HeatSaver® Thermal Shades

Part of the Solution...

Performance & Weather Data March 7 - March 20

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 face above the windows provide 2% shading during March.

The weather 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.

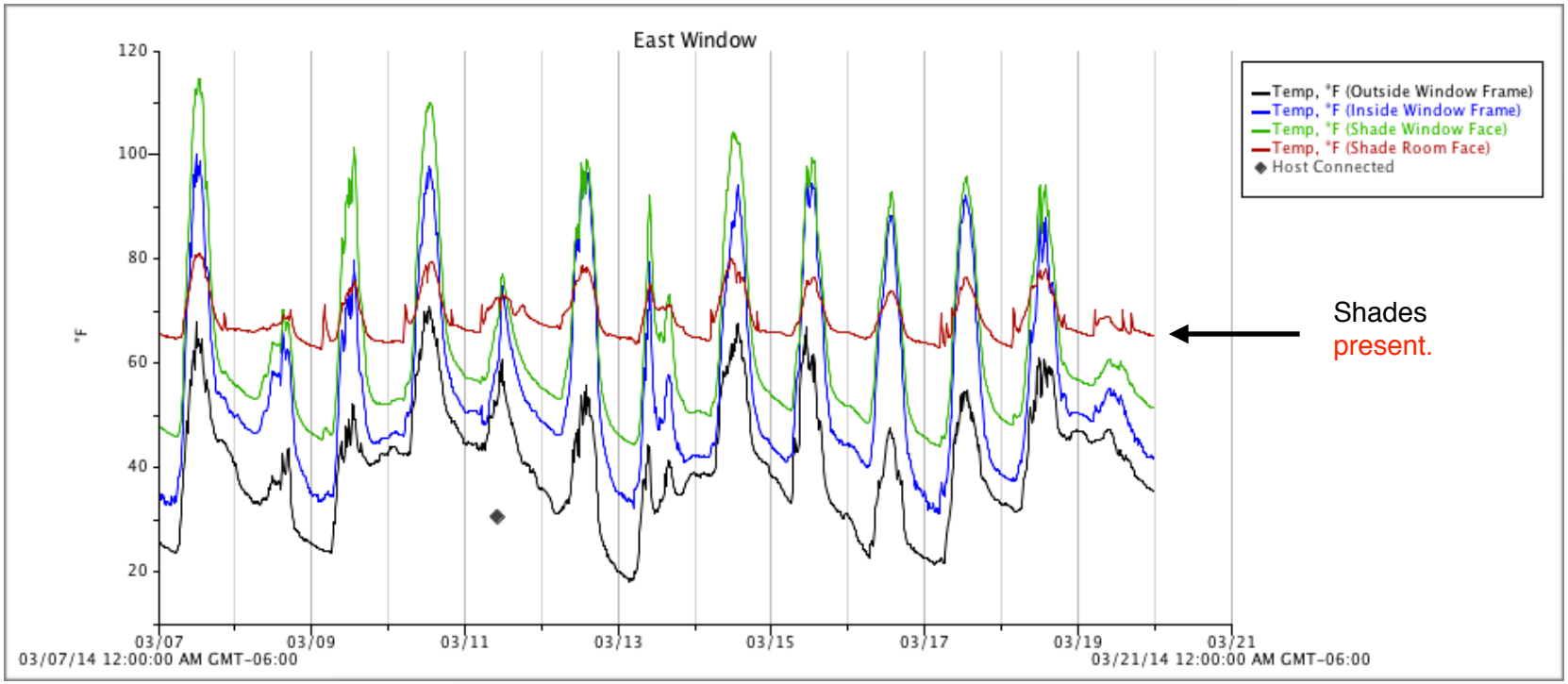
The ceilings are 128" high, there are four HVAC vents equally spaced across the ceiling. Both the vents and ducts are exposed. The thermostat dedicated to the room is on the opposite wall. Daily records of thermostat settings have not been available. It is safe to assume an average setting of 72ºF.

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

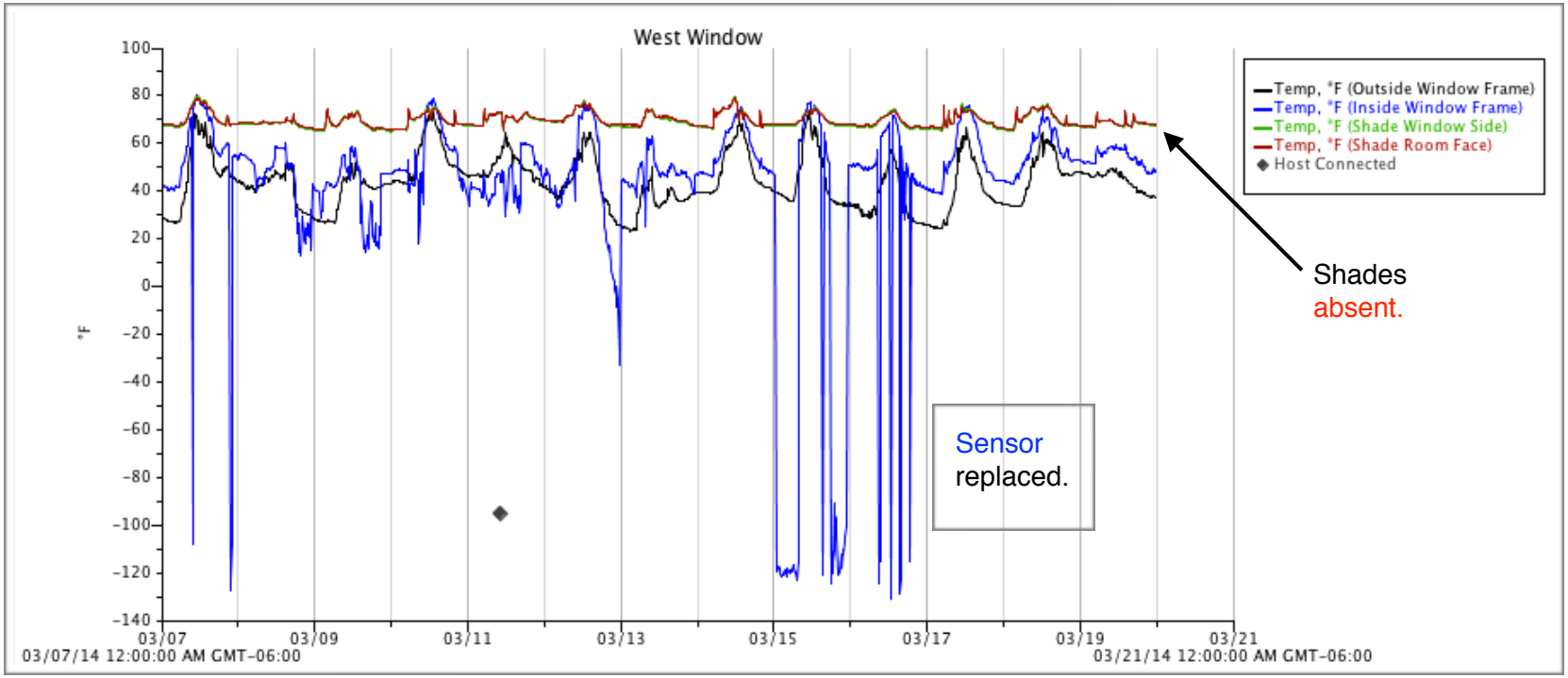
East Windows = Shades ***permanently deployed*** throughout test period.
West Windows = Shades ***permanently raised*** throughout test period.

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.



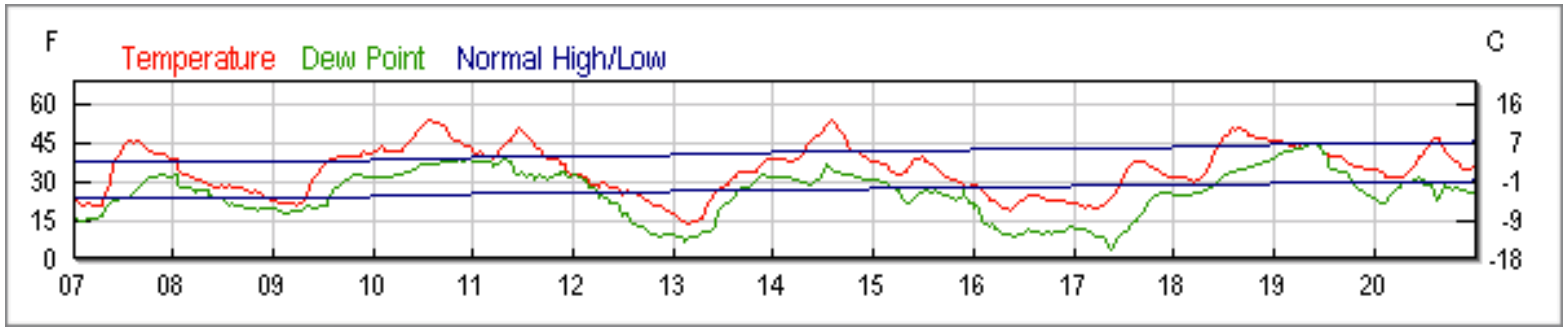
East Windows			Averages	Temperature Comparisons		
Outside Window Frame (1) (3)	Mar 14	High 67°	40.38°	03/14	54° High	38° Low
(2)	Mar 13	Low 18°		03/13	39° High	14° Low
Inside Window Frame (4)	Mar 7	High 100°	54.72°	03/07	46° High	20° Low
	Mar 17	Low 32°		03/17	39° High	20° Low
Window Side Face (4)	Mar 7	High 115°	63.47°	03/07	46° High	20° Low
	Mar 7	Low 46°		03/07	46° High	20° Low
Room Side Face (3)	Mar 7	High 81°	68.64°	03/07	46° High	20° Low
	Mar 9	Low 63°		03/09	42° High	21° Low



West Windows		Averages	Temperature Comparisons		
Outside Window Frame	Mar 15 High 71° Mar 13 Low 24°	43.92°	03/15 03/13	40° High 39° High	28° Low 14° Low
Inside Window Frame (5)	Mar 10 High 79° Mar 8 Low 13°	51.81°	03/10 03/08	54° High 39° High	41° Low 23° Low
Window Side Face (4.5” inset from wall face)	Mar 7 High 80° Mar 18 Low 68°	69.49°	03/07 03/18	46° High 51° High	20° Low 30° Low
Room Side Face (4” inset from wall face)	Mar 7 High 80° Mar 18 Low 68°	69.76°	03/07 03/18	46° High 51° High	20° Low 30° Low

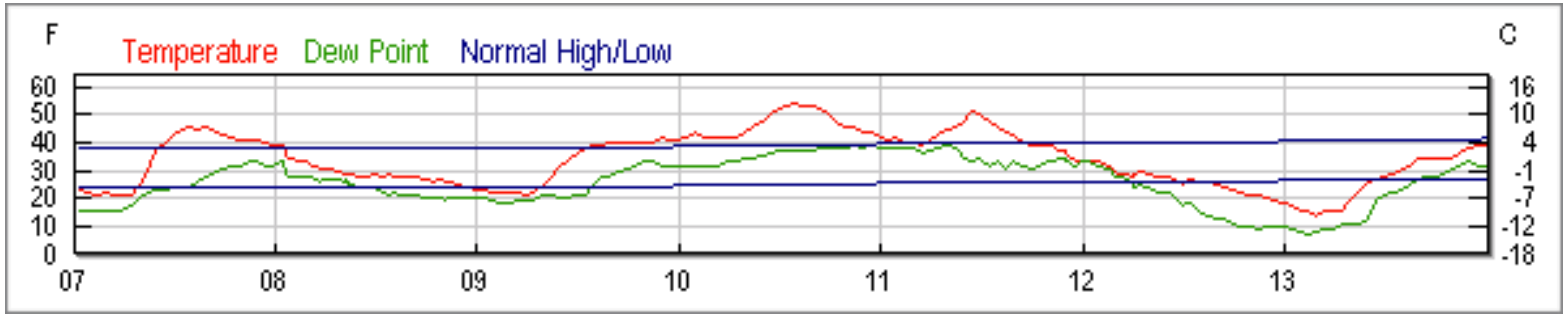
Weather Data Mar 07 - 20 http://bit.ly/1vXBSeG

High Mar 14 54º Low Mar 16 29º



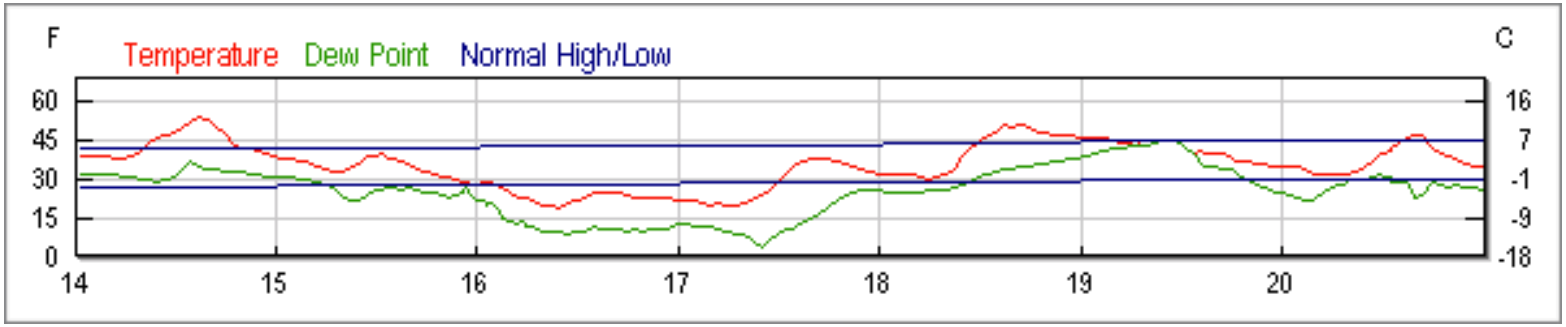
Daily Data Mar 07 - 13

03/07 http://bit.ly/1qj9Qdl	03/08 http://bit.ly/1fhKC6i	03/09 http://bit.ly/NREnQM
03/10 http://bit.ly/Oit6ZK	03/11 http://bit.ly/1esePzZ	03/12 http://bit.ly/1dUHPnf
03/13 http://bit.ly/1gzROvo		



Daily Data Mar 14 - 20

03/14 http://bit.ly/1kuO8zA	03/15 http://bit.ly/1gCAYMy	03/16 http://bit.ly/1fRKtve
03/17 http://bit.ly/1ih6mE7	03/18 http://bit.ly/OBIctr	03/19 http://bit.ly/1ozY3Wd
03/20 http://bit.ly/1dxpM3l		



Notes.

(1) The **March 14** exterior **High of 67°** vs. **Low of 24°** = **43° difference.** By comparison the **March 14** face of shade **High of 81°** vs **Low of 65°** = **16° difference.**

(2) The **March 13** exterior **Low of 18°** vs. **High of 44°** = **26° difference.** By comparison the **March 13** face of shade **Low of 64°** vs. **High of 75°** = **11° difference.**

(3) The exterior **High of 67°** vs. **Low of 18° = 49° swing.** The face of shade **High of 81°** vs. **Low of 63° = 18° swing.**

(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. Similarly some of this heat penetration to the inside face of the shade is likely to raise those temperatures somewhat.

(5) The faulty 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 faulty sensor was replaced on March 16.