

Comparing Energy Labelling of Buildings in Spain

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Abstract : The building sector is responsible for 40% of the total energy consumption in the European Union (EU). Thus, implementation of strategies for quantifying and reducing buildings energy consumption is indispensable for reaching the EU's carbon neutrality and energy efficiency goals. Each Member State has transposed the European Directives according to its own peculiarities: existing technical legislation, constructive solutions, climatic zones, etc. Therefore, in accordance with the Energy Performance of Buildings Directive, Member States have developed different Energy Performance Certificate schemes, using proposed energy simulation software-tool for each national or regional area. Energy Performance Certificates provide a powerful and comprehensive information to predict, analyze and improve the energy demand of new and existing buildings. Energy simulation software and databases allow a better understanding of the current constructive reality of the European building stock. However, Energy Performance Certificates still have to face several issues to consider them as a reliable and global source of information since different calculation tools are used that do not allow the connection between them. In this document, TRNSYS (TRaNsient System Simulation program) software is used to calculate the energy demand of a building, and it is compared with the energy labeling obtained with Spanish Official software-tools. We demonstrate the possibility of using not official software-tools to calculate the Energy Performance Certificate. Thus, this approach could be used throughout the EU and compare the results in all possible cases proposed by the EU Member States. To implement the simulations, an isolated single-family house with different construction solutions is considered. The results are obtained for every climatic zone of the Spanish Technical Building Code.

Keywords : energy demand, energy performance certificate EPBD, trnsys, buildings

Conference Title : ICSBREOBPO 2022 : International Conference on Sustainable Building Retrofit, Energy Optimization and Building Performance Optimization

Conference Location : Tokyo, Japan

Conference Dates : July 21-22, 2022