

HCC STEM Building Unique Glass Window Features

The STEM Building was designed with many large walls and windows made of glass. This provides a dramatic appearance from the exterior and a dramatic view of the campus from the interior of the building. This has both positive and negative effects on the use of the building.

- The added natural daylight inside the interior spaces reduces the need for artificial lighting sources, which reduces energy consumption and utilities cost.
- Increased natural light leads to solar heat gain and increased glare on work surfaces, computer screens, and projection screens.
- Solar heat gain in the increase in temperature that results from solar radiation passing through the glass and the inability of the resulting heat to pass back out through the glass (the greenhouse effect).

A cost effective way to eliminate solar heat gain is by using external, horizontal fixed-position Durasol sunshades on the outside of the glass. At first glance, these sunshades look like a horizontal shelf on the outside of the window. However, the shelf is not solid; it is made of vertical strips like a window blind, but these strips do not move like those on a venetian blind. They remain in a fixed position and are placed to block 50 to 90 percent of the sun's energy that enters the building. This reduces the need for air conditioning and retains the benefits of the increased window wall area.

Internal solar shading, like traditional window curtains and venetian blinds, does eliminate a proportion of solar heat gain by reflecting it back through the glass, but their main function is to reduce or eliminate glare. **External solar shading** reflects solar energy before it ever enters the building and is much more effective.

