Heliostat Skylight

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Abstract

The Heliostat Skylight is a device which tracks the motion of the sun across the sky, thus ensuring that the maximum amount of sunlight strikes the mirrors throughout the day to reflect it down into a room. This sunlight would otherwise be lost. After finding the sun's position in the sky, the Heliostat will ensure that the best sunlight is captured by following the sun through its path.

The Heliostat Skylight sun tracking system uses four light sensors to determine the sun's position and two stepper motors to control the movement of the sun tracker. When the sensors detect light, the vertical stepper motor will lift the mirrors upwards and adjust the position depending on the sun's position to reflect the sun light downward in the space below. Then, it will check the left and right sensors to detect which sensor has a higher light level, after which the horizontal stepper motor will rotate the Heliostat in the correct direction. When the sensors detect low light levels, the heliostat will turn off and return to it home position. The figure below shows the theory behind tracking the position of the sun.

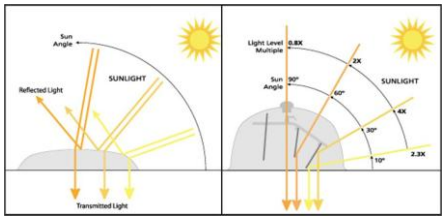

Figure 1: Heliostat Tracking Theory