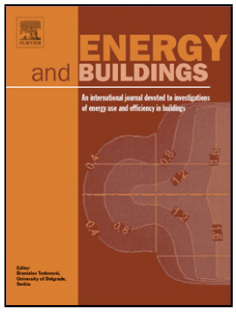

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Predication control for indoor temperature time-delay using Elman neural network in variable air volume system

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Highlights

- Basic principle of periodic prediction control for time-delay system is demonstrated
- A multi-step prediction model based on Elman neural network is presented
- Multi-step prediction control method is presented based on the proposed model
- Proposed prediction control method is validated by the experimental study
- Improvement of the stability of relative control loops in VAV air conditioning system

Abstract

Aiming at the prediction control for indoor temperature time-delay in variable air volume (VAV) air conditioning system, this paper presents an indoor temperature prediction control method based on Elman neural network multi-step prediction model. Firstly, this paper introduces basic control principles of pressure-dependent and pressure-independent VAV terminal through comparable analysis and points out significance of indoor temperature prediction control based on pressure-dependent VAV terminal. Then, Elman neural network multi-step prediction model and