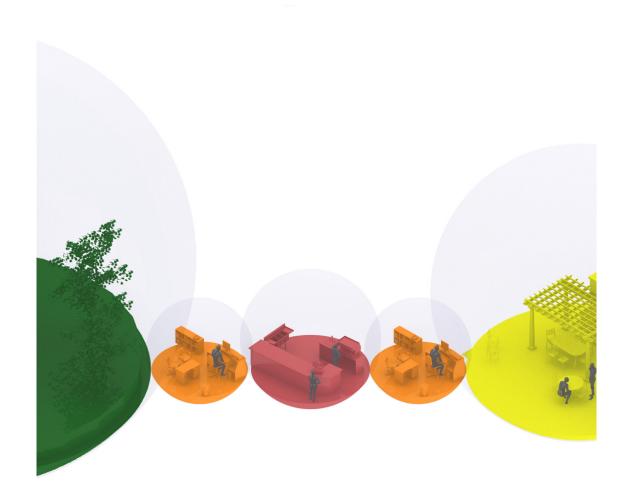
Lunching in the park



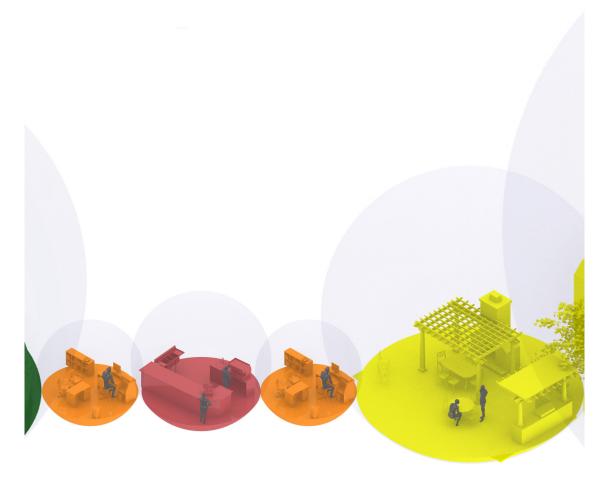
Back to work



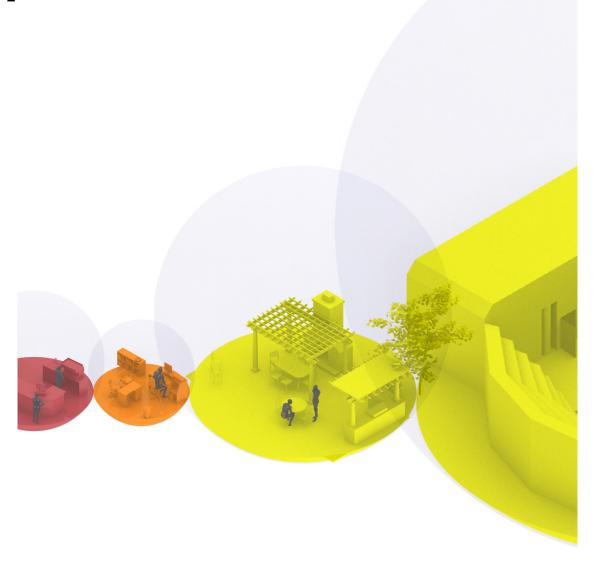
This time a latte



Working on the desk



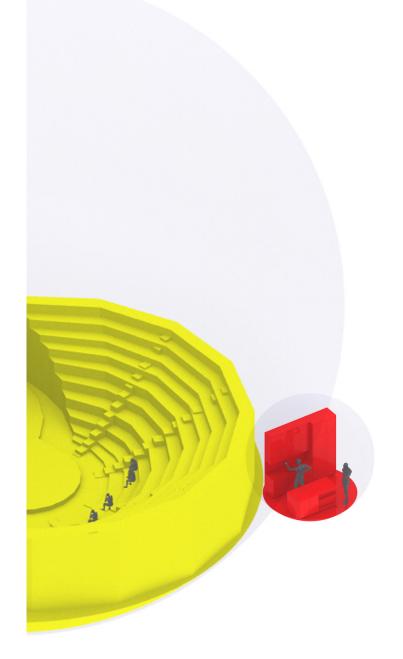
Dinner at the bbq place



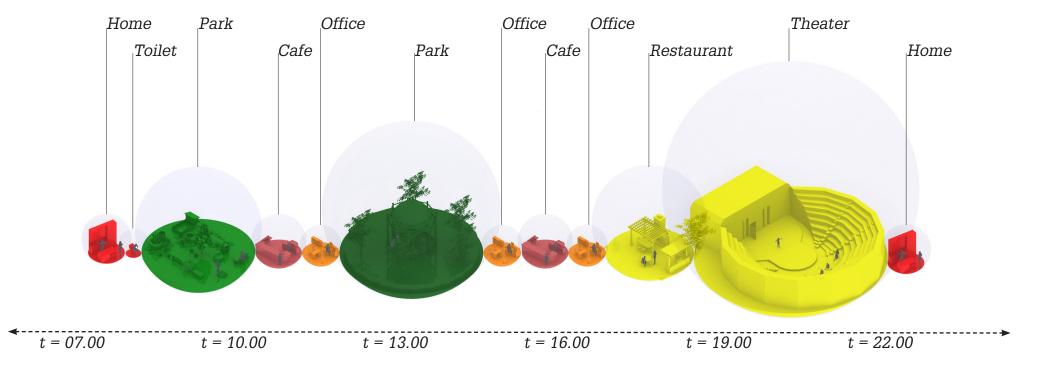
Visiting the theatre



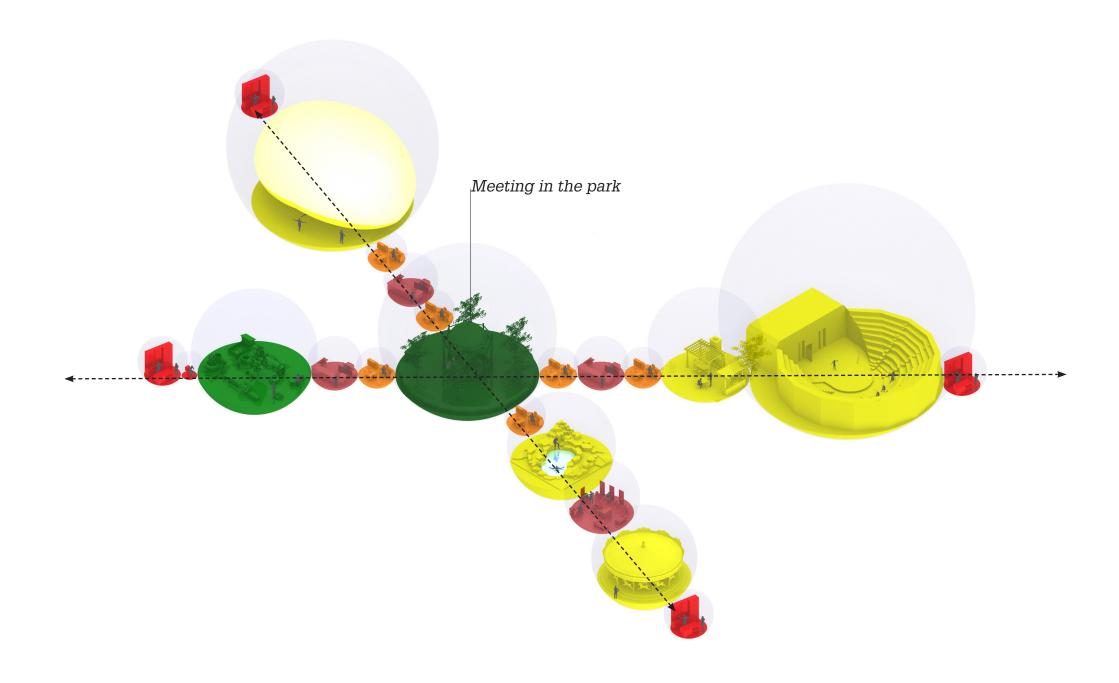
Back home



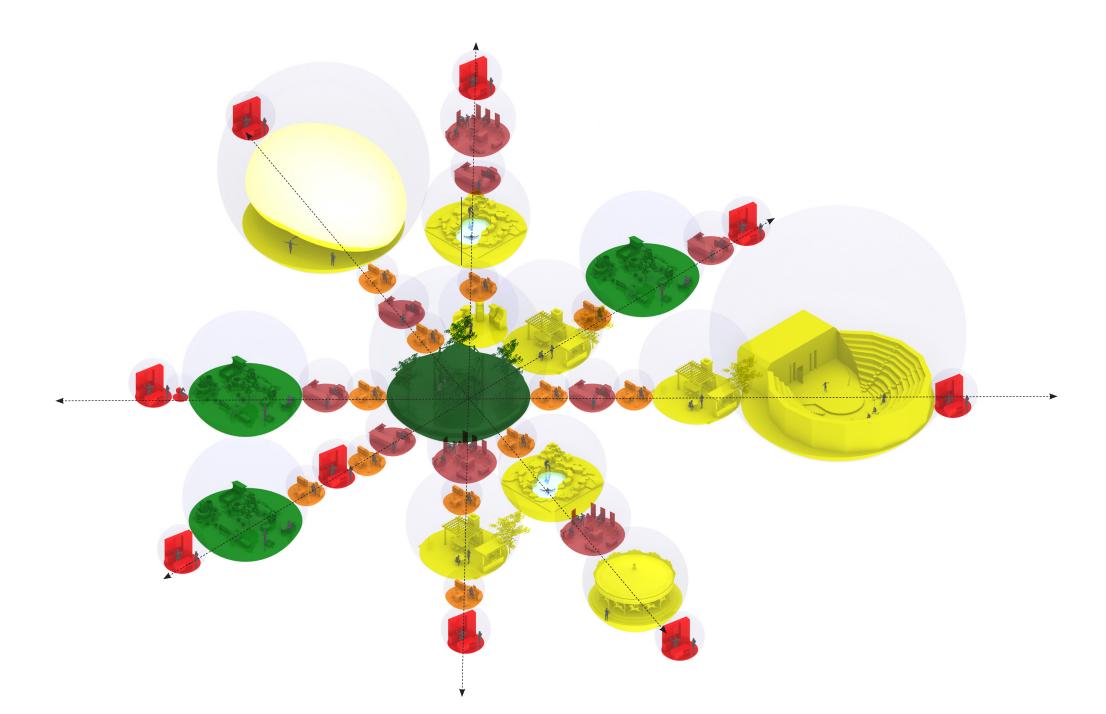
3.2 Timeline of activities and places



3.2 Meeting of two persons

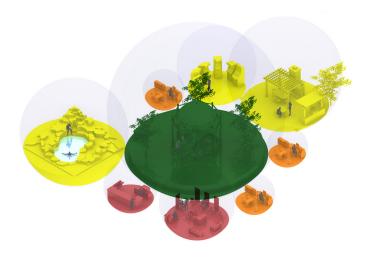


3.2 Meeting of four persons



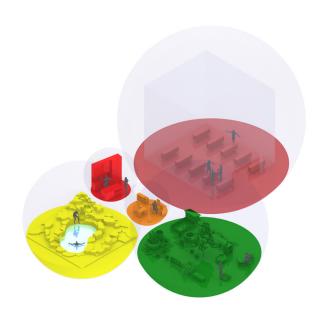
3.2 Cluster at 13:00

Lunch time in the city



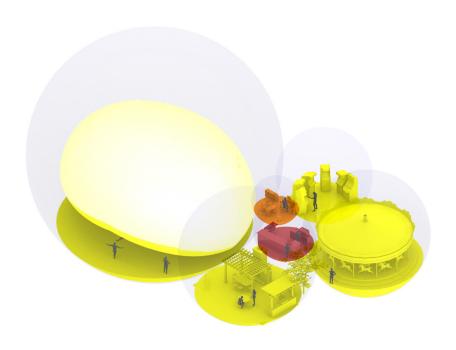
3.2 Cluster at 17:00

Finishing up work

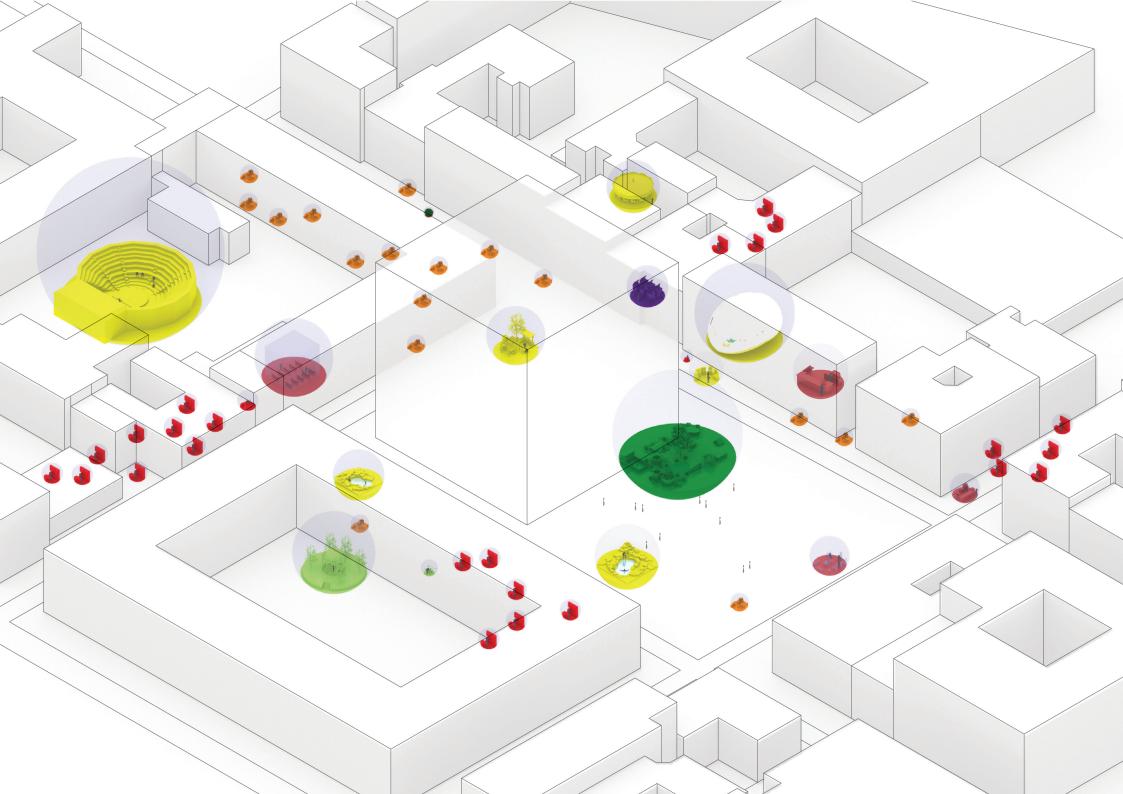


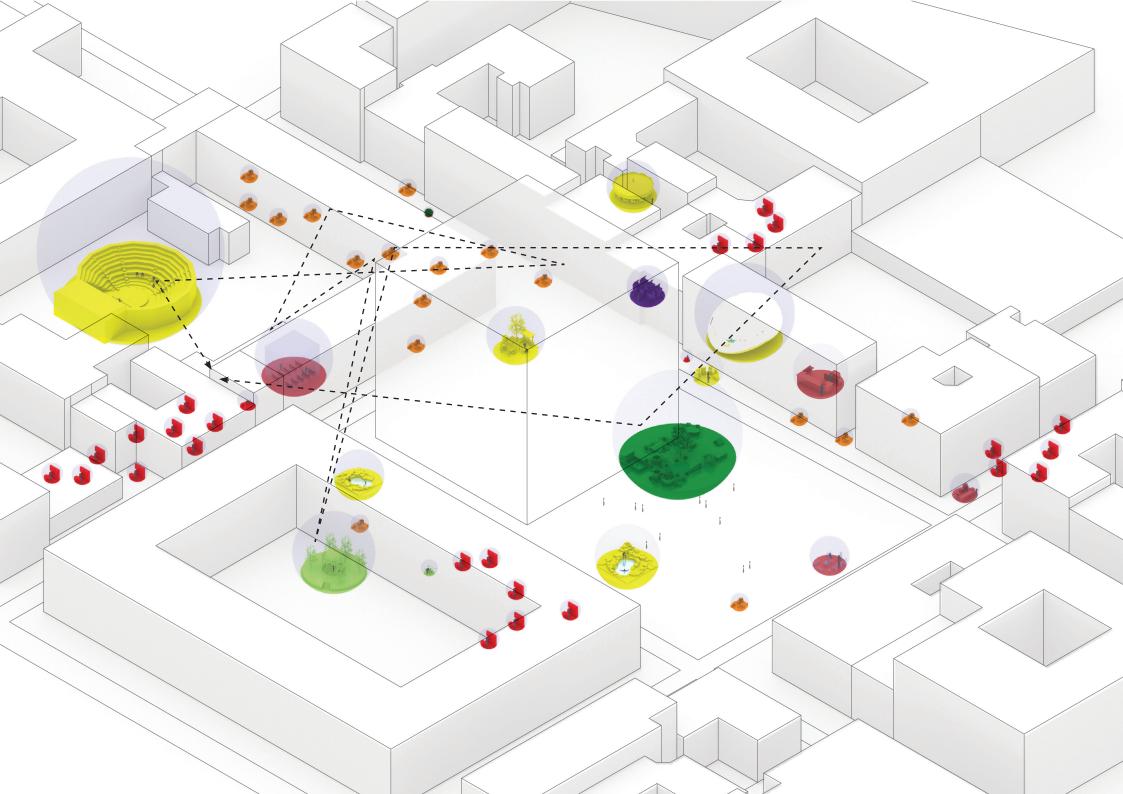
3.2 Cluster at 19:00

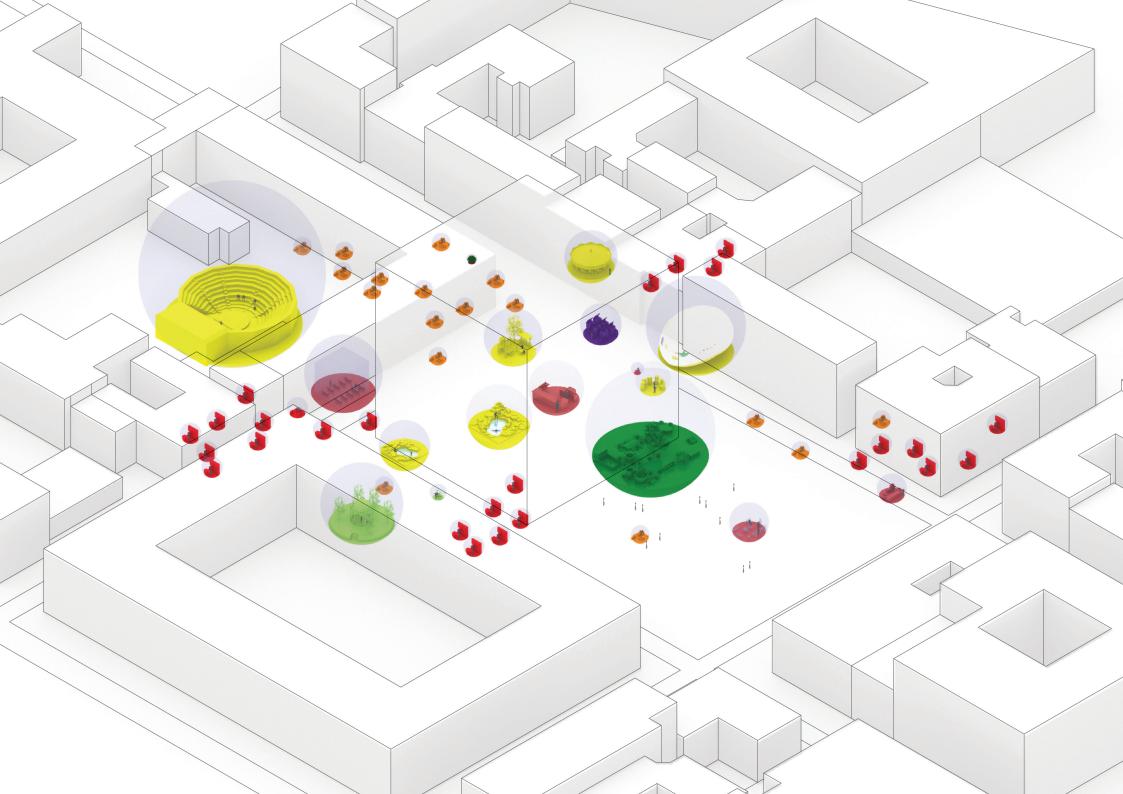
Leisure clusteres in the city



We are not structured in place, but over time



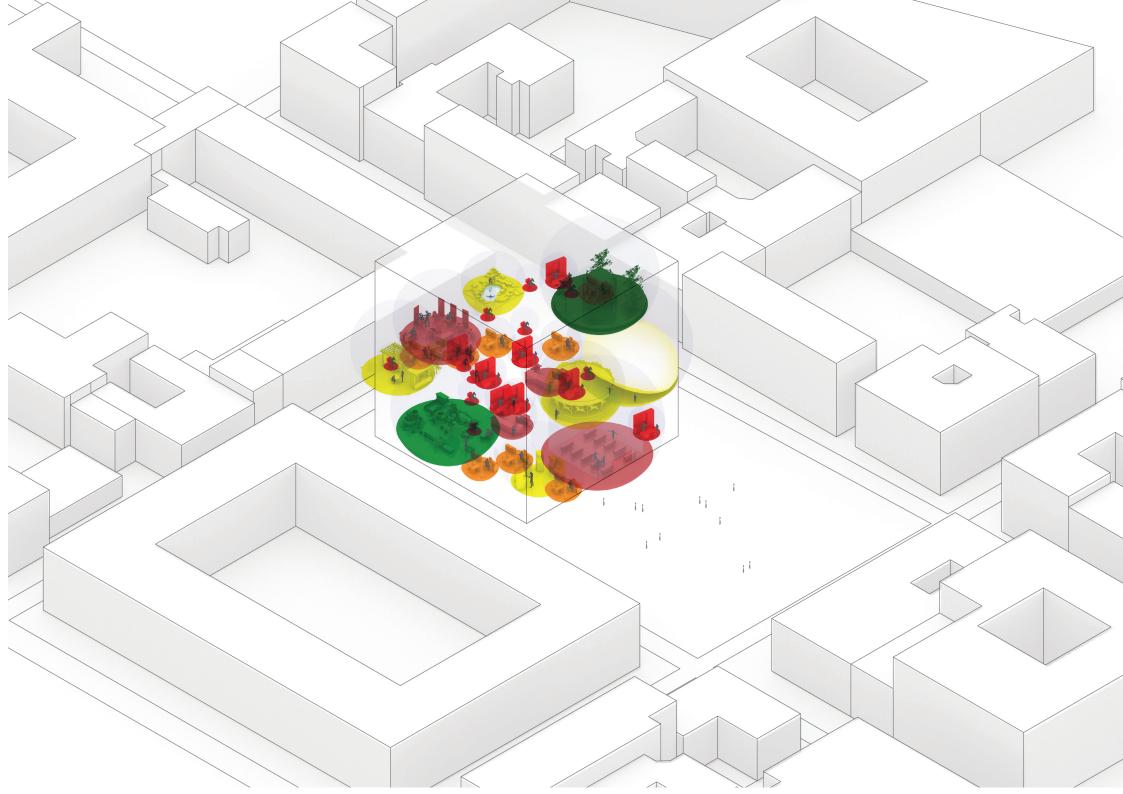


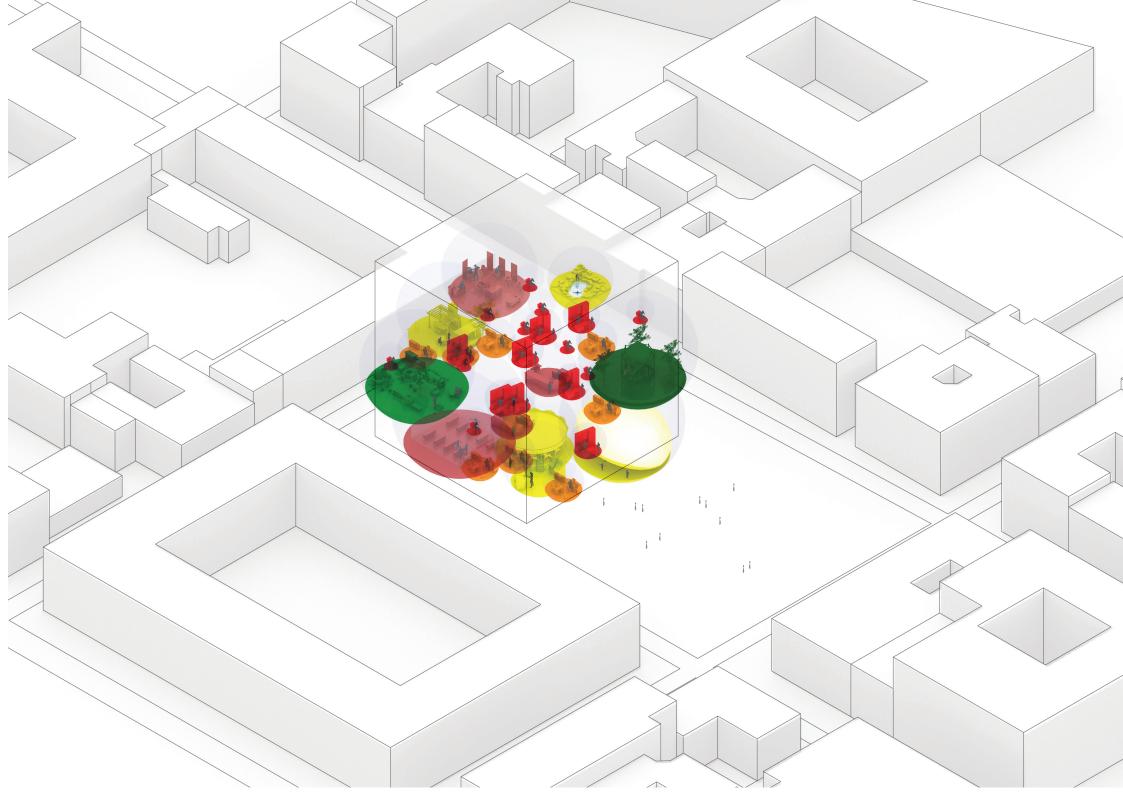


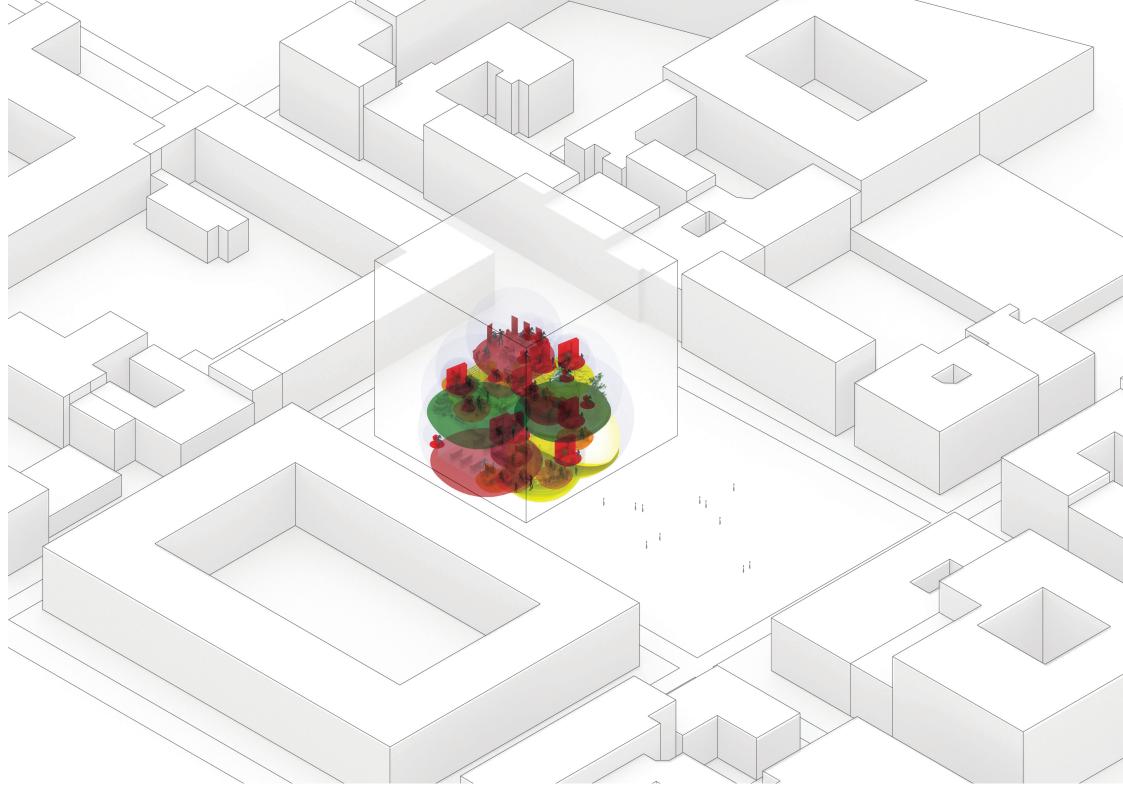


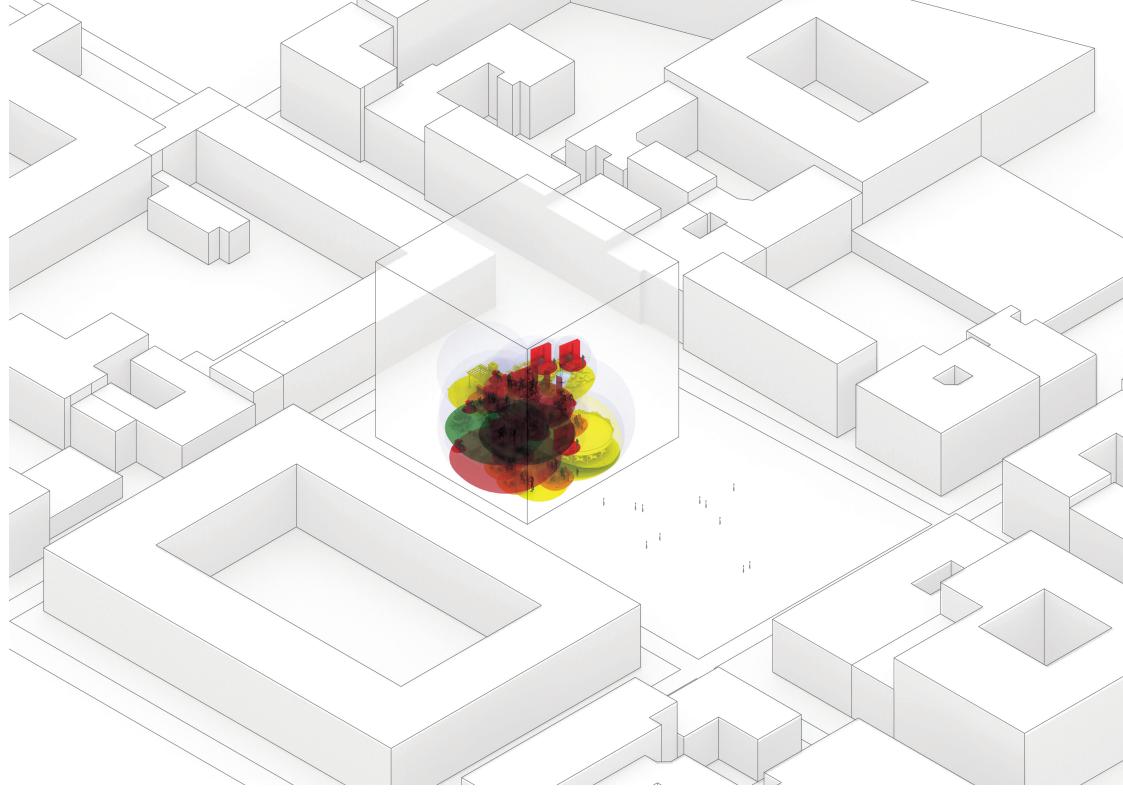


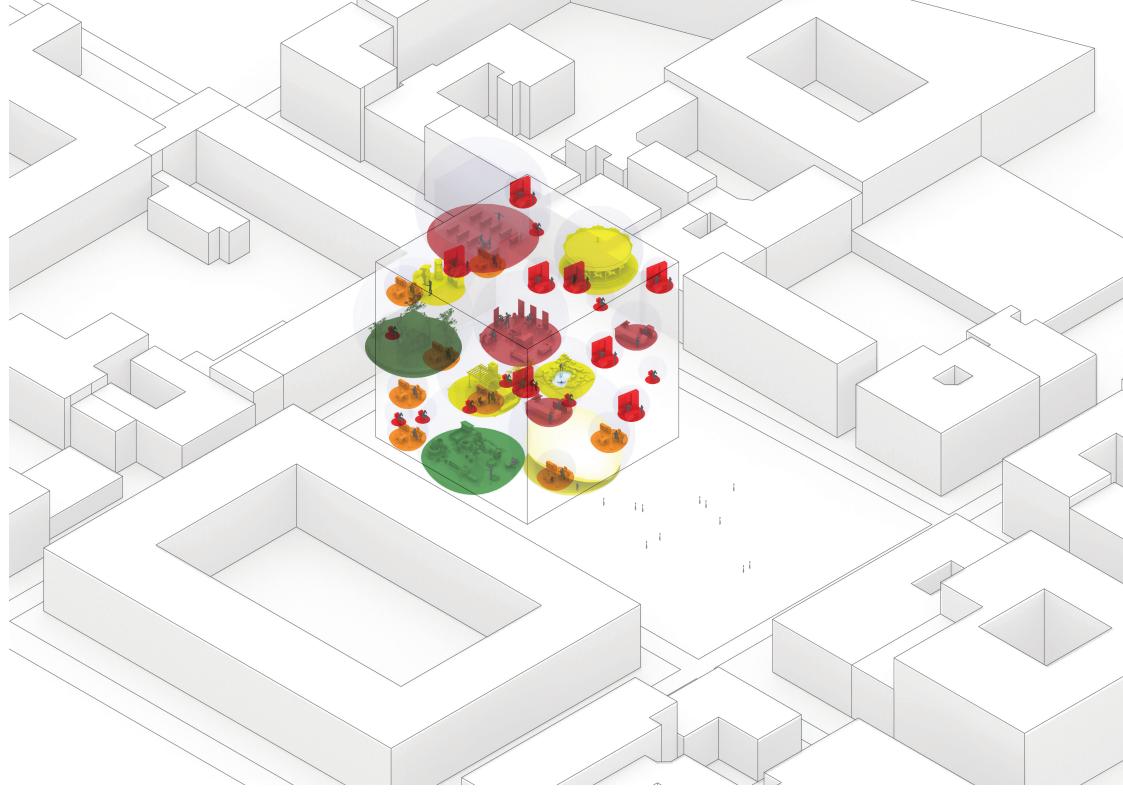












4.0 A Mixing Tool

- 1. The dream
- 2. 24-hours

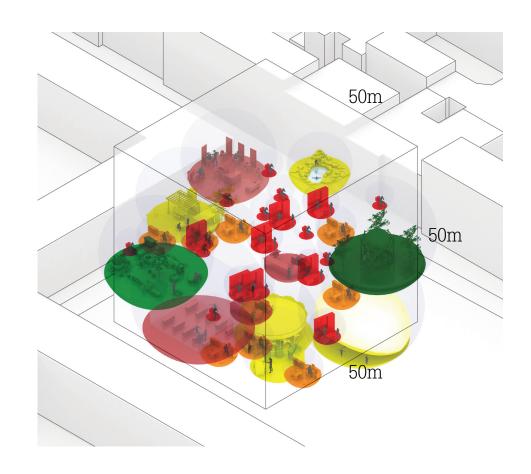
4.1 The Mixing Tool

A theoretical framework

Can we **intensify** the city? Can the city be more **Agile**? Can we be more clever with its **Utilities**, **Productivity** and perhaps even **Biodiversity**?

To give these questions a theoretical framework we propose a co-housing block of 50m x 50m x 50m. A scale between the city and architecture. The block has a program of co-housing with communal functions, a Population and their Timelines. As Berlin is the Co-housing city of Europe we choose to land the block here and obsorb the Berlin statistics. To challenge this we increase the density 4 times.

The tool will focus on maximising mixity and minimising proximity



4.1 The Mixing Tool

A theoretical framework

Program

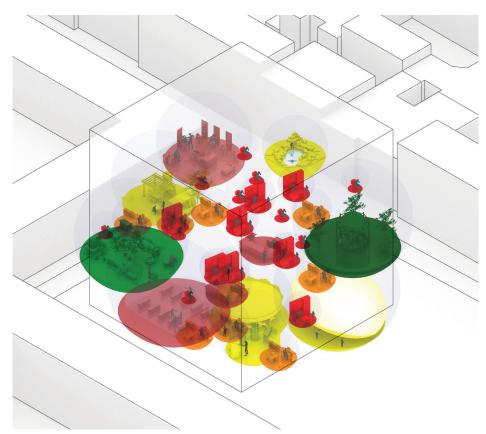
Co-Housing + Public functions

Inhabitants

Statistics of berlin x 4

Timelines

Based on American time survey



Mixity

