LEED O+M: Existing Buildings | v2008

Refrigerant management

EAc5 | Possible 1 point

Intent

To reduce ozone depletion and support early compliance with the Montreal Protocol while minimizing direct contributions to global warming.

Requirements

Choose one of the following options:

Option A

Do not use refrigerants in base building HVAC&R systems.

Option B

Complete both of the following:

- Select refrigerants and HVAC&R equipment that minimize or eliminate the emission of compounds that contribute to ozone depletion and global warming. The base building HVAC&R equipment must comply with the following formula, which sets a maximum threshold for the combined contributions to ozone depletion and global warming potential:

  $LCGWP + LCODP \times 10^5 \leq 100$
  Where:
  LCODP = [ODPr x (Lr x Life +Mr) x Rc]/Life
  LCGWP = [GWPr x (Lr x Life +Mr) x Rc]/Life
  LCODP: Lifecycle Ozone Depletion Potential (lbCFC11/Ton-Year)
  LCGWP: Lifecycle Direct Global Warming Potential (lbCO_2/Ton-Year)
  GWPr: Global Warming Potential of Refrigerant (0 to 12,000 lbCO_2/lbr)
  ODPr: Ozone Depletion Potential of Refrigerant (0 to 0.2 lbCFC11/lbr)
  Lr: Refrigerant Leakage Rate (0.5% to 2.0%; default of 2% unless otherwise demonstrated)
  Mr: End-of-life Refrigerant Loss (2% to 10%; default of 10% unless otherwise demonstrated)
  Rc: Refrigerant Charge (0.5 to 5.0 lbs of refrigerant per ton of cooling capacity)
  Life: Equipment Life (10 years; default based on equipment type, unless otherwise demonstrated)

  For multiple types of equipment, a weighted average of all base building level HVAC&R equipment must be applied using the following formula:

  $[(LCGWP + LCODP \times 10^5) \times Qunit] / Qtotal \leq 100$
  Where:
  Qunit = Gross ARI rated cooling capacity of an individual HVAC or refrigeration unit (tons)
  Qtotal = Total Gross ARI rated cooling capacity of all HVAC or refrigeration
- Do not operate fire-suppression systems that contain ozone-depleting substances (CFCs, HCFCs or halons).

Small HVAC units (defined as containing less than 0.5 pounds of refrigerant), standard refrigerators, small water coolers and any other cooling equipment that contains less than 0.5 pounds of refrigerant are not considered part of the base building system and are exempt.