

Fire Station 10

The following is a comparison of the operating characteristics of a 10 ton two compressor Air Conditioning unit at Fire Station 10. The information was logged by HOBO loggers that capture the following information every minute:

- Compressor Amperage
- Ambient Temperature
- Ambient Relative Humidity (RH)
- Ambient Dew Point (DP)
- Supply Air (SA) Temperature
- Supply Air (SA) Relative Humidity (RH)
- Supply Air (SA) Dew Point (DP)
- Return Air (RA) Temperature
- Return Air (RA) Relative Humidity (RH)
- Return Air (RA) Dew Point (DP)
- Compressor run time in minutes for each compressor

Logging was done to develop a baseline from April 10th to April 24th. Cold-Plus™ refrigerant treatment was added to each compressor at noon on April 24th and the loggers recorded the data until May 2nd.

Because of the changing weather during the logging period this comparison is based on two practically identical days in the baseline and after installation periods.

Weather	High	Low	Avg.	CDD
4/14/2010	80	57	68	3
4/30/2010	82	53	68	3

		Comp 1	Comp 1	Comp 1	Comp 1	Comp 2	Comp 2	Comp 2	Comp 2
		Temp, °F	RH, %	Curr, Amps	DewPt, °F	Temp, °F	RH, %	Curr, Amps	DewPt, °F
4/14/2010	PRE	83.043	36.106	7.075	52.374	79.765	40.240	3.520	51.371
4/30/2010	POST	81.094	39.337	5.515	52.979	80.032	41.742	3.315	52.649
	Difference	1.950	-3.231	1.559	-0.604	-0.267	-1.502	0.205	-1.279
	% Difference	2.3%	-8.9%	22.0%	-1.2%	-0.3%	-3.7%	5.8%	-2.5%

Even though the Cooling Degree Days (CDD) were identical there was an increase in humidity during the post injection period. This humidity increase would create an increase in enthalpy for the post comparison period. Even with higher humidity the average amperage for both compressors was reduced by **16.7%**.

The average Supply Air temperature was at 69.4°F before and after installation. Considering compressor 1 run minutes were reduced 24% and compressor 2 by 8% the system was able to maintain the same average temperature with less run time after the addition of Cold-Plus™.

	Comp 1 ON	Comp 2 ON
PRE	47.4%	21.8%
POST	35.8%	20.1%
Difference	11.6%	1.7%
% Difference	24.5%	8.0%
