



Yellowstone

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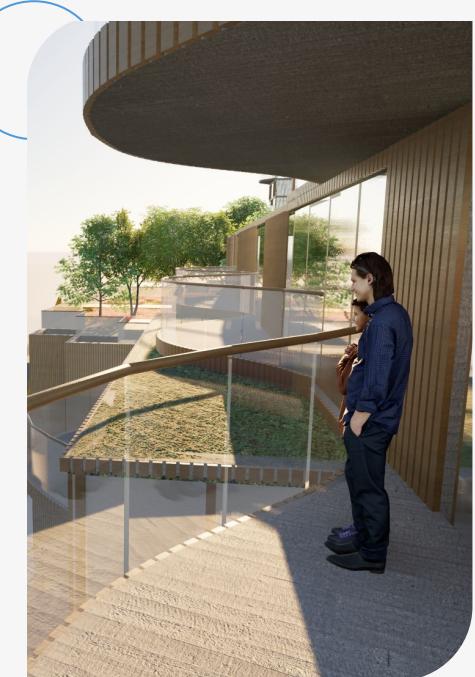
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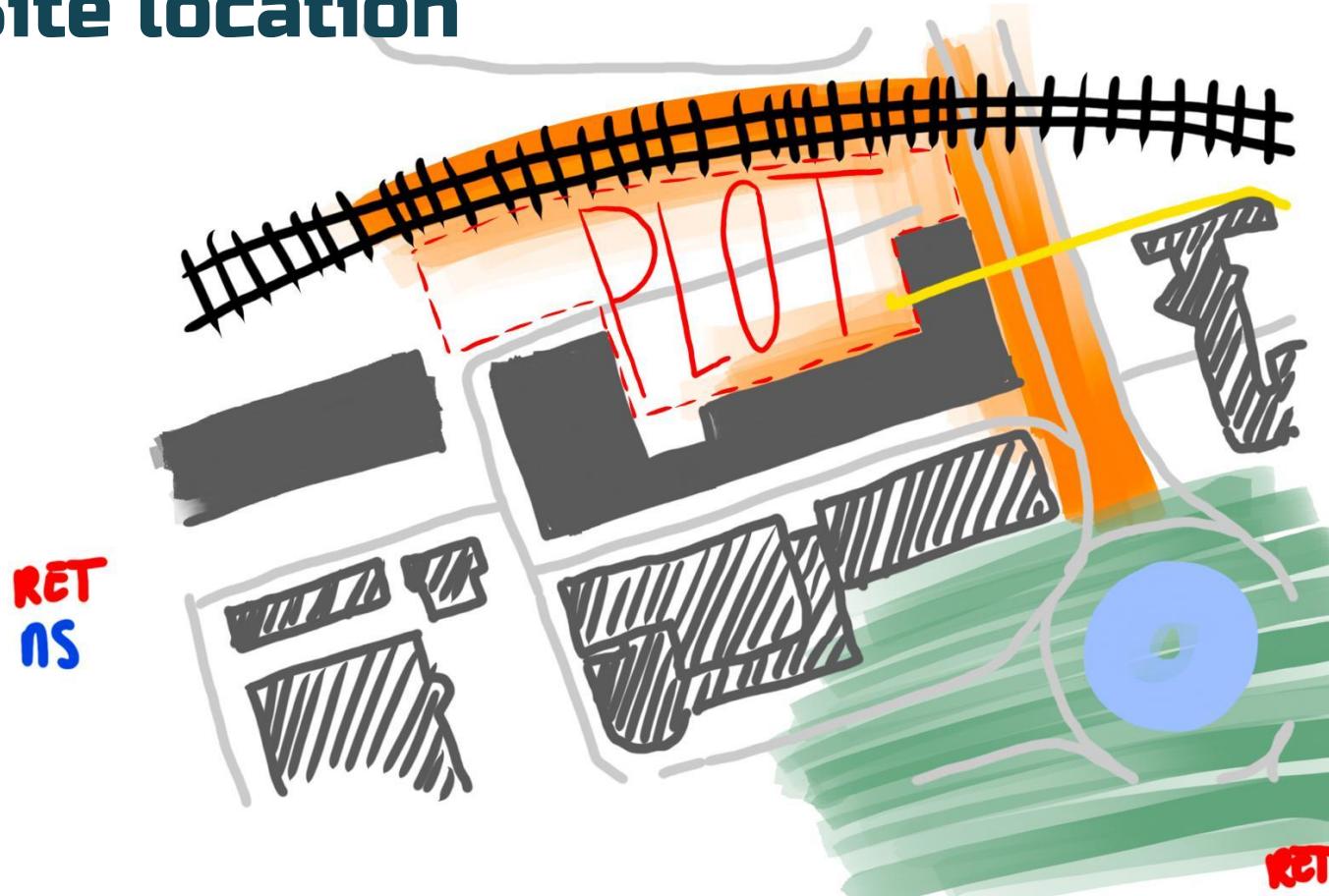


01

Introduction: Visions and Goals



Site location



Vision

- Social meeting point
- Social cohesion in the building
- Biergarten retains its value and has added ambiance
- Views of Rotterdam's finest architecture



Rotterdam of the Future



RISE



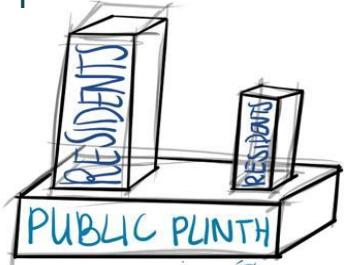
Hofplein
Park

"In a few years, the busy roundabout will have been transformed into a green and lively city square. The fountain will remain the vibrant centrepiece."

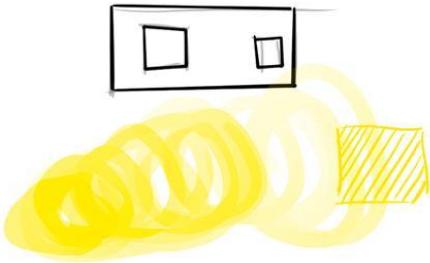
- Municipality of Rotterdam

Desi

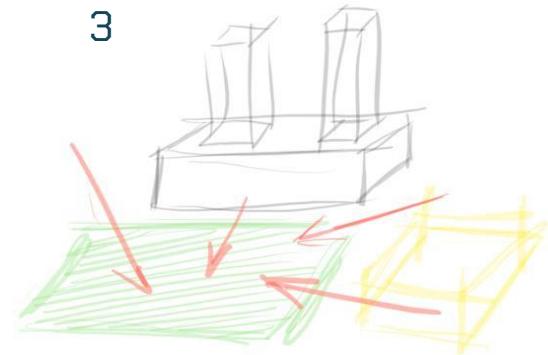
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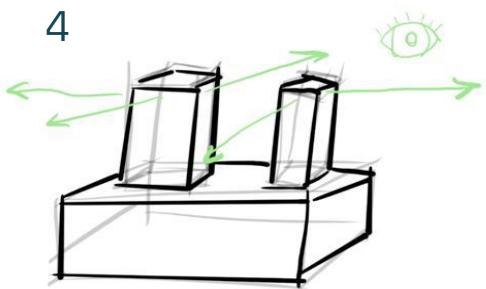
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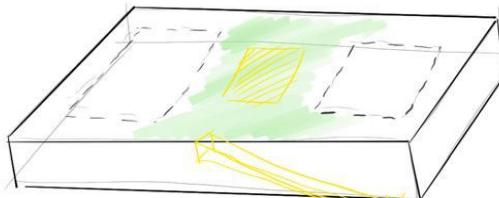
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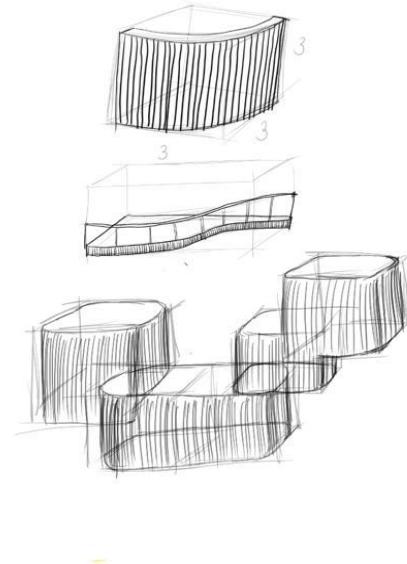
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5

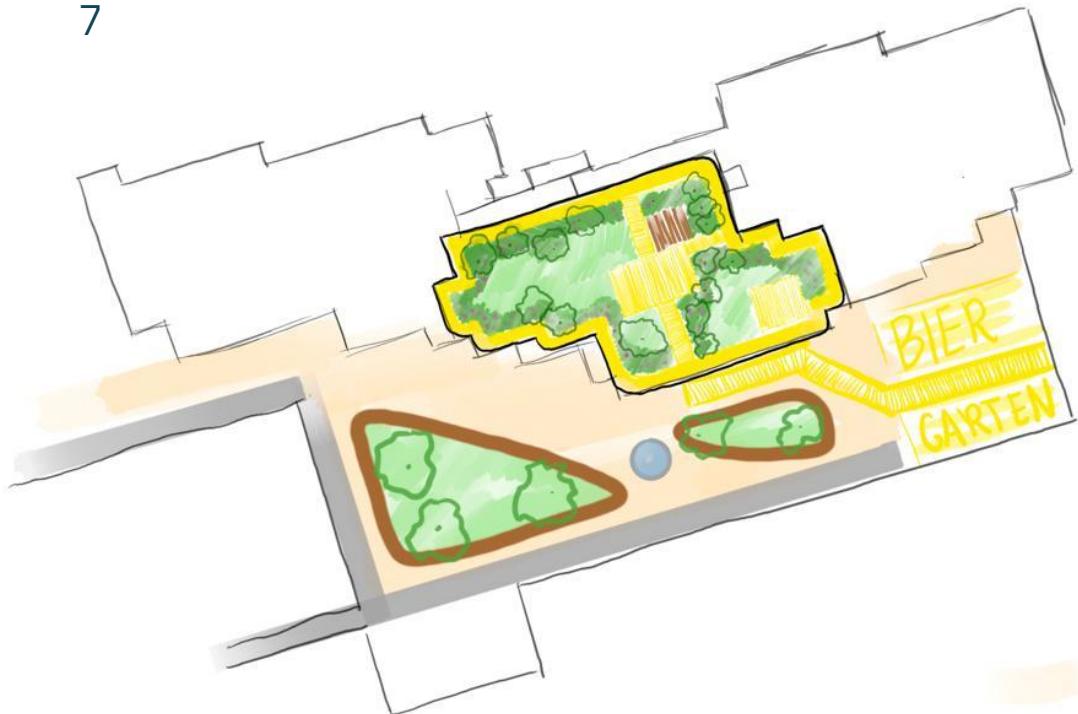


6



Landscaping

7



Frontal square

A frontal square to add more liveliness to the area and connecting the park on our roof with the luchtsingel



Architectural inspiration

02

User Needs and Programs

Target user groups



Elderly

Independent and Assisted
1-2 persons



Families

4 persons



Student

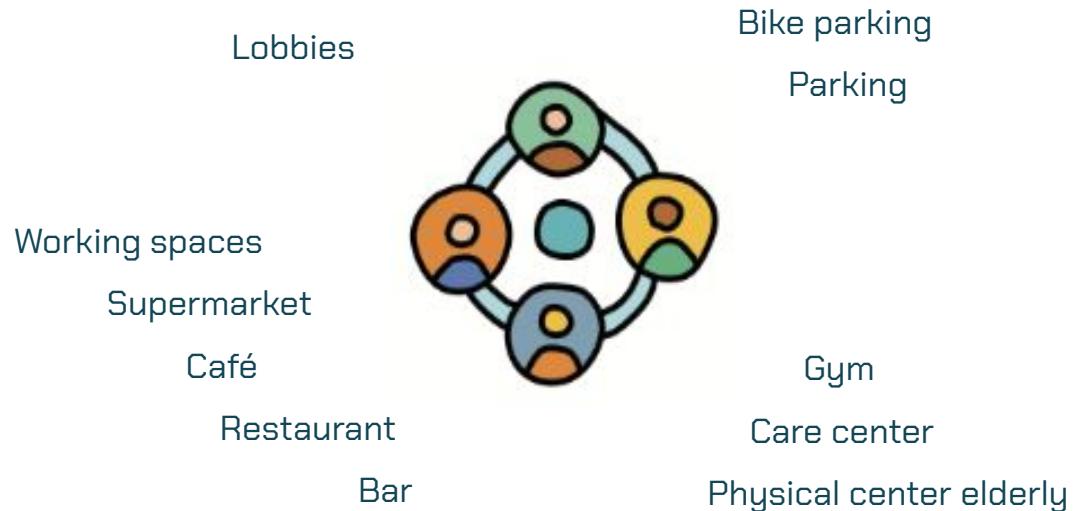
2, 4, or 8 person



Starters

2, 3 person

Programs



03

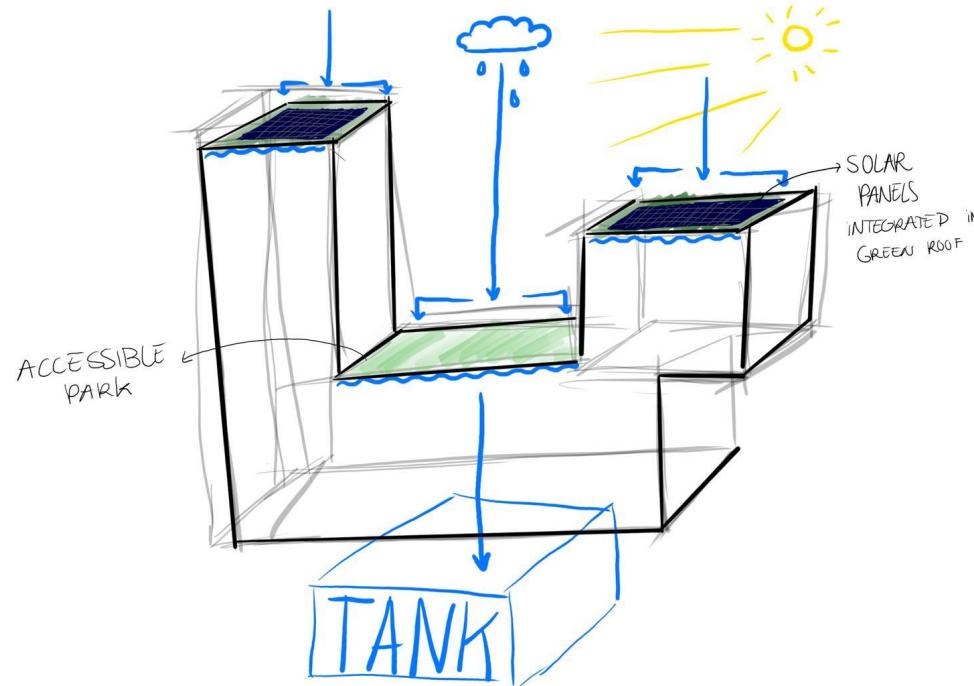
Massing: The Building Framework

Program sizing

name	area	amount of voxels	total voxels
Student housing 2p	60	7	267
Student housing 4p	100	11	444
Student housing 8p	200	22	444
Elderly housing 1-2p	50	6	1111
Starter housing 3p	85	9	708
Family housing 4p	110	12	611
Starter housing 2p	65	7	542
Physical center elderly	400	44	44
Working spaces	6400	237	237
Supermarket	2400	89	89
Bycicle parking	1200	133	133
Parking	8568	952	952
Care center	1000	111	111
Gym	2400	89	89
Cafe	300	33	33
Restaurant	1600	59	59
Bar	1200	44	44
Lobby	1200	44	44
Lobby 2	2000	74	74

