

# The Duct Man

HVAC Industry News You Can Use



## MARK YOUR CALENDAR: HVAC-R License Renewal Course on Saturday, May 13th

E.P. Homiek Sheet Metal Fabrication & HVAC Supply is holding a **N.J. HVACR Continuing Education (CE) Course** on Saturday, May 13, 2017 at the Toms River Elks Club from 8am-1pm. This class fulfills the 5-hour CE requirement for Licensed Master HVACR Contractors renewing for their second biennial renewal of July 1, 2018 to June 30, 2020. Fee is \$165.



Instructor Scott Bishop, Master HVACR Contractor and Licensed Master Plumber, is an approved CE Sponsor for the N.J. State Board of Examiners of HVACR Contractors. Topics will

include HVACR regulations and propane (board required), along with HVACR codes, safety, HVACR calculations and condensate update. Call (732) 364-7644 or (908) 688-9104, or stop in to any EPH location to register. Food and refreshments will be served.

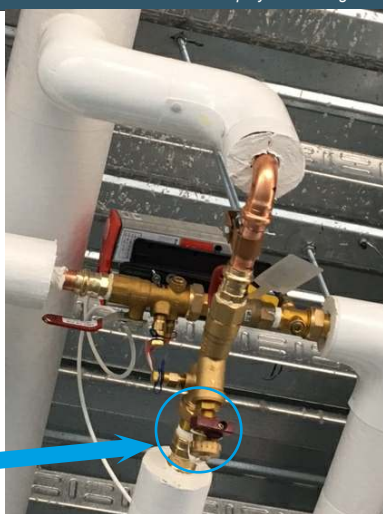
## HVAC QUIZ - Win \$100!

Be the first to submit all 5 correct answers to [news@ephomiek.com](mailto:news@ephomiek.com) and win a \$100 gift card to Longhorn Steakhouse!



\*E.P. Homiek employees not eligible

1. A sling psychrometer is used to measure \_\_\_\_\_.
2. 55°F = \_\_\_\_\_°C
3. What is the boiling point of R-410A?
4. The chemical name for R-22 is \_\_\_\_\_. Spelling counts!
5. Name the valve pictured here



Congratulations to Jason Masiero of Atlantic Shore Heating & A/C, Brick NJ, for correctly guessing Mystery Tool in our last newsletter was a Mason jar mouse trap.



## Makeup Air for Kitchen Exhaust Fans

**Tight new homes and high end fixtures = air flow problems**

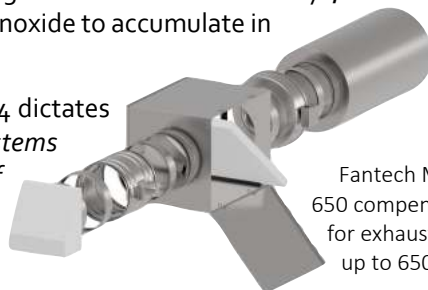
Today's new homes are built with energy efficiency in mind, and with modern construction methods and materials allowing for much tighter construction, very little outdoor air can infiltrate a home. Exhausted air must always be replaced by an equal volume of "makeup air"; if makeup air is insufficient, a number of problems can occur. Such issues are common in new energy-



efficient homes where powerful kitchen range hoods are installed, which is why New Jersey requires makeup air systems for exhaust fans above 400 CFM.

An exhaust fan can only remove as much air as is occupying a space. If there isn't enough air to draw from, a drop in pressure will cause a severe decrease in airflow rate and the fan cannot adequately push out heat, odors, and contaminants. More importantly, use of a high-cfm fan where there is insufficient

makeup air can lead to a dangerous phenomenon known as backdrafting in which negative pressure can halt or reverse the flow of air or harmful gases in flues and chimneys, causing unsafe levels of carbon monoxide to accumulate in the home.



Fantech MUAS 650 compensates for exhaust fans up to 650 cfm,

N.J. code requirement IRC M1503.4 dictates the following: *Exhaust hood systems capable of exhausting in excess of 400 cfm (0.19 m<sup>3</sup>/s) shall be provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system.* This can be accomplished with the Fantech Makeup Air System (MUAS). When the exhaust fan is activated, the MUAS damper opens and the fan powers on, speeding and slowing in unison with the exhaust fan to modulate air flow in direct proportion to the exhaust. The makeup air is filtered before it is delivered to the home, and cold outdoor air can be tempered with an optional heater kit. Since it is fan-forced, the MUAS can be ducted wherever it is most suitable. The MUAS can be programmed by the installer for slightly negative, slightly positive, or balanced pressure scheme depending on specific need.

E.P. Homiek Sheet Metal Fabrication & HVAC Supply is a certified Fantech dealer and can assist contractors with makeup air needs of up to 2,000 cfm. For more information on the Fantech Makeup Air System, call or stop in to EPH today.



## NIST Study: Installation Faults Cancel Out Equipment Efficiency

Duct leakage delivers the heaviest blow to energy bills in the tri-state area

Most HVAC professionals are aware that heating and cooling accounts for 30% of residential energy consumption. But just because manufacturers are continually producing equipment with ever-improving efficiency ratings doesn't mean that a homeowner's utility bills will automatically be lowered with their purchase. Substandard installation can

substantially reduce the benefits of high-efficiency equipment, increasing energy use by as much as 30% above what it should be, according to an extensive study by the National Institute of Standards and Technology (NIST).

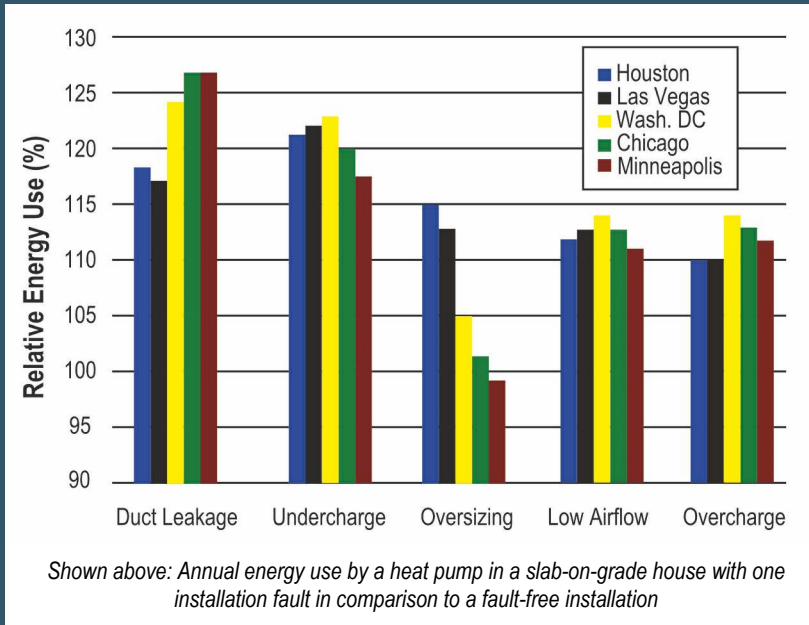
NIST found that installation faults with the most potential to degrade performance are, in order:

- Duct leakage
- Refrigerant undercharge
- Oversized equipment with non-oversized ductwork
- Low indoor airflow due to undersized ductwork
- Refrigerant overcharge

NIST also found that efficiency decreases exponentially when two or more installation faults are at work. The research did not specifically study the

effects of installation errors on occupant comfort, indoor air quality, noise, equipment reliability, or maintenance costs, but noted that all commonly result from substandard installation.

A full copy of the NIST report, *Sensitivity Analysis of Installation Faults on Heat Pump Performance*, can be viewed at <http://nvlpubs.nist.gov/nistpubs/TechnicalNotes/NIST.TN.1848.pdf>



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