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HYDRAULIC BALANCING ANALYSIS OF A CENTRAL HEATING SYSTEM WITH CONSTANT SUPPLY TEMPERATURE

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Abstract

In European countries with temperate climates, heating represents approximately 70% of the total energy consumption of a residential building. Different Directives of the European Parliament and Council prescribe the enhancement of energy efficiency and the reduction of energy demand of buildings. Consequently, the control of delivered heat is indispensable. The proper operation of the control system is possible only for balanced central heating systems. In the case of central heating systems with a constant supply temperature, the effects of mass flow deviation on the indoor temperature can be determined using only iterative methods. In this paper, the indoor temperature variation is analyzed for different mass flow deviations, and the effects of unbalancing are analyzed for a refurbished building.

Key words: heating system, hydraulic balancing, indoor temperature, iteration

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