RESNET
Residential Energy Services Network

Setting the STANDARD for QUALITY

Results of Electronic Ballot of the RESNET Board of Directors on Auxiliary Electric Energy of Ground Source Heat Pumps

March 19, 2009

The following are the results of the board electronic ballot:

Shall the RESNET Board of Directors authorize the proposed amendment on GSHP (Attachment A) to be submitted to the standard amendment public review/comment process?

Yes (18)	No (0)	Abstain (0)	Not Voting (3)
Ben Adams			David Goldstein
Steve Byers			Robert Scott
Dennis Creech			David Wilson
Richard Faesy			
Philip Fairey			
Andy Gordon			
Bruce Harley			
Tom Hamilton			
Michael Holtz			
Mark Jansen			
C.T. Loyd			
Greg Nahn			
Lee O'Neal			
Kelly Parker			
Bill Prindle			
Daran Wastchak			
Erin Wiggins			
Barb Yankie			

The proposed amendment has been authorized to be submitted to the amendment public review/comment process.

Attachment A

RESNET Residential Energy Services Network — Setting the STANDARD for QUALITY

Amendment: Auxiliary Electric Energy of Ground Source Heat Pumps

Proponent:
RESNET Technical Committee

Applies to:
2006 Mortgage Industry National Home Energy Rating Systems Standards

Section 303.5 Operating Condition Assumptions
Section 303.7 Minimum Rated Features

Proposed Amendment

Insert the following, and renumber subsequent sections as necessary:
303.5.1.7 For ground-loop and ground-water heat pumps, the Auxiliary Electric Consumption shall be determined as follows:

> GSHP Auxiliary Electric Consumption (kWh/yr) = $GSHP_{pump}$ + $GSHP_{fan}$
>
> Where:
>
> $GSHP_{pump}$ in watts is the observed pump nameplate data (Volts *Amps) for all hours of heat pump operation. Amps may be taken from nameplate as Run Load Amps (RLA) or Full Load Amps (FLA). Alternatively, pumping energy that is measured on-site with a watt-hour meter, or using measured V*A may be substituted. Such measured pumping energy may be further adjusted for on-site measured duty cycle during heat pump operation, when pumping is intermittent during continuous heat pump operation.
>
> $GSHP_{fan}$: If ducts are attached to the system to deliver heating or cooling, the external fan energy in watts, $GSHP_{fan}$ = (air flow in CFM * 0.5 CFM per watt), shall be added for all hours of heat pump operation. The air flow in CFM shall be (360 * rated cooling btu/h / 12,000), where 360 is the air flow in CFM per ton (12 kbtu/h) of capacity..

Table 303.7.1(1) Minimum Rated Features

12. Heating Equipment	Equipment type, location, efficiency (AFUE, HSPF), auxiliary electric (Eae); power consumption of ground fluid circulating pump(s) for ground-loop and ground-water heat pumps.

Background/Rationale:

Since the adoption of the 2006 RESNET standards, auxiliary electric energy has been a minimum rated feature for fossil-fuel heating equipment. For comparable treatment, auxiliary electric energy that is required for the operation of ground-source heat pumps should be included as a minimum rated feature. This amendment provides guidance for treatment of auxiliary electric energy in the reference and rated homes when a ground-source heat pump is present. Furthermore, the current ARI/ISO standard 13256 that is used to test these devices specifically excludes any fan power required to move air through ducts (rated at 0 external static pressure).