From C F Reinhart, 'Simulation-based daylight performance predictions', book chapter in 'Building Performance Simulation for Design and Operation', Editors J Hensen and R Lamberts, Taylor & Francis, to be published in January 2011.

Table 10.2: Daylight Simulation Checklist.

Before you start	Did you decide which daylighting performance metrics to simulate and how to interpret the results?
	Do you have a general idea of what the results should look like? E.g. a mean daylight factor in a standard sidelit space should lie between 2% and 5%; interior illuminance should lie between 100 lux and 3000 lux and daylight autonomies should range from 60% to 90% throughout the space.
	Have you verified that the simulation program that you intend to use has been validated for the purpose that you intend to use it for, i.e. that the simulation engine produces reliable results *and* that the program supports the sky models related to your performance metric of choice? (An example would be the old CIE overcast sky for daylight factor calculations.)
	Have you secured credible climate data for your building site? (This is only required for climate-based daylighting performance metrics.)
Preparing the scene	Did you model all significant neighboring obstructions such as adjacent buildings and trees?
	Did you model the ground plane?
	Did you model wall thicknesses, interior partitions, hanging ceilings and larger pieces of furniture? Try to model all space dimensions at least within a 5cm tolerance. Façade details should be modeled with a 2cm tolerance.
	Did you consider window frames and mullions by either modeling them geometrically or by using reduced visual transmittances for windows and skylights?
	Window glazings: - Did you check that all window glazings only consist of one surface? Several CAD tools model double/triple glazings as two/three closely spaced parallel surfaces whereas daylight simulation programs tend to assign the optical properties of multiple glazings to a single surface. - Did you check that all windows are 'inserted' into the wall planes and not "overlaid" on the wall surfaces? Several CAD tools suggest that you can create and visualize a window in many different ways, one simply being the placement of a window surface on top of a wall surface which case end up with two coplanar surfaces. As a result the simulation program will either ignore the window or somehow 'guess' which surface to consider.
	Did you assign meaningful material properties to all scene components (see Table 10.1)?
	Did you model any movable shading devices such as venetian blinds? If yes, do the results make sense?
Setting up the simulation	Make sure that you set up your project files correctly. This may involve: - Checking that your project directory and file names do not contain any blanks (" "). - Verifying that all sensors have the correct orientation, i.e. work plane sensors are facing up and ceiling sensors are facing down. - Setting the resolution of the work plane to 0.5m x 0.5m or 1ft x 1ft and placing it around 0.85m above the floor. - Selecting simulation parameters that correspond to the 'scene complexity'. To do so you should consult the technical manual of your simulation program. - Selecting the correct sky model (CIE, Perez, etc.).