



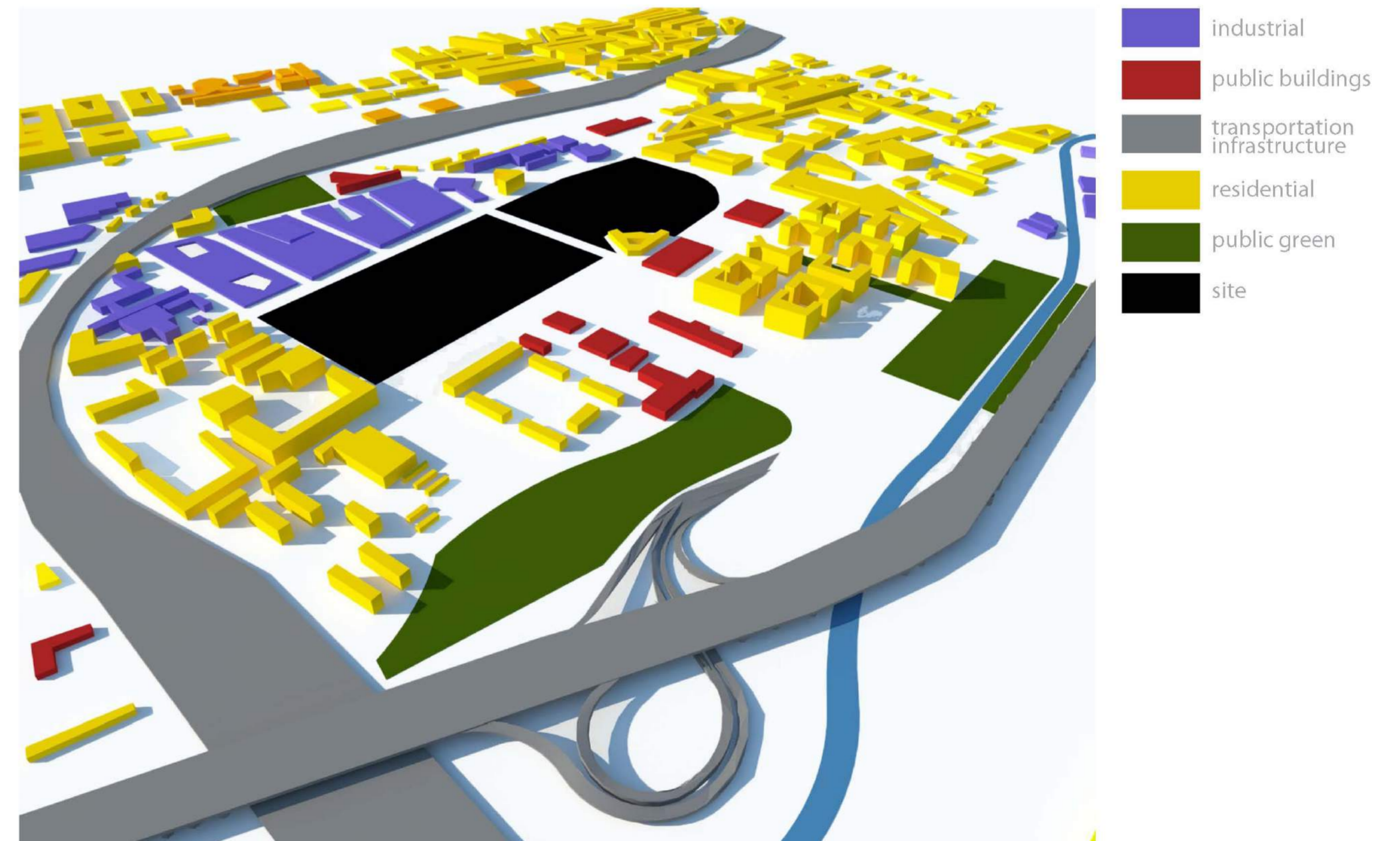
SOUND INTENSITY MAP



ACCESSIBILITY MAP

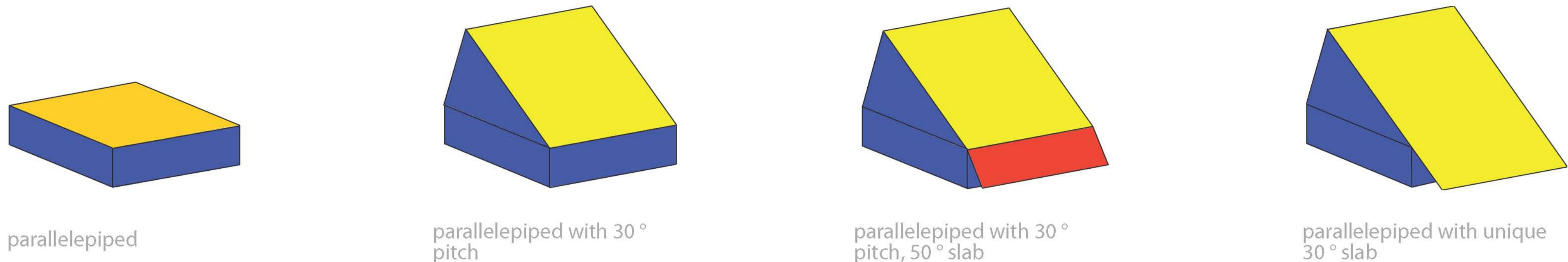


GREEN MAP



VOLUMETRIC ZONING MAP

- industrial
- public buildings
- transportation infrastructure
- residential
- public green
- site



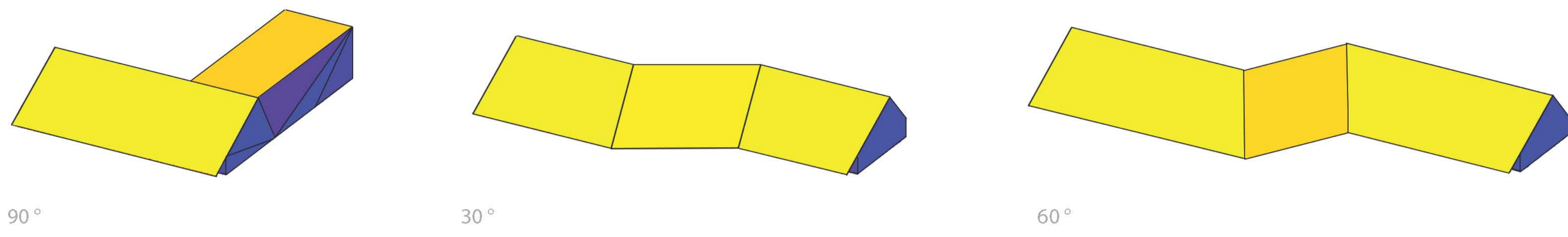
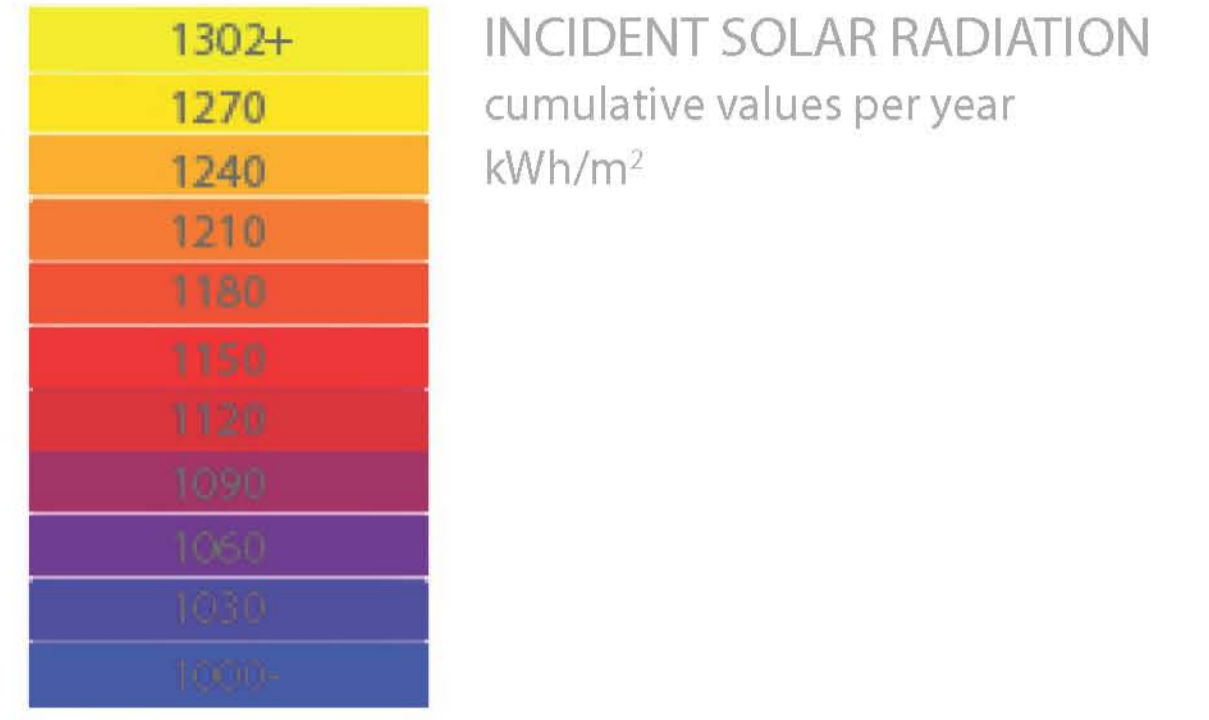
parallelepiped

parallelepiped with 30° pitch

parallelepiped with 30° pitch, 50° slab

parallelepiped with unique 30° slab

SOLAR ACCESS ANALYSIS OF DIFFERENT SOUTH FACING FACADE POSSIBILITIES

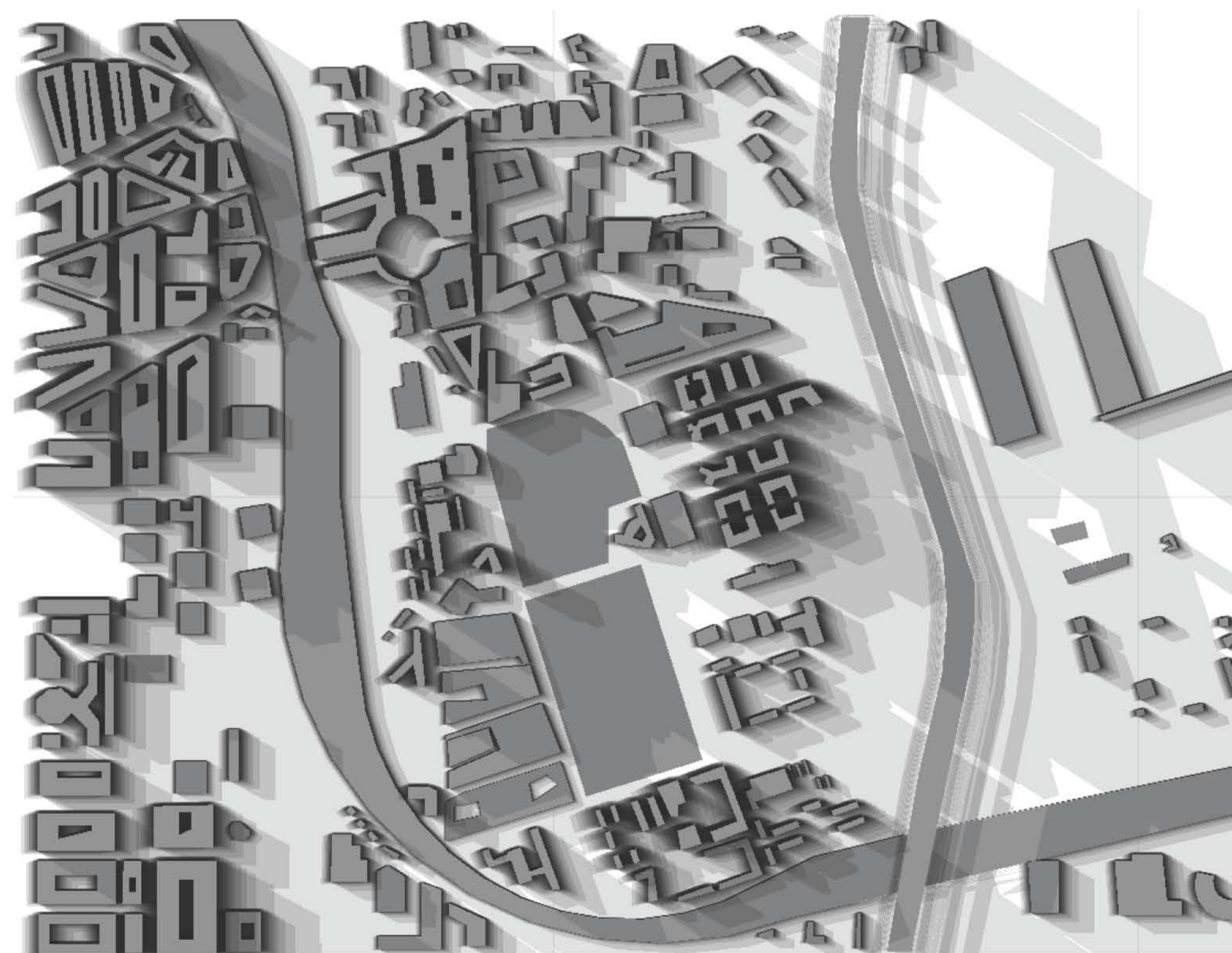


90°

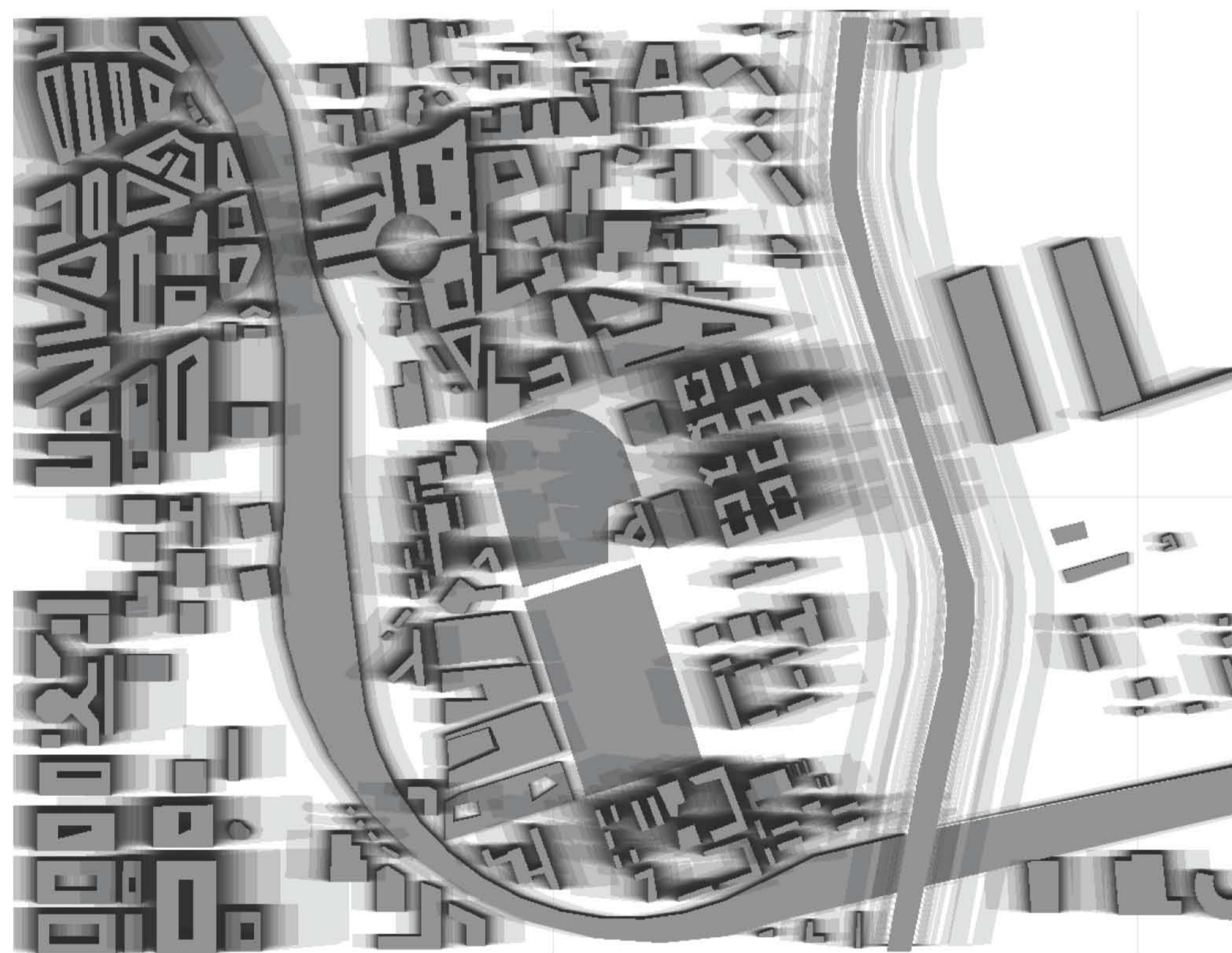
30°

60°

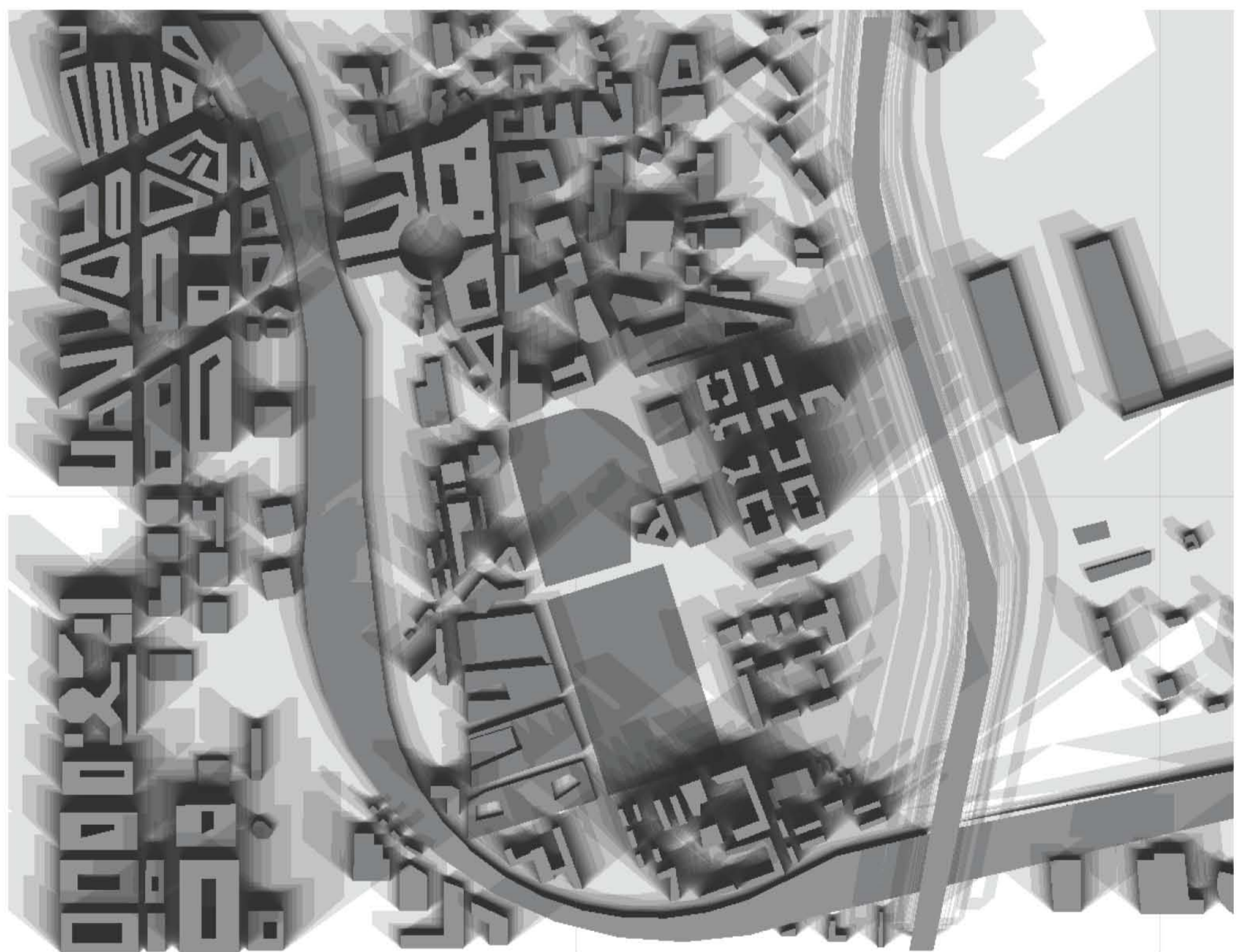
SOLAR ACCESS ANALYSIS OF DIFFERENT JUNCTION ANGLES



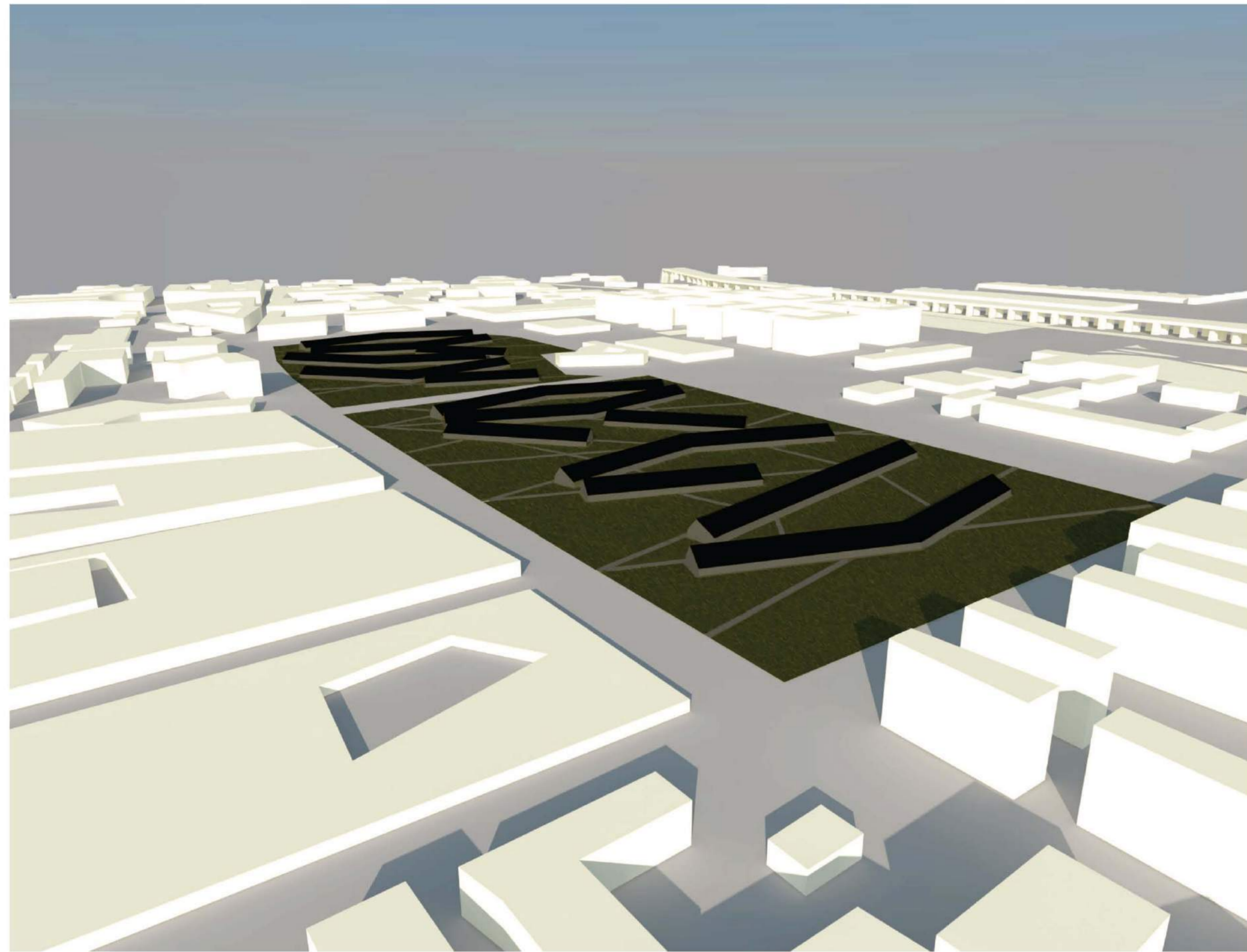
SUMMER SOLSTICE SHADOW RANGE



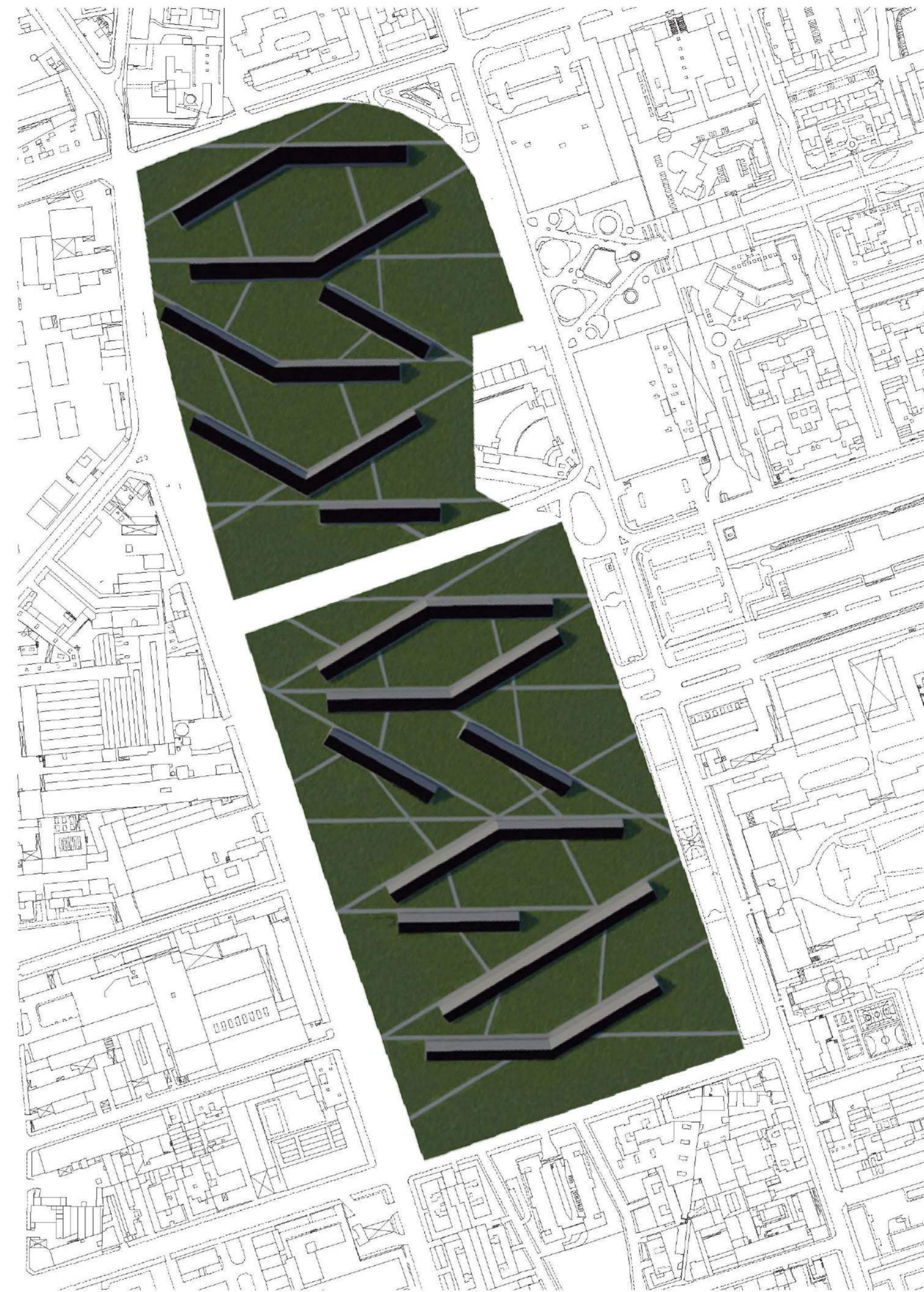
EQUINOX SHADOW RANGE



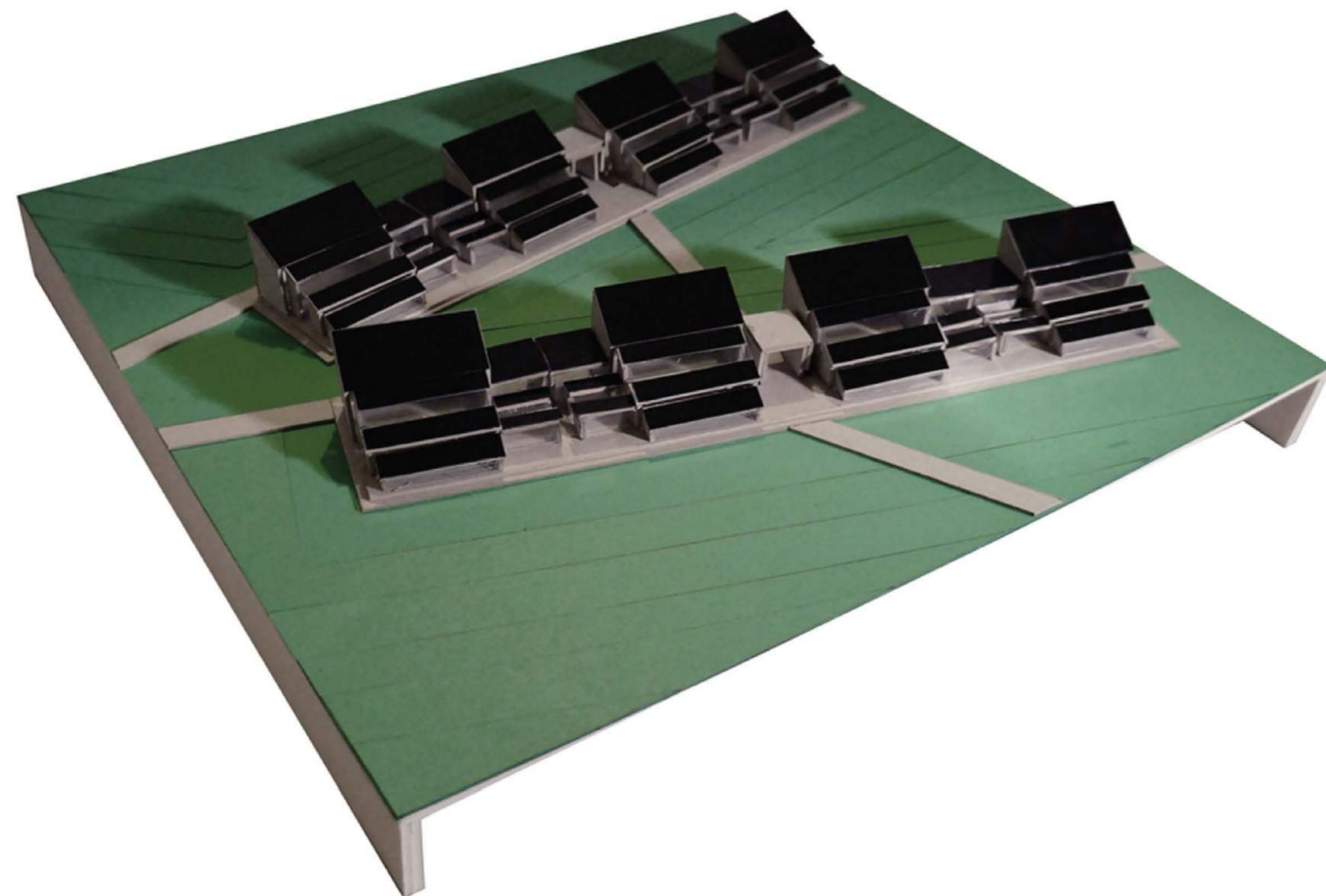
WINTER SOLSTICE SHADOW RANGE



SOUTHERN BIRD EYE VIEW



- PUBLIC BUILDINGS
- OPEN SPACE
- HOUSES
- PRIVACY



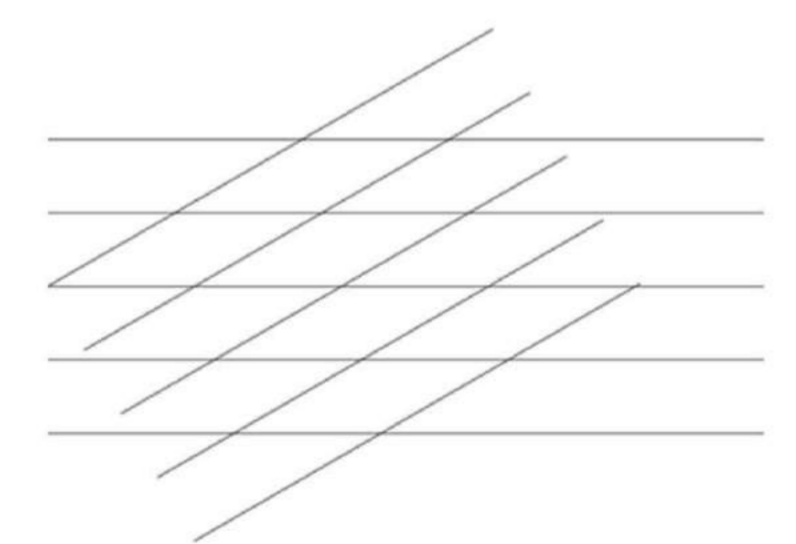
SOUTHERN BIRD EYE VIEW
early design trial

PROJECT **LAMBRAT^{e-}** is not only a self sufficient housing project, but it also aims to produce enough surplus of green electricity to be given away for free to the public, thus improving the sustainability of Lambrate

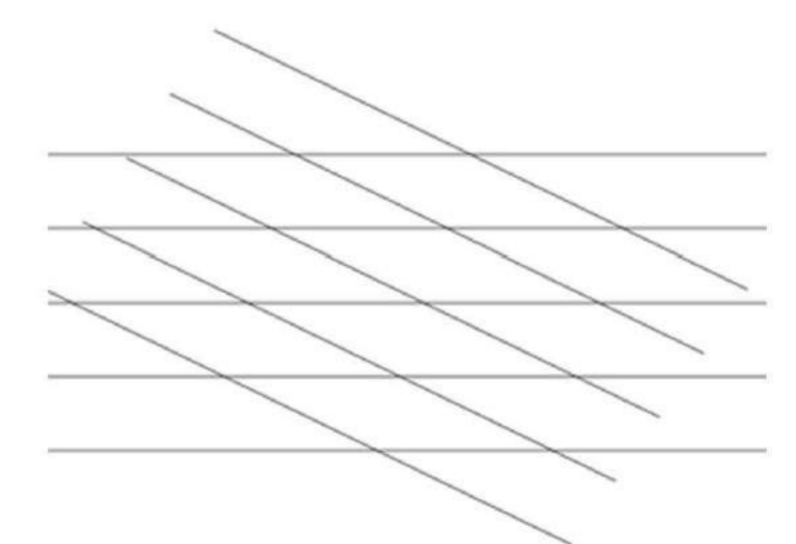
THE FOOTPRINT of the housing in the project have been reduced to 25% of the total site area in order to make space for public and private open green spaces, thus acting as green lungs for the polluted neighborhood.

A MAT STRATEGY had been implemented for the master plan. It creates clusters, allowing for a maximum of open green spaces without compromising the solar energy harvesting.

A GRID created by horizontal lines (East-West) and 30° East, 30°West inclined lines dictate the process. This grid could be extended at even larger scale, since it's generic but can still adapt to local contingencies



HORIZONTAL LINES & 30° WEST LINES



HORIZONTAL LINES & 30° EAST LINES

1. PHOTOVOLTAIC PANELS

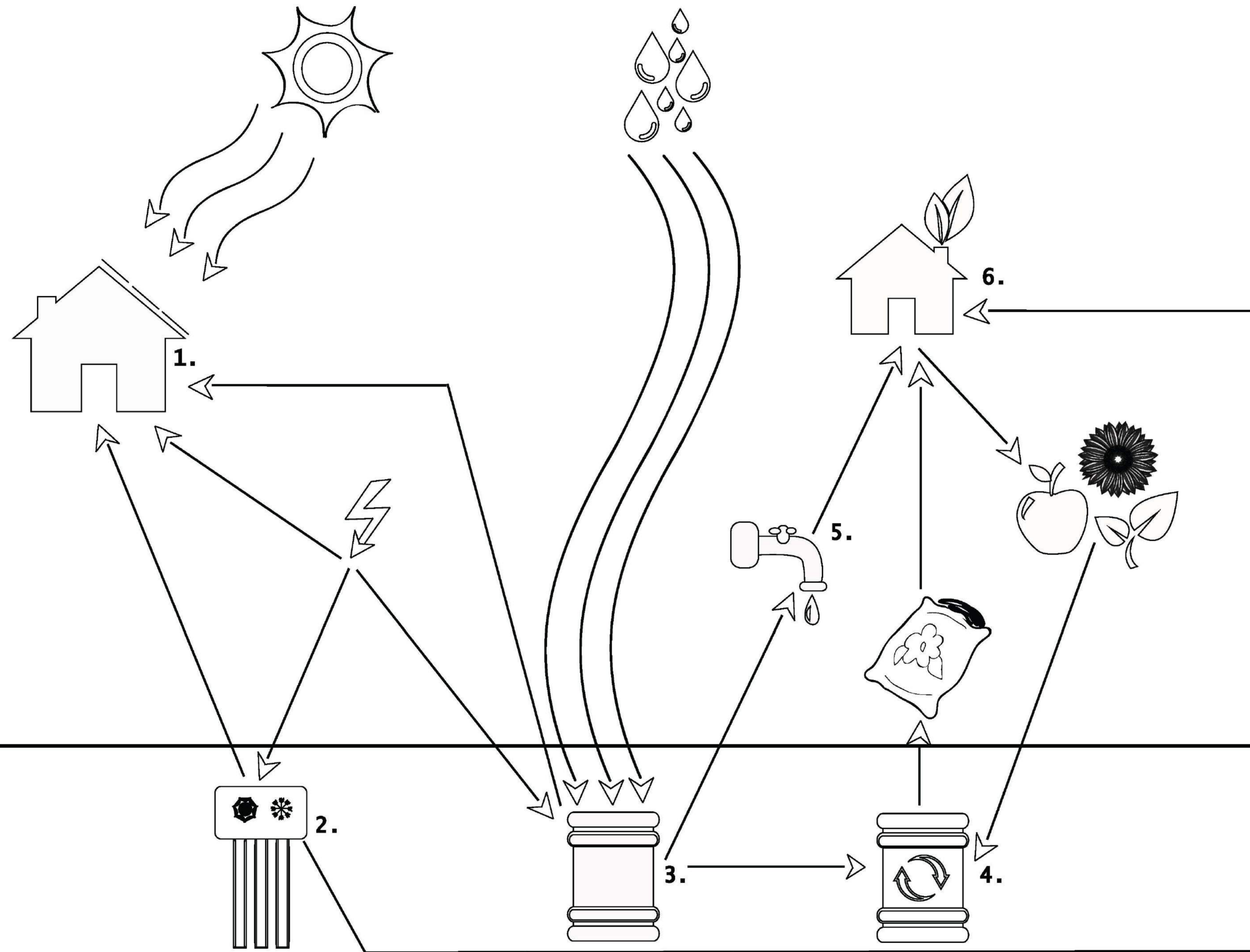
An average Italian family uses around 3000 kwh of electricity each year. 8sm of monocrystalline silicone photovoltaic panels produce 1100-1300 kwh of electricity a year in the area of milan.

2. GEOTHERMAL SYSTEM

The geothermal system uses the consistency of underground temperature to operate. With 12cm diameter pipes, 30m deep into the ground, a 4t heat pump would be enough to heat and cool the house in different seasons.

3. RAINWATER COLLECTION

The average precipitation in Milan is ab 920mm yearly. Rainwater is collected from the roof as well as from the landscape and is filtered, then stored into 150m3 underwater tanks so that it could be used for secondary domestic uses



6. GREENHOUSE

Greenhouses bring the field into the house. They enable almost any crop growth, give higher control over factors and extend the season of most crops. Greenhouses receive heat from the geothermal system, and are irrigated by a drip hydroponic system and supplemented by a home made fertilizer. We will be cultivating tomatoes, cucumbers lettuce, peppers and herbs for domestic use.

5. HYDROPONIC SYSTEM

Hydroponic system is up to 10 times more efficient in water usage than soil. A system of pipes uses the collected rainwater to irrigate the bato buckets containing the plants by dripping the fertilizer used as a nutrient solution which is also of home production as a compost tea.

4. COMPOSTING SYSTEM

Home composting systems are relatively easy to maintain and have fast results. Every two houses will be recycling their organic waste into multiple plastic bins, to allow rotation. Approximately a four-person house would produce around 250kg of waste per year, transformable into 80kg of fertilizer.

