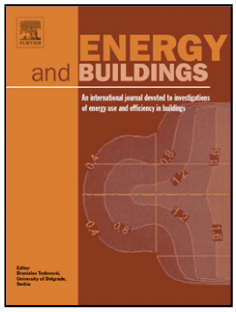

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Design and experimental evaluation of model predictive control vs. intelligent methods for domestic heating systems

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Highlights:

A sample day situation is considered to simulate smart home.

An intelligent controller is designed to apply on a domestic heating system.

Controllers' capability is examined by applying variant situation.

MPC and GA have been applied to design controller.

An experimental test has been conducted in a limited time to validate the results.

Abstract

In this paper, it has been attempted to present a temperature control method for the building and, simultaneously, reduce costs of providing energy in hybrid heating systems. In the present work, a building in Tehran city has been investigated as a sample during a single day and applying intelligent control methods in the presence of two gas and solar heat sources. Furthermore, the