

SUNSET GOWER STUDIOS

November 8, 2012

Christopher J. Barton
 Executive Vice President
 Operations & Development
 Sunset Gower Studios
 1438 N. Gower Street
 Hollywood, CA 90028



Roof Top Unit

Proof of Performance – Supplemental and Revised Report

Dear Mr. Barton,

This is a Supplemental and Revised Report of our original report dated November 1, 2012. This report is based upon the data in the attached Sunset Gower Summary Report (the "Report") which, after further review and analysis, revises our savings estimate from a 21% reduction in energy use to 27.98%.

NOTES REGARDING DATA COLLECTION AND REPORTING; SUPPLY AIR AND ENERGY CONSUMPTION

The data reported for the change in supply air temperature was collected by the temperature probe attached to the air conditioning unit and data logger during the baseline and post time periods. As such, the data is not subject to interpretation or dispute – after the unit was treated with IceCOLD®, the supply air temperature was 2 degrees cooler on Sunday and 2.3 degrees cooler on Monday. (Report; Sunday/Monday tabs; Line 1444) As will be discussed below, the net result is the unit is now able to supply cooler air to the space and as such, not only cools the space faster and turns off the compressor more quickly but is also able to keep the space cooler longer with less fluctuation in temperature inside the space.

The ambient temperature at Sunset Gower Studios increased between 33% - 43% between the time the baseline data was collected and the post data was collected. (Report; Sunday/Monday tabs; Line 1454) It is not uncommon to see changes in temperature between the baseline and post period; as a matter of fact, it would be extremely rare to see the temperature remain at a constant 80 degrees (as an example) for the duration of the test.

We confirmed and tracked the changes in temperature using a weather station located nearby in Echo Park (station KCALOSAN59). We utilize www.wunderground.com to obtain the data. That service reports changes in the temperature but also quantifies the changes in terms of "Cooling Degree Days" which is a commonly used and accepted indicator of external heat load and ambient temperature.



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Since we had up to a 43% increase in temperature (also reflected by increased CDDs) between the two time periods, as you might expect, the actual power consumption increased. However, to account for the temperature increase and get a true comparison, I used a ratio of energy consumption against CDDs to perform the comparative analysis. As will be discussed below, using Cooling Degree Days against amperage as an indicator of power consumption, we have 24.4% less power per CDD ratio in the post period for the Sunday comparison and over 31.6% less power per CDD ratio on the Monday comparison. (Report; Sunday/Monday tabs; Line 1457) The average improvement for both days was 27.98%

The following outlines the methodology, results of the Proof of Performance, efficiency improvement and ultimate savings obtained. The backup data is set forth in the Report with open formulas for review and verification. The raw baseline data is in columns G – K, raw post data in columns A – D. The findings regarding Sunday/Monday temperature changes, BTU changes, savings and consumption are generally at lines 1443 – 1467.

METHODOLOGY

Purpose:

Establish a baseline for electricity cost plus supply air temperatures, under normal operating conditions of a roof top unit at Sunset Gower Studios in Hollywood, California. Measure the difference between cost of operating the unit before IceCOLD® and after IceCOLD® to determine efficiency improvement and expected energy savings.

Brand: Singer
Use: Air Conditioning
Refrigerant: R22
IceCOLD® Installed: September 25, 2012

Tools Utilized:

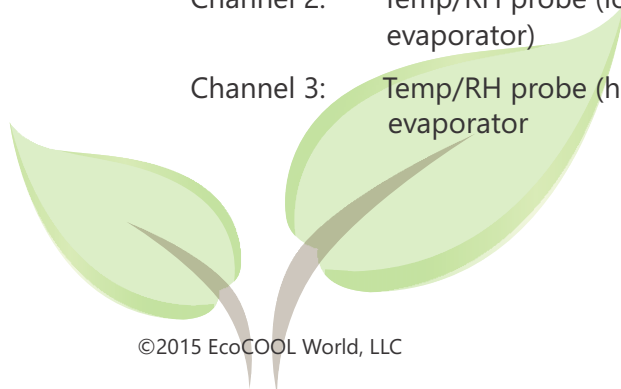
2 U12 Data Logger (Onset Computer)
2 Temperature / Relative Humidity Sensors
1 AMP Probes

Probe Placement

Channel 1: AMP Probe (lower amp reading) placed on the line side voltage on the evaporator

Channel 2: Temp/RH probe (lower temp reading) placed on the supply air from the evaporator

Channel 3: Temp/RH probe (higher temp reading) placed on the return air on the evaporator



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Units Measured

Amperage: Current draw on the L1 (overall amp draw) compressor unit

Temperature/Relative Humidity: On the return and supply air on the evaporator unit

Volume of IceCOLD® Installed

Using a standard formula ratio of 1 ounce of IceCOLD® to 1 ton, 12 ounces were installed on September 25, 2012.

