

Actual Measured & Verified Savings Exceeded Projections

Problem

The US Army base at Fort Riley had a number of buildings with deteriorating air-conditioning systems. These were mostly air-cooled, with exposed coils prematurely aged by the harsh Kansas environment.

Solution

The HVAC Armor rejuvenation process:

1. Remove corrosion and debris.
2. Apply patented aluminum-based coating.
3. Optimize refrigerant system.

This improved heat transfer efficiency and extended the useful life for 110 HVAC units across 57 buildings.

Fort Riley



<i>Industry:</i>	U.S. Army
<i>Locations:</i>	Fort Riley, KS
<i>Facility Type:</i>	Assorted
<i>Project Type:</i>	HVAC Renovation
<i>Duration</i>	12 months
<i>Energy Savings</i>	\$147k/year
<i>Other Savings</i>	\$99k/year
<i>Simple Payback</i>	3.38 years
<i>Project Value</i>	\$900,000
<i>ESCO Client:</i>	Southland Energy

About Measurement & Verification
 After HVAC Armor treated the equipment at Fort Riley, energy efficiency tests found that actual savings were better than projected savings by 34%.

About "Other Savings"
Labor Savings: O&M savings are based on the reduced amount of labor and 3rd Party services required over time to clean and maintain the coils and refrigeration systems..
Capital Deferral Savings: Untreated aluminum deteriorates and transfers heat less efficiently over time. HVAC Armor treatment extends the life of the equipment by restoring and coating HVAC coils.

"Fort Riley was our first experience with HVAC Armor, so we were a little skeptical. After M&V, we were very pleased to see results showing that energy savings were even better than the proposal estimates!"
 Bimal Kaur
 Southland Energy



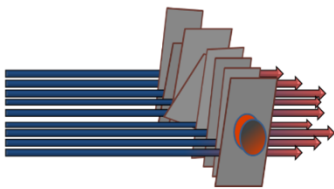
HVAC Armor offers state-of-the-art corrosion protection coatings and solutions that save energy, enhance performance, and rejuvenate HVAC equipment. HVAC Armor is part of ECM Holding Group, a collection of conservation technology firms serving North America's leading ESCOs and corporate clients. For more information, please visit www.hvacarmor.com, or call 920.267.6120.

Problem: HVAC Efficiency Decline

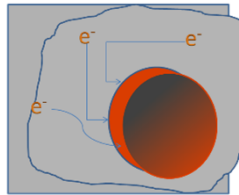
HVAC equipment varies widely in age, condition, and performance, so solutions needed to be specific to the equipment.

Three Types of Fin and Coil Deterioration:

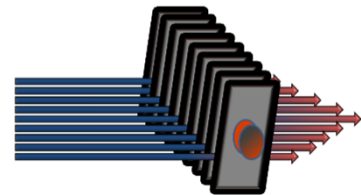
1: Damaged Fins



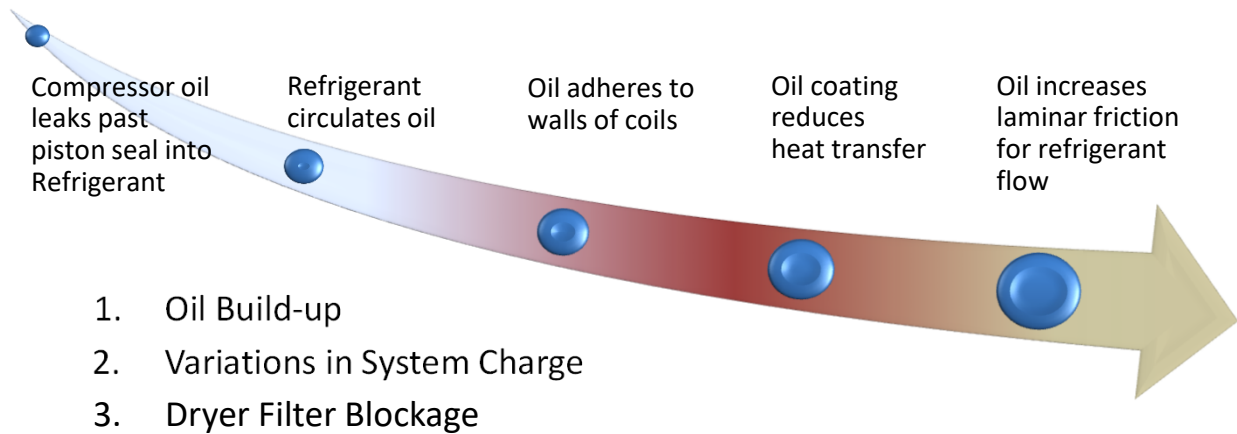
2: Fin Corrosion



3: Dirty Coils & Fins



Three Types of Refrigerant System Deterioration:



Solution: 7-Step Rejuvenation Process

This 7-step air-cooled HVAC rejuvenation process extends equipment life, and typically improves energy efficiency enough to payback the cost in 3 years.

Step 1: Pre-Inspection & Recommendations

- Review and document equipment condition to identify issues prior to service

Building	UNIT	Make	Model #	Type	Tons	Condition Status
CL1	AC-2	Trane Intellipak	SXHGC9040	RTU	90	Danger
CL1	AC-4	Trane	YCH090C4	RTU	7	Danger
CL1	AC-5	Trane	YCD060C4	RTU	5.4	Danger
CL1	AC-8	Trane	YCD102C4	RTU	9	Danger
CL1	AC-9	Trane	YCD240B4	RTU	20	Danger
CL1	AC-11	Trane Intellipak	SXHGD1340	RTU	130	Danger
CL1	AC-1	Trane Intellipak	SXHGC9040	RTU	90	Alarm
CL1	AC-10	Trane Intellipak	SXHGD1340	RTU	130	Alarm
CL1	AC-3	Trane	YCH090C4	RTU	7	Alert
CL1	AC-12	Trane Intellipak	SXHG1340	RTU	130	Alert
CL1	AC-6	Trane	YCD060C4	RTU	5.4	Acceptable
CL1	AC-7	Trane	YCH300B4	RTU	20	Acceptable

Step 2 & 3: Coil/Fin Service & Deep Clean

- Remove housings/casings
- Clean and straighten fins
- Deep clean coils from both sides



Step 4 & 5: Equipment Prep & Coating

- Mask off areas that do not need coating
- Apply corrosion inhibitor
- Spray coat coil from inside and from outside



Step 6 & 7: Refrigerant System Optimization

- Re-condition internal surfaces, filters, and fluids
- Replace dryer filters
- Level the charge to factory specifications

