



EU COMMISSION'S CONSULTATION ON THE REVISION OF THE ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE 2010/31/EU

SUMMARY OF THE ACE RESPONSE

BACKGROUND

In March 2021, the EU Commission launched a public consultation on revising the Energy Performance of Building Directive (EPBD) in the context of the European Green Deal ambition to achieve climate neutrality by 2050. The feedback from this consultation will feed into the Commission's preparation of legislative proposals for revising the directive, which is intended for publication before the end of the year.

The issues raised in the consultation relate primarily to ways in which building renovation can be boosted – not only in terms of the number of renovation projects, but also in trying to achieve deeper renovation. It also addresses how to attain a highly energy efficient and decarbonised building stock by 2050 and how to enable more accessible and affordable financing for building renovation.

In 2020, the Commission presented its '[Renovation Wave](#)' strategy to boost energy renovation of buildings in the EU. It set out the goal of at least doubling the annual energy renovation rate of buildings by 2030.

The ACE response to this consultation is based on the [ACE Key Messages in the area of building performance and sustainability](#) and contributions received from members of the ESA WG.

SUMMARY OF THE ACE RESPONSE

Long-term decarbonisation strategy

The long-term decarbonisation strategy has introduced the concept of *zero emission buildings by 2050*, in view of achieving carbon neutrality in the long term. ACE considers that it would be helpful to define this concept in the EPBD. Such a definition should include GHG emissions covering the whole life-cycle of buildings and refer to a timeline to gradually phase out fossil fuels, in particular for heating and cooling systems.

ACE underlines that improvement measures deriving from the concept of *zero emission buildings* will be less costly and more effective if regulations target *achieved performance in use*. The requirement to report as-built and in-use data would have a major impact on construction quality and would incentivise focus on usability and interface design.

Long-term renovation strategies (LTRS)

ACE considers that the EPBD provisions on the LTRS should be modified, notably to:

- recognise that 'deep renovation standard' should include architectural and functional upgrades, so as to maximise return on investment and life-span of buildings;
- strengthen neighbourhood regeneration and the planning process – local one stop shops



should include legal, architectural, structural, mechanical engineering advice and landscaping advice to enable effective community self-organisation.

The monitoring of the objectives identified by Member States in their LTRS should be strengthened, possibly by developing a common template and by requesting specific data and indicators, in order to make the information provided by Member States more comparable. Requesting more data, especially on greenhouse gas emission effects, is also necessary to assess the contributions to the EU climate policy targets.

Whole life-cycle carbon emissions

The EPBD should contribute to the Commission 2050 whole life-cycle performance roadmap by requiring the reporting of whole life impacts for all new buildings and refurbishments and compiling and regularly updating national and EU benchmarks for whole life energy and carbon. Building level data should feed into stock level assessments of improvements against 2030/2040/2050 trajectories.

Level(s) indicators should be used to support the integration of whole life-cycle reporting into the policy framework.

ACE points out that under current construction practices as built building quality never reaches its intended performance level and deteriorates rapidly after completion. For example, air tightness has been shown to significantly deteriorate after 1-3 years and there is on average a 1.5-2-fold gap between intended and achieved total energy consumption.

A greater acknowledgement in the EPBD of all 5 pillars of building performance is necessary, namely:

1. Reducing the consumption of non-renewable resources;
2. Improving indoor environmental quality (incl. indoor air quality, thermal comfort, daylight, acoustics, biophilia);
3. Raising occupant satisfaction (inc. occupants' health, wellbeing and their perception of building functionality);
4. Reducing the risks presented by the heating climate and ensuring long-term adaptability;
5. Minimise long-term maintenance costs and transform the perception of value to reflect social, economic and environmental contributions over a building's life span as defined by UN SDGs.

Putting greater emphasis on the role of lifespan is also key, by tracking absolute performance based on measured and as-built outcomes and by tackling operational and embodied impacts so that impacts are not pushed further into less reported life-cycle stages.

ACE underlines that the greatest opportunity to address operational and embodied carbon occurs at design stages. After that point opportunities to make carbon reduction decisions diminishes.

ACE considers that existing buildings should only be demolished if the new building provides the equivalent thermal mass and spatial proportions and improved GHG balance. Demolition should be an exception and adaptive reuse of the existing stock should be prioritised.

New ownership models for building services should be embraced, that include leasolding arrangement for shorter life-span building components, such as M&E systems, cladding, or appliances, supplied under a performance contract.



One-stop-shops

One-stop-shops should be re-cast to offer architectural and landscape design, legal, and procurement advice for local communities to take concerted action. The architectural profession provides an expert role to guide individuals as well as local authorities, to enable participatory design. Incentives, financial and regulatory, should make the retrofitting of existing buildings more effective than the creation of new buildings.

Nearly zero-energy buildings (NZEB)

ACE considers that the current definitions for NZEB are not ambitious enough to contribute towards a fully decarbonised building stock. The current definition should be updated to put clear limits to energy use and minimum levels of renewables and incorporate green-house gas emissions targets. The current definition should be replaced by a definition of “zero emissions buildings”.

ACE points out that current the current NZEB requirements ignore more than half of a well-performing building's energy consumption, from construction quality, commissioning, maintenance and operating conditions. By requiring the reconciliation of EPCs with measured performance in use, the sector will begin to implement user interface (UX) design principles to address key sources of this performance leak. A redefinition of NZEB is required to address building performance more realistically and on a whole life basis - a new net zero definition is needed incorporating impacts across a building's life cycle.

ACE calls for a more harmonised definition of NZEB. Minimum thresholds for primary energy use in the building's operation should be defined in the EPBD for different climate zones, as well as minimum renewable energy sources share should be introduced. Life-cycle greenhouse-gas performance should also be included.

Harmonised definition/accounting system should include requirements for:

- Final energy (as efficiency parameter and as heating cost parameter)
- GHG emission operating phase per year and sqm (as climate protection parameter).
- GHG emission life cycle per sqm (as climate protection parameter).

Primary energy as a parameter would then be dispensable.

Deeper building renovations

ACE considers that it would be beneficial to provide a legal definition of “deep renovation” in the EPBD. The definition should relate to both operational and embodied GHG emissions covering emissions from the full life-cycle of buildings. The definition should cover broader aspects that have an impact on the quality of renovations, such as health and environmental standards, accessibility for persons with disabilities, climate resilience or others. It should also recognize the 5 pillars of building performance (see paragraph above on whole life-cycle carbon emissions).

The principles of EU the New European Bauhaus should be incorporated to prioritise design quality, performance and life-span over purely cost-effective solutions. The definition of 'comprehensive renovations' must include functional and indoor environmental quality upgrades and achieve a 'very



high life cycle GHG performance' determined by benchmarks.

Mandatory minimum energy performance standards (MEPS)¹

ACE supports the introduction of MEPS. However, it considers that EPCs, in their current format, should not be used to support MEPS. They should only be used in this way if their accountability issues are resolved and a building's energy performance potential is reconciled with as built and in use performance and validated with measured performance in use in a mandatory way. If MEPS are introduced with unreliable EPCs, they could introduce major risks to sustainable investment and potentially lead to a new 'green sub-prime' crisis, - