LAGI 2019 ABUDHABI

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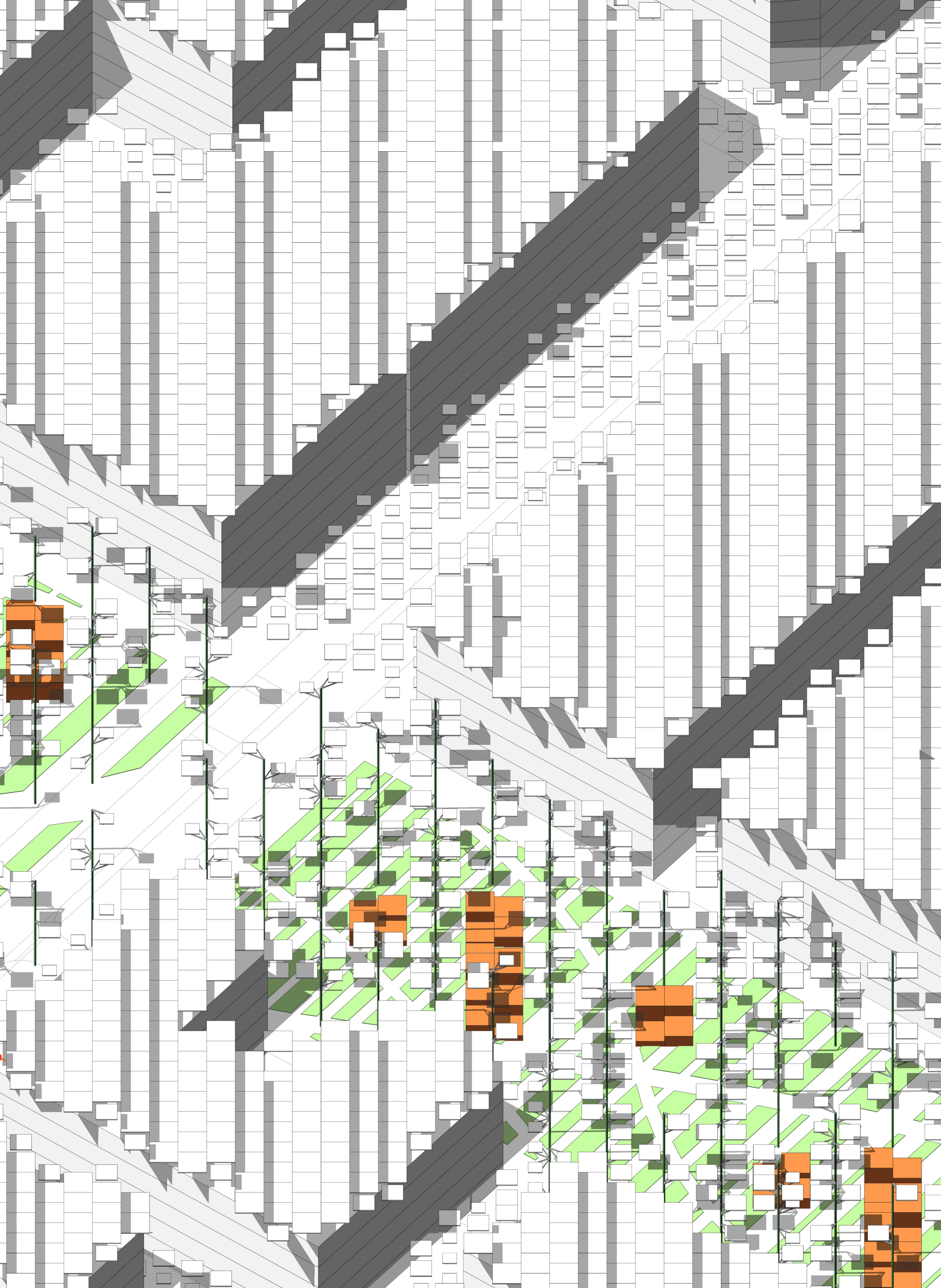


The presented concept was created as the idea of covering the whole city with a structure resembling a canvas waving freely on the curvature of the building height. Covering roofs, streets, sidewalks and parks will generate the necessary shade to improve the living conditions of residents and city users. The roofing of the entire urban layout has been subjected to the process of using natural assets and minimizing the adverse effects of city use.

The presented urban interiors and the fifth façade of the city are the result of the transition through many operational processes presented below.

Perforation of the cover in the east-west system is a response to improving the ventilation of city streets, by varying the altitude (generating a void between them) in order to create wind catchers. This solution supports the ventilation of streets and buildings, giving the possibility of minimal compression and expansion of air and thus lowering its temperature (at wind speeds occurring in a given location, the temperature change should be perceived individually). The lack of variation in the height of the north-south cover panels is conditioned by the limitation of the mutual shading of the panels at noon in the objectives of effective solar radiation collection and thus generating shade below in the hottest time of the day. The entire layout of the roof panels (fifth façade) of the city was conceptually extended to the entire urban planning as an invitation to use for streets, pavements and buildings.

Roof panels will be equipped with photovoltaic cells as an effective and ecological use of the natural environment.

In order to allow light to the building sectors, some of the designed panels were reduced in order to add an openwork over the streets (25%).

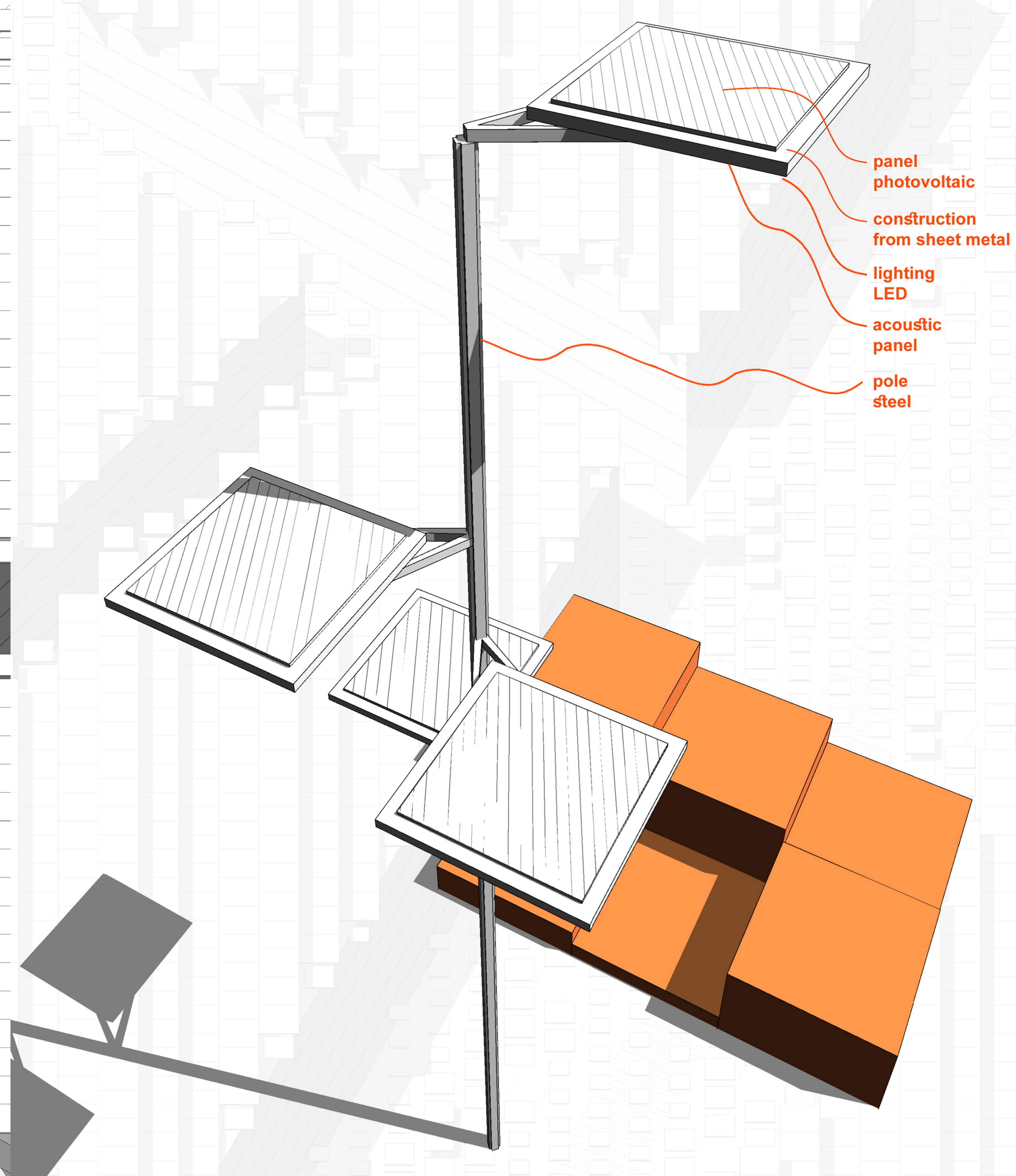
The openness of the city roof structure has been increased above the sidewalks (50%) in order to provide access to daylight for residents and building users.

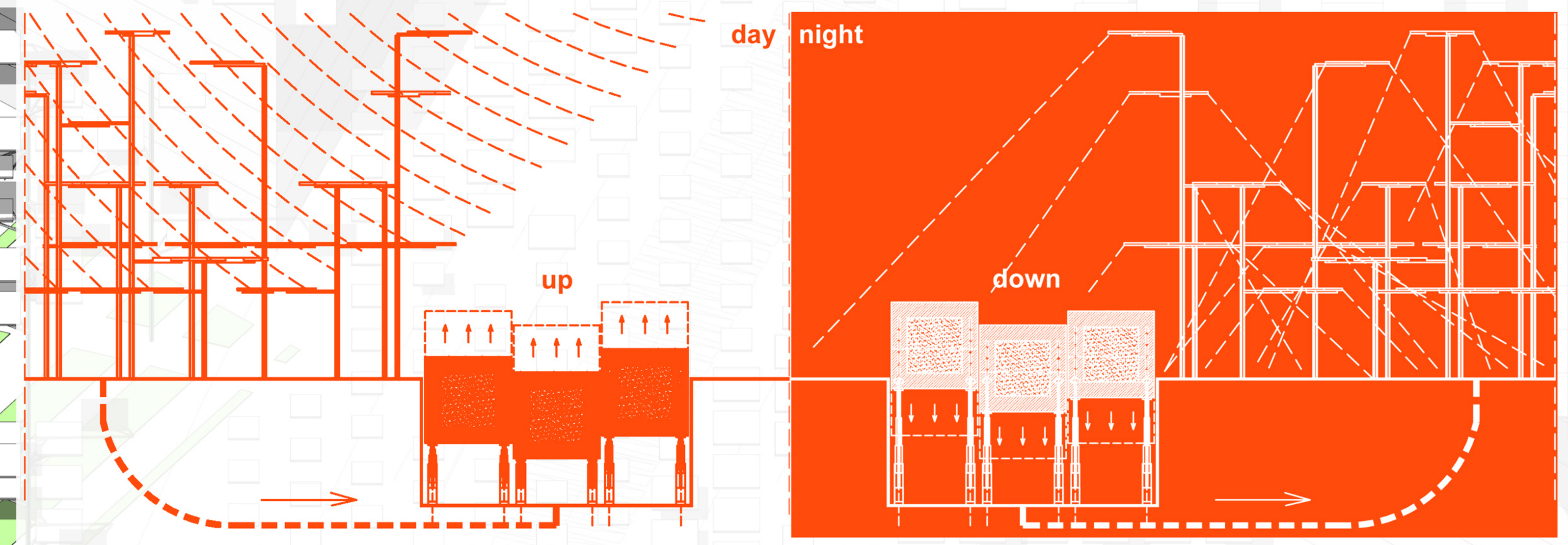
Differences in the percentage of clearances between streets and pavements result from the desire to limit the sun heating the finishing material of flat surfaces, where asphalt as road wear layer will absorb more calf energy than pavements, thereby generating an increase in ambient temperature. Its shade gives the opportunity to lower the temperature of the earth in the city during hot days.

Due to the need for full access to sunlight and the sky for high greenery, the panels over the trees were abandoned.

Orange cubes marked with the aim to mark the energy storage locations during the day. Of course, the method of storage can be differentiated, presented in the concept, mechanical energy storage (using gravity) to make observers aware of electricity generation from solar panels, during the day and at night to receive electricity for street lighting, pavements and parks through lamps fixed in the structure of the panels from the bottom. The energy storage mechanism will use reinforced concrete cubes filled with sand (to increase their weight) and lifted up through the elevator scrolls during the daytime supply of electric motors that drive the entire system. At night, the cubes will be released from their upper position in order to turn the scrolls in the opposite direction, thereby generating current through the same electric motors that raise them up. The electric power consumption obtained in this way should be used for lighting streets, pavements and parks from the lower layer of panels with installed LED lighting.

In order to provide ventilation at the level of 25% for the city raised panels up. In order to provide street ventilation at the level of 50%, some panels have been lowered down. Adapting the level of city panels to the city development will locally raise or lower their level in order to adapt them to the economic attachment to the roof structure. The desired side effect of using panels lower than roads gives a reduction in noise emission at higher levels of buildings, and on the roofs of ......





generating energy from photovoltaic cells

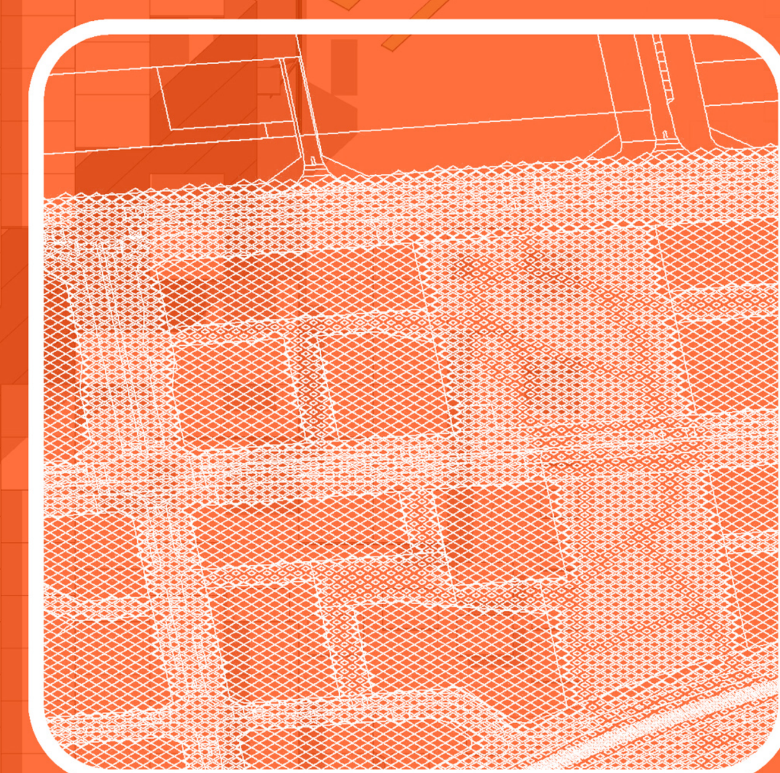
energy consumption for night lighting

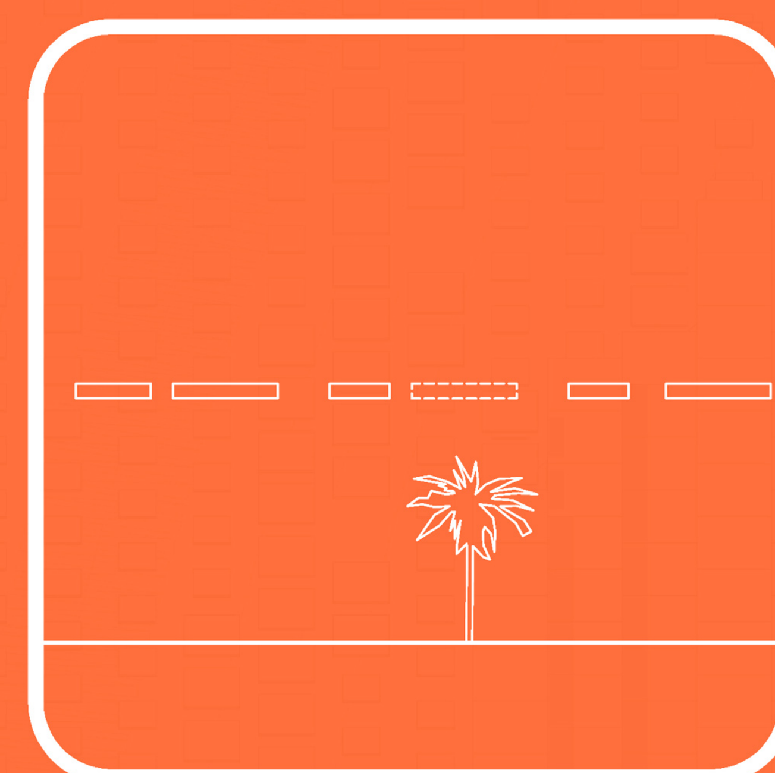

grid of installation cells

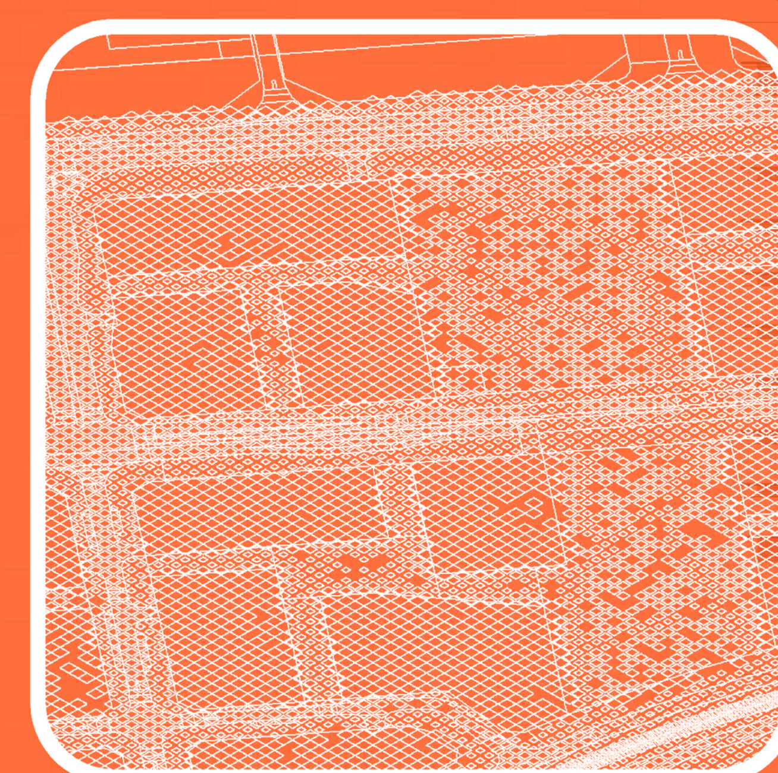

25% of insolation below


shading 75% of roads and sidewalks


50% of insolation below


shading 50% of pavements


opening the city roof to urban greenery


roof graphics with green areas