For many years, it has been said that building performance simulation has huge potential to assist decision-making in the early/conceptual building design phase. If this is indeed true, then why is it still not happening on a wide scale in the building industry? What are the two most important underlying causes and how can they be addressed?

De souza:

* There is a lack of knowledge from the building designer side about simulation in general, as well as about the fundamentals of physics (mainly about heat transfer and dynamic phenomena) to understand simulation results and undertake design decisions based on them.

Builder designers generally don’t have enough knowledge about simulation in general and the physics behind the simulations to adequately understand and analyse simulation results. This lack of understanding also makes it difficult for them to evaluate the effects of certain decisions in the design process on simulation results.

* At the same time, building physicists offer tools with interfaces that do not function with vague design descriptions and do not facilitate the detection of patterns in outputs or the reasons behind them; i.e. they do not offer tools that “aid understanding the relationships between design factors and building performance”.