Intensity of program connections

Proximity

The distance to program

Sphere Packing

Sphere packing is a method used to measure the tightness of a configuration of spheres, or the proportion of space occupied by the sphere. In this way sphere packing allows at the same time to add porosity to the system.

4.2 Program

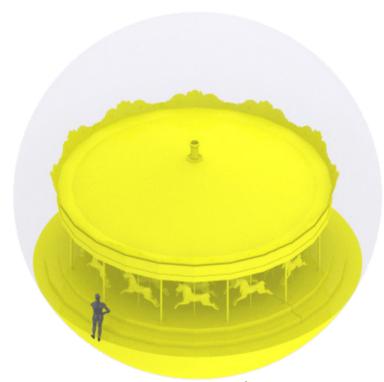
Co-Housing mixed with public functions



Function

Houseing
Office
Leisure
Commercial
Food
Sports
Green space

4.2.1 Analysing conditions_Leisure



Requirements

Carousel

Type: M Radius: 5.5m Area: 95m² Daylight: Yes
Sundilght: Yes
Acoustics: Nuisance
Porosity: Outside
Temperature: Outside
Safety: Medium
Privacy: No

Swimmingpool

Type: M Radius: 5.5m Area: 95m²

Requirements

Daylight: Yes
Sundilght: Yes
Acoustics: Porosity: Outside
Temperature: Outside
Safety: High
Privacy: Medium

4.2.1 Analysing conditions_Leisure



Requirements

Arcade

Type: S Radius: 2.5m $20m^2$ Area:

Daylight: No Sundilght: No Acoustics: Nuisance Porosity: No

Temperature:

Normal Medium Safety: No Privacy:

Open air theatre

Type: XLRadius: 15m 700m² Area:

Daylight: Sundilght:

Requirements

Acoustics:

Porosity:

Temperature: Safety:

Outside Not too cold

Yes

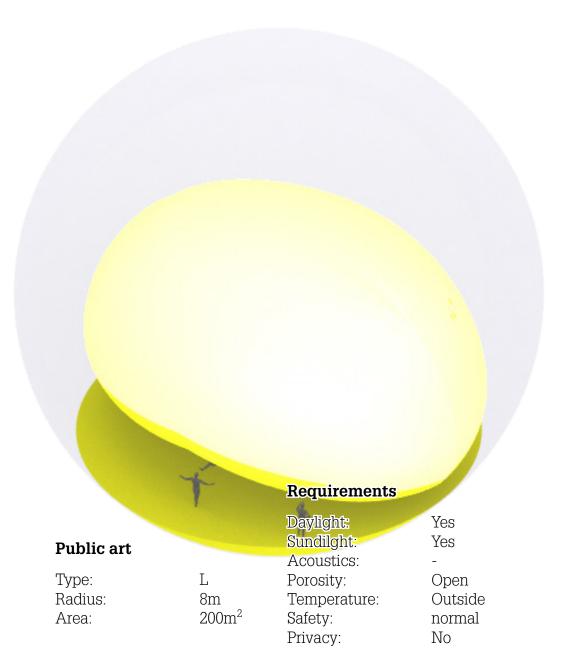
Yes

Nuisance (outside)

Medium Privacy: Low

4.2.2 Analysing conditions_Leisure/Office

A total of 30 Office spaces





S

2m

 $12.5m^{2}$

Office

Type:

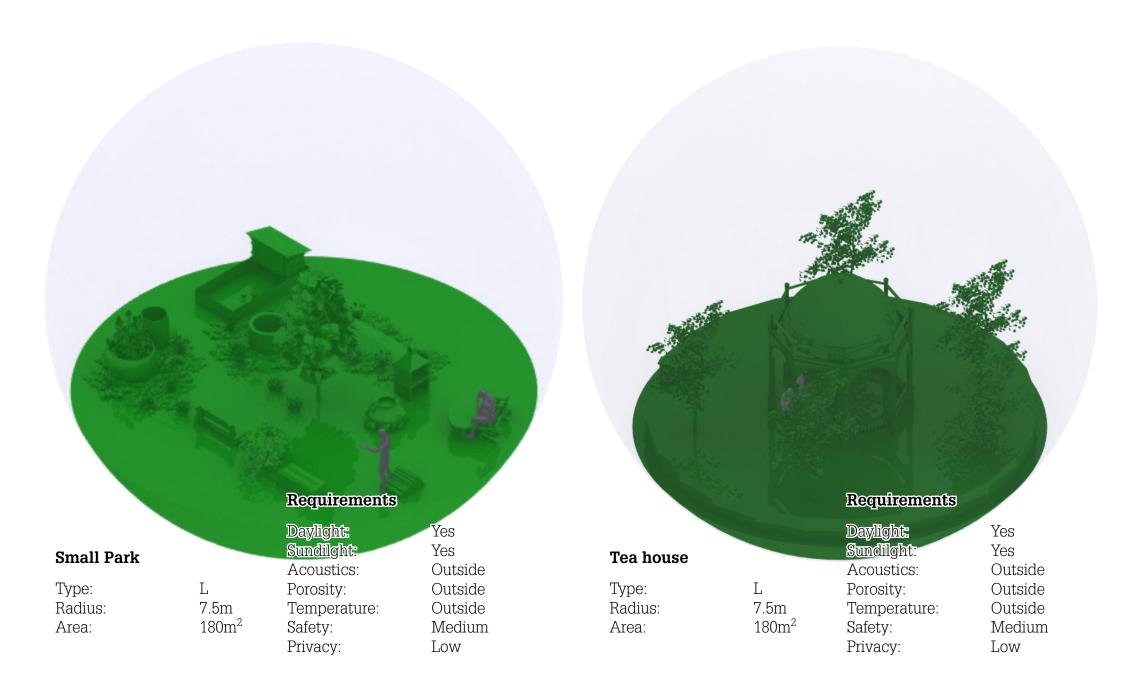
Area:

Radius:

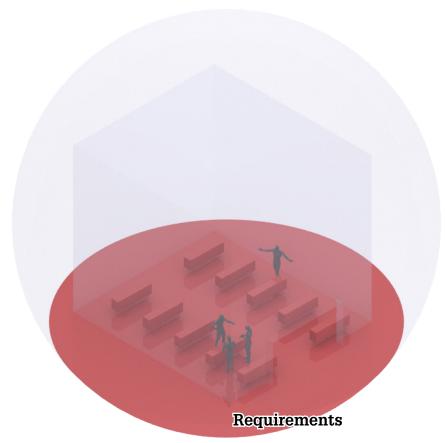
Requirements

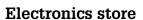
Daylight: Yes
Sundilght: No
Acoustics: Scilent
Porosity: Medium
Temperature: Normal
Safety: Medium
Privacy: Medium

4.2.3 Analysing conditions_Green



4.2.4 Analysing conditions_Commercial





Type: L Radius: 7.5m Area: 180m 2

Daylight: Yes
Sundilght: No
Acoustics: Normal
Porosity: Medium
Temperature: Normal
Safety: Medium
Privacy: Low

Espresso bar

Type: S
Radius: 3m
Area: 28m²

Requirements

Daylight: Yes
Sundilght: No
Acoustics: Medium
Porosity: Medium
Temperature: Normal
Safety: Medium
Privacy: Low

4.2.4 Analysing conditions_Commercial





Requirements

| Hairdresser | |
|-------------|--|
| Type: | |

Type: M Andius: 4m Area: $50m^2$

