

Performance & Weather Data Sept 1 - Nov. 30, 2014

Southern exposure only with limited shading is an important factor. *These tests are limited. In particular they do not include glazing on the west, north and east building faces. As such they may not accurately reflect building envelope performance under optimal control conditions.*

Solar panels extending 36" from the building above the windows average 4.85% shading during this period.

The weather and temperature information gathered is based on the U.S. Postal Code for the Chicago Center for Green Technology (60612) and sourced through the [WeatherUnderground website](#).

The room is approximately 47 feet wide from east to west. The windows being tested are at opposite ends, approximately 40 feet apart. They are double glazed, wood cased with no films applied or gasses present. The window wells are quite deep. At almost exactly 11" from the inside face of the glass to the face of the shades there is ample room for convection currents.

The ceilings are 128" high, there are four HVAC vents equally spaced across the ceiling. Both the vents and ducts are exposed. The thermostat dedicated to the room is on the opposite wall. Daily records of thermostat settings have not been available. It is safe to assume an average setting of 72°F.

High and Low temperatures originate from the graphs below. Temperatures were confirmed and averages were taken from the Onset data spreadsheets.

East Windows = Shades **permanently deployed** throughout test period.
West Windows = Shades **permanently raised** throughout test period.

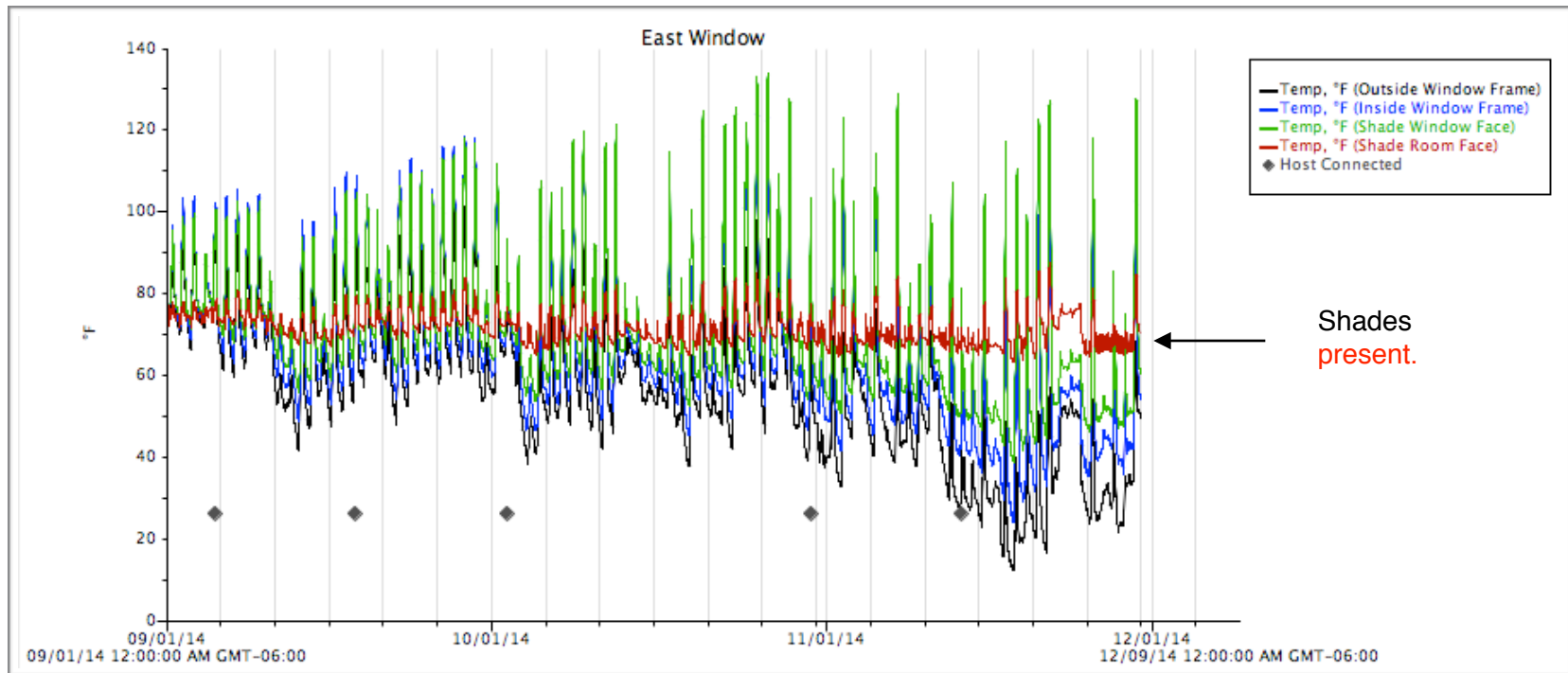
One [Onset](#) data logger and four sensors deployed per window assembly.

