Optimization of Daylight in Tall Buildings using an Integrated Workflow

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In defining the concept of a sustainable tall building, one key area to explore is daylight design, due to the significant energy and resource demand from the extensive reliance on artificial lighting. However, there is limited evidence-based literature currently available on daylight optimization strategies that are specific to the concerns and features of tall buildings. Hence, this study sets out to explore different strategies via an experiment-based research process.

The current workflow for such a research tends to be cumbersome and tedious, with its need to negotiate multiple software platforms and file exchanges. Instead, this study aims to explore an alternative integrated workflow that combines modeling and simulation tools within a single platform, with the help of DIVA, an environmental simulation plug-in for Rhino/Grasshopper. The focus is on methods by which this workflow can be applied to facilitate the experimental derivation of daylight optimization strategies that are specific to tall building design.