

ACE POLICY POSITION 2016

THE ROLE OF ARCHITECTURE IN ENERGY EFFICIENT CONSTRUCTION



ARCHITECTS' COUNCIL OF EUROPE
CONSEIL DES ARCHITECTES D'EUROPE



■ Highlights

The architecture of a building has a major impact on building performance outcomes. The spatial and material configuration of a building is one of the most important determinants of occupants' experience of comfort, security and productivity, and how energy is used in the building to achieve this. Architects create bespoke designs integrating structural, technical, spatial and material solutions for each project that balance the passive and active measures required to control indoor environments that meet the long term needs of occupants.

The way in which buildings can support and adapt to occupants' needs requires a holistic and long-term approach to building performance. Socio-technical methods of analysis and design, employed by architects, ensure that buildings enhance occupants' lives and can adapt to variations in occupancy patterns, use, demographics and climate.

Empowered by progressive legislation and investment, architecture's reach goes well beyond individual building boundaries. Architecture plays an important role in achieving the cultural transformation required to create a sustainable built environment. ACE therefore calls on EU institutions and Member States to:

- 1| Implement legislative change that recognises the role of architecture to deliver a step change in building performance to reach EU green house gas, renewables and energy savings targets by 2030.
- 2| Recognise and promote the contribution of architects to energy and resource efficient construction in all relevant legislation, standards and funding programmes.
- 3| Incentivise holistic retrofit solutions by interlinking financial instruments for energy efficiency with architectural renovation to significantly increase the uptake of energy efficiency measures.
- 4| Review research funding to better target Architecture SMEs and incentivise interdisciplinary collaboration across the construction industry.
- 5| Empower built environment professionals to reduce the energy consumption of buildings while improving indoor environmental quality by:
 - creating a transparent and harmonised reporting and benchmarking of building energy use and building performance indicators by Member States;
 - mandating the EU-wide disclosure of building operating performance across all sectors;
 - implementing the measurement and verification of energy performance in use.

■ ACE position

1| Recognising the importance of the Architect's skillset

The energy performance potential of a building is governed by solutions developed by the architect during the design stage. Its connection to its site and users as well as its form, materials and long term flexibility have as much impact on the energy consumed by a building as the performance levels of its materials.

The design of 'smart buildings' cannot be seen as the universal solution to decrease the carbon footprint of the built environment. Generally more fragile, smart buildings require high technicity for their operation and routine maintenance. A greater emphasis is needed on the evaluation of buildings over their lifecycle so that more architectural solutions to energy use, such as building form and mass, usability, spatial adaptability and other parameters are recognised as preferential over solutions that may appear more effective and lower cost in the short term such as mechanised/automated heating, cooling, ventilation, lighting solutions¹.

While ACE recalls the wider long-term societal benefits of energy-efficient buildings (health, mitigation of climate change, employment, productivity, etc.), it underlines that the reduction of energy consumption should not be the only objective. Designing sustainable buildings and cities requires also taking into consideration economic, social, environmental, political and cultural aspects affecting the built environment. Architects have the ability to address all these aspects in an holistic manner. Thus they enable populations to settle in secure, healthy and humane conditions and contribute to the mitigation of climate change and the adaptation of our societies to its effects.

> ACE emphasises the importance of design studies, which offer long-term, cost-effective energy-saving solutions. ACE advocates that priority should be given to simple, passive, low-tech, locally tested solutions that do not consume energy and are less prone to human error. ACE calls on the EU institutions to recognise and promote the contribution of architects to energy and resource efficient construction in all relevant legislation, standards and funding programmes.

¹Innovate UK BPE study has shown that the cost of these risks can amount to 2 to 5% of the capital cost and up to 50% of the maintenance cost of a project;



2 | Closing the gap between the expected and achieved energy performance

Current legislation does not mandate the reporting of achieved operational performance or the validation of the indoor spatial and environmental quality achieved. This has caused major unintended consequences, including a significant gap between the expected and achieved energy performance of buildings that must be tackled by revised EU legislation.

> ACE calls for the creation of a transparent and harmonised reporting and benchmarking of building energy use and building performance indicators by Member States; the mandatory EU-wide disclosure of building operation performance across all sectors; and the implementation of measurement and verification of energy performance in use.

3 | Interlinking financial instruments for energy efficiency measures and architectural design

In recent years the financing of energy efficiency measures, in particular the retrofit of the existing stock, has been decoupled from investment in the spatial and architectural design of buildings. With legislation focusing on technical solutions to energy efficiency, the business case to undertake spatial and architectural renovation as part of an energy efficient retrofit has been reduced. As EU Member States embark on one of the largest retrofit efforts ever undertaken, there is a major opportunity to improve the uptake of efficiency measures by interlinking financial instruments with architectural design and renovation. By re-connecting energy efficiency with market drivers for architectural renovation, public investment in energy efficiency will offer far greater returns and achieve greater traction and robustness for technical solutions.

> ACE supports the development of innovative financial schemes for energy and resource efficiency in buildings that appreciate architecture as part of the solution rather than an on-cost.

4 | Research & Innovation in energy-efficient buildings

Supporting research in the overlap of architecture and energy/resource efficiency is a priority if the legacy of EU investment in energy efficiency is to stand the test of time. The architectural profession in Europe has much research potential but is in need of leadership to enable it to develop new evaluation tools, products and services. This is hampered by a lack of collaboration and a lack of research and development investment right across the construction industry.

> ACE calls for EU research funding programmes that better target Architecture SMEs and interdisciplinary collaboration across the construction industry.

■ Background

- It is widely acknowledged that the built environment is the largest sector that can contribute to energy savings: Buildings in Europe are responsible for 40% of energy consumption², 36% of CO₂ emissions and it is estimated that 75% of our housing stock is energy-inefficient³.
- In 2014, EU leaders agreed a binding target to reduce EU domestic Greenhouse Gas emissions by at least 40% below the 1990 level by 2030. They also set a target of at least 27% for renewable energy and energy savings by 2030.
- EU legislation supporting these targets in the building sector, namely the Energy Efficiency⁴ and the Energy Performance of Buildings Directives², have resulted in significant unintended consequences and have suffered from low credibility and poor implementation by Member States.

■ Annexes

- *ACE policy position on Closing the Performance Gap* – April 2013
- *ACE policy position on Life-Cycle Assessment* – April 2013
- *ACE response to the public consultation on Sustainable buildings* – October 2013
- *ACE response to the EPBD consultation* – October 2015
- *ACE policy position on the EU Strategy on Heating and Cooling* - April 2016

² Directive 2010/31/EU of 19 May 2010 on the Energy Performance of Buildings (recast)

³ Communication from the Commission of 25 February 2015 on a Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy

⁴ Directive 2012/27/EU of 25 October 2012 on Energy Efficiency.

OTHER ACE POLICY POSITIONS 2016

- URBAN REGENERATION: RENOVATING THE EXISTING BUILDING STOCK
- QUALITY-BASED PUBLIC PROCUREMENT
- THE IMPORTANCE OF LIFE-LONG LEARNING AND THE ROLE OF THE PROFESSION IN DELIVERING CONTINUING PROFESSIONAL DEVELOPMENT
- DISSEMINATION OF ARCHITECTURAL CULTURE
- OPTIMISING PROFESSIONAL MOBILITY
- REGULATION OF ARCHITECTS
- SUPPORT FOR THE NEGOTIATION OF BINDING MUTUAL RECOGNITION AGREEMENTS

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