

IceCOLD® Proof of Performance

Marriott Beach Resort St. Kitts

Increased Energy Efficiency by 25%

The Marriott Beach Resort is located in St. Kitts, West Indies. EcoCool NF conducted an independent Proof of Performance to determine the effects of installing IceCOLD® synthetic catalyst into the chilled water system supplying one of the resort villas. During a 4 week test period from Nov. 11, 2015 until Dec. 15, 2015 the following test data proves an increase in cooling efficiency of 25%.

Data	Pre-IceCOLD Base-Line	After IceCOLD Installation	Notes
Analyzed Dates	11/12 and 11/13	12/13 and 12/14	Weather was the same on all comparison days with each containing 16 cooling degree days
Analyzed Times	11 am to 6 pm	11 am to 6 pm	
Average Return Air Temp	71.8 Degrees	74.2 degrees	2.4 Degrees Hotter
Average Supply Air Temp	61.2 Degrees	60.1 Degrees	1.1 Degree Colder
Average Delta t Split	10.6 degrees	14.1 Degrees	3.5 Degrees Greater
BTU's = GPM (499) (Delta t)	45 (499) (10.6) 235,777 BTU's	45 (499) (14.1) 316,615 BTU's	80,838 Increased BTU Output
Tons Capacity = [(GPM) Delta t] / 24	[(45) 10.6] / 24 19.8 Tons	[(45) 14.1] / 24 26.4 Tons	6.6 Tons of Increased Cooling Capacity
Efficiency Increase Based on Delta t Pre Delta/Post Delta	10.6 Degrees	14.1 Degrees	25% Increased Efficiency

Report Summary

The supply air temperature for each cooling cycle was averaged for the time period, and then compiled to create a daily average. The return air temperature was averaged over the entire time period to gauge the internal heat load.

The same time periods of 11 am to 6 pm were analyzed for 2 days before installation, and 2 days after the installation of IceCold. During this time the external heat load was the same on all days.

During the post install days analyzed, the internal heat load was increased by 2.4 degrees and the supply air was 1.1 degrees colder than the baseline period. This resulted in an increased delta t of 3.5 degrees over the baseline period proving a 25% increase in efficiency. Also the humidity of the supply air was reduced from 57% to 52% .

System Details:

Manufacturer: Carrier
Type: Chiller System
Model #: 30RAP0255FAB2100
Serial #: 3911Q43486
Compressor: Scroll
Refrigerant R410A
System Age 4 years

Facility Address: 858 Frigate Bay Road
 Frigate Bay St. Kitts, West Indies

Director of Engineering: Mark Whetton

