

Modelica Models for the Control Evaluations of Chilled Water System with Waterside Economizer

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Abstract

Chilled water system with waterside economizer is a common cooling system used for large commercial buildings and data centers. To evaluate the design and control of the cooling system, modeling and simulation techniques are essential. This paper presents an equation-based modeling package for chilled water cooling system and a library of system- and equipment-level control. Then a case study is conducted to evaluate performance of the system-level control under different climate zones. Simulation results show that both temperature and humidity of the climate zone have influences on the economizing hours of the system, which thus influences the energy consumption.