



# Parametric Control of BIM Elements for Sustainable Design in REVIT

[RESEARCH]

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Using analytic data as a driver to control the geometry of BIM elements is currently a promising method for parametric creation of design elements such as sun shades, which respond to environmental constraints such as incident solar radiation or solar angles. This can be done qualitatively, but evaluating multiple options with many variables is time consuming. A preferred method is to use analytical data coming from applications such as Ecotect to parametrically control BIM families. This article reviews customization of the Autodesk Revit BIM authoring software to allow for data exchange between BIM and analytical applications (Revit and Ecotect), where analytic data is used to control the geometry of Revit families. The article first discusses concepts of solar radiation and relationships to optimum design of shading devices and previous parametric modeling work done in other software applications. Then, development of a custom plug-in for Revit that allows import of numeric data and parametric control of Revit families based on these values is discussed. Also, relationships to Ecotect and data exchange between these different software applications are discussed, followed by a case study.

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