



EPS

Energy
Performance
Solutions

EL TORO Restaurant - Clute, TX.

Energy Efficiency Case Study Summary

EPS (Energy Performance Solutions) based in Houston, TX, approached the management team of El Toro to discuss an innovative new approach combining best results of two products, MicroGuard and ThermaCote, into a complete efficiency and protection package. This approach would allow El Toro to achieve efficiency and sustainability in a one-time solution that requires no additional maintenance.



Equipment Selected for Data Trial - 15 ton High Efficiency American Standard rooftop package - 3 months old

Data Trial Parameters:

- Placed KWH data loggers and recorded KWH consumption for two weeks
- Cleaned and coated condenser coils with MicroGuard AD 35, coated cabinet with ThermaCote energy star ceramic coating
- Continued to record KWH consumption for an additional two weeks
- Collected data at the 4 week mark and compared like degree days

Results

- KWH energy consumption was reduced 24%

Total project results

- Customer immediately issued PO to have all 7 units coated
- 45 days after project completion, customer received their power bill and compared June of 2012 against June of 2013.
 - June 2012 power cost \$8,700.00
 - June 2013 power cost \$6,900.00
 - Total power bill reduction of 20%
 - HVAC power reduction 40%, HVAC accounts for 50% of total power bill

Customer has issued PO for the next building and plans to systematically address all of their sites.

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El Toro – Clute Energy Efficiency Trial

Before

After



Project Implementation

- A KWH data logger was placed on the unit 2 weeks prior to starting the project.
- At the 2 week point, the unit condenser coil and cabinet were cleaned.
- The condenser coil was coated with MicroGuard AD 35 siloxane coating to prevent corrosion and enhance energy efficiency.
- The exterior cabinet was coated with an Energy Star Ceramic coating to protect against corrosion and to provide a radiant barrier against solar heat gain, which reduces load and energy consumption . Exterior cabinet temperature was reduced from 135°F to 92°F.
- KWH data logger continued to collect data for 2 weeks after.

Data Logging Equipment

(Records KWH energy usage)



El Toro Data Logger Sheet

Date	Max T	Mean T	Min T	Weather	KWH	comparable days	% reduction	
4/29/2013	79	71.7	64.4	prt cloudy	229	5/1/2013	242	24%
4/30/2013	79	71.5	64	prt cloudy	233	5/28/2013	184	
5/1/2013	81	72.5	64	sunny	242			
5/2/2013	79	65	51.1	cloudy	210	5/9/2013	247	26%
5/3/2013	68	56	44.1	rain	198	5/27/2013	182	
5/4/2013	78.1	59	39.9	rain	178			
5/5/2013	73.9	61.4	48.9	cloudy	181	5/11/2013	239	24%
5/6/2013	79	61.5	44.1	am fog	179	5/15/2013	183	
5/7/2013	82	67	52	sunny	190			
5/8/2013	81	69	57	sunny	211	Total average		24%
5/9/2013	80.1	75.6	71.1	sunny	247			
5/10/2013	80.1	72.2	64.4	sunny	235			
5/11/2013	84	73.5	63	am fog	239			
5/12/2013	81	71	61	am fog	234			
5/13/2013	79	70.5	61	sunny	244			
5/14/2013	80.6	66.8	53.1	am fog	189			
5/15/2013	80.6	73.3	66	sunny	186			
5/16/2013	82	76	70	sunny	229			
5/17/2013	84	78.5	73	sunny	237			
5/18/2013	88	81.5	75	am fog	241			
5/19/2013	86	80	73.9	am fog	239			
5/20/2013	84.9	80.4	75.9	sunny	246			
5/21/2013	86	81	75.9	sunny	249			
5/22/2013	89.1	82	75	cloudy	238			
5/23/2013	87.1	79.1	71.1	sunny	248			
5/24/2013	88	81	73.9	am fog	237			
5/25/2013	86	79.5	73	sunny	241			
5/26/2013	88	78	73	prt cloudy	229			
5/27/2013	83	75	71	sunny	182			
5/28/2013	84	73	69	sunny	184			

Summary of Project Results

- Corrosion protection for coil and exterior cabinet, extends life of unit and avoids capital cost replacement. Life cycle extension 25 to 50%
- Reduced coil fouling and reduced maintenance time for cleaning coil.
- Reduced peak demand
- Energy consumption (KWH) reduced on a 3 month old unit by 24%
- Simple ROI for a single unit 17 months. Simple ROI for a complete roof top 13 months (20% discount applied).
- IRR – 91.46% or 91.46% interest earned on the investment
- NPV – Net Present value of project \$32,277

Project Potential

Implementation of the coating project on all of the units on this roof and the other facilities within the customer's portfolio, will have a substantial positive impact on their operating cost and overall bottom line.

Savings will be achieved in:

- Energy consumption KWH

- Peak demand KW

- Reduced maintenance cost

- Reduced mean time to failure

- Reduced capital cost replacement budget