

Research and Development of a Reliability Evaluation Tool for Air-conditioning Systems

Abstract:

Here we describe a powerful tool that fully incorporates system reliability into the design of air-conditioning equipment and other building systems. There is often an inverse relationship between system reliability for maintaining functionality and construction investment cost, but this evaluation tool helps make informed system design decisions by factoring in tolerable downtime and repair time in order to determine the true balance with cost. Design for system reliability will become increasingly important and widespread in the years ahead as air-conditioning equipment and other building systems are weighted more heavily in the overall design and in order to preserve the functionality of public buildings. The basic methodology outlined here plus reliability data for various kinds of air-conditioning equipment could be applied to develop a generalized design method that promises to substantially improve the design of building equipment systems and services.