

# CEDAR VALLEY ASHRAE MEETING NOTES

DATE: February 8<sup>th</sup>, 2010

TOPIC: LEED and Duct Design (Gerard Iacouzze)  
LOCATION: Bandanas BBQ (Coralville, IA)

February's meeting was focused on LEED and what it is focused on. Particular attention was given to the duct design and accessories. The Leadership in Energy and Environmental Design was highlighted in its various formats.

#### Highlighted Areas:

- Broken down total pressure and airflow performance.  $V_p + S_p = T_p$ . Gave a list of the fan laws, and how they relate to the system performance (ie. the HP and RPM of the system). Identified round and oval ductwork as more efficient than rectangular duct.
  - Listed four styles of sizing duct: Equal Friction, Constant Velocity, Velocity Reduction, and Static Regain.
  - Gave traditional duct types, as well as, some of the more rare types.
  - Fitting Types: Elbows, Divided Flow, Take Offs, Converging Flow, etc. He identified via video, the relationship between several duct fittings and their respective performances. Through these videos, Gerry made the point that properly selected fittings can add a great amount of performance to the duct system.
  - Annual operating cost breakdown was looked at. Airflow and the pressure drop are the two items that we have control over. Other variables to this cost cannot be controlled. Must apply the best practice to the items that we can.
  - Listed some of the various types of diffusion devices.
- Design Considerations: Gerry looked at selecting the correct fittings for better performance. Selecting the best duct shape for maximum efficiency. Controlling sound through correct selections of duct size, shape, and application. This sound performance may also include liners, attenuators, and silencers.
- Performance Considerations: 10% leakage can relate to an increase in HP of 33%. Specifying low duct leakage guarantees efficiency. Require leak tests to ensure the spec was not only built, but obtained to the leakage rates desired. Round and oval duct produces the best leakage values. Rely on SMACNA standards to help obtain the desired levels of duct quality. Used an example of a 20,000CFM system and how leakage would cause the BHP and costs to grow.
- Leakage/Commissioning: Gave an example of how one would test for the losses related to leakage.
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