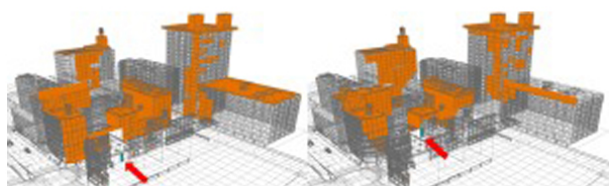


Skyline-Based Geometric Simplification for Urban Solar Analysis

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Automatic skyline-based simplification from two POIs

Solar simulation for 3D city models may be a complex task if detailed geometry is taken into account. For this reason, the models are often approximated by simpler geometry to reduce their size and complexity. However, geometric details, as for example the ones that exist in a roof, can significantly change the simulation results if not properly taken into account. The classic solution to deal with a too detailed city model is to use a Level-of-Detail (LoD) approach for geometry reduction.

In this paper we present a new LoD strategy for 3D city models aimed at accurate solar simulations able to cope with models with highly detailed geometry. Given a Point of Interest (POI) or a Region of Interest (ROI) to analyze, the method works by automatically detecting and preserving all the geometry (i.e., roofs) that have significant impact on the simulation and simplifying the rest of the geometry.