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Ms. Rebecca Duff
ICF International

Ms. Duff,

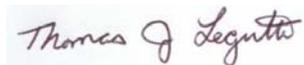
ECR International has reviewed the Draft Energy Star Furnace Specification 2.1. ECR has two primary concerns with the Specification as written.

1. The Tier II Oil furnace efficiency requirement of 85% AFUE leaves very little safety factor for the appliance to NOT produce condensate. Furnaces can condense when AFUE's exceed 86%, especially in the vent. With an Energy Star requirement of 85%, the appliance must be precisely installed and set up to prohibit condensate from forming in the chimney, vent or heat exchanger. In essence, there is no margin for error with the installation. The installer may now be required to verify the firing rate and CO₂ to ensure proper operation. If condensate does form, failures to the chimney, vent or heat exchanger is highly probable.

From prior experience with non condensing gas furnaces, the industry has standardized on AFUE of 80-81% to ensure there is a reasonable safety factor to prohibit condensate formation. With non condensing gas furnaces typically at 80-81% AFUE, ECR International recommends an 83% AFUE for Energy Star oil furnaces which balances higher efficiency and homeowner safety.

2. The requirements for furnace fan efficiency need to be applicable to all furnace sizes. As furnace size increases, so does the required air flow for the conditioned space. For medium and large size furnaces (typically >100,000 Btu/hr), large size circulating air fans are required due to the larger space. Typically, horsepower for the fan-motor systems will increase from ½ to ¾ HP for larger size furnaces. Therefore, ECR International recommends if an electrical efficiency requirement is considered, separate specifications are needed based on the HP of the fan motor.

Regards,



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