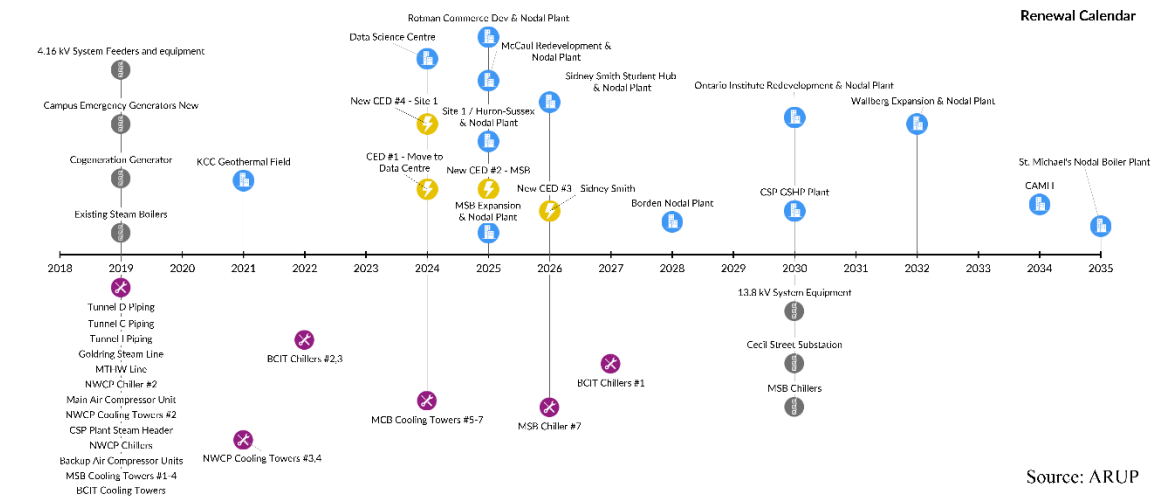


Online Material from the April 2025 Issue of ASHRAE Journal

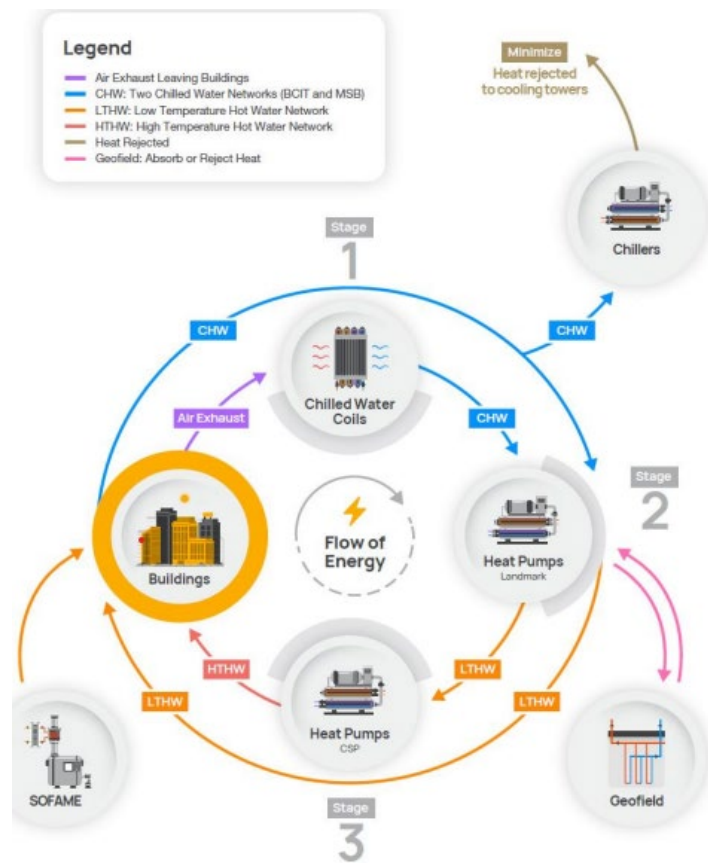
Performance of an R-134a Two-Stage Vapor Compression Refrigeration System

By Nastaran Makaremi, Ph.D.; Jia Zhe Liu, P.Eng.; Ron Saporta; Marianne Touchie, Ph.D., P.Eng, Member ASHRAE



Online Figure 1. Development and Renewal Schedule. Source: *Reproduced with the permission of ARUP (University of Toronto Carbon and Energy Reduction Master Plan, Version 1. 2021)*

See Online Figure 2 on the following page.



Online Figure 2. Cascading Heat Pump Approach. Source: *Project LEAP, Decarbonizing St. George campus.*

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