

Case Study #75: HVAC

Air-conditioning ductwork



Diagnosis:

The building owner was looking for ways to make his building more energy efficient and save energy dollars. One of the improvements was to install a new energy efficient, high-SEER central air conditioning unit. This new air conditioning system had a considerably higher energy efficient ratio (EER) rating than the existing one. This upgrade along with new low-e glass windows was calculated to improve the building energy efficiency by up to 30%.

It was suggested to coat the HVAC ductwork with a “cool roof” coating to reflect heat energy from the sun. The thought was to keep the ductwork cooler, thus improving air-handling efficiencies.

Results:

After the new ductwork was installed, the surface of the new metal was pressure washed and all oils were removed from the metal. Temperature measurements were taken prior to the application of the “cool roof” coating (Acu-Shield). The ambient air temperature was 98°F, surface temperature reading was 141°F. Two coats of Acu-Shield were applied to the ductwork, allowing 24 hours between coats. After the second coat of Acu-Shield was installed, temperature readings were taken again. Once again, the ambient air temperature was 98°F, but this time the surface temperature was 89°F. That is a temperature reduction of 52°F.

It is estimated that the application of Acu-Shield to the air condition ductwork will help to make the HVAC system 18% more efficient, further saving energy dollars.



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