## Memo to ASHP Stakeholders

## Re: Cold Climate Air Source Heat Pump Specification- Version 3.0

With this memo, NEEP is communicating the finalization of Version 3.0 of the Cold Climate Air Source Heat Pump Specification ("Specification"). This memo includes the details of Version 3.0 and some additional insight into future evolution of the Specification, including a follow-on Version 4.0.

NEEP began discussing potential revisions to the Cold Climate Air Source Heat Pump Specification with the cold climate metrics sub-committee in the fall of 2017. Based on sub-committee meeting teleconferences, survey results and additional input received over 12 months, NEEP developed a Draft Proposal for a new Version 3.0 Specification. The Proposal was publically circulated to ASHP stakeholders requesting review and written comment on August 22, 2018. NEEP received 10 written comments. Those comments informed the final Version 3.0.

The table below indicates the Final Version 3.0 Performance Requirements, compared to both the current requirements and those included in the August Proposal.

| **Final Specification Version 3.0 Performance Requirements**<br><br>**(Effective date- January 1, 2019)**<br><br>**Changes from current specification highlighted in RED** | **Proposed Specification Version 3.0 Performance Requirements (August 22 Proposal)**<br><br>**Changes from current specification highlighted in GREEN** | **Existing Specification (Version 2.0) Performance Requirements** |
|---|---|---|
| • Compressor must be variable capacity (three or more distinct operating speeds, or continuously variable) | • Compressor must be variable capacity | • Compressor must be variable capacity |
| • Indoor and outdoor units must be part of an AHRI matched system | • Indoor and outdoor units must be part of an AHRI matched system | • Indoor and outdoor units must be part of an AHRI matched system |
| | | |
| For Non-Ducted systems | | |
| • HSPF ≥10 | HSPF ≥10 | HSPF ≥10 |
| • COP 5° F >1.75 (at maximum capacity operation) | • COP 5°F ≥1.75 (at maximum capacity operation) | • COP 5° F ≥1.75 (at maximum capacity operation) |
| | | |
| For Ducted Systems | | |
| • HSPF ≥9 for Ducted systems | • HSPF ≥9 for Ducted systems | • HSPF ≥10 Ducted systems |
| • COP 5°F ≥1.75 (at maximum capacity operation) for all ducted systems | • COP 5°F ≥1.75 (at maximum capacity operation) for all ducted systems | • COP 5° F ≥1.75 (at maximum capacity operation) for all ducted systems |

| | | |
|---|---|---|
| • No ENERGY STAR Certified requirement<br>• SEER ≥ 15<br>• No EER requirement | • Removed ENERGY STAR Certified requirement<br>• SEER ≥15<br>• EER> 10 | • ENERGY STAR Certified (which included SEER ≥15, EER ≥ 12.5) |
| | | |
| • Lab testing results OR Engineering data for each system must be reported through the attached "*Cold Climate Air-Source Heat Pump Performance Information Tables*". Incomplete tables will not be considered. Tables now include cooling performance information (@ 82˚F and 95˚F). | • Lab testing results OR Engineering data for each system must be reported through the attached "*Cold Climate Air-Source Heat Pump Performance Information Tables*". Incomplete tables will not be considered. Tables now include cooling performance information (@ 82˚F and 95˚F). | • Lab testing results OR Engineering data for each system must be reported through the attached "*Cold Climate Air-Source Heat Pump Performance Information Tables*". Incomplete tables will not be considered. |
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**Effective Date and new product applications**

Version 3.0 will become effective on January 1, 2019. New products looking to qualify for the Cold Climate ASHP Specification after January 1, must meet the requirements as laid out for Version 3.0. Products currently listed that meet the requirements in Version 3.0 will be carried over to the new list.

Manufacturers are no longer able to apply to the current Specification (Version 2.0). All new applications for listing will need to meet Version 3.0 and complete the new Version 3.0 submission application. The application can be found on NEEP's website.

NEEP will be evolving its listing process in early 2019. See NEEP's website for more information about the new process and listing fee program.

**Summary of changes from Version 2.0 to final Version 3.0 specification**

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|---|---|
| **New categories** | NEEP maintained its proposed categories which establishes different requirements for ducted and non-ducted ASHPs. These categories apply to both single and multi-zone systems. While some commenters suggested non-ducted multi-zone systems should also be included in a new category, the number of non-ducted multi-zone systems on the existing list suggested maintaining the proposed grouping. |
| **Removing EER requirement** | Commenters generally supported reducing/eliminating EER requirements as part of a cold-climate ASHP specification. While the specification/ |

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| | performance tables will continue to report EER values, the specification will no longer include a specific required EER level. |
| **Required Cooling performance reporting** | Additional cooling performance allows for more informed sizing of ASHP systems in cold climates where heating loads are often larger than cooling loads. |
| **Clarity on Variable Capacity Definition** | While NEEP continues to believe variable capacity functionality is an important pathway to high performance ASHPs (namely in their reduction of inefficient cycling behavior) and will continue to require variable capacity as part of the specification in the near-term, we would prefer to eventually move away from this technology requirement and move to a wholly performance-based set of requirements. NEEP will continue to explore options for single- and two- stage ASHPs with otherwise high performance to meet the Specification. We received a mix of responses in comments regarding the importance of this requirement. |

**Version 4.0 and vision for future of ccASHP specification**

A follow-on Version 4.0 was proposed as part of NEEP's August proposal. The proposal included the creation of an advanced tier to identify the highest performing systems. NEEP will delay finalization of Version 4.0 until after Version 3.0 has been effective for approximately three months. This will allow NEEP and the ccASHP sub-committee the opportunity to more accurately analyze the new list of products to determine the appropriate levels for an advanced tier. The effective date of Version 4.0 remains TBD.

From the launch of the ccASHP specification four years ago, there has been an acknowledgement that while the reported performance data is of great value, the lack of a representative test procedures generally (and particularly a standardized method of measuring performance at low temperatures) have been a key deficiency that all of the stakeholders are interested in overcoming. For several years, NEEP has been monitoring the development of CSA's process to develop a new test procedure for ASHPs. The CSA's voluntary test procedure is slated for finalization/publication in the near future. NEEP will continue to work through the Initiative to explore the potential use of this new voluntary test procedure as part of a future high performance ASHP Specification.

**For more information;**

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