Black = outside window frame.

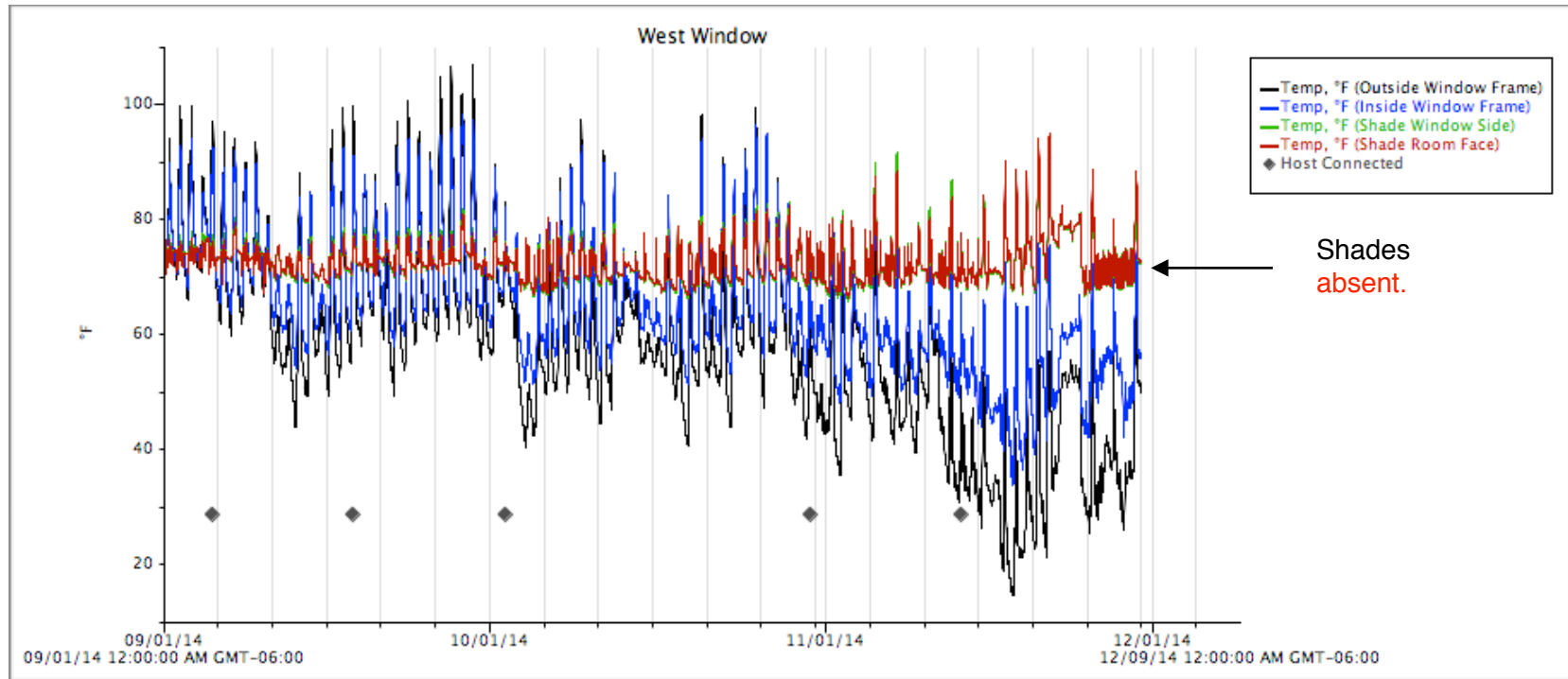
Blue = inside window frame.

Green = window side face of shade.

Red = room side face of shade.



East Windows	Averages	Temperature Comparisons
Outside Window Frame (1) (3) (2)	Sept 29 High 107° Nov 18 Low 12°	56.14°
Inside Window Frame (4)	Oct 26 High 124° Nov 18 Low 24°	65.37°
Window Side Face (4)	Oct 26 High 134° Nov 18 Low 39°	70.79°
Room Side Face (3)	Nov 21 High 87° Nov 18 Low 63°	71.73°



West Windows

Averages

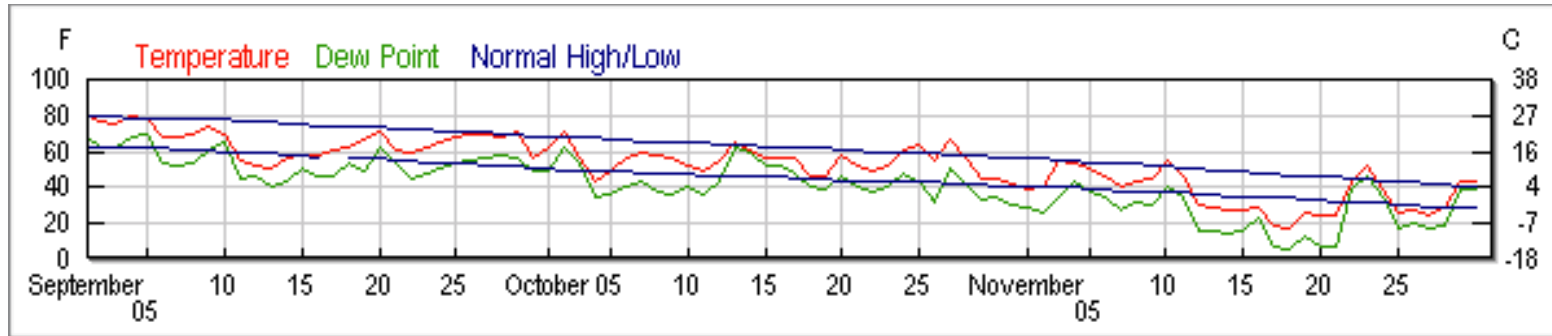
Temperature Comparisons

Outside Window Frame	Sept 29 High 107° Nov 18 Low 15°	57.79°	09/29 84° High 11/18 21° High	57° Low 12° Low
Inside Window Frame (5)	Sept 28 High 98° Nov 18 Low 34°	64.53°	09/28 79° High 11/18 21° High	58° Low 12° Low
Window Side Face (4.5" inset from wall face)	Nov 7 High 92° Oct 5 Low 66°	72.39°	11/07 45° High 10/05 56° High	37° Low 42° Low
Room Side Face (4" inset from wall face)	Nov 21 High 95° Nov 3 Low 66°	72.48°	11/21 36° High 11/03 64° High	13° Low 45° Low

