Heating load predictions using the static neural networks method

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Abstrak

Heating load calculations are essential to optimize energy use in buildings during the winter season. Instantaneous heating loads are determined by the outdoor weather conditions. It is intended to develop a method to predict instantaneous building heating loads, depending on various combinations of current input parameters so as to apply HVAC equipment operations. Heating loads have been calculated in a representative apartment building for one month in Seoul using Energy Plus. The datasets obtained are used to train artificial neural networks. Dry bulb temperature, dew point temperature, global horizontal radiation, direct normal radiation and wind speed are selected as the input parameters for training, while heating loads are the output. The design of experiments is used to investigate the effect of individual input parameters on the heating loads. The results of this study show the feasibility of using a machine learning technique to predict instantaneous heating loads for optimal building operations.