

Analysis of building energy regulation and certification in Europe: Their role, limitations and differences

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Abstract-

In this paper we analyse the general conditions for the building energy regulation and certification schemes to be effective in controlling and limiting the energy consumption in the building sector. Embodied energy calculations and live cycle analysis are pointed out as key elements in building energy assessment, although are still consistently left out of regulation and certification proposals. The relevance of appropriate indicators for building energy regulation and certification schemes is discussed, presenting the main conditions they should fulfil. As a practical example illustrating the general considerations, we present an analysis of the building energy legislation at EU level, pointing out some limitations that seriously compromise its capability to be finally translated in effective national legislation, able to significantly reduce the energy consumption in the building sector. This is further illustrated with the Spanish case, where the recent proposals for regulatory and certification schemes present serious limitations because of not taking into account some basic considerations. A rational approach for establishing the allowed limits in building energy consumption, the ones that should form the basis of regulatory mechanisms, is outlined.

Index Terms- Buildings and energy; Regulation; Certification, Bioclimatic architecture; Embodied energy; Live cycle analysis

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