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STUDY OF THE ENVIRONMENTAL EFFECTS OF HEATING SYSTEMS

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Abstract

The paper presents a preliminary comparative analysis of the environmental impact of the heating systems with respect to CO₂ emissions. The analysis considers the heating by combustion, the heating by cogeneration, and the heating by heat pumps. The environmental impact by CO₂ emissions has to consider simultaneously the two kinds of energy required by consumers, respectively electricity and heat. The CO₂ emissions will depend on the carbon contents of the fuel, on the first law efficiency in converting the heat developed by combustion in electricity and useful heat, on the ratio electric power per consumed heat rate, on the heating system type (local or district), and on the heating system parameters and their controlling procedure as a function of the environmental temperature, i.e. the heating load management. The design of future heating systems must judge all these influences on CO₂ emissions.

Key words: CO₂ emissions, heat pumps, heating systems

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