Units Measured

AMP: Amount of electricity needed to operate system

Temperature/Relative Humidity: affecting performance of system

The data logger collected the following data:

As this is a roof top unit, both internal and external heat loads were taken into consideration. As baseline Cooling Degree Days (an indicator of external heat load – ambient temperatures) were higher than in the post period, a ratio of consumption against Cooling Degree days was used along with actual consumption and supply temperatures into the facility. To ensure a comparative analysis, two days were chosen for the baseline period. Sunday was chosen as representative of weekend activity and Monday for weekday activity. By using the same 24 hour period on both days in baseline and post allows for a fair comparative analysis of internal heat load. Additional days were not used in this analysis as the number of CDD's between baseline and post were too extreme. Using the more closely balanced Sunday and Monday ensures the savings and results will be representative of what Sunset Gower can count on in terms of long term savings year over year.

Baseline

Sunday, September 18 and Monday, September 19, 2012 were chosen to represent baseline

Total amps for the period - Sunday at 2736 and Monday at 2666 Amps

Supply Air Average - Sunday 53 °F and Monday 54 °F

CDD's: 8 and 9 respectively

Post Installation

Sunday, October 16 and Monday, October 17, 2012 were chosen to represent post period

Total amps for the period - Sunday at 2068 and Monday at 1824 Amps

Supply Air Average - Sunday 51 °F and Monday 51 °F

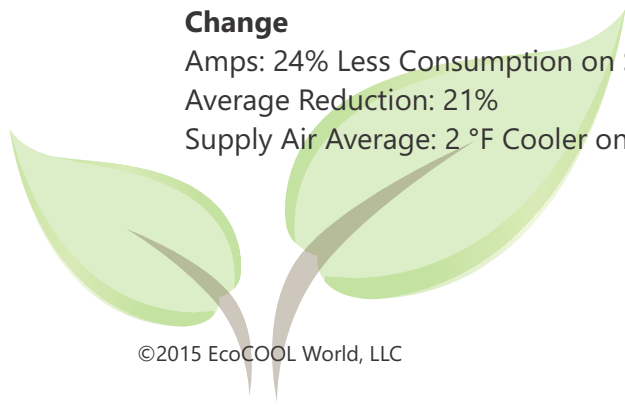
CDD's: 12 and 16 respectively

Change

Amps: 24% Less Consumption on Sunday and 31.6% Less on Monday

Average Reduction: 21%

Supply Air Average: 2 °F Cooler on Sunday and 2.3 °F Cooler on Monday



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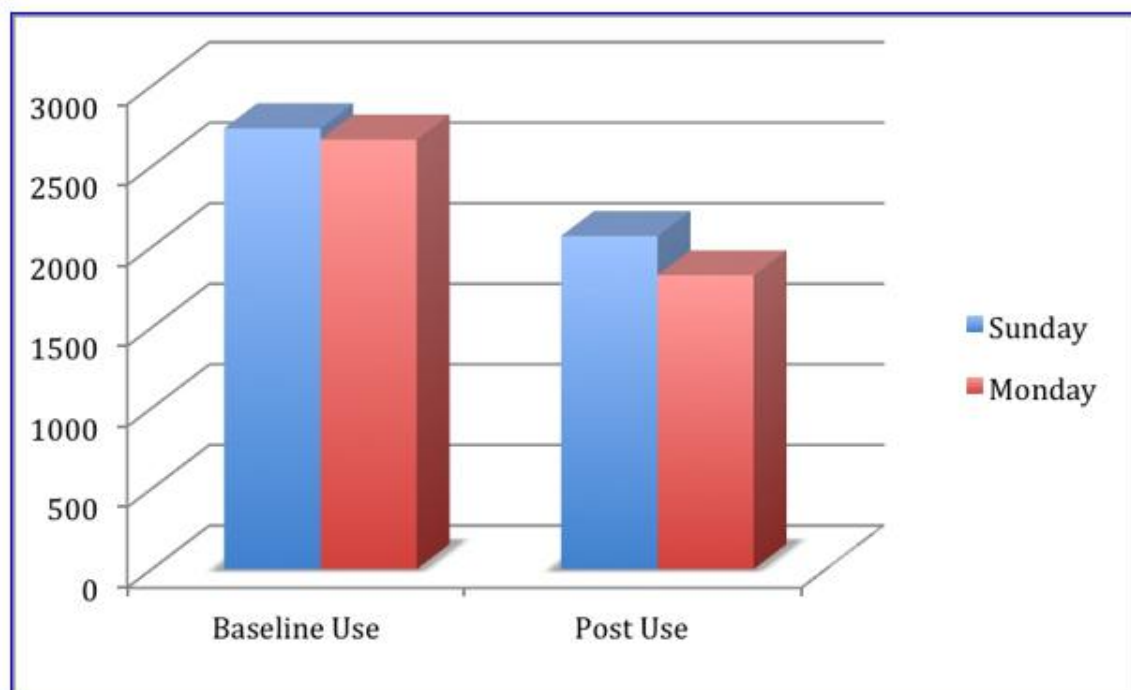
Summary of Analysis – Energy Savings

