The Skybox (Overcast Sky Simulator): A Daylighting Resource
The Skybox is best used to evaluate and compare several schematic design options. The Skybox mimics a condition known as the "International Overcast Sky", where diffuse light is equally available from all compass directions. A model is placed inside the skybox for qualitative and quantitative evaluation of daylighting performance. Direct observation, photography, and calculated daylight factors are used to evaluate performance. This evaluation cannot be used to predict absolute illumination in a space. If precise prediction of illumination levels is needed, consult with a professional daylighting firm.

Types of Studies
When used to compare design options, a Skybox Daylighting Model Study reveals the quality and variations of light distribution as well as surface brightness in the space. Daylight factors taken at various locations in the model can further describe relative performance of the different options. Daylight factor is the ratio of interior measured daylight to exterior measured daylight.

Building the Model
- Understand the questions you want to answer. The model building effort should match the ability to effectively answer those questions.
- Make a base model using interchangeable parts to test multiple facade or skylight options. Design to test representative spaces, not every space.
- For a schematic model, 3/8" = 1'-0" or 1/2" = 1'-0" scale is recommended for spaces with ceilings less than 15'-0". It should be no larger than 4' x 4' in plan. Indicate true north on the base.
- Select or add model materials to represent the reflectance of interior surfaces. Do not use uncovered white foam core. For an office or school, consider ceiling reflectance to be 80%, walls 60%, and floors 20%. It is less important that finish reflectance be precisely accurate and more important to have consistency for each option tested.
- If your design includes different types of glass, infill window openings with material to approximate the visible transmittance of the glass per window.
- Construct it to withstand tilts of up to 90 degrees.
- Add scaled elements that affect daylight distribution (e.g. people, furniture, partitions, and exterior elements).

Documentation
If photographic documentation is desired, bring a camera and cut replaceable camera openings into model (see inset photo). Also bring a digital storage device to upload the measured data.

Scheduling and Testing
A session lasts about 1 to 2 hours, depending on the number of views, level of discussion, and documentation method. To schedule a Skybox session, email us at PECArchitecture@pge.com.