The Use of Building Energy Simulation Software in Case Studies: A Literature Review

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Abstract : The use of Building Energy Simulation (BES) software has increased in the last two decades, parallel to the development of increased computing power and easy to use software applications. This type of software is primarily used to simulate the energy use and the indoor environment for a building. The rapid development of these types of software has raised their level of user-friendliness, better parameter input options and the increased possibility of analysis, both for a single building component or an entire building. This, in turn, has led to many researchers utilizing BES software in their research in various degrees. The aim of this paper is to carry out a literature review concerning the use of the BES software IDA Indoor Climate and Energy (IDA ICE) in the scientific community. The focus of this paper will be specifically the use of the software for whole building energy simulation, number and types of articles and publications dates, the area of application, types of parameters used, the location of the studied building, type of building, type of analysis and solution methodology. Another aspect that is examined, which is of great interest, is the method of validations regarding the simulation results. The results show that there is an upgoing trend in the use of IDA ICE and that researchers use the software in their research in various degrees depending on case and aim of their research. The satisfactory level of validation of the simulations carried out in these articles varies depending on the type of article and type of analysis.
Keywords : building simulation, IDA ICE, literature review, validation
Conference Title : ICBPBE 2019 : International Conference on Building Physics and Built Environment
Conference Location : Tokyo, Japan
Conference Dates : January 07-08, 2019