Weather Data Sept 1 - Nov 30 <http://bit.ly/1rYgDI6>

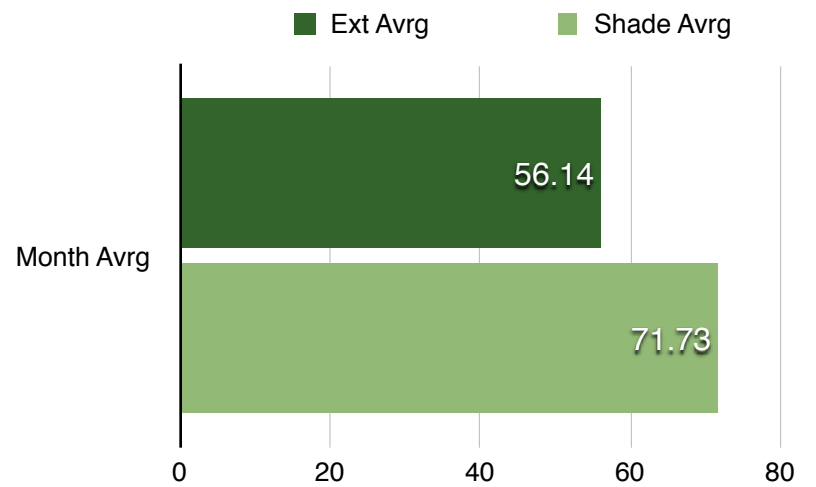
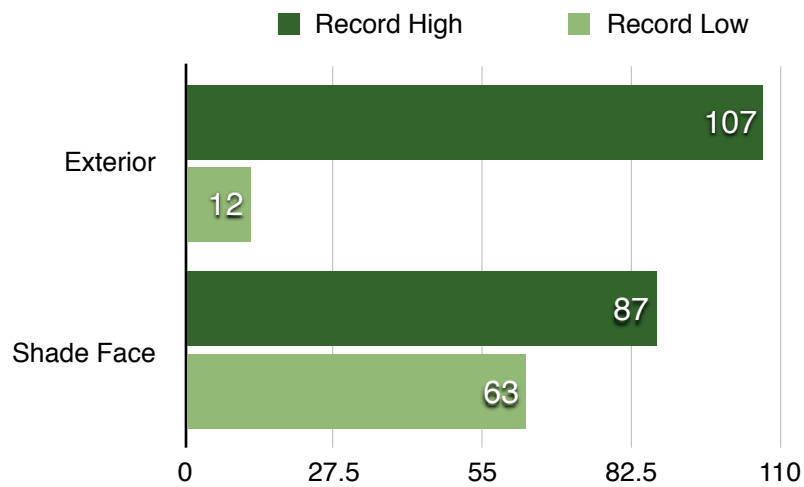
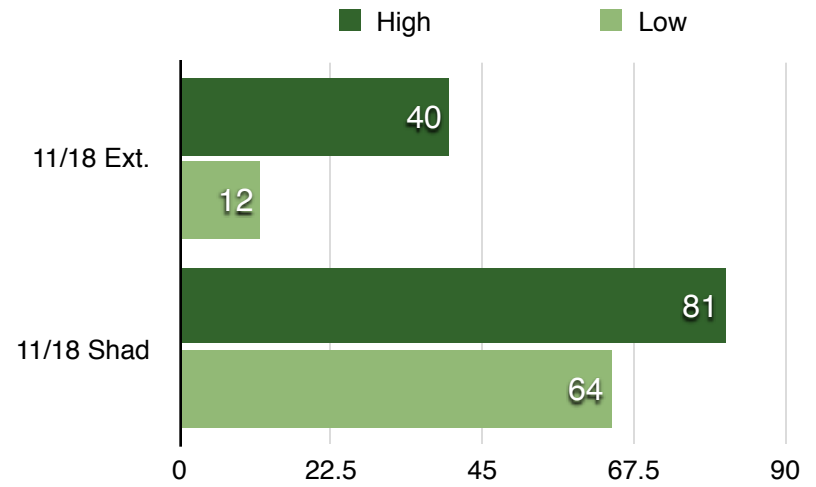
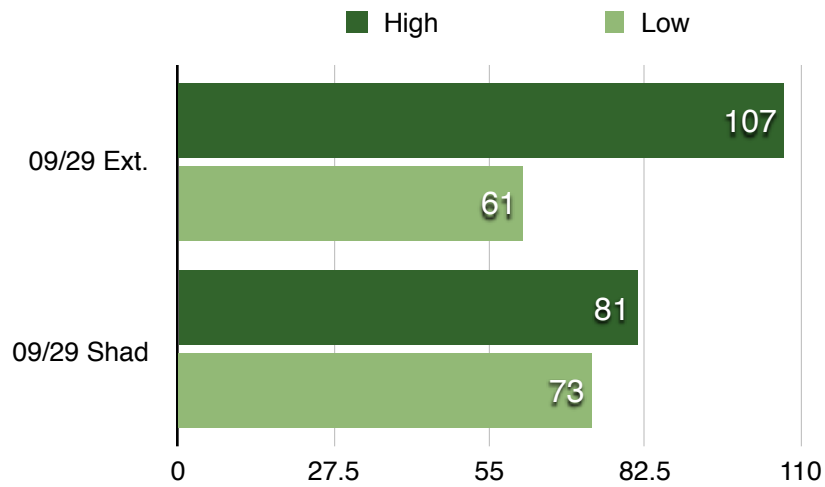
High Sept 5 89°

Low Nov 18 12°



Notes.

- (1) The **Sept 29 exterior High of 107° vs. Low of 61° = 46° difference.** By comparison the **Sept 29 face of shade High of 81° vs Low of 73° = 8° difference.**
- (2) The **November 18 exterior Low of 12° vs. High of 40° = 28° difference.** By comparison the **November 18 face of shade Low of 64° vs. High of 81° = 17° difference.**
- (3) The **exterior High of 107° to Low of 12° = 95° swing.** The **face of shade High of 87° to Low of 63° = 24° swing.** The **exterior average of 56.14° vs. face of shade average of 71.73° = 15.59° difference.**
- (4) The East Window High temperatures recorded on the inside of the window frame and window side face of the shades *is not indicative of a typical installation where the shades would normally be raised during the day to allow for passive gains.* A more accurate representation would be to use the High temperatures from the West Windows. Similarly some of this heat penetration to the inside face of the shades is likely to raise those temperatures somewhat.
- (5) The faulty and loose sensor readings have been excluded from all data collected and reported. In the related Onset spreadsheet the temperature spikes are obvious, contained and did not effect the adjacent cells.



The energy savings and increased comfort due to the temperature moderating and stabilizing effect of **HeatSaver® Thermal Shades** is evident.