Daylight: Yes
Sundilght: No
Acoustics: No
Porosity: Me
Temperature: No
Safety: Me
Privacy: Me

Yes No Normal Medium Normal Medium Medium Medium

R
Type:
Radius:
Area:

1 S *F* T

M

5m

 $78m^2$

Daylight: Yes
Sundilght: No
Acoustics: Normal
Porosity: Medium
Temperature: Normal
Safety: Medium
Privacy: Medium

Requirements

4.2.5 Analysing conditions_Housing





| _ | | | _ |
|-----|-------|------|-------|
| Re | quir | 'em | ents |
| 110 | q uii | CILL | CTTON |

| Bedroom | |
|---------|------------------|
| Type: | S |
| Radius: | 3.0m |
| Area: | 28m ² |

| Daylight: Sundilght: Acoustics: Porosity: Temperature: Safety: Privacy: | Yes No Scilent Avarage Cool High High |
|---|---|
|---|---|

Requirements Daylight:

| | | Daylight: | Yes |
|-----------|--------|--------------|---------|
| Bathroom | | Sundilght: | No |
| Datinooni | | Acoustics: | Medium |
| Type: | S | Porosity: | Avarage |
| Radius: | 1.7m | Temperature: | Avarage |
| Area: | $9m^2$ | Safety: | High |
| | | Privacy: | High |

4.2.5 Analysing conditions_Housing

Total of 64 Dwellings





| | Requirements | | | | Requirements | |
|---|---|---|-----------------------------------|------------------------------|---|--|
| Kitchen Type: S Radius: 1.5m Area: 7m² | Daylight: Sundilght: Acoustics: Porosity: Temperature: Safety: Privacy: | Yes Yes Normal Medium Avarage Medium Medium | Toilet Type: Radius: Area: | S 1.0m 3m ² | Daylight: Sundilght: Acoustics: Porosity: Temperature: Safety: Privacy: | Yes/No No Medium Medium Normal Medium High |
| | 1 11 v a.c. y . | IVIOGIGIII | | | 1 11 V CLO y . | 111911 |

4.3 Inhabitants

Viarity of users of the Mixing Block

Demography

| Population: | 246 |
|-------------|-----|
| Males: | 121 |
| Female: | 125 |
| Children: | 36 |

Age groups in size

| 0 - 6 | 14 |
|---------|----|
| 6 - 14 | 18 |
| 15 - 24 | 25 |
| 24 - 45 | 75 |
| 46 - 65 | 68 |
| 65+ | 47 |

Households

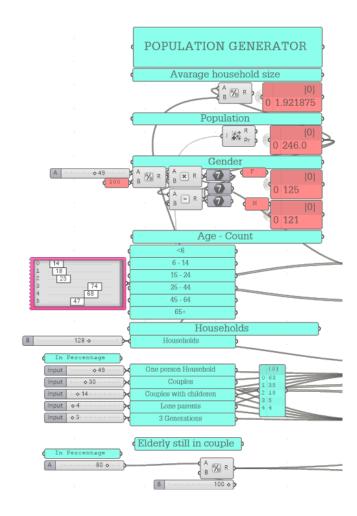
| Household size: | 1.9 |
|-------------------------|-----|
| Families with children: | 27 |

Type in %

| One person | 49 |
|-------------------|----|
| Couple | 30 |
| Couple with child | 14 |
| Lone parents | 4 |
| 3 Generations | 3 |

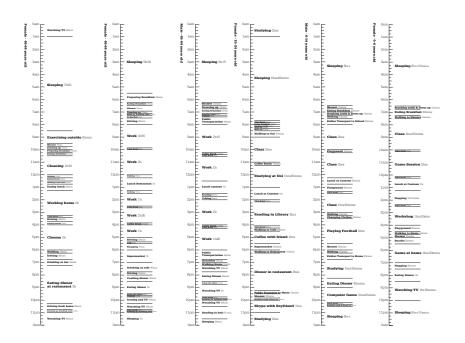
Work relations

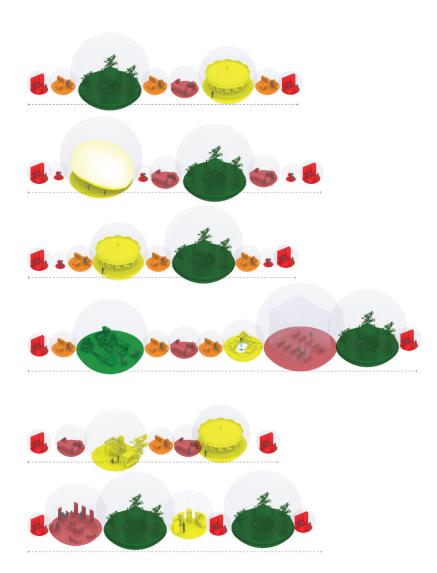
Student: 19% Office: 32%



4.4 Timelines

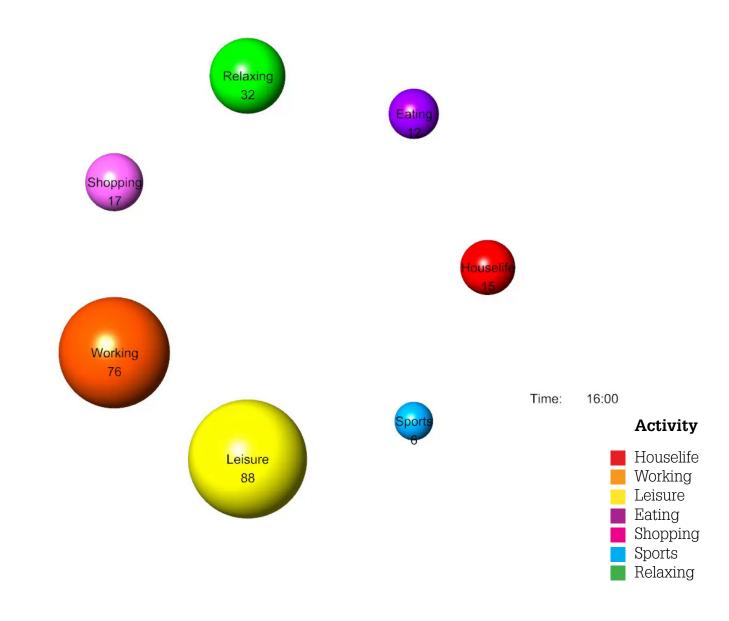
Viarity of activities during the day



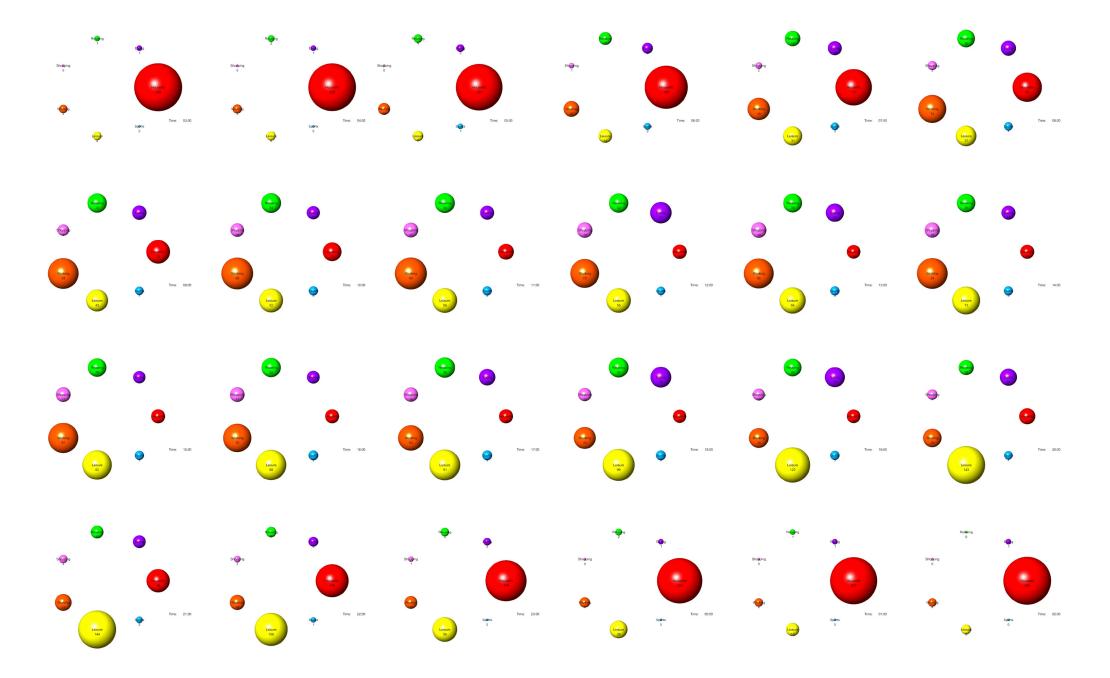


4.5 Test_01: Activities in volume

Visualised in spheres

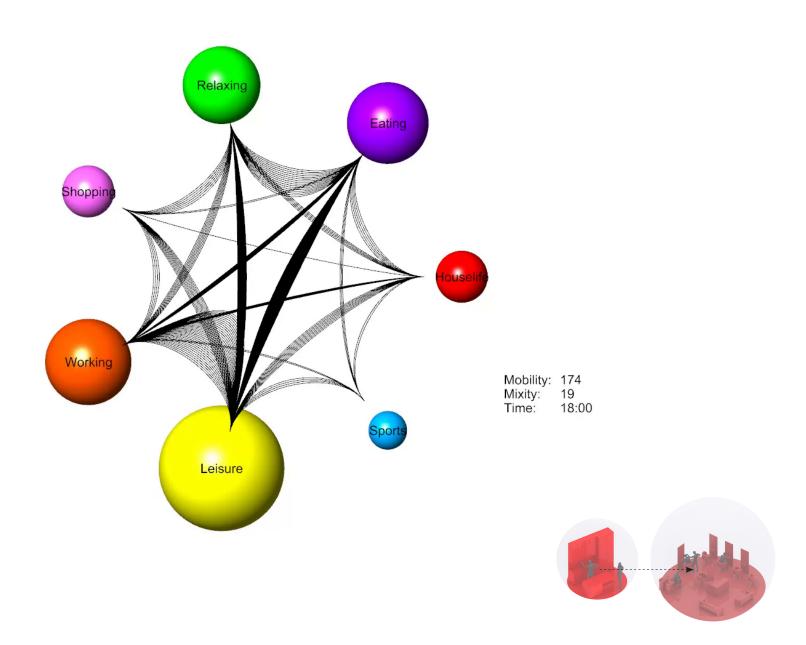


4.5 Test_01: Activities in volume

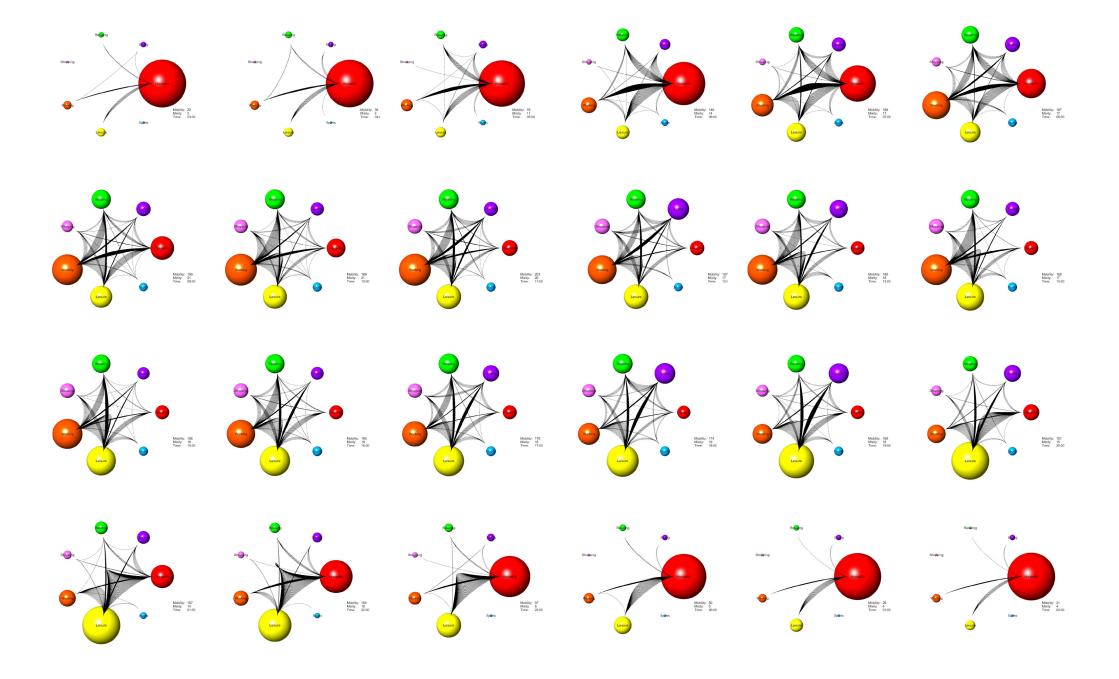


4.5 Test_02: Activities Network

Passing from one activity to the next

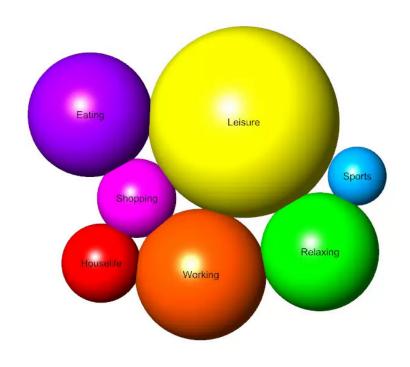


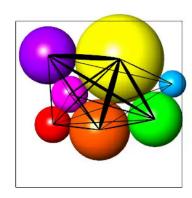
4.5 Test_02: Activities Network



4.5 Test_03: Activities proximity network

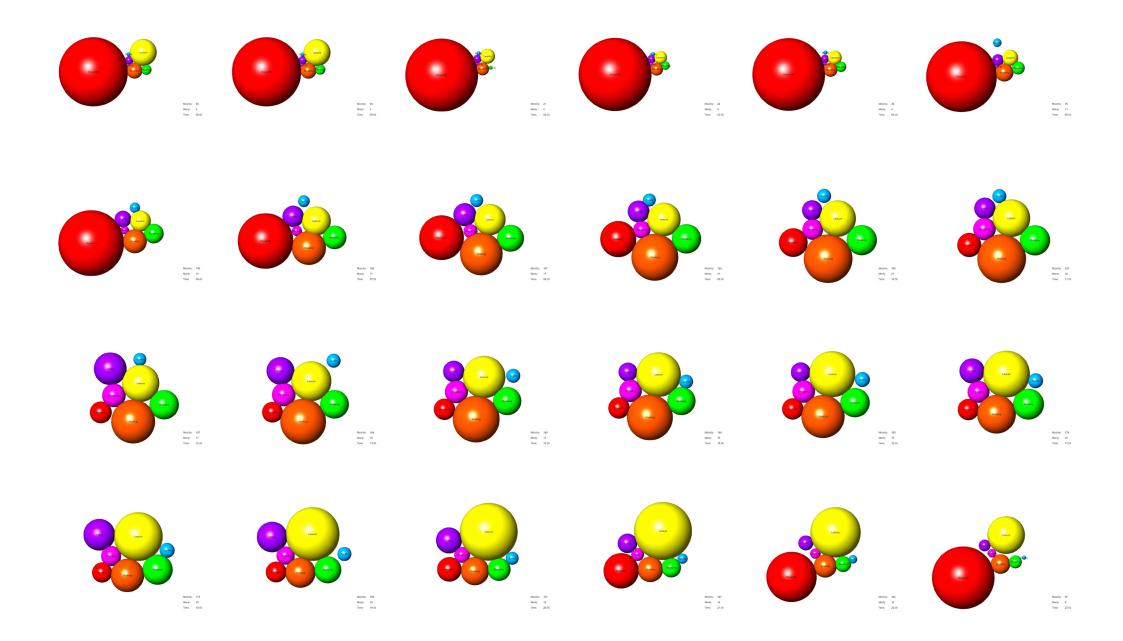
Adding a value to the network lines



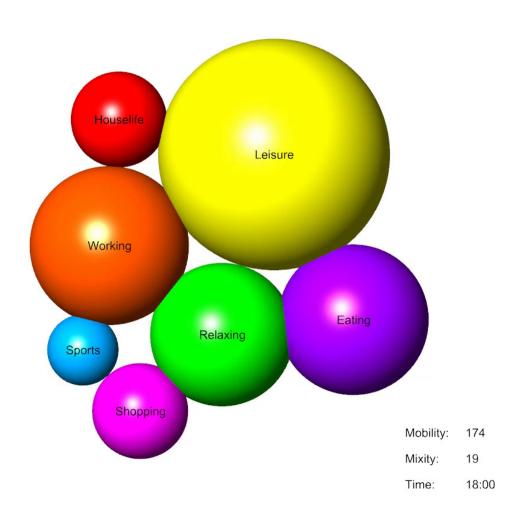


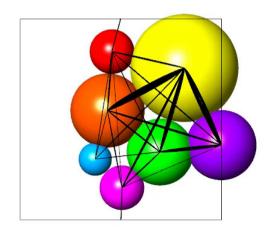
Mobility: 174
Mixity: 19
Time: 18:00

4.5 Test_03: Activities proximity network

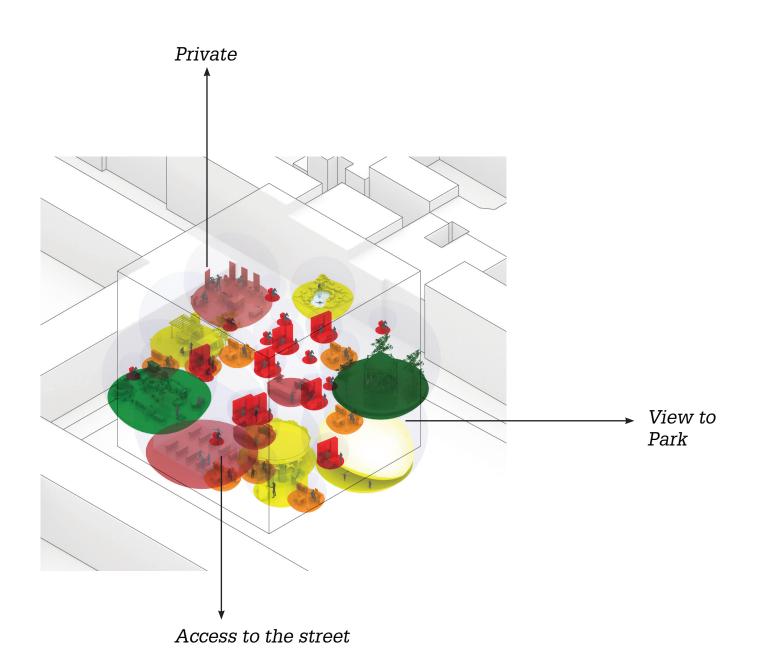


4.5 Test_04: Activities proximity network with site constraints

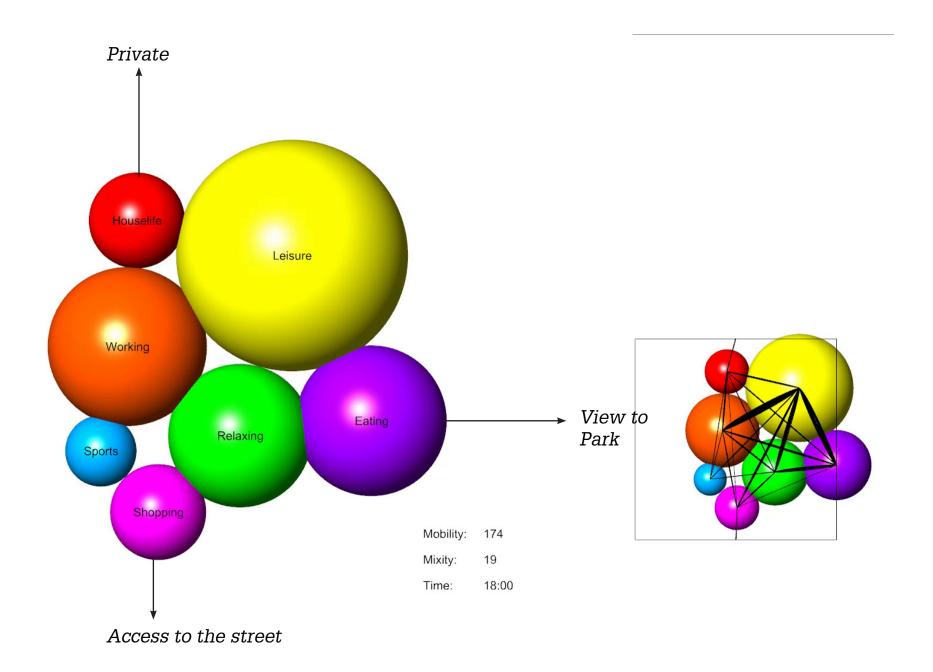




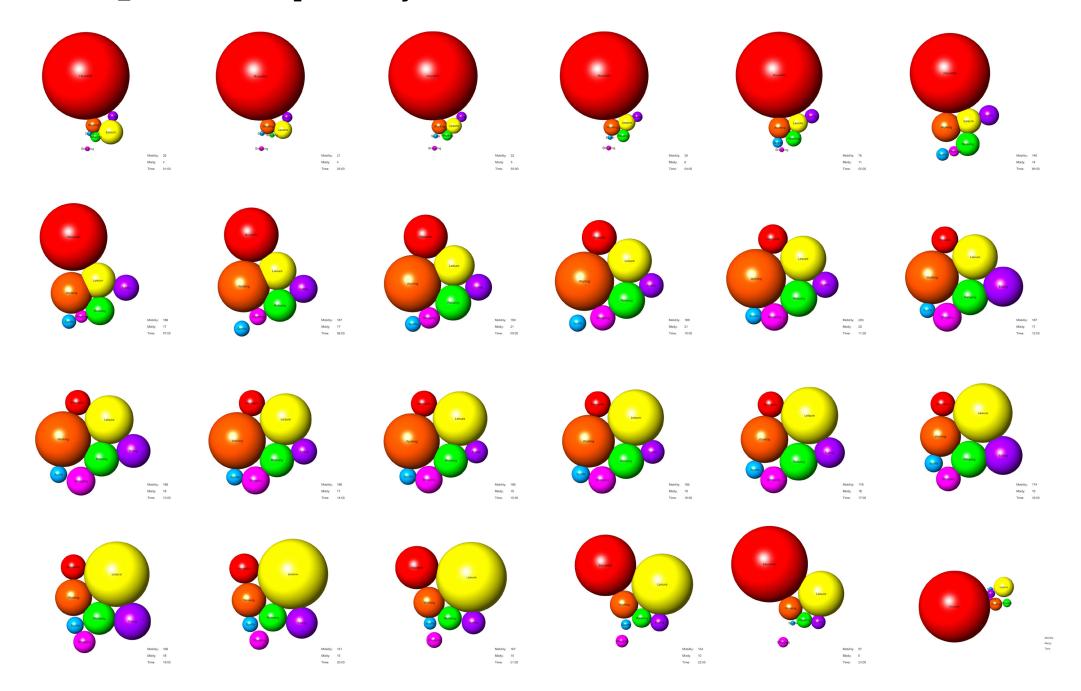
4.5 Test_04: Activities proximity network with site constraints



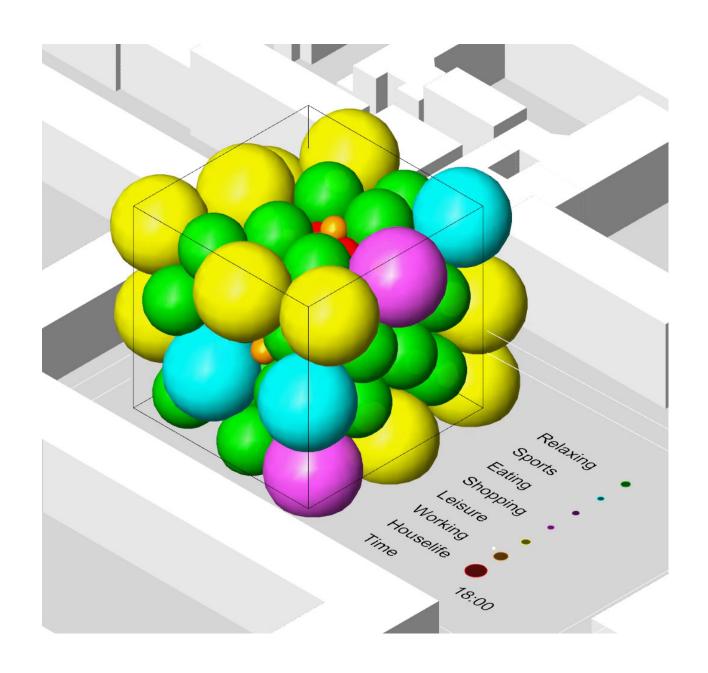
4.5 Test_04: Activities proximity network with site constraints



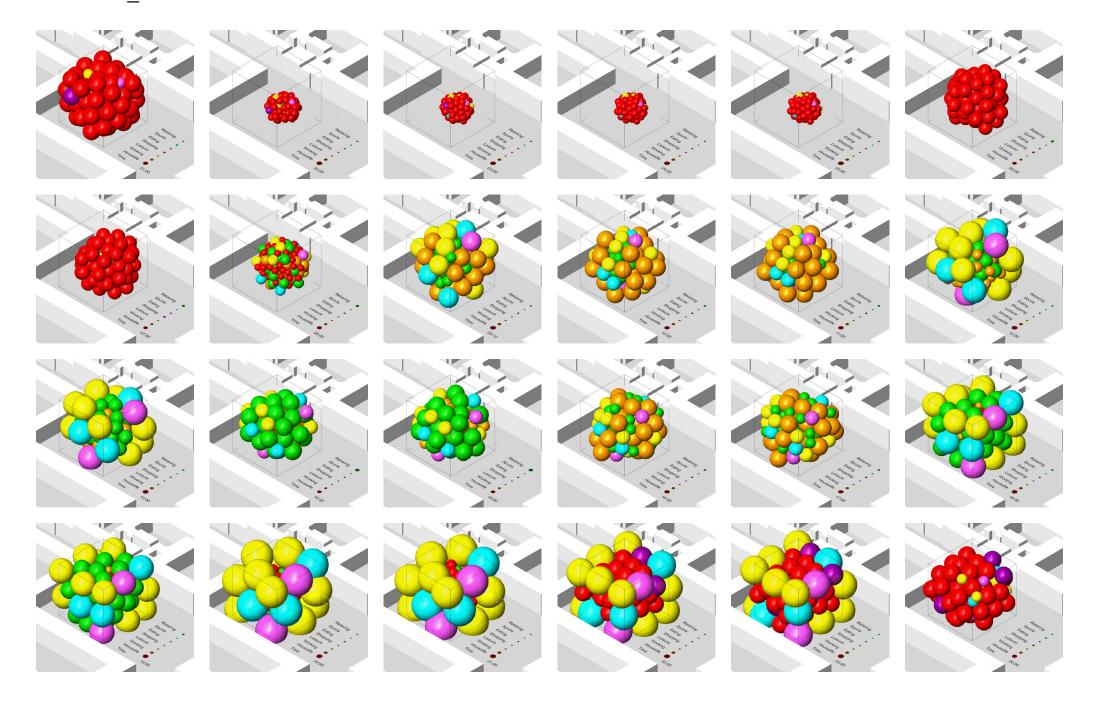
4.5 Test_04: Activities proximity network with site constraints



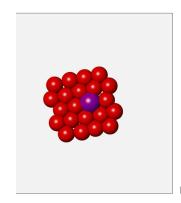
4.5 Test_05: Activities volume on site

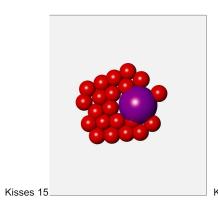


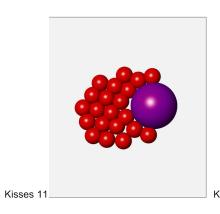
4.5 Test_05: Activities volume on site

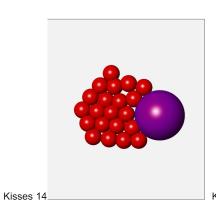


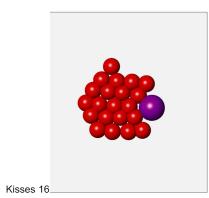
4.6 Push and dragBehaviour of the sphreres





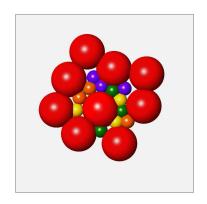


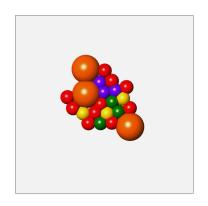


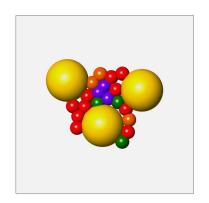


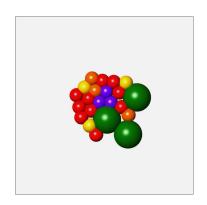
Kisses 16

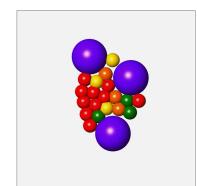
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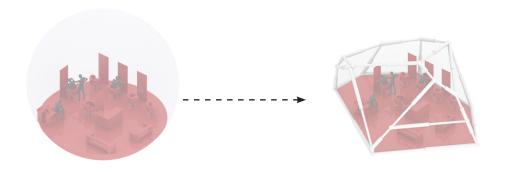






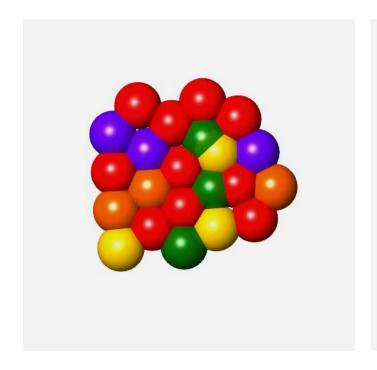


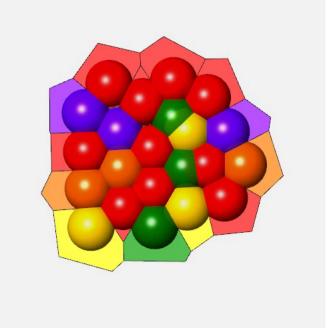
4.7 ApplicationsPotentials of the Mixing tool

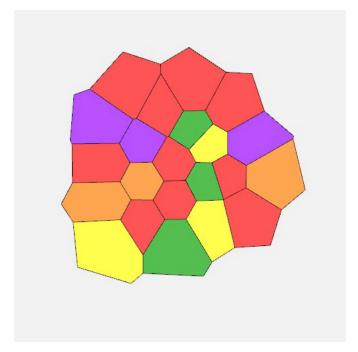


5.0 *Materialization*

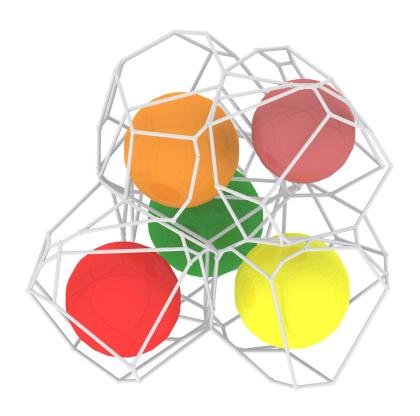
5.1 Sphere pack to voronoi 2D

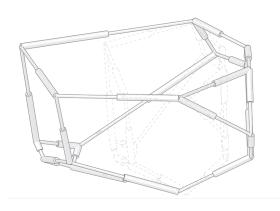






5.1 Voronoi Pistons





5.1 Sphere to voronoi 3D













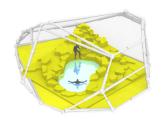






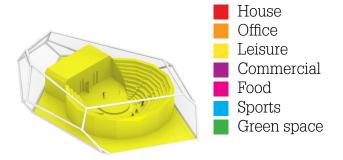


Function

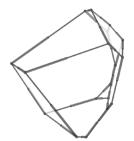








5.1.1 Shrinking Cell







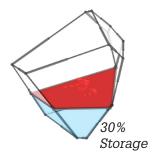


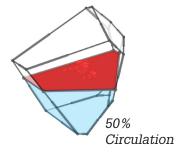


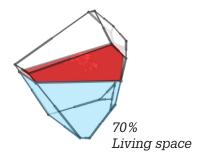
5.1.2 Rising floor

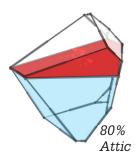
Shperes represent the activities



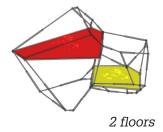


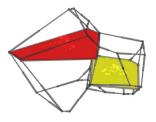


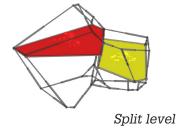


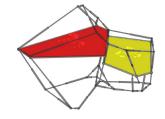


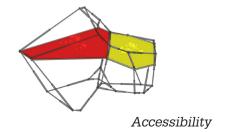
5.1.3 Accessibility











5.1.4 Multiple floors







5.2.1 Changing shape *Voronoi to cube*











5.2.2 Changing shape Cube to L-shape:14 Pistons











5.2.3 Changing shapeCube to cross-shape: 20 Pistons





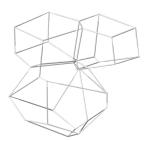






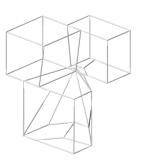
5.2.4 Changing shape *Voronoi to flat surface*



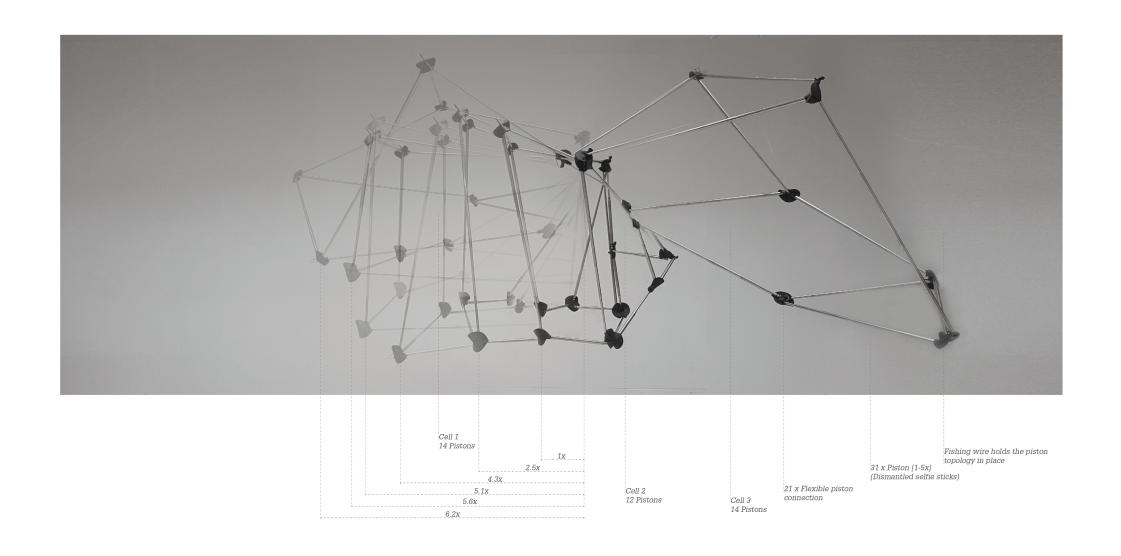




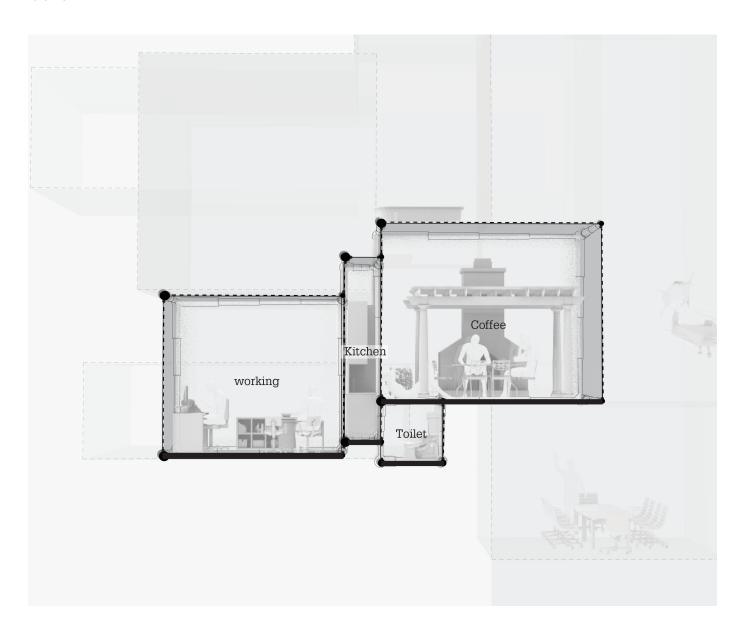




Physical testing: Shrinking cell
Piston network suspended on wires
3 Voronoi Cells

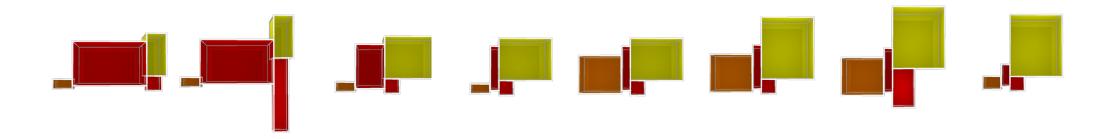


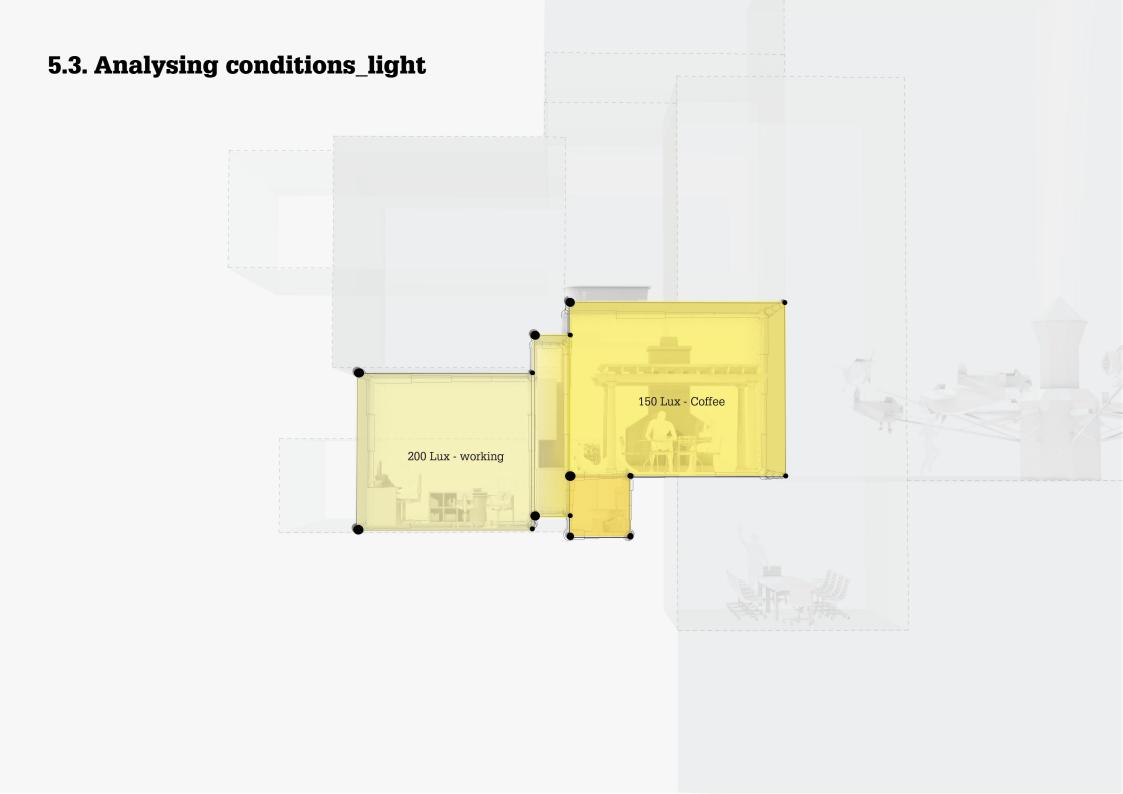
5.3. KissingFour cells over 24 hours



5.3. Kissing

Four cells over 24 hours

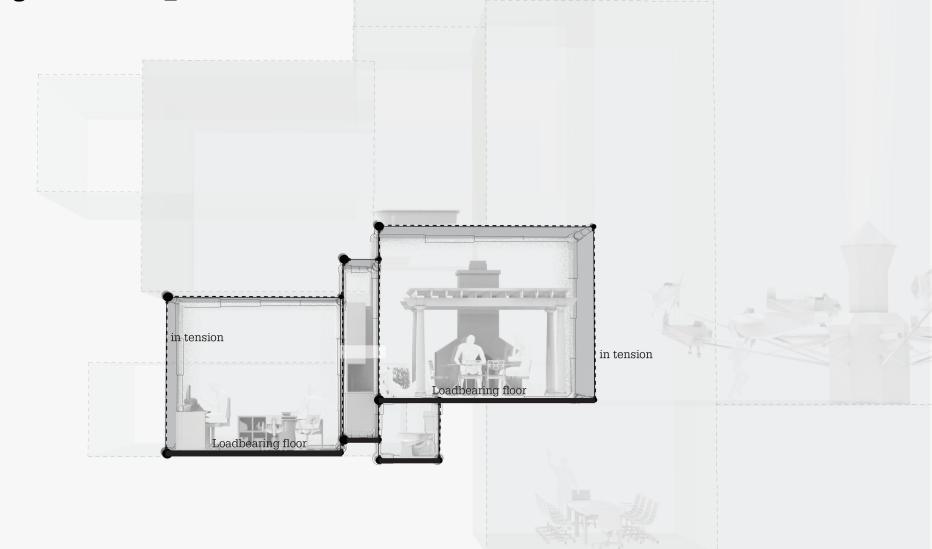


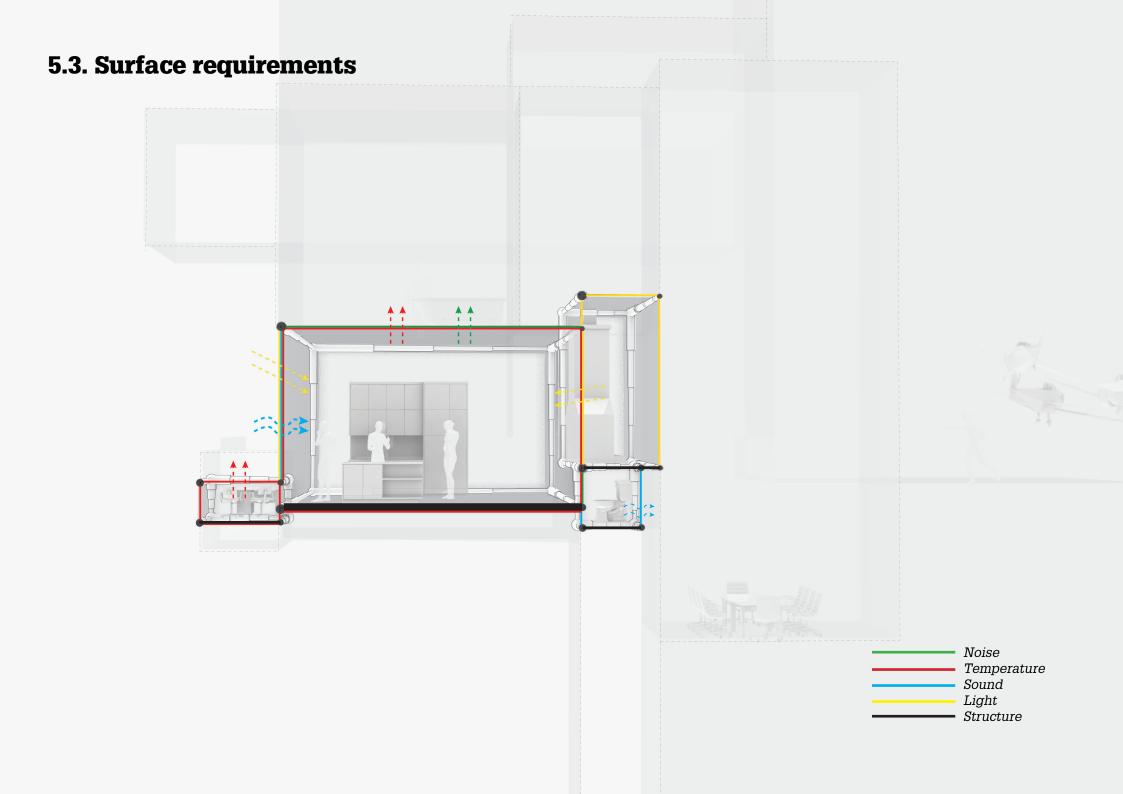


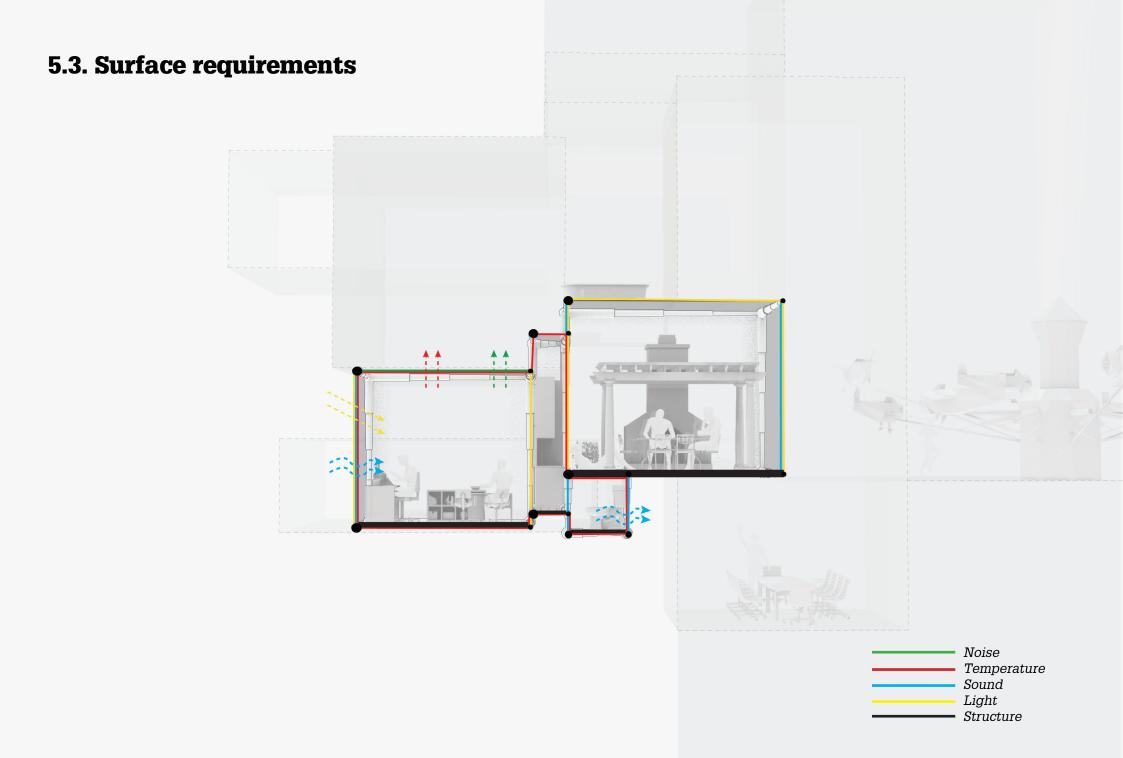


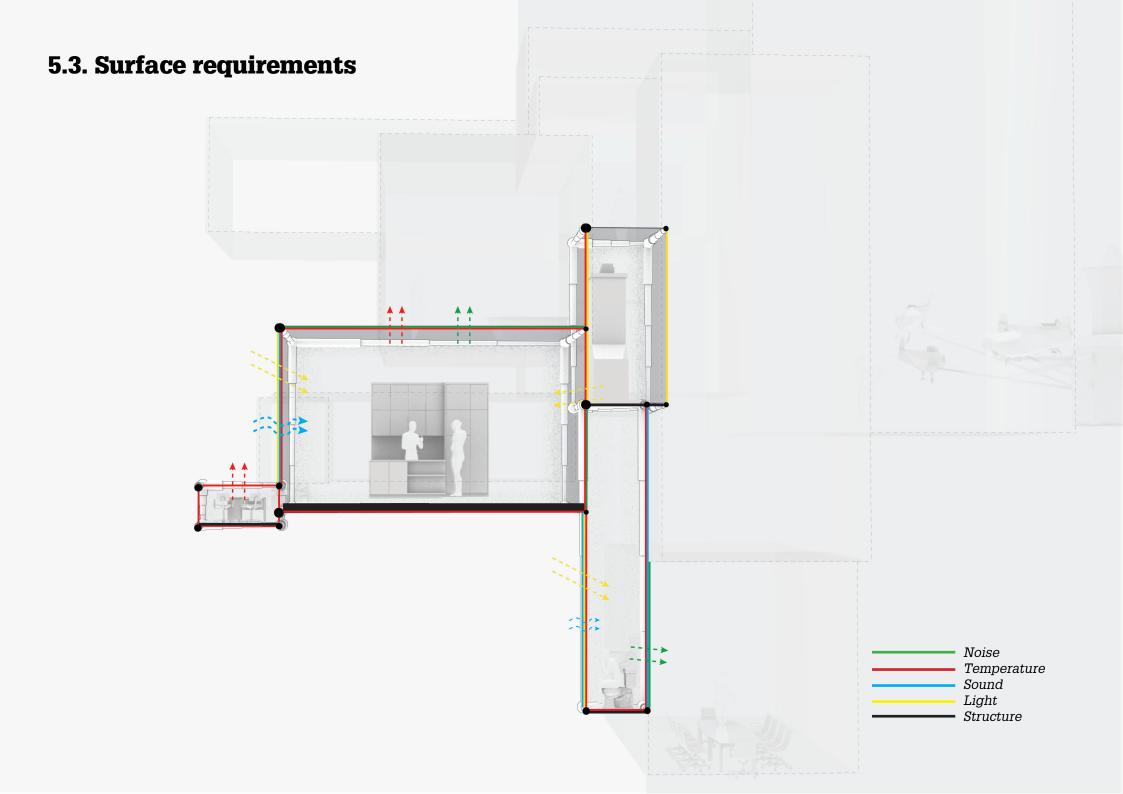
5.3. Analysing conditions_ 20°C - Coffee 23°C - working

5.3. Analysing conditions_structure





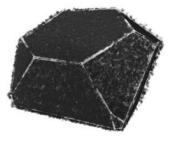


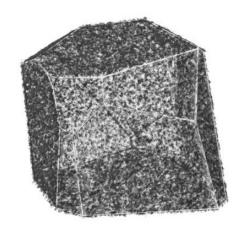


5.4. TemperatureFur fabric increases or decreases insulation value







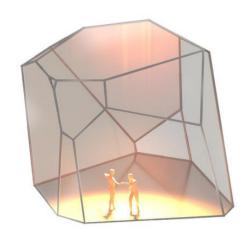


5.4. LightStretchable latex allowing more or less light to pass through

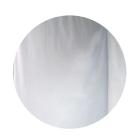








5.4. ReflectivityReflective fabric stretches and becomes translucent





5.4. Accoustics

Foldable panels, dampening the sound

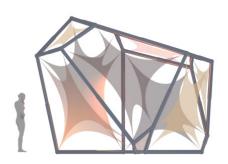


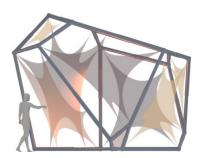


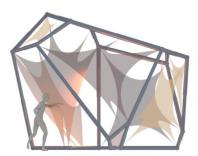




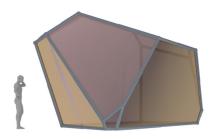
5.4. Accessibility *Membrane tensioned at the cornes, allowing accessibility*

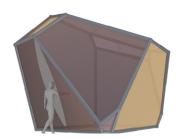






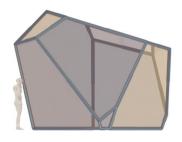
5.4. AccessibilityPassing through the membrane by splitting







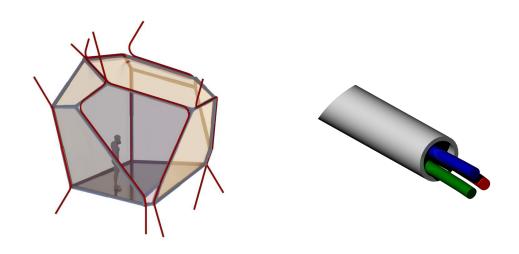
5.4. AccessibilityPassing through the membrane by sliding







5.4. PipingFlexible piping inside the hollow pistons.



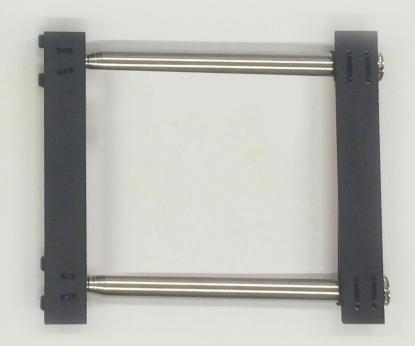
5.4. Sensors

Sensors inside the cell allows for adjusting the required volume and safety





5.5 Only pistons *Prototype of 2 connected pistons*



5.5 Only pistonsPrototype of 2 connected pistons



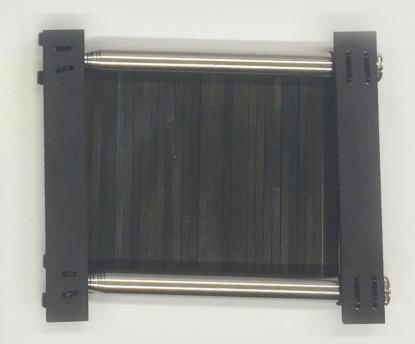
5.5 Only pistonsPrototype of 2 connected pistons



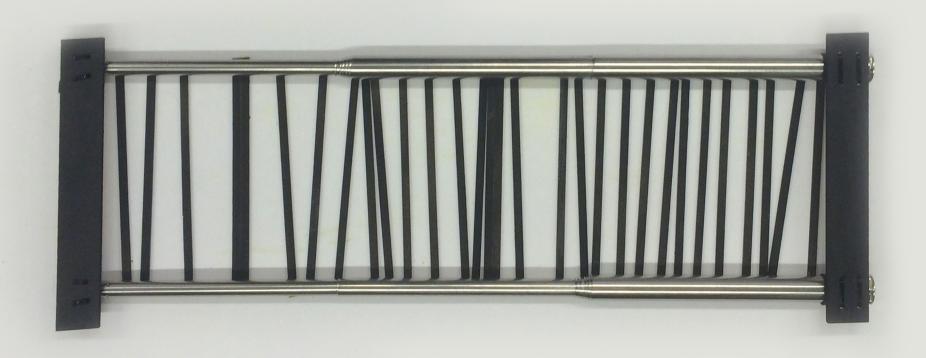
Accessibility/Openness

Sliding sticks



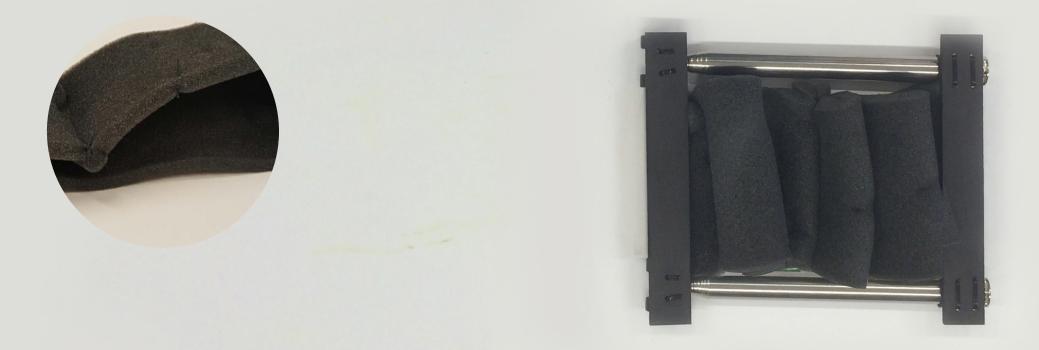






Accoustics/Insulation

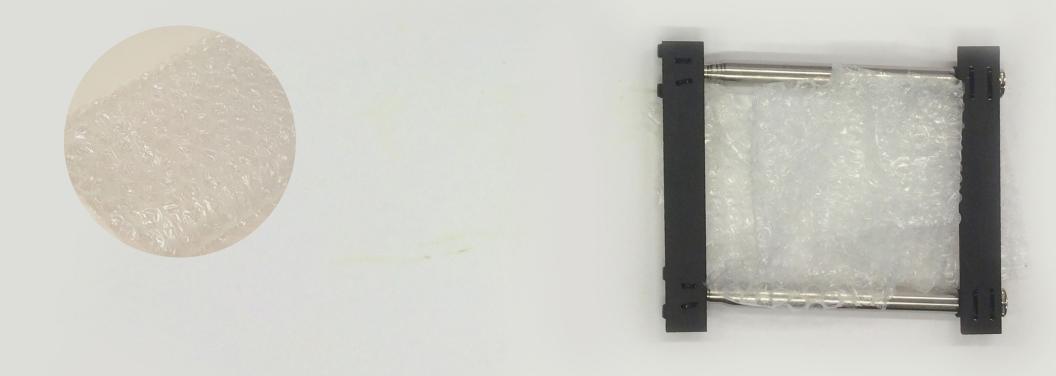
Pleating foam







Transparancy *Bubble wrap folding*

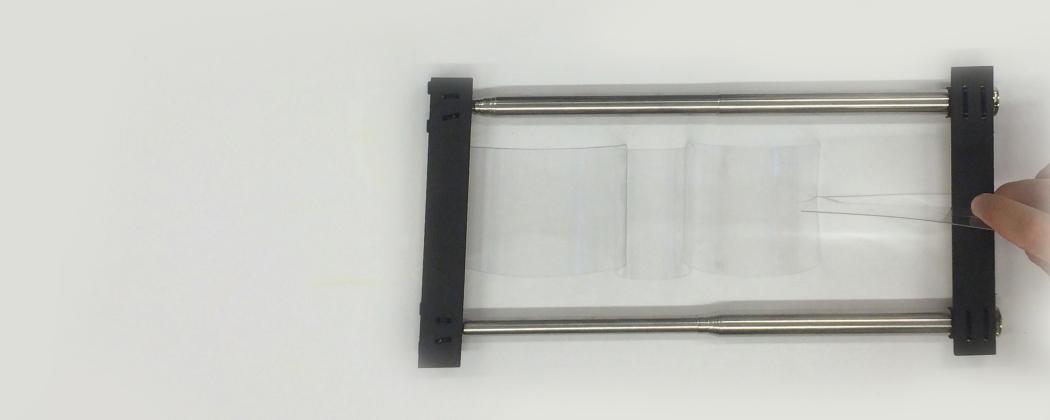


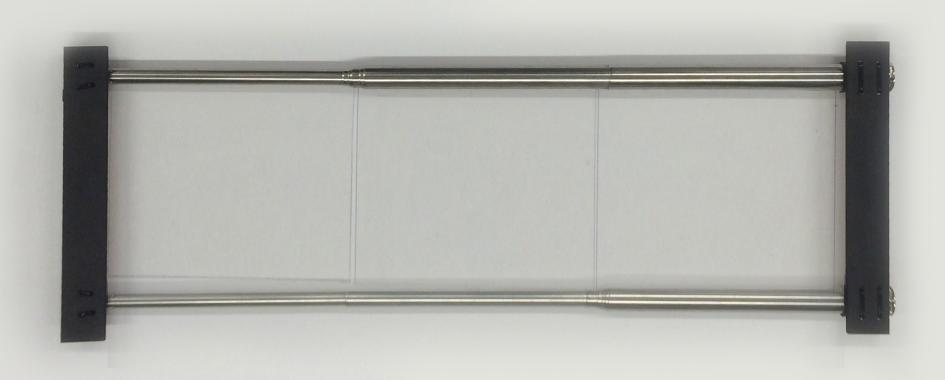




TransparancySliding sheets/ Bending sheets

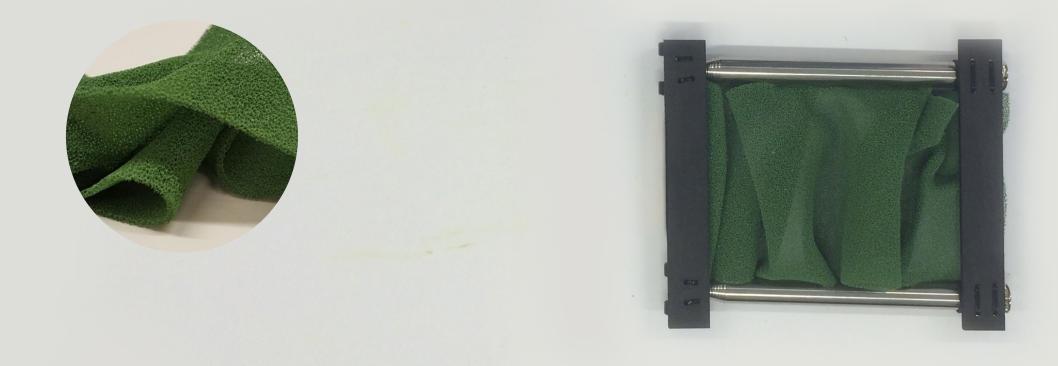






Accoustics/Insulation

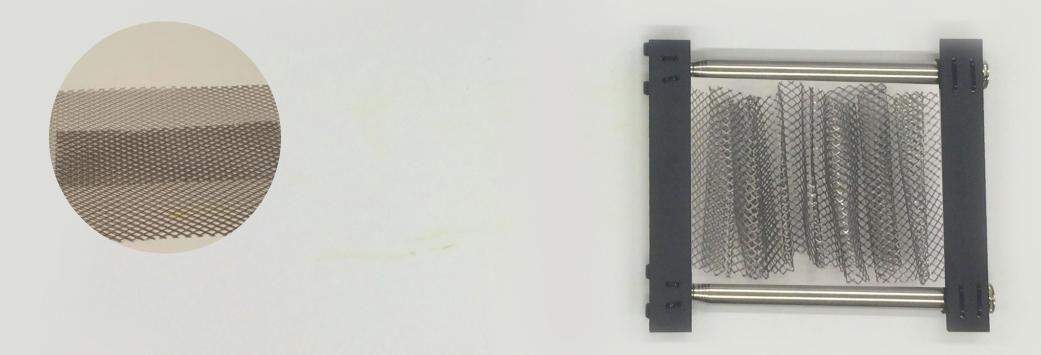
Pleating porous fabric

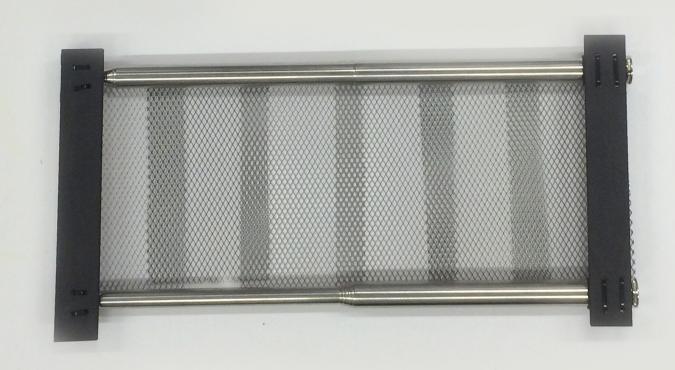


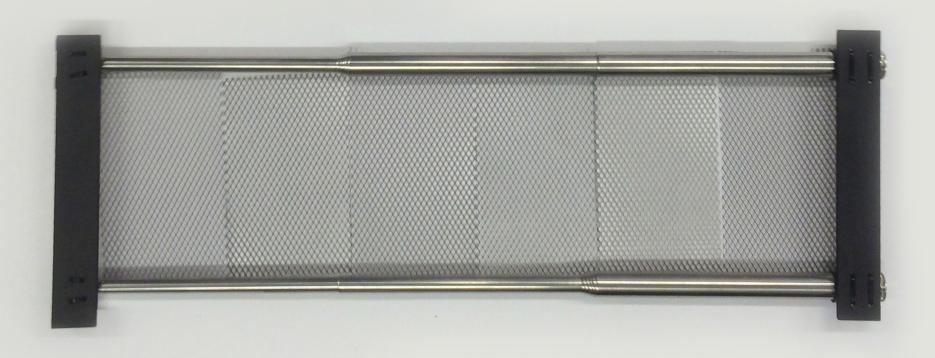




Transparancy/structure *Prototype of 2 connected pistons*



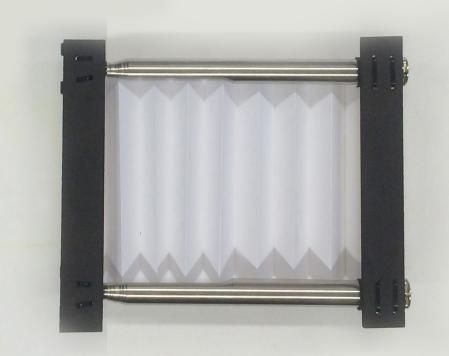




Accoustics

Folding panels









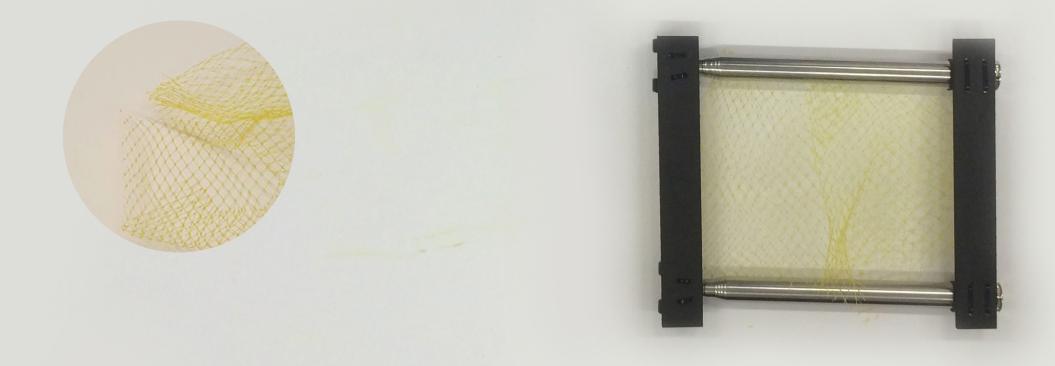
TransparancyStretching penty fabric

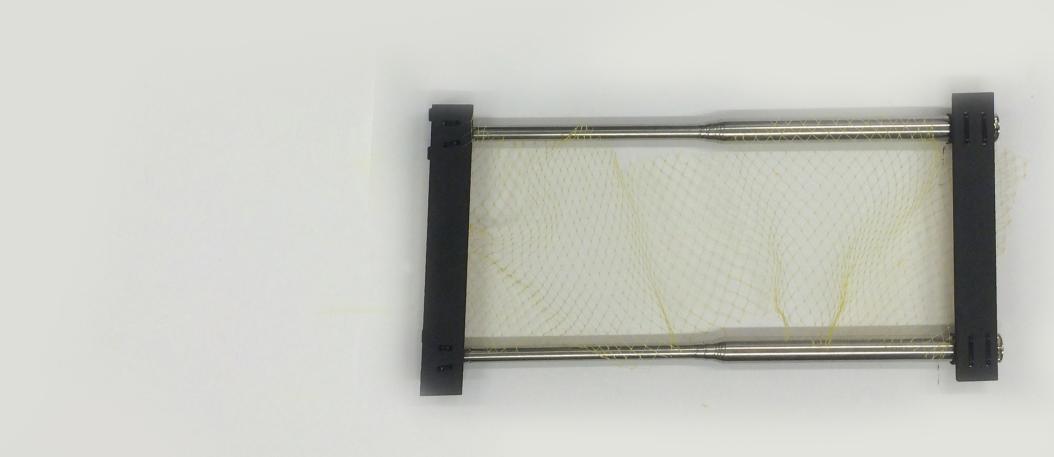






Transparancy *Pleating mesh*







Biodiversity?

hanging green

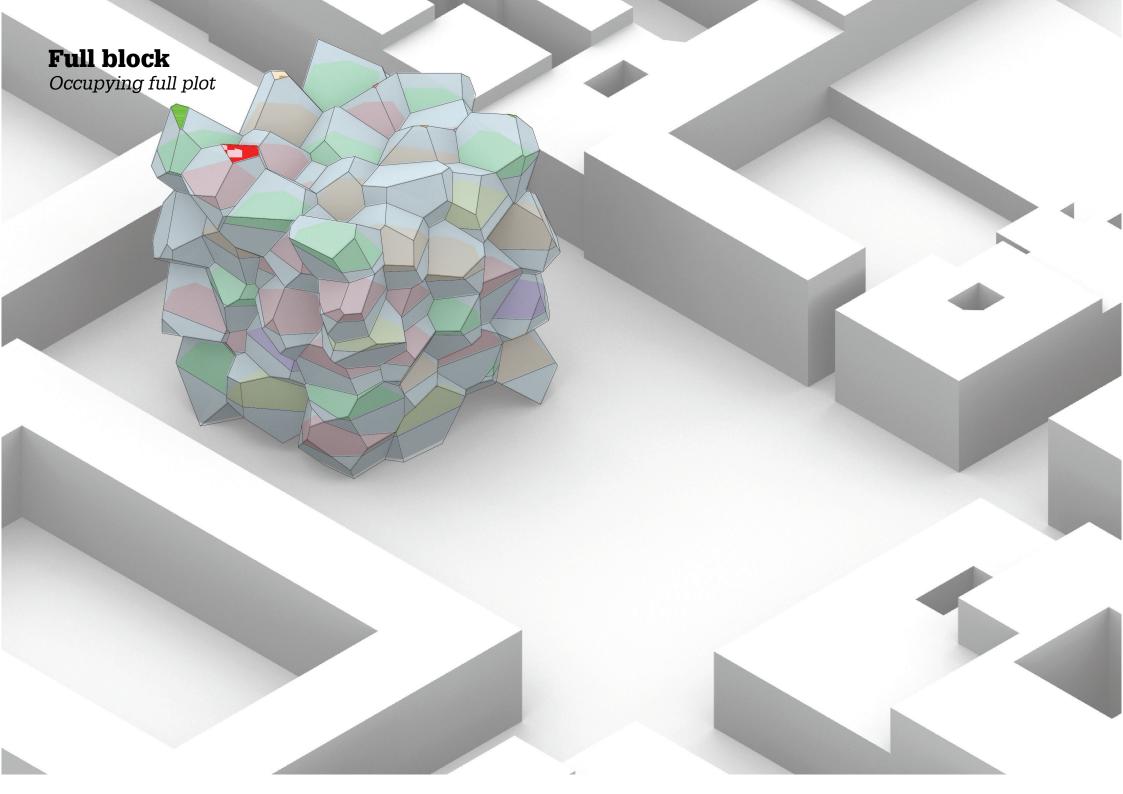


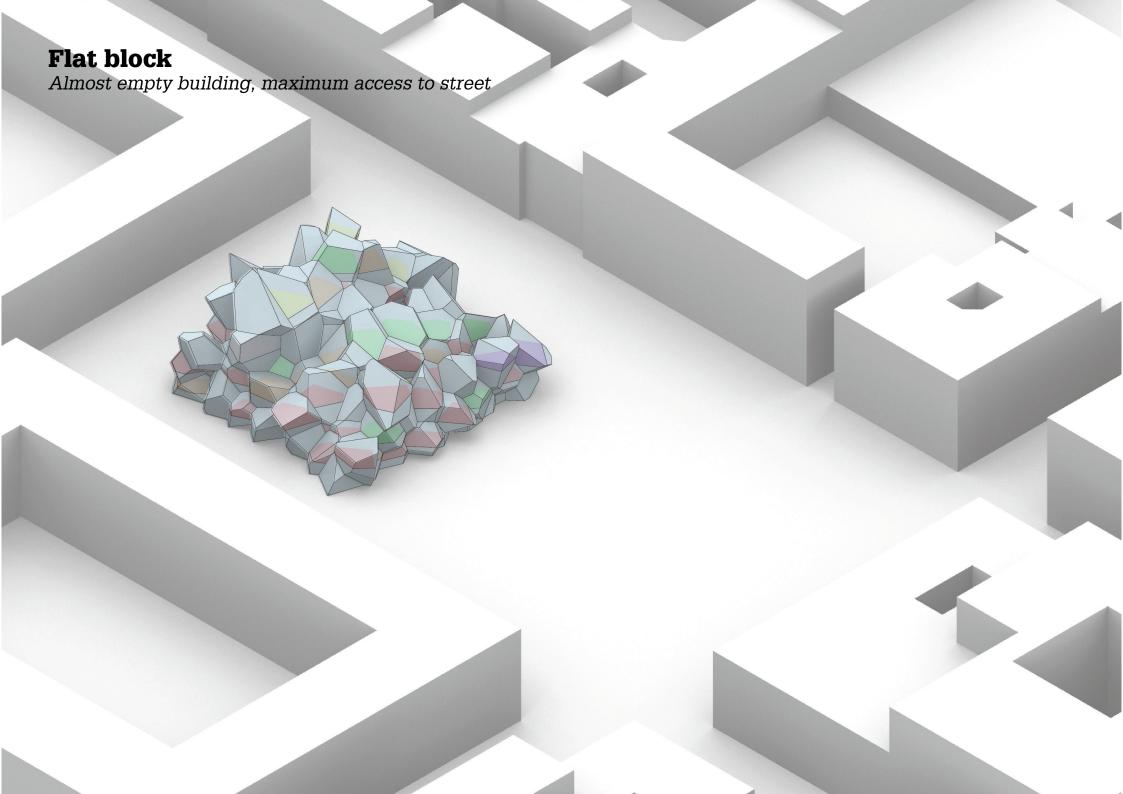


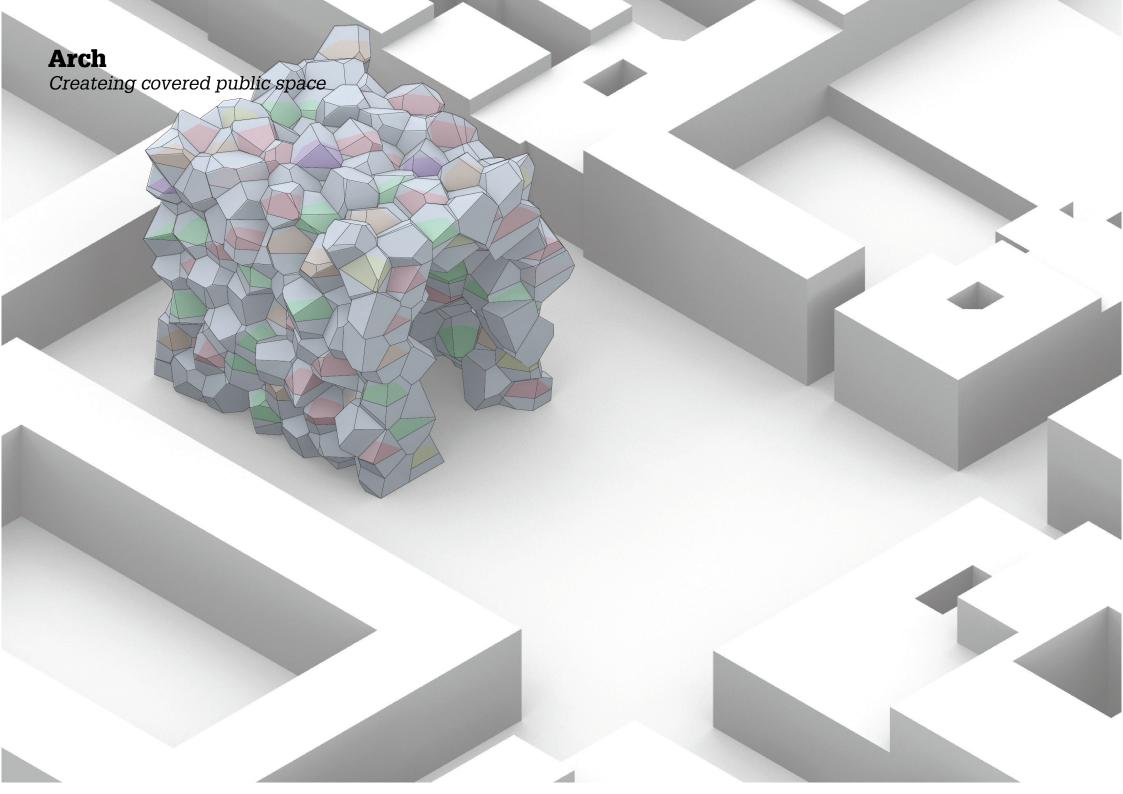


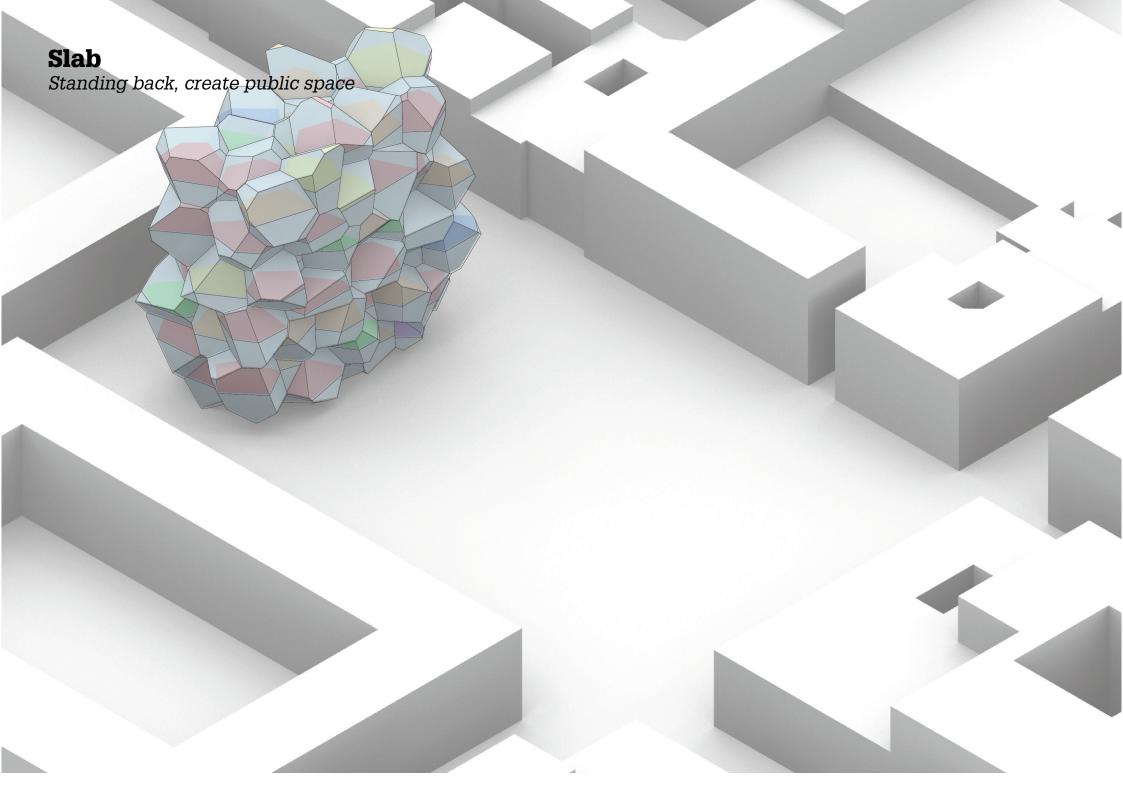
6.0 Site

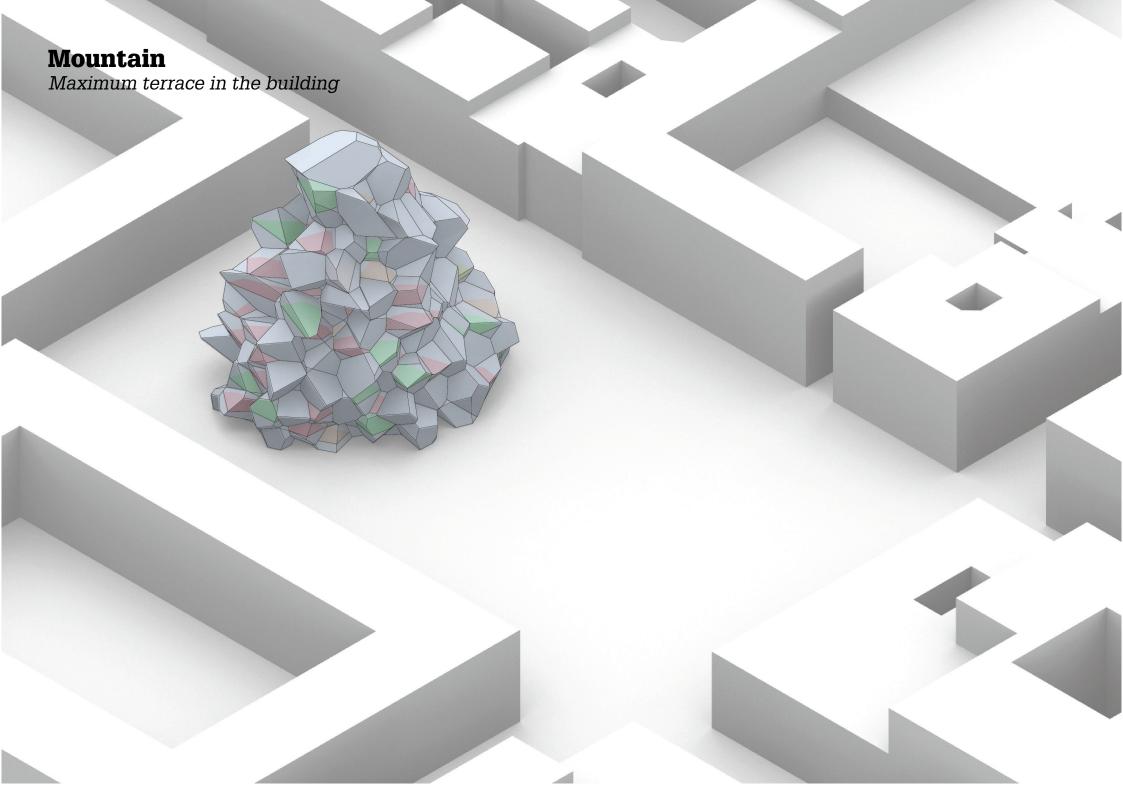
Impact on the urban scale











7.0Life in the Mixing Block

Impact on the daily life

3 moments in the day

The mixing block

