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Practical Aspects of Energy Rating Within the UK

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ABSTRACT

Practical Aspects of Energy Rating Within the UK

The issue of energy consumption assessment is a complex one. Sophisticated simulation software whilst providing detailed predictions of the thermal performance of buildings, cannot be claimed to have an appropriate level of user friendliness for widespread application. On the other hand, simple software packages for the assessment of thermal transmittance cannot adequately deal with such factors as occupancy pattern and weather variations. In an attempt to fill the middle ground, the concept of energy rating has been developed. Simplified versions of existing thermal prediction software are used to generate a number which is a measure of overall energy efficiency. Initially, the domestic sector has been targeted. There are two schemes currently in operation. In addition to the rating numbers produced by the schemes, the Department of the Environment has introduced the Standard Assessment Procedure (SAP). Any certified energy rating program must also generate a SAP rating number, which should be the same regardless of the program used. In the proposed amendments to Approved Document L of the UK Building Regulations, the DoE suggests that a SAP rating should be provided for new and converted dwellings. There is a further possibility that a minimum SAP rating might be required.

As building fabric insulation is increased, so the influence of ventilation and air infiltration becomes more important. This paper presents a critical analysis of how ventilation provision is dealt with within current energy rating methods and the SAP procedure, and illustrated the analysis with several case studies. Particular attention is paid to the algorithms used to represent the effects of ventilation strategy. Suggestions are made for the refinement of energy ratings procedures in order that ventilation is represented more accurately.