

This has been demonstrated in Case Study 6 where, during morning hours, a building with front and rear overhangs produced solid masking of up to 84% in its own North facade. It is worth recommending the homogenous building shape (that does not produce front and rear overhangs) in order to assure full sunlight on the potential collecting surfaces, as much vertical ones to the North in new groups as in existing groups where it is a basic condition for recycling.

The vertical displacement of the sensor that was used for measuring the irradiance of the partially sunny facade zone demonstrated the importance of establishing design strategies and legislation in accordance with a highly forested city that generates unique conditions above and below the trees. Furthermore, the influence of the surrounding buildings decreases when we consider greater building heights, as shown in Case 1.

The analyzed urban determinants for solar energy collection in North facades (trees, building morphology and building height), have greater intensity when they are combined with a narrow street channel. This situation corresponds to Case 7 where the minimum received solar radiation values are produced when considering all the hours of measurement. This determines that the strategies recommended for narrow urban canyons should be demanding with regards to the type of permitted tree species, maximum height of buildings, forms, and withdrawals.

The comparison made between the obtained measurements in Case 6 and the hemispheric photograph from the sensor's location suggests that, in order to quickly find out the energetic characteristics of urban-building environments, one can draw a grid of representative points of each environment and from each point of the grid obtain an hemispheric photograph, overlap it with solar trajectory that corresponds to time and place of the photograph and study the positions and hours of access to the sun. This information can be used as entering variables for an estimation model of global irradiance on inclined surfaces in order to find out the energetic availability of the environment.

The achieved results contribute to the progressive reforming and updating of urban and building codes in order to implement the highest levels of energetic efficiency and the minimal environmental impacts from urban buildings.

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