Establishing a method to perform a BPS - Building Performance Simulation.

Nowadays to say that a building has a good energy performance, it is necessary to develop a BPS to have an approach to the real energy performance. And it's accessible to anyone with scientific and technical knowledge interested in energy issues.

Steps to follow in order to do a BPS:

1. External Data - Environment
   - Analyze the external conditions of the region where the building is located.
   - *Outside Temperature*
   - *Global Horizontal & Diffuse radiation*
   - *Wind speed & Direction*

2. Modelling
   - Model the building simple as possible form, without detailing thoroughly geometry. This to facilitate the calculations to the calculation engine.
   - *Orientation*
   - *Partitions*
   - *Number & use of each zone*

3. Simplified Building Data - Construction
   - Enter only the information necessary to make a first approximation of results.
   - *Envelope & U-value of all opaque and transparent building exterior surfaces*
   - *Shading of all glazing components*

4. Simplified Systems & Equipments
   - Enter only the information necessary to make a first approximation of results.
   - *Internal conditions*
   - *Internal Gains*
   - *Occupancy and schedules*
   - *HVAC set points*

5. Analyzed Behaviour
   - Once the building have a better performance, the HVAC systems can be detailed using the same interior conditions and set points and can be add a detailed schedules and all equipments.

6. Detailed Building Data - Construction
   - Once made the analysis, if have a good performance, the envelope can be detailed or try different construction systems or materials.

7. Detailed Systems & Equipments
   - The final results are obtained once we have the desired performance of the building or we reach the desired performance in schedules and energy consumption.

8. Final Results

(Hansen & Radosevic 2004) Taking care of these issues is in principle the responsibility of the person who uses the simulation model to predict what will happen in future reality.

References: