Cold Climate Air-Source Heat Pump Specification (Version 2.0)

As facilitated by Northeast Energy Efficiency Partnerships (NEEP)

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The following specification defines a set of performance requirements and reporting requirements to meet the voluntary "Cold-climate Air-Source Heat Pump Specification" (ccASHP Specification). The specification was designed to identify air-source heat pumps that are best suited to heat efficiently in cold climates (IECC climate zone 4 and higher). The specification is intended as a model equipment specification to be used broadly by energy efficiency program administrators in cold climates as a minimum requirement for program qualification. It also is intended for engineers, contractors, and other practitioners who need assurance that the equipment they select will have the required heating capacity at design temperature without unnecessary oversizing, and will serve the load efficiently throughout the ambient temperature range.

Stakeholders should be aware that simply meeting the performance requirements does not necessarily mean a product is appropriate for all cold climate applications. Consumers, contractors, and designers should review building loads, equipment capacities at design temperatures, and other important factors before selecting equipment

Scope

- Air-to-air, split system heat pumps
- Both single-zone and multi-zone systems
- <65k Btu/hour at 47˚F (dry bulb)
- "Ducted" and "Ductless" systems
- Does NOT include ground-source or air-to-water heat pump systems

Performance Requirements

- Compressor must be variable capacity
- Indoor and outdoor units must be part of an AHRI matched system
- ENERGY STAR Certified
- COP @5° F $\geq$1.75 (at maximum capacity operation)
- HSPF $\geq$10
- 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.

Cold Climate Air-Source Heat Pump Performance Information Tables

Manufacturers must complete the following "Cold Climate Heat Pump Performance Information Tables" for each qualifying system. This information will support the cold climate specification and aid in appropriate equipment selection for installations in cold climates.

Manufacturer	
Model/Line (if applicable)	
AHRI Certificate No.	
Outdoor Unit Model:	
Indoor Unit Model(s)[1]:	
Variable-Capacity (Yes/No)	
HSPF (Region IV):	
SEER	
EER (@ 95°F)	
ENERGY STAR Certified (Yes/No)	

Provide laboratory testing data or engineering data for the conditions shown below. "Minimum" and "Maximum" refer to the steady-state heating capacities at each condition that equipment can deliver during normal operation. Capacities in the "Rated" column should correspond to those listed on the AHRI certificate at 47°F and 17°F ODB. In some cases these may be equal to the "Maximum" capacity values. Btu/hour is total heat output, and kW is power input. Do not include the power required for defrost cycling or drain pan heater operation in the table.

			Capacity Level		
Outdoor Dry Bulb (°F)	Indoor Dry Bulb (°F)		Minimum	Rated	Maximum
47°F	70°F	Btu/h			
		kW			
		COP			
17°F	70°F	Btu/h			
		kW			
		COP			
5°F	70°F	Btu/h			
		kW			
		COP			

[1] Manufacturers should report specific indoor units or specific combinations of indoor units if certified with these units OR use the generic "ducted indoor units", "non-ducted indoor units" or "mixed ducted and non-ducted indoor units" to describe the combination of indoor units.

If a pan heater is integrated with, or is available as an accessory to, the outdoor unit, provide its standalone input power and a description of what determines when pan heater(s) operates. If the pan heater is available as an accessory, provide the model #.

	Integrated or Accessory (provide model #)	Input Power (kW)	What determines when heater operates?
Pan Heater			

OPTIONAL- If engineering data are available for operation at lower temperatures (below 5°F), provide this information below.

			Capacity Level		
Outdoor Dry Bulb (°F)	Indoor Dry Bulb (°F)		Min	Rated	Max
	70°F	Btu/h			
		kW			
		COP			

OPTIONAL- Indicate the method of determining performance data at 5°F and/or optional lower temperature (check box)

5°F Performance Data	Laboratory Testing	☐	Engineering calculations	☐
Optional Low Temperature Performance Data	Laboratory Testing	☐	Engineering calculations	☐

Signature_____ Printed_____

Title_____ Date_____