

Towards Low Carbon Districts: The Role of the ITACA Urban Protocol

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In the Marche Region, a small region in central-east Italy characterised by about one million and a half inhabitants, buildings are responsible for approximately 27,9% of energy consumption and 17,4% of CO₂ emissions.

During last decades, the significant impact of buildings on the environment and people's lives in cities has been progressively recognized. Typically when talking about energy efficiency and renewable energy production in buildings, the focus tended to be mainly on individual buildings.

Therefore, the integration of the concept of sustainable development in the design and construction sector stimulated the research activity in the field of assessing the environmental performance of buildings¹.

In this framework, several tools for assessing the sustainability of buildings (named protocols) have been developed (i.e. BREEAM, 1990, UK; LEED, 1993, US).

In Italy, the Green Building Council Italia (2009-GBC Italia)², the protocol of the Institute for Innovation and Transparency in Procurement and Environmental Compatibility (2004-ITACA)³ and the protocol of the CasaClima Agency-KlimHaus (2002-CasaClima)⁴ were born.

Originally, the aforementioned sustainability protocols focused on achieving efficient energy performance in buildings. However, during the first decade of the 2000s there was a change of perspective in the global scenario that emphasized the multidimensionality of the unsustainability of cities, bringing environmental, social and economic issues progressively into the framework of sustainability protocols, leading to an awareness that the building scale was too limited considering the broader sustainability concept that can only be implemented at a larger scale⁵.

In Italy, alongside the already existing sustainability protocols at the building scale, the broader scale protocol GBC was developed, followed by the ITACA Urban Scale protocol in 2016. Marche Region was one of the main promoters in Italy for the development of the ITACA Urban Scale protocol.

ITACA Protocol Urban Scale is a multi-criteria assessment system for the evaluation of environmental sustainability of an urban context. Starting from a set of basic assessment items, the ITACA Protocol Urban Scale aims to provide a final performance score, indicative of the sustainability level of the urban

¹ Díaz-López, C.; Carpio, M.; Martín-Morales, M.; Zamorano, M. Analysis of the scientific evolution of sustainable building assessment methods. *Sustain. Cities Soc.* 2019, 49, 101610.

² Green Building Council Italia. Regolamento di Certificazione Protocolli a Marchio GBC, Rovereto: GBC. 2019. Available online: <https://www.gbcsitalia.org/documents/20182/21329/2019+Regolamento+certificazione+protocolli+GBC+Italia.pdf>.

³ Istituto per l'innovazione e trasparenza degli appalti e la compatibilità ambientale and Ente Italiano di Normazione. Prassi di Riferimento (UNI/PdR 13.0:2019), Sostenibilità ambientale nelle costruzioni—Strumenti operativi per la valutazione della sostenibilità - Inquadramento generale e principi metodologici, 2019, Milano. Available online: https://www.ediltecnico.it/wpcontent/uploads/2019/07/UNI21000963_EIT.pdf.

⁴ Agenzia per l'Energia Alto Adige - CasaClima. Direttiva Tecnica CasaClima Nature, 2017, Bolzano. Available online: <https://www.agenziacasaclima.it/function/it/ISearch/search?&q=casa%20clima%20nature&type=5>.

⁵ Sharifi, A.; Murayama, A. Viability of using global standards for neighbourhood sustainability assessment: Insights from a comparative case study. *J. Environ. Plan. Manag.* 2015, 58, 1–23.

settlement. The constituent elements of the evaluation method can be summarized as follows:

- a set of evaluation items, called criteria;
- a set of quantities, called indicators, which allow to quantify the performance of the urban area in relation to each criteria. The criteria were distributed in a series of thematic areas that try to define the complexity of urban quality; governance; urban morphology; landscape integration; quality of the design (bld./site); public spaces; urban metabolism; biodiversity; adaptation; mobility / accessibility; social and functional diversity; economic-social effects.

The objective of this protocol, which will act in synergy with other protocols relating to building sustainability and facilitate appropriate responses to urban regeneration, is to provide a cross-scale assessment that will measure the sustainability level of interventions in urban environments ranging in size from the block to the city. This protocol will be useful for public planning bodies and all those stakeholders in developing or transforming urban areas. In order to implement its use also in support of financing programs at national level for urban regeneration, the Protocol has been simplified with the elaboration of a synthetic version.

The first version was approved by the ITACA Board of Directors (technical body of ITACA) on December 2016. Some regions refer to the Protocol for the urban planning of their particular territories for the management of regeneration programmes in degraded urban areas (example European Regional Development Fund). The latest version, the short version, was approved by the same body of ITACA on December 2020 and has been made available on its website for free use.

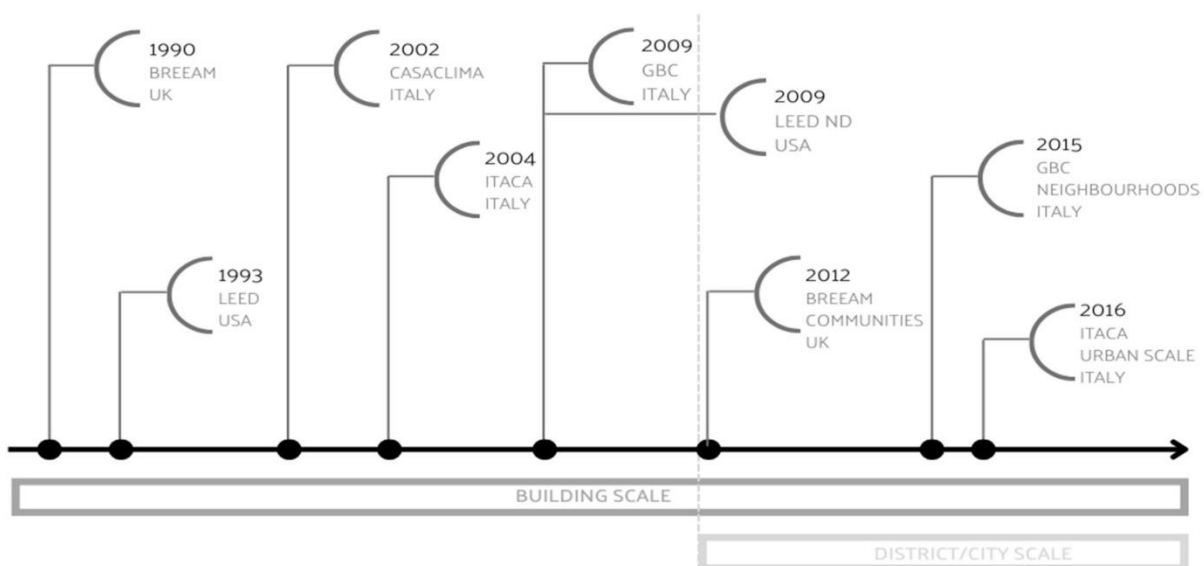


Fig. a. Broadening of sustainability protocol scale since their implementation.