



**US Army Corps
of Engineers®**

ENGINEERING AND CONSTRUCTION BULLETIN

No. 2024-5

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SUBJECT: Changes to Refrigerants

CATEGORY: For Information

1. References:

- a. American Innovation and Manufacturing (AIM) Act of 2020
- b. American National Standards Institute (ANSI) / American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 15, Safety Standard for Refrigeration Systems
- c. United States Environmental Protection Agency (EPA) Final Rule, Federal Register: https://www.epa.gov/system/files/documents/2024-01/hfc-allocation-rule-fact-sheet_1.19.2024_508.pdf

2. **Applicability.** The following information applies to all Army military planning, design and construction to include new work, restoration and modernization. Changes are effective upon issuance for projects as stated in UFC 1-200-01 DoD Building Code, paragraph 1-3.1 Implementation, Administration, and Enforcement.

3. Background.

a. The American Innovation and Manufacturing (AIM) Act of 2020 “authorizes EPA (Unified States Environmental Protection Agency) to address HFCs by: phasing down their production and consumption, maximizing reclamation and minimizing releases from equipment, and facilitating the transition to next-generation technologies through sector-based restrictions on HFCs.” With this authorization the EPA has imposed a decrease in production of R-410A and all refrigerants with a Global Warming Potential (GWP) of 700 or higher starting in January of 2023 through January of 2036 when production of those types of refrigerants will be reduced to 15% of “Historical Baseline Level” as defined by the EPA.

b. HFC refers to the chemical composition of the refrigerant. Hydrofluorocarbon indicates that the refrigerant is comprised of Hydrogen, Fluorine, and Carbon. Common HFC refrigerants are R-32, R-125, R-134a, R-143a, and R-152a. A blend that contains different HFCs is considered an HFC refrigerant blend. HFCs have a high global warming potential.

4. Information and Advice.

a. **Refrigerant R-134a:** Users can continue to operate HVAC equipment utilizing this refrigerant as long as it is available. There are drop-in refrigerants available for R-134a for

example 1234YF, R-450A, R-513a. The capacities of these alternatives can vary. Coordinate with the manufacturer regarding capacity and availability.

b. Refrigerant R-410A: Similar to R-134a, users can continue to operate HVAC equipment utilizing this refrigerant as long as it is available but coordinate with the manufacturer. Note that R-32 and R-454B are more energy efficient than R-410A but are not drop-in refrigerants for R-410A.

c. Selecting HVAC Equipment Considering Refrigerant Changes: HVAC equipment that uses refrigerants with a GWP of 700 or higher will no longer be manufactured after January 1, 2025. Although HVAC equipment with refrigerants with a GWP of 700 or higher will be available during calendar year 2024, these refrigerants will decrease in availability and in some cases increase due to a prohibitively higher cost over time. Contractors may try to offer this higher GWP equipment at a lower cost but in the long run it may not be worth the cost savings and chance the equipment would have to be replaced prior to its end of life due to lack of refrigerant availability. While some equipment may be able to be retrofitted to accommodate a different refrigerant, this may be more costly than purchasing replacement equipment.

d. New Refrigerant Flammability Concerns: The lower GWP potential refrigerants are EPA acceptable, but many have a higher flammability rating. Refrigerants R-454A and R-32 have flammability rating of 2L (low flammability) as compared to R-410A and R-134A both having ratings of no flame propagation. To adopt the use of more flammable refrigerants, changes have been made to ASHRAE Standard 15 (2019), Safety Standard for Refrigeration Systems. The latest standard includes changes to refrigerant detectors, controls, and ventilation rates. If the design calls for new HVAC equipment that utilizes refrigerants more flammable than the no flame propagation rating, the designer will need to be sure the mechanical room is compliant to the latest ASHRAE 15 standard. New refrigerants with a low flammability or a more flammable rating cannot be used as a drop-in refrigerant for no flame propagation rated refrigerants.

Summary Table

Refrigerant	GWP	Status	Remarks
R-454B	466	Production continues after Jan 2025	Low flammability
R-450A	547	Production continues after Jan 2025	No flame propagation
R-32	675	Production continues after Jan 2025	low flammability
R-134a	1430	Continual decrease in production from 2023-2036	No flame propagation
R-410A	2088	Continual decrease in production from 2023-2036	No flame propagation; Coordinate w/ mfg for drop-ins

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5. **Points of Contact.** The points of contact for this ECB are Timothy Gordon, CECW-EC, 202-761-4125 and Brandon Martin, CECW-EC, 502-315-6407.

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