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ANALYSIS OF DEGREE DAY AND COOLING ENERGY DEMAND IN EDUCATIONAL BUILDINGS

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Abstract

In European countries, because of low fossil fuel reserves, energy saving is one of the primary research goals in every energy consumer sector. In the last several years, several directives were elaborated by the European Commission to enhance the energy efficiency in buildings and increase the use of renewable energy sources. In European countries with temperate climates, in a residential building with a “traditional” insulation of the envelope, heating represents approximately 65 to 75% of the total energy consumption. Nevertheless, in educational or office buildings, the energy consumption for ventilation and cooling is notably high. The energy consumption for cooling is strongly influenced by the cooling degree day, which varies year by year. This paper presents the analysis of cooling degree day variation in the last five years in Debrecen and the summer overheating in an educational building before and after refurbishment.

Key words: air change rate, blower door, cooling energy, summer overheating

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