Building performance simulation in the early design stage: An introduction to integrated dynamic models - DTU Orbit (03/11/2019)

Designing with building performance simulation feedback in the early design stage has existed since the early days of computational modeling. However, as a consequence of a fragmented building industry building performance simulations (BPSs) in the early design stage are closely related to who is creating and operating the BPS models. This paper critically reviews the different ways designers and analysts use BPS in the early design stage. One of the key findings is that most tools and methods used in the early design stages are insufficient to provide valid feedback while in the same time being flexible enough to accommodate a rapid changing design process. The main concern points to the way geometrical models and analytical models are combined and how this affects the way the buildings are designed and perform. This paper concludes that integrated dynamic models may combine a design tool, a visual programming language and a BPS to provide better support for the designer during the early stages of design as opposed to alternatives such as the current implementation of IFC or gbXML or the unaccompanied use of simulation packages. (C) 2015 Elsevier B.V. All rights reserved.