

Aligning the interests of energy, sustainability and facilities teams through ThermaClear®

**Efficiency gains of 10% on the RTUs of
the ASU Facilities Services Building.**



Overview

Arizona State University is the nation's top-rated institution for energy innovation and sustainability, and it has recently become a proving ground for energy conservation measures. ECM Technologies partnered with the university's Energy Demand Manager and the facilities teams to align interests of sustainability energy conservation. The project was to test ThermaClear® as a simple solution to quickly expand upon its comprehensive energy reduction program. For greatest rigor, they chose a highly studied facility with an existing energy model designated to test different innovations.

The facility has over 100 RTUs and has now reached excess cooling capacity following years of applied energy conservation measures. ECM Technologies instrumented 4 RTUs: two DX systems and two split systems. Working with an esteemed university created a prime opportunity for ECM Technologies to hone its own instrumentation and validation process while concurrently demonstrating ThermaClear's impact on energy and carbon savings.

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ASU is perhaps the most challenging site to demonstrate energy conservation measure paybacks given they pay the lowest utility rate in the state and have already made buildings such as the Facilities Services Building highly efficient leading to lower than usual HVAC energy consumption”

Savings

Estimated annual energy reduction



64,211 kWh

CO2 equivalent savings



45.5 metric tons

Estimated annual carbon reduction



**5,120 gallons
of gasoline**

Proving the efficacy of ThermaClear®

Unit Type
**5-Ton DX,
118 RTUs totaling
538-Tons**



Conditioned Space
136,925 ft²

Installed by
COMFORT SYSTEMS USA
 Southwest

Critical cooling needs

Balance energy reduction with sustainability priorities.

Demonstrate impact of ThermaClear® on a building used as a living lab whereby numerous ECMS have been implemented resulting in excessive HVAC tonnage for the building heat load.

Performance Measurement & Verification

ThermaClear® performance was validated through comprehensive, real-time monitoring throughout ECM Technologies research and development process. Our monitoring system adhered to International Performance Measurement and Verification Protocol standards to capture key indoor and outdoor metrics like temperature, humidity, chilled water / air flow and energy consumption. Data was recorded every minute over an extended testing period, ranging between 3 and 9 months per test, to capture both pre- and post-treatment data.

ASU USB HP-67 - kW/Ton versus Outside Air Temperature

