



Example CFC Phase-Out Plan

Requirements

All CFC-based base building HVAC&R equipment at [Building X] with a 10 year or less payback on initial investment will be replaced with non-CFC based equipment within five years of [indicate timeframe; e.g. substantial completion of the project / or / the end of the building's LEED-EBOM performance period].

This requirement applies to HVAC&R base building systems that contain 0.5 pounds of refrigerant or more. Small HVAC&R units, standard refrigerators, small water coolers, and any other cooling equipment that contain less than 0.5 pound of refrigerant are excluded.

Payback Assessment

[Building X] has one centrifugal chiller that utilizes CFC-based refrigerants (Chiller #4). The replacement payback and refrigerant conversion payback for this equipment both exceed 10 years. The payback periods are shown below; the full analyses are provided under separate cover.

Chiller #4 – Replacement: 25.1 years; Conversion: 74.9 years

Timeline

The timeline for equipment replacement is summarized in the table below. Both payback scenarios for Chiller #4 exceed 10 years, and therefore replacement/conversion of this equipment is not required.

Existing CFC-Based HVAC&R Equipment	Refrigerant Information	Equipment Replacement Plan	Implementation Timeline per Capital Plan
Chiller #4 [Manufacturer] Centrifugal Chiller Model: XXXXX	Type: CFC-11 Quantity: 445 lbs. Annual Leakage Rate: 0%	Per engineer review and analysis by a qualified third-party, it is not feasible to replace this equipment	N/A

Refrigerant Leakage Rates

Prior to the installation of a new chiller, [Building Owner] will ensure that the annual refrigerant leakage rate of the above equipment is maintained at 5% or less, and the total leakage over the remaining life of the units is less than 30% of the refrigerant charge, using EPA Clean Air Act, Title VI, Rule 608 procedures.

The building engineering team has created additional procedures for ensuring that equipment failures do not occur for any equipment, and that appropriate regular and ongoing checks are in place. Procedures used to minimize refrigerant leakage include:

- Ongoing chiller maintenance activities to be completed by a certified contractor are included in the building preventative maintenance plan
- Ongoing daily inspections and log readings of the chiller and purge unit for “purge minutes per day”. If more than 6 minutes per day, notify contractor immediately for leak check.
- Ongoing leak tests per current contract with certified contractor. Currently one test per year.
- Contractors will follow all requirements per EPA Clean Air Act, Title VI, Rule 608 for minimizing end-of-life refrigerant losses when Chiller #2 is replaced
- Add module and R-11 refrigerant monitoring sensor to the newly installed monitor for R-134A