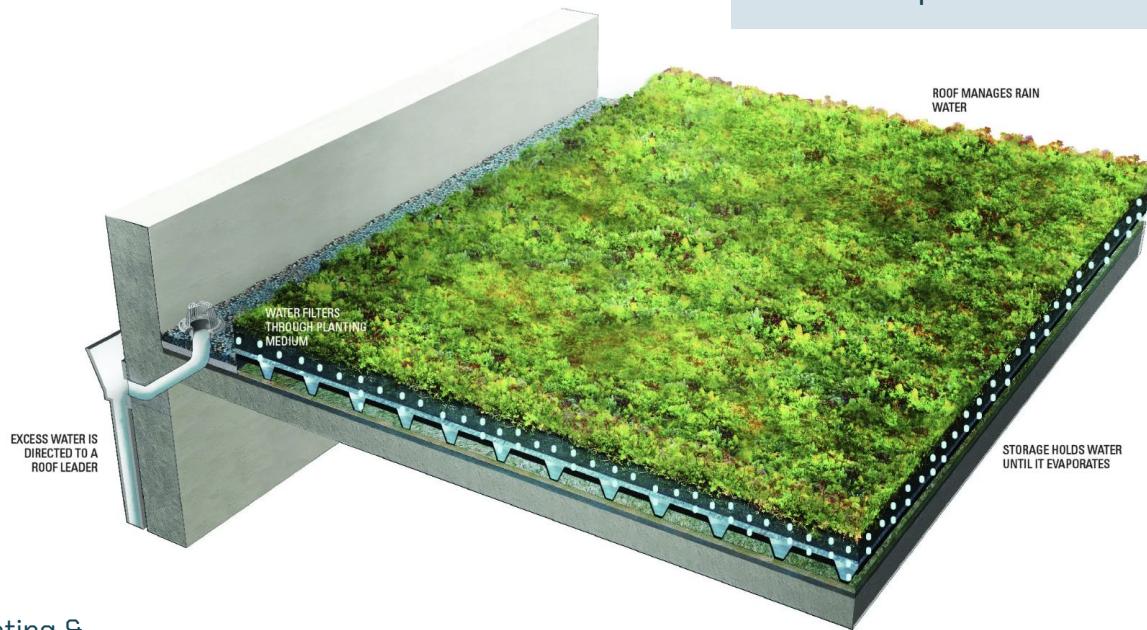


Climate diagram

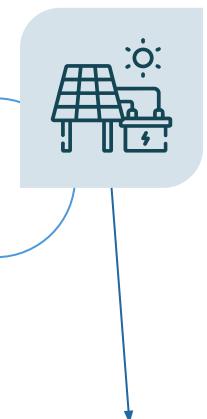


Biosolar roof

Enough water for all the green roofs during dry periods



15-25% efficiency –
enough for public lighting &
elevators



04

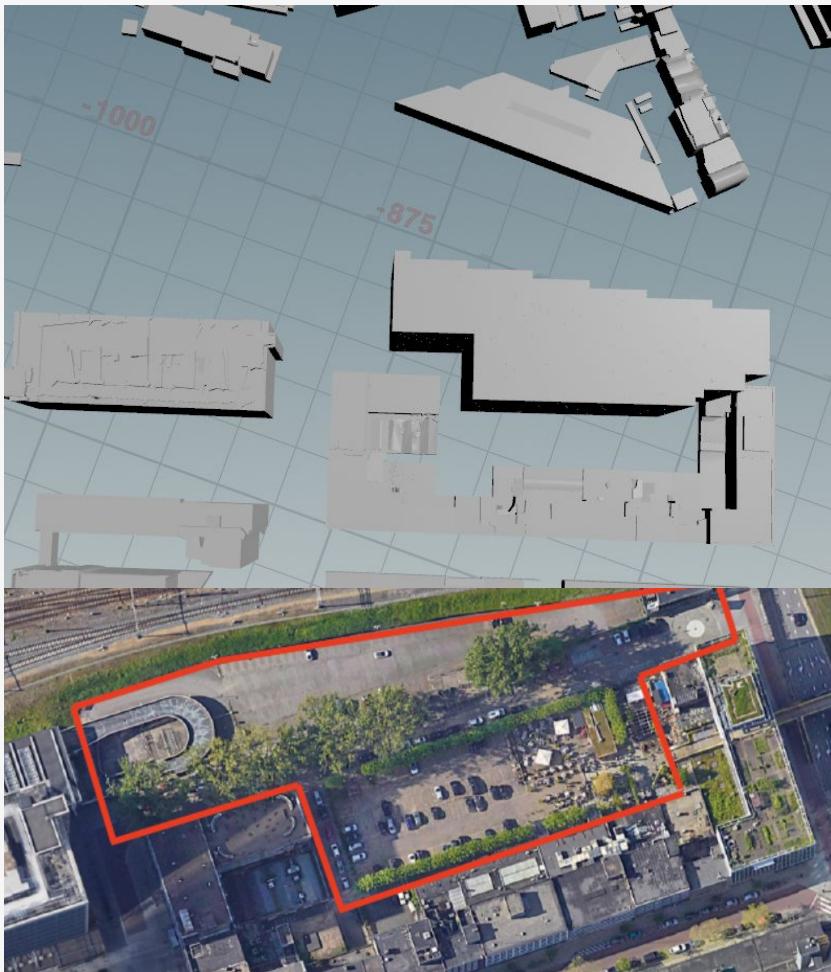
Tuning: Optimizing Design Performance

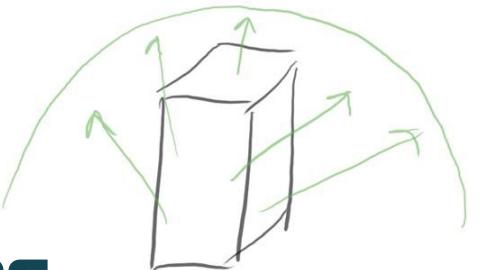
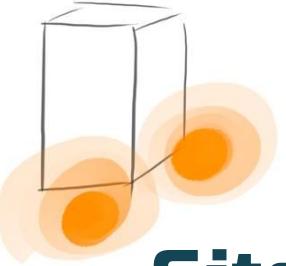
Voxelcloud

Voxels:
3x3x3 m³

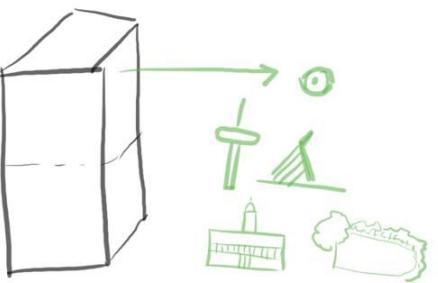
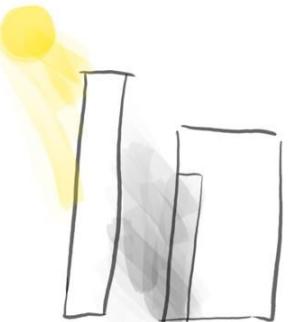
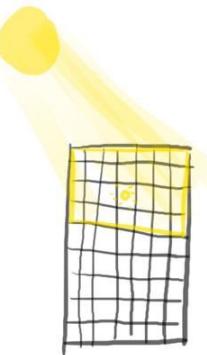
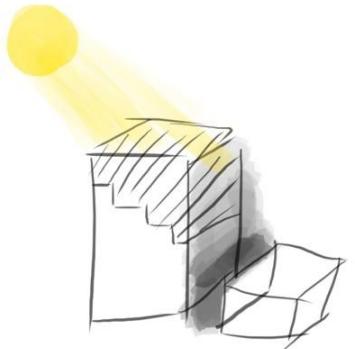
Accessibility

Reshaping the plot

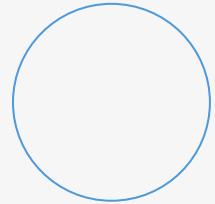
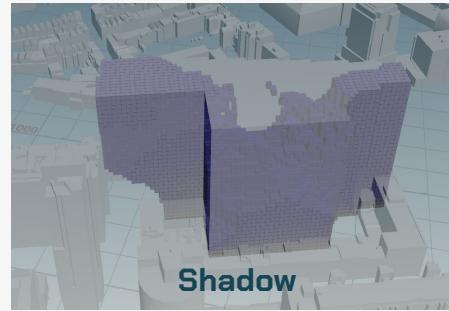
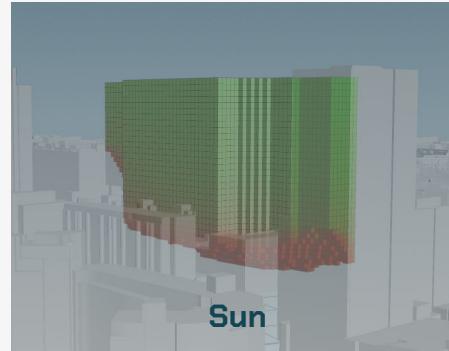
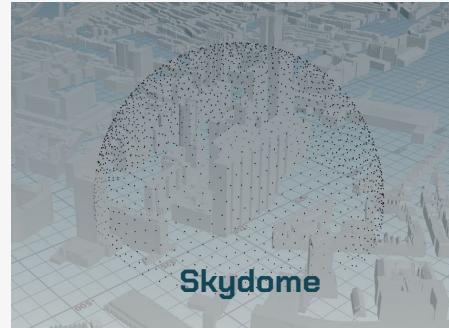
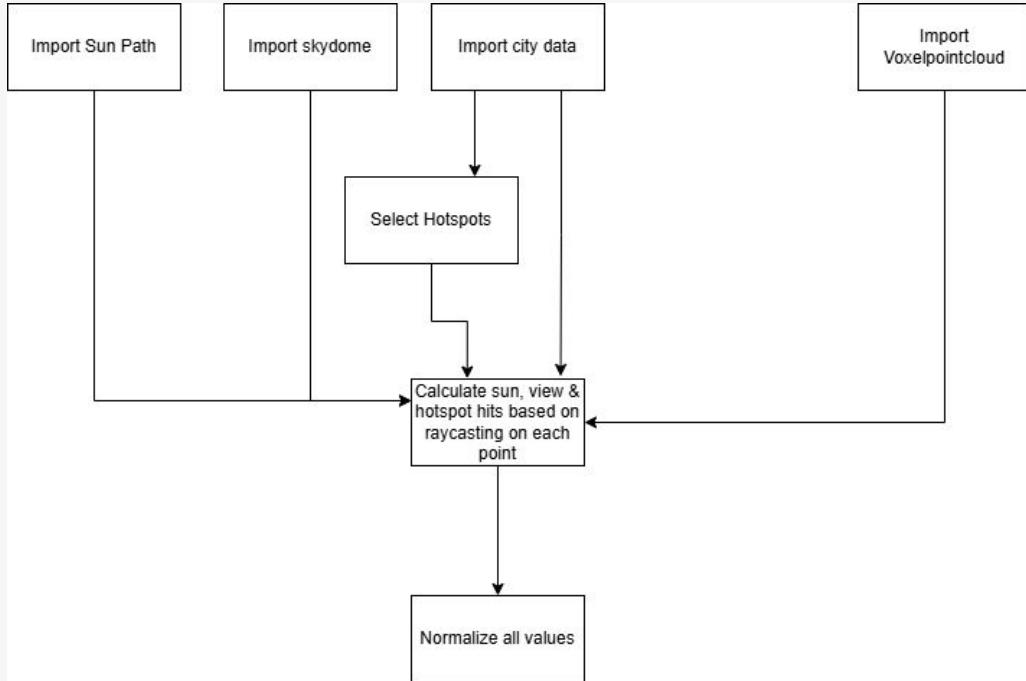




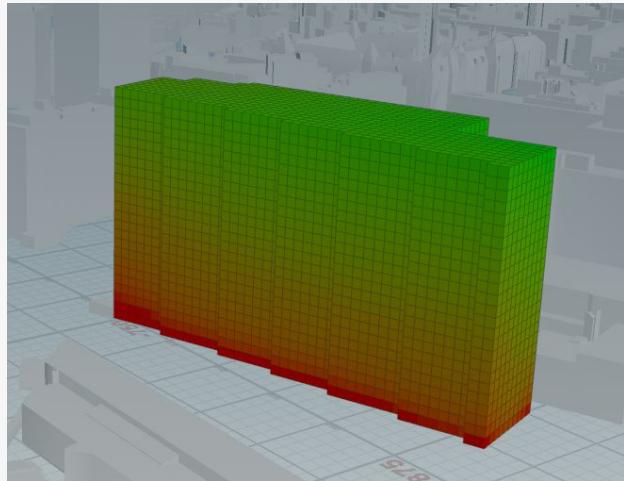
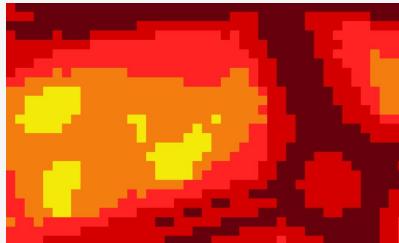
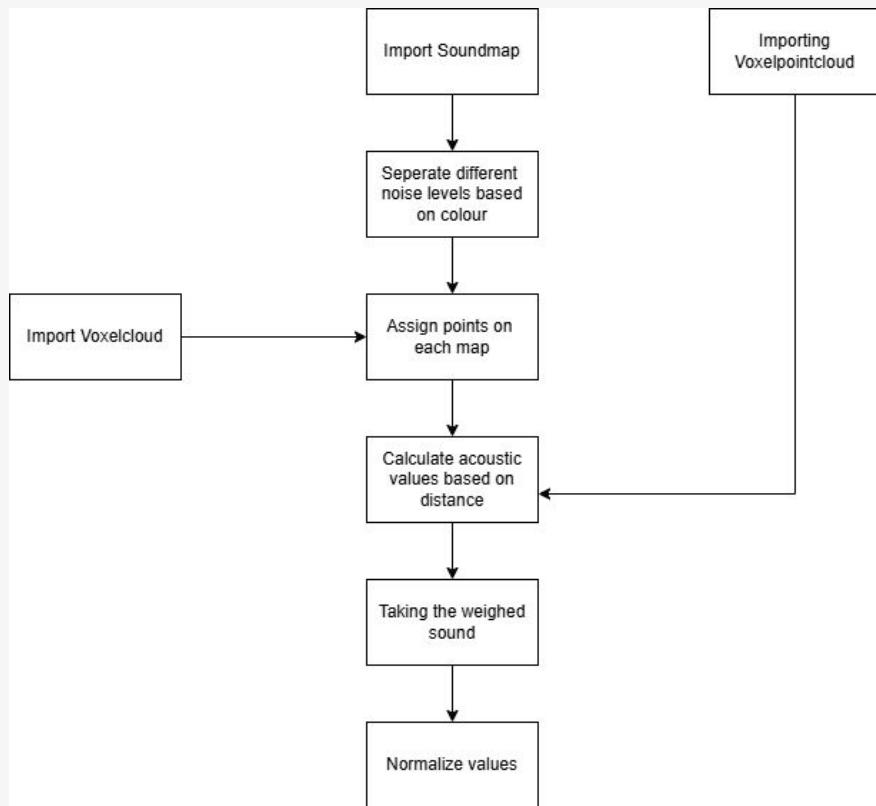
Site Analyses



Site analyses: Sun, Skyview & Hotspot



Site Analyses: Noise



Criteria weighting

name	view	sun	noise	wind_pollu	arch_highlights
str	float	float	float	float	float
Student housing 2p	0.5	0.4	0.6	0.3	0.4
Student housing 4p	0.5	0.4	0.6	0.3	0.4
Student housing 8p	0.5	0.4	0.6	0.3	0.4
Elderly housing 1-2p	1	0.4	0	0	1
Starter housing 3p	0.75	0.4	0.5	0.2	0.5
Family housing 4p	0.75	0.4	0.2	0.2	0.7
Starter housing 2p	0.5	0.4	0.5	0.2	0.5
Physical center elder	0	0	0.2	1	0
Working spaces	0.25	0.2	0.5	1	0.3
Supermarket	0	0	0.7	1	0
Bycicle parking	0	0	1	1	0
Parking	0	0	1	1	0
Care center	0	0	0.2	1	0
Gym	0.25	0	0.8	1	0.1
Cafe	0.25	0.2	0.7	0.5	0.1
Restaurant	0.3	0.1	0.7	0.8	0.3
Bar	0.1	0	0.8	1	0.1
Lobby	0.1	0.3	0.5	0.5	0
Lobby2	0.5	0.3	0.5	0.3	0.1

Idea

- **Residential dwelling:**
 - Noise, Wind
 - + Sun
- **Elderly and family :**
 - Noise
 - + Highlight, view, sun
- **Public function:**
 - +- Sun, Highlight, Noise



Weighted Products
(per function)

Growth algorithm

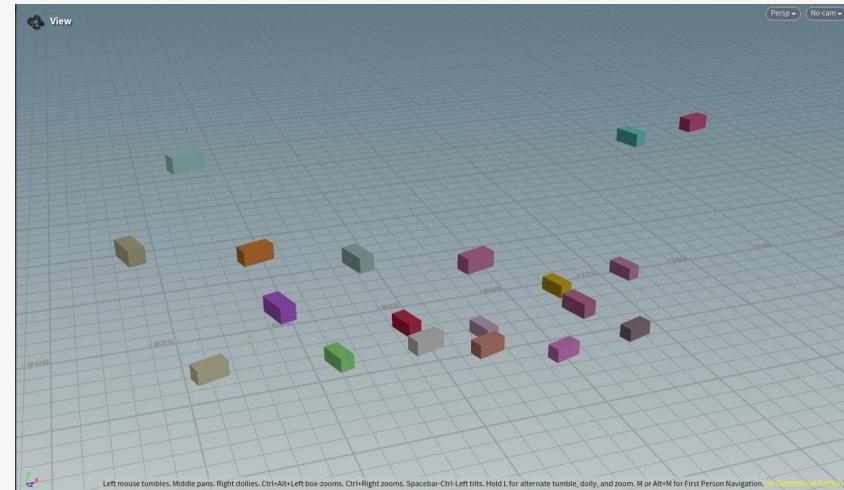
Weighted Product

- Import weighted product on each voxel for each function



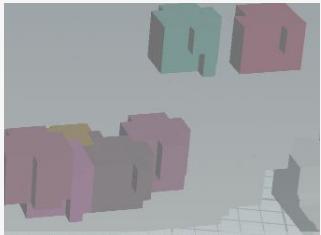
Growth

- Best value seeker per frame
- Tendencies/ directions →

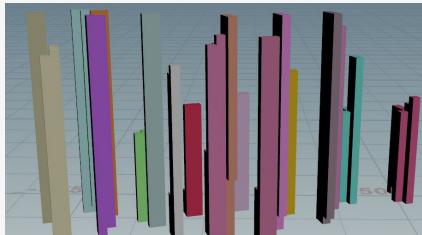


Seeding

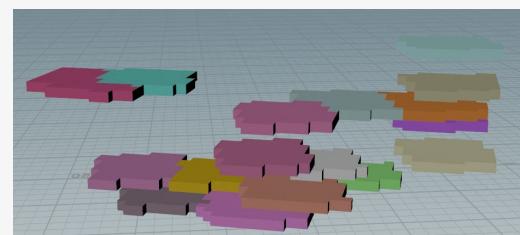
- Minimal distance
- Adjacencies
- Optimal values



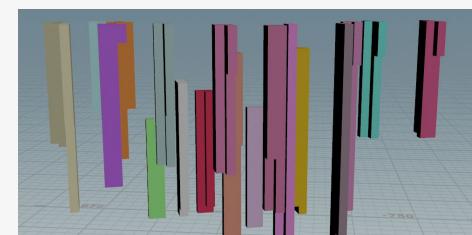
Clustering



Gravity

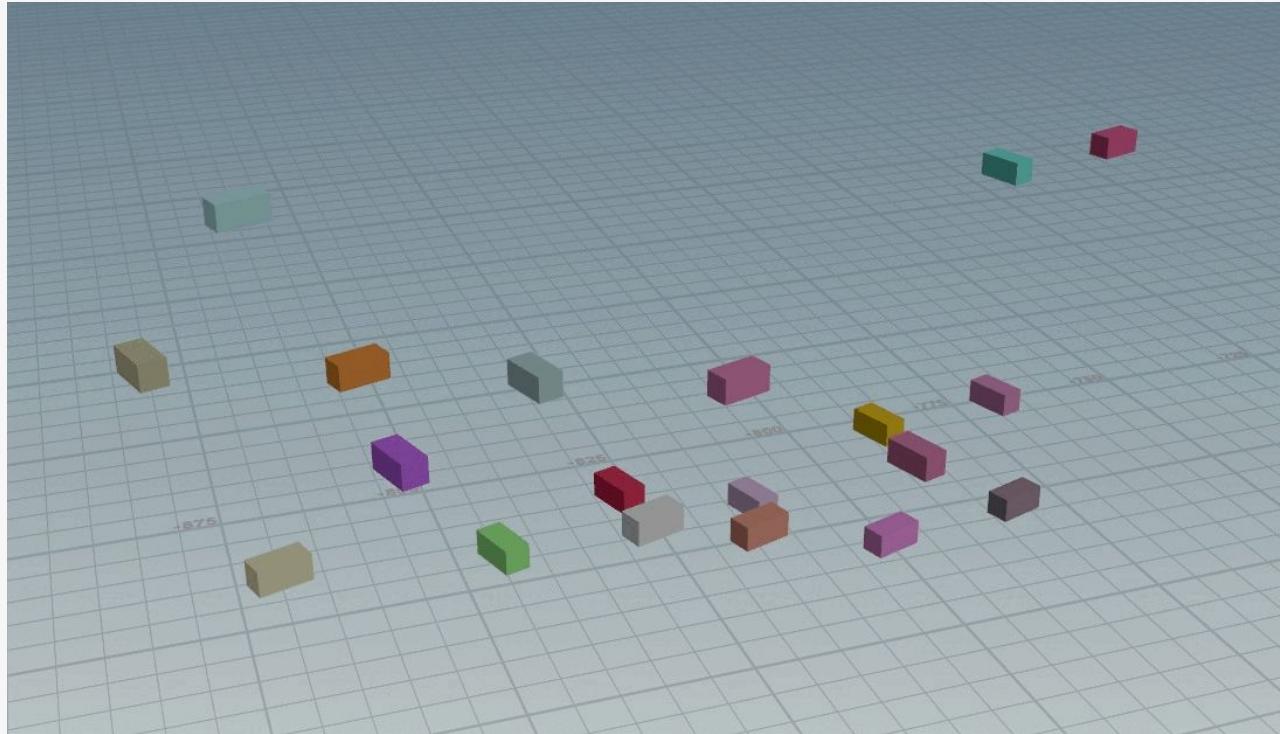


Flattening



Stackening

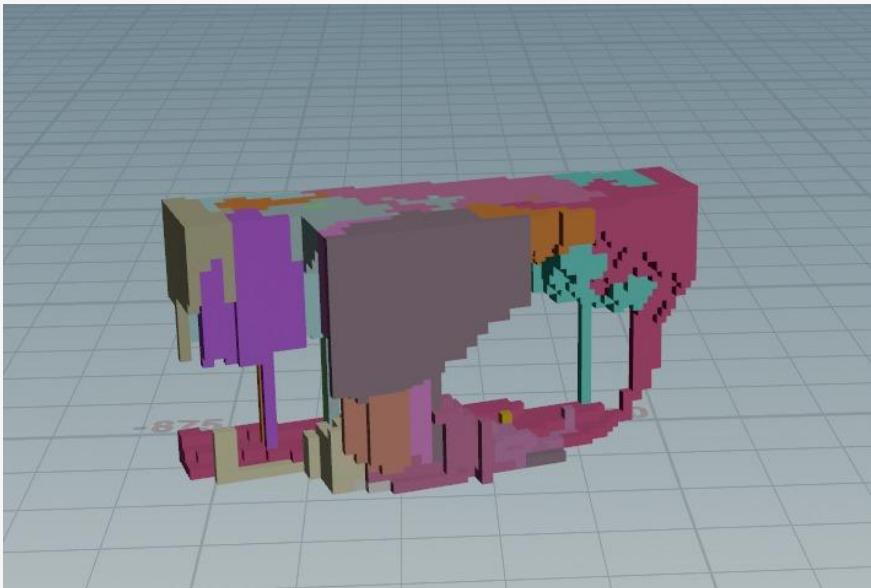
Growth algorithm



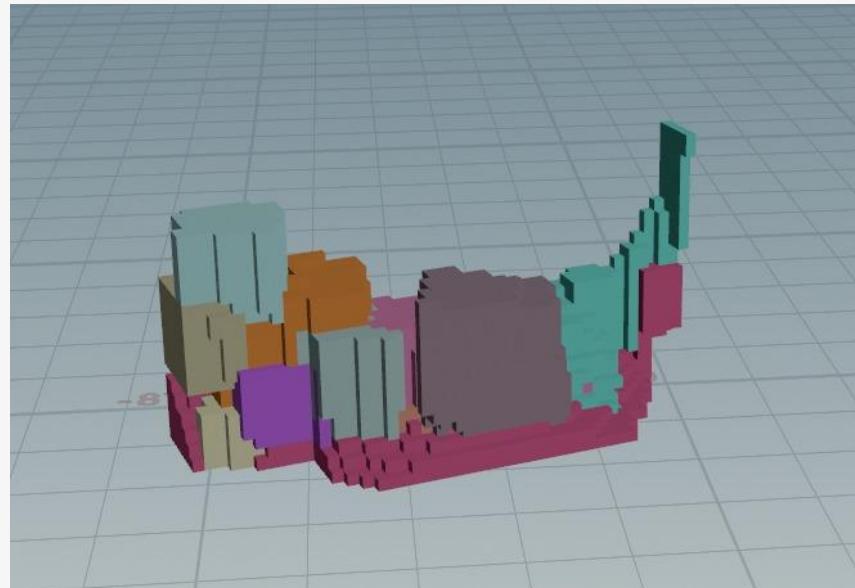
05

Modelling: Form Development

Building shape scenarios



Unweighted / no bias



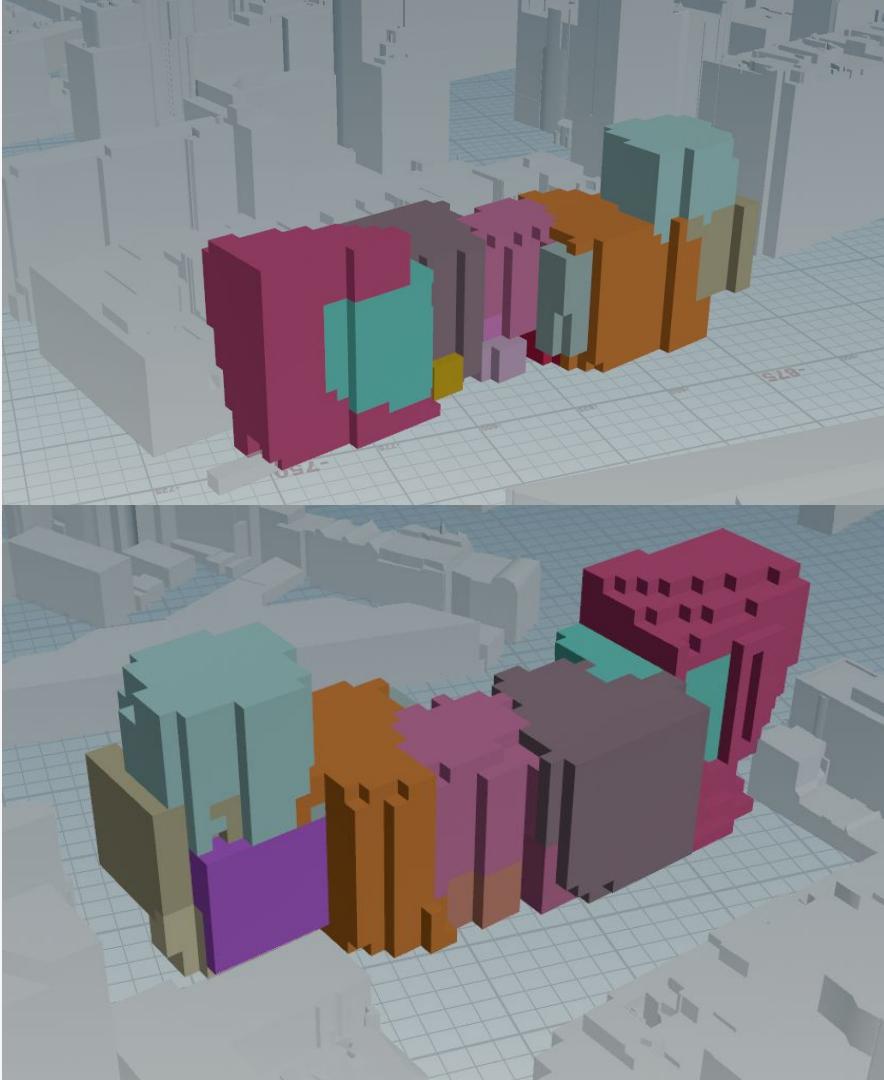
Higher gravity weight



Optimal values:

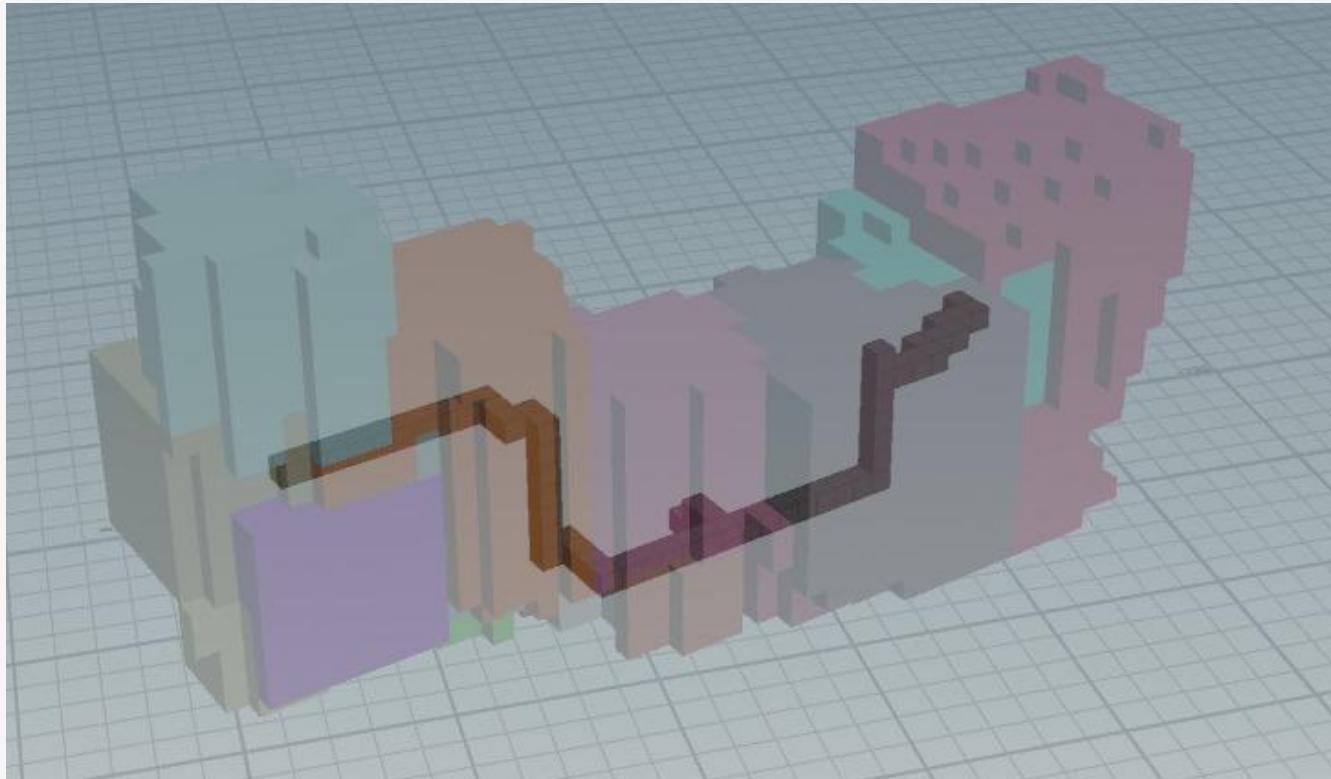
Highest gravity weight

Flattening weight > Stacking weight



color	function	color	function
Light Green	Student 2p	Pink	Bicycle parking
Pink	Student 4p	Light Purple	Parking
Light Blue	Student 8p	Light Green	Care center
Teal	Elderly	Small Pink	Gym
Dark Red	Starter 2p	Light Green	Cafe
Orange	Starter 3p	Yellow	Restaurant
Light Teal	Family 4p	Red	Bar
Grey	Physical center elderly	Light Purple	Lobby
Purple	Working spaces	Small Pink	Lobby 2
Red	Supermarket		

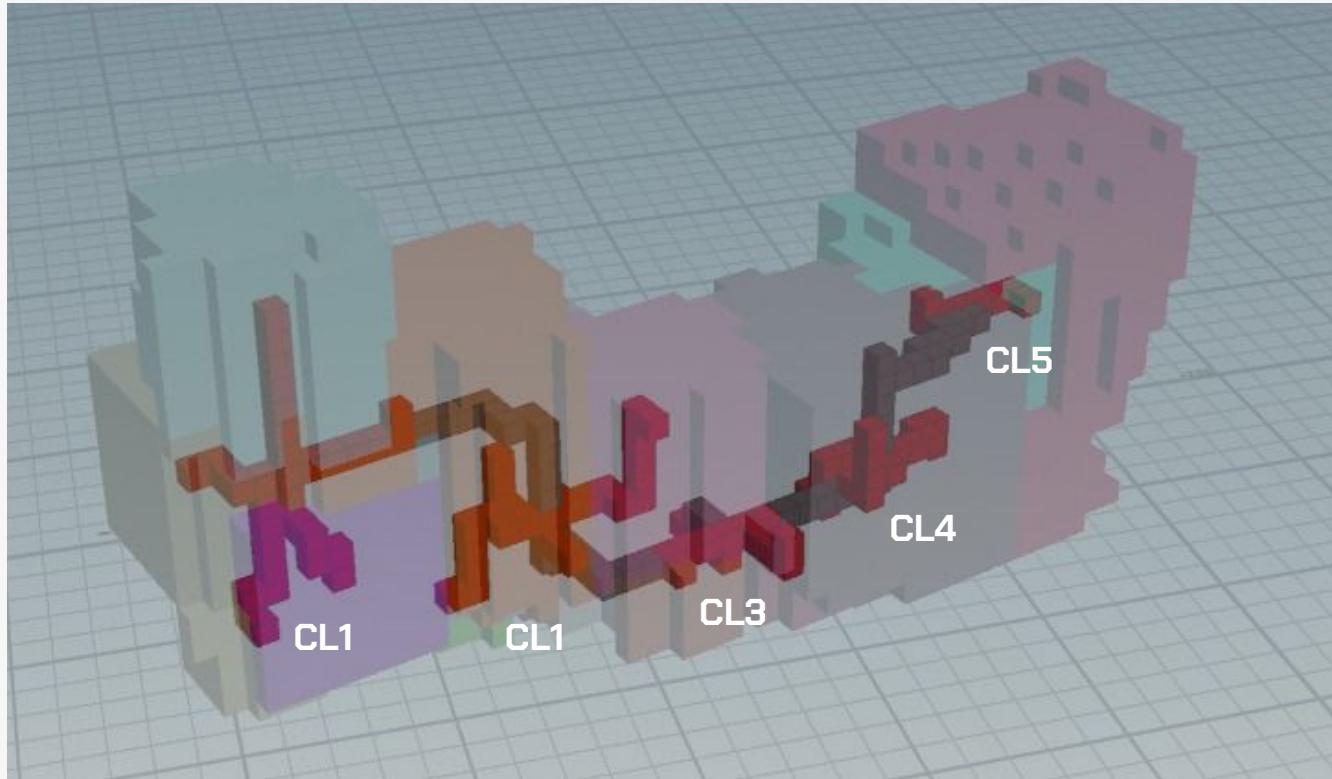
Circulation: Corridors & elevator shafts



Outer-cluster circulation

Connecting the lobby and all cluster centres

Circulation: Clusters

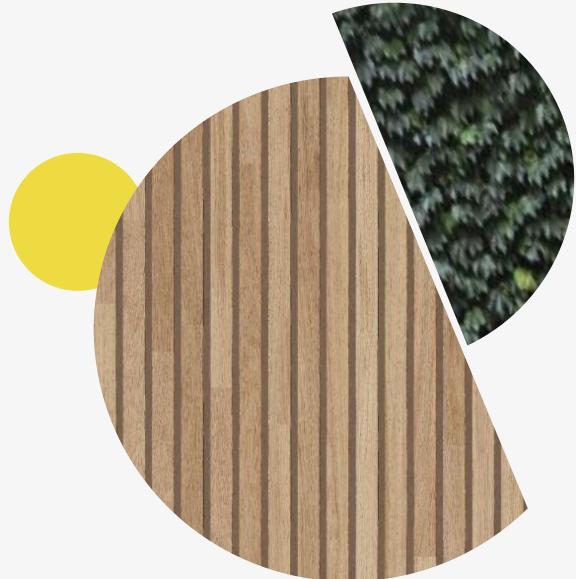


Inner-cluster circulation

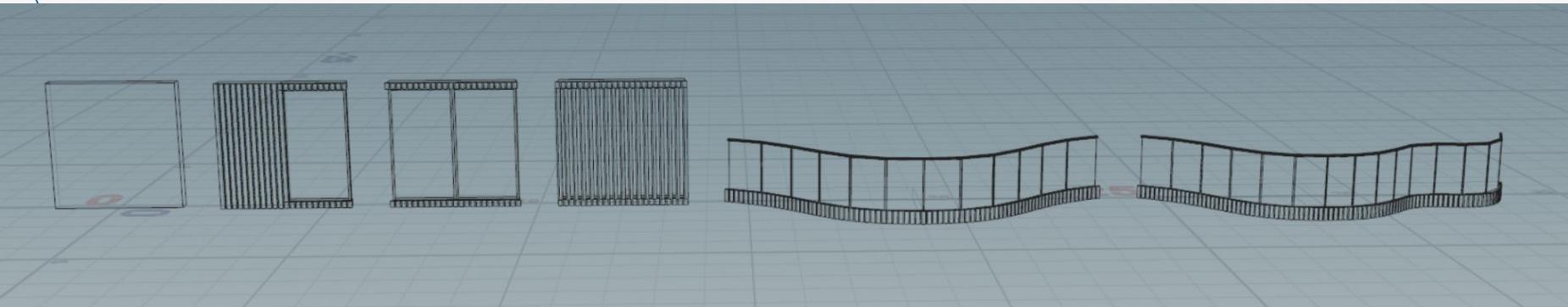
Connecting the function centres to the cluster center

06

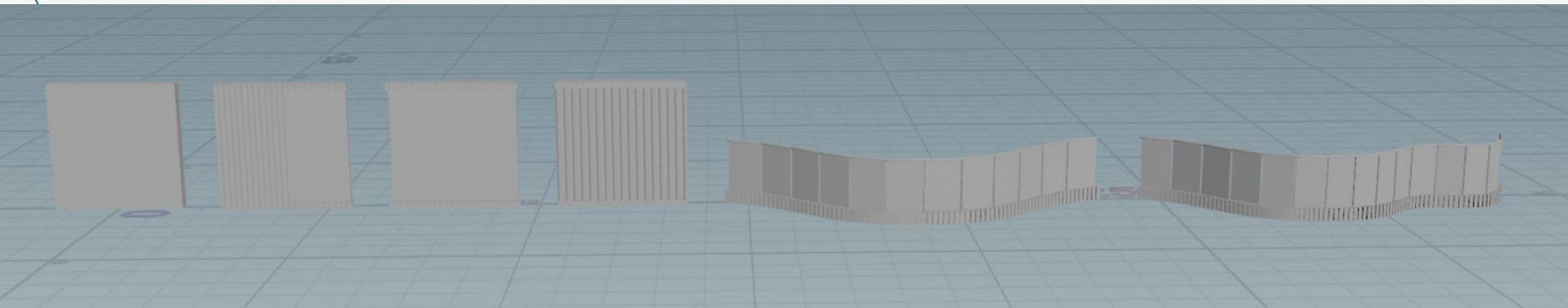
Materialization: Facades, Balconies, and Materials



Facade types



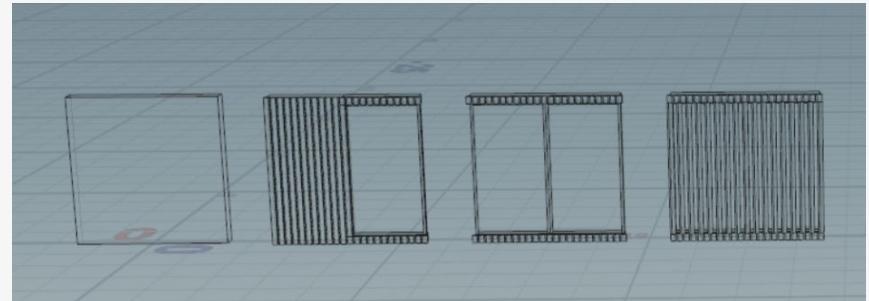
Facade types



Facade placement

Type of facade based on unit type & sunlight score

Optimizing for an ideal sunlight score

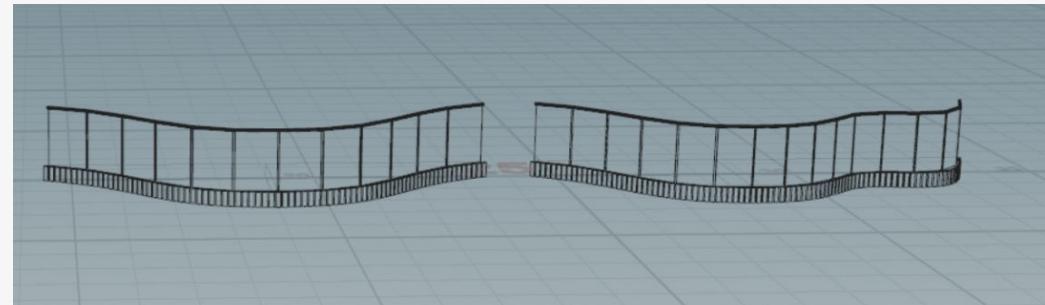


Balcony placement

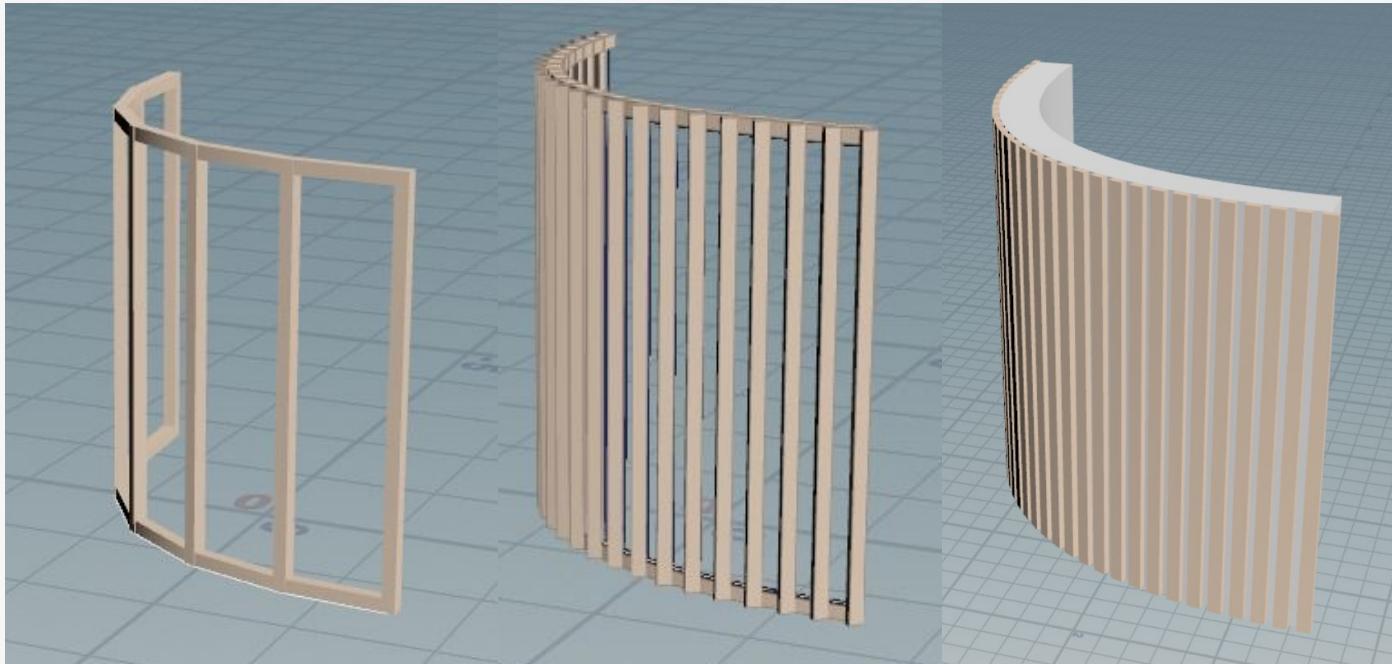
Segmented, two presets

Three voxels wide

Only placed on residential units



Curved facades



Materialisation



Vegetation



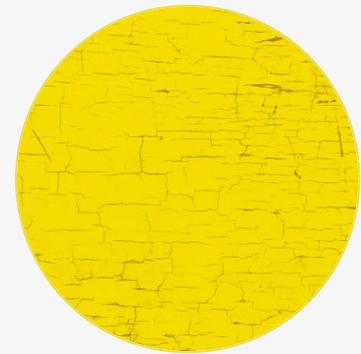
Grass



Oak slats



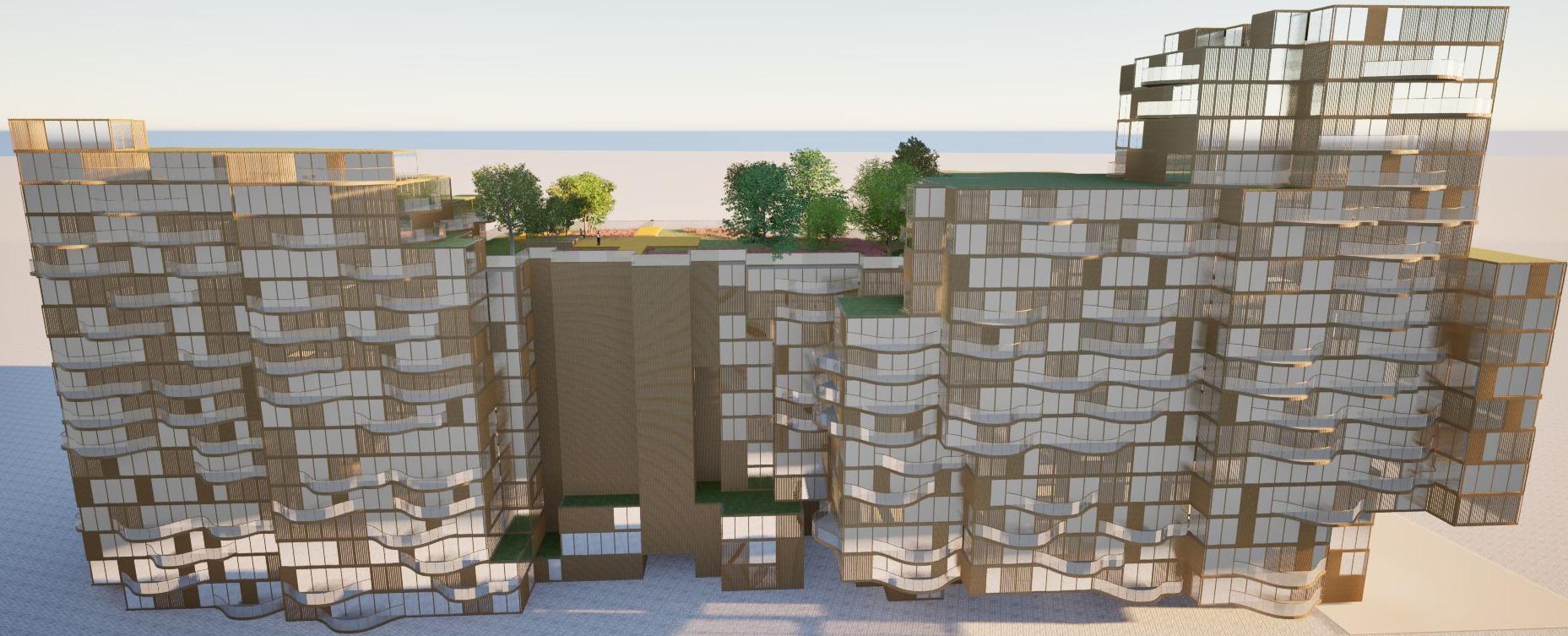
Glass



**Yellow
paint**

Final Design











Yellowstone

Thanks for Listening. Questions?

