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May 16th, 2024

Ms. Abigail Daken
Environmental Protection Agency
Office of Air and Radiation
Energy Star for HVAC
Washington, DC 20460
Submitted via email HVAC@energystar.gov

RE: Carrier comments – Energy Star Furnace Specification Version 5.0 Draft 1

Dear Ms. Daken,

Carrier Global Corporation (Carrier) provides fire safety, security, building automation, heating, ventilation, air conditioning, and refrigeration systems and services to promote integrated, high-performance buildings that are safer, smarter, and more sustainable. Carrier is the founder of the modern HVAC industry and operates across the globe. Our range of products includes unitary residential and commercial products, including ducted and ductless, transport refrigeration products, chillers, and HVAC building services.

Carrier appreciates EPA's choosing to update the Energy Star Furnace Specification instead of sunsetting the program as previously proposed. Even with the push towards electrification, residential furnaces are expected to be prevalent in the market for some time, continuing to incentivize higher efficiency products can have a positive impact in reducing the amount of carbon emissions released to the environment compared to less efficient products. Carrier understands the majority of the proposal but has comments regarding the orientation requirements as well as trying to use this specification to further promote dual fuel products to further the market adoption of heat pumps.

Orientation Requirements:

Carrier understands that the same orientation requirement exists currently in the Energy Star Furnace specification 4.0 as is proposed in version 5.0. With the version 5.0 AFUE level set at 97% or better, it becomes much harder for models offered in multiple configurations to comply with this requirement. Carrier manufactures residential furnaces today that would comply with the 97% AFUE requirement, but only in one configuration. The combination of the higher AFUE and the "all orientations" would result in essentially no Carrier furnace models meeting Energy Star.

DOE requires that furnaces are either rated to their lowest AFUE by orientation for a single rating or, in the case that AFUE is orientation dependent, that separate AFUE ratings are shown by orientation. The AHRI directory also lists furnace AFUE ratings aligned with the orientation. It is not clear why EPA includes the "all orientation" requirement for Energy Star given that the

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furnace ratings are clearly identified by orientation in both the DOE CCMS directory as well as the AHRI directory. Carrier believes it would be most practical to allow furnace models to meet the Energy Star AFUE level in one or two orientations (e.g. upflow and horizontal), while not meeting Energy Star when in a different position (e.g. downflow) that results in a lower than required efficiency.

This situation is further troublesome in states such as Colorado. Colorado has proposed legislation that would require furnaces that meet either Energy Star or Ultra Low 14 ng/J NOx capabilities. Furnaces that meet the Energy Star AFUE level in one orientation but not others will be excluded from the Colorado policy if the "all orientations" requirement is retained. With such fewer models meeting Energy Star certification, consumers will be forced to purchase an Ultra Low NOx furnace, which presents a much larger cost burden for that household.

Carrier proposes that EPA remove the "all orientations" requirement for Energy Star certified furnaces to align with the DOE rule which allows distinguishing AFUE by orientation. This revision would ensure that there is an adequate number of certified models on the market for consumer choice.

Furnace Levels when Combined with a Heat Pump:

As proposed in version 5.0, there is no distinction between furnaces applied as standalone, with an air conditioner, or with a heat pump. This specification could be an opportunity to promote market adoption of heat pumps by certifying the pairings of furnaces and heat pumps, rather than only furnaces that are standalone or combined with air conditioners. Carrier supports the 97% AFUE level for standalone furnaces and those paired with air conditioners but urges EPA to consider a 95% AFUE level for Energy Star certification when installed with a heat pump. From a consumer perspective, this could encourage replacement of existing furnace and AC systems with furnace and HP systems, as the 95% furnace would be less costly than a 97% furnace offsetting a portion of the additional cost of the HP.

As EPA noted in the proposal, AHRI has developed a metric, DFUE, that combines the seasonal performance of a heat pump with the seasonal performance of a furnace. Carrier was a proponent of this new metric during development of the test procedure and urges EPA to continue to investigate the new metric and procedure for future specifications. The DFUE metric does not require any additional testing; rather, it is calculated by combining test data from the heat pump tests with test data from the furnace tests into one metric. At this time, the DFUE metric is not part of the AHRI certification program, but Carrier believes it is an adequate method of showing the benefit of combining a heat pump and gas furnace.

Timing:

The proposed effective date of version 5.0 of this specification is listed as TBD. In the notes, EPA suggested an effective date of 2026. Carrier is aligned and supports the January 1st, 2026 effective date.

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Summary:

Carrier appreciates the opportunity to provide feedback to the Energy Star specification for furnaces and again would like to thank EPA for reconsidering the sunset of this program. As furnaces are expected to continue as part of the residential landscape into the near future, encouraging the purchase of available higher performing products through Energy Star while assisting with heat pump adoption can serve all stakeholders during the transition toward electrification.

Respectfully submitted,

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