At the request of the membership in attendance at the meeting, I went back to the data for the two control days with a view to providing additional insight on the performance changes on the unit. I have noted below the changes/improvement in the Delta T that is clearly significant particularly in light of the fact that both post periods saw 33% and 43% hotter external temperatures as dictated by the increase in Cooling Degree Days.

The review of the data not only showed the improvement between the supply and return air, but also showed an additional percentage improvement over the 21% originally reported. Using pure formula mathematics, it is clear that the unit is performing over the 21% originally viewed. (Please see the attached spreadsheet to review the formulas, methods and processes used to validate the improvement in performance of this unit.)

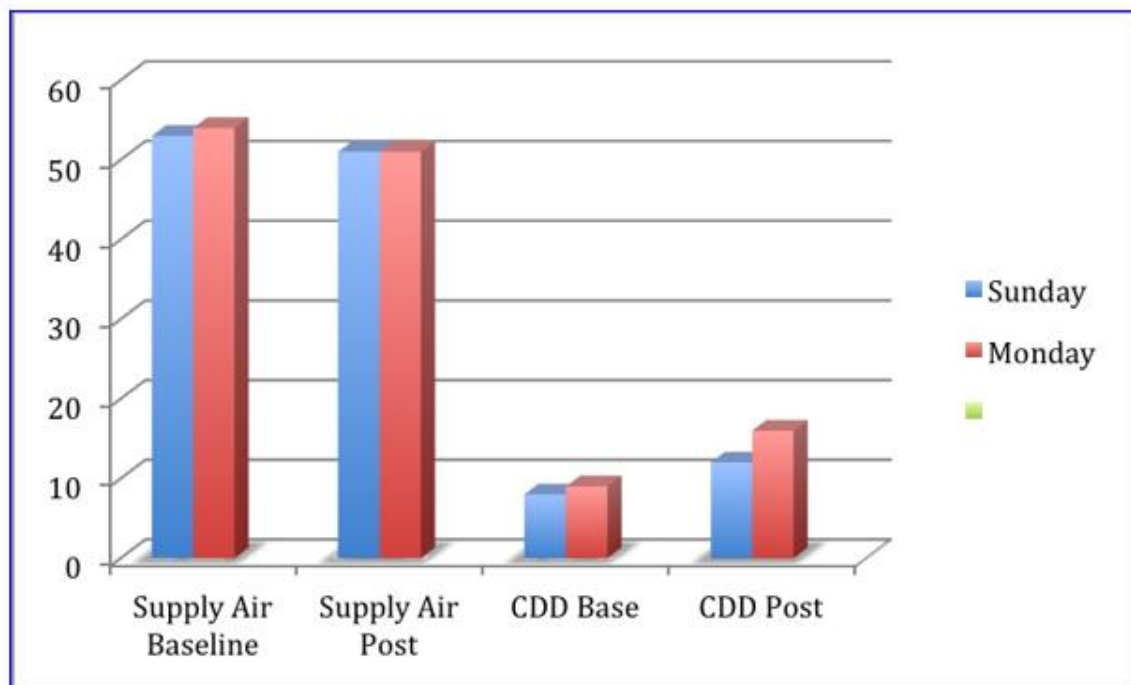
In evaluating the data and using Cooling Degree Days against amperage as indicator of power consumption, we have 24.4% less power per CDD ratio in the post period for the Sunday comparison and over 31.6% less power per CDD ratio on the Monday comparison. The average improvement for both days is therefore 27.98%.

The Cooling Degree Days utilized in the baseline and post came from www.wunderground.com; Echo Park Station and were the foundation indicators of changes in heat load for the two comparative days.



From the graph above it is clear to see that the change in consumption of amps has reduced and a noticeable change day over day in consumption since the inclusion of IceCOLD®.

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Supply Air and CDD (Base and Post)

It is clear from the graph above that the supply air into the unit has improved by 2 - 3 °F. This lowering in the supply air temperatures allows the unit to cool the space more quickly. The compressor does not need to run as hard and as such reduces energy consumption.

PERFORMANCE IMPROVEMENT

The rooftop unit treated used **27.98% LESS power** to cool the space with supply air improved by 3 °F.

