

Light, views and money:

Average perimeter distance and its relation to floor plate geometry

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Abstract

Environmental comfort in buildings with large floor plates is linked to the distance of workspaces to the building perimeter. This is particularly important with regard to natural light and views afforded by such arrangements. In order to measure or gauge the degree of this comfort, this paper introduces the index of average perimeter distance for any given floor plate. In definition, this index sums up distances to perimeter of all locations on a given floor plate. Locations found lying along polygons that are offsets of the plate perimeter have equal qualities associated with light and views, while the length of each offset polygon determines their precise number. In effect, the index is affected by the combination of the geometry and configuration of floor plate, atria and cores without a direct relation to the perimeter length. Therefore, by associating perimeter length with a considerable part of the building cost, it is possible to evaluate existing floor plates or design schemes with regards to improving natural light levels while reducing costs.

Keywords

Floor plate, average perimeter distance, perimeter length, natural light level, building cost, consecutive offsets

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