LEED BD+C: New Construction | v2 - LEED 2.2

Enhanced refrigerant management

EAc4 | Possible 1 point

Glossary

Intent

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

Requirements

Option 1

Do not use refrigerants.

OR

Option 2

Select refrigerants and HVAC&R that minimize or eliminate the emission of compounds that contribute to ozone depletion and global warming. The base building HVAC&R equipment shall 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 Gross ARI rated 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 shall be applied using the following formula:

$[\sum (LCGWP + LCODP \times 10^5) \times Qunit] / Qtotal \leq 100$

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

Small HVAC units (defined as containing less than 0.5 lbs of refrigerant), and other equipment such as standard refrigerators, small water coolers, and any other cooling equipment that contains less than 0.5 lbs of refrigerant, are not considered part of the “base building” system and are not subject to the requirements of this credit.

AND

Do not install fire suppression systems that contain ozone-depleting substances (CFCs, HCFCs or Halons).