

CEESM Residential Heating and Cooling Systems Initiative

Effective January 15, 2021

Natural Gas Equipment

CEE Gas-Fired Forced Hot Air Specification

Scope: Input rating <225,000 BTU/h
Optional distinction for units ≤40,000 BTU/h

Level	AFUE*
CEE Tier 1	≥ 92%
CEE Tier 2	≥ 95%
CEE Tier 3	≥ 97%

Level	AFUE**
Advanced Tier	≥ 120%

CEE Gas-Fired Boiler (Hydronic) Specification

Scope: Input rating <300,000 BTU/h

Level	AFUE*	Other Requirements
CEE Tier 1	≥ 90%	Thermal Load Management [^]
CEE Tier 2	≥ 95%	

Scope: Input rating <225,000 BTU/h

Level	AFUE**	Other Requirements
Advanced Tier	≥ 120%	Thermal Load Management [^]

*10 CFR Appendix N to Subpart B of Part 430 - *Uniform Test Method for Measuring the Energy Consumption of Furnaces and Boilers*
** ANSI Z21.40.4 *Performance Testing and Rating of Gas-Fired, Air Conditioning and Heat Pump Appliances*, designated for Region IV
[^] May be met by incorporating outdoor reset control, indoor load reset, or thermal targeting strategies

Advanced Tier Additional Reporting Metrics (where applicable)

Include the air dry bulb temperature and water supply temperature for the relevant ratings below:

- **System Type** – absorption, IC engine driven/vapor, adsorption, thermal compression
- **Refrigerant/Working Fluid(s)** – water, ammonia, R410a, R134a, carbon dioxide, helium, other
- **Target Applications (all that apply)** – residential, commercial, space heating, hot water, cooling
- **Heat Rejection or Acceptance** – air, water, geothermal
- **Heating Capacity (kBtu/h)** (at 47°F air dry bulb temperature and 95°F return water temperature)
- **Input Modulation Range (MBH)**
- **Maximum Supply Water Output Temperature (Heating °F)**
- **Cooling Capacity (Tons)**
- **COP_{gas HHV}** (at 17°F air dry bulb temperature and 95°F return water temperature)
- **COP_{cooling}** (at 95°F air dry bulb temperature and 55°F return water temperature per ANSI Z21.40.4)
- **Annual Electric Power (kWh)**
- **Percentage of Rated Heating Capacity** (at 7°F air dry bulb temperature and 95°F return water temp)
- **Maximum Number of Units that Can be Interconnected**
- **Noise (dBA)** – note standard or methodology used

CEE recognizes that ANSI Z21.40.4 is under review at the time of this proposal and will monitor the state of this test procedure.

CEE Energy Management Criteria

Scope: Electric and Gas, Any System

Energy Management Capability Requirements	
A	The ability to report operational status of the product or system upon request.
B	The ability for remote operation [^] of the product or system by a customer-authorized third party.
C	The ability for the customer to override ^{^^} remote changes of load states.
D	The ability for firmware updates to the product or connected control for a system, to ensure that reliability and cybersecurity remain current with little to no consumer interaction.

[^] The ability to manage functions by receiving signals from a control system external to the native system via a secure connection from a remote communication interface. This can be for the consumer (e.g., via a smartphone app or website), or a customer authorized third party such as the utility, manufacturer, or home energy management operator.

^{^^} The ability for a consumer to cancel a grid request sent to the equipment via a secure connection for no more than a set certain timeline (e.g., 72 hours).

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