

Whole Building Energy Diagnostics

Diagnostic approaches for HVAC systems in commercial and institutional buildings have been developed using progressively more sophisticated methods beginning in the early 1980s. They have met with some success but have not been widely and eagerly adopted in the marketplace. A new, statistically rigorous method has been recently developed for whole building, energy-based diagnostics. In this new approach, neural networks are organized into a higher-level model called a belief network, which can be viewed as a probabilistic database containing what is known about a system (Pearl, 1988). The whole building energy (WBE) diagnostician described herein is one module of the whole building diagnostician (WBD) developed by a team of private sector, national laboratory and university researchers.

This paper reports on the new approach, the algorithms used and a test of the software product on an actual data set recorded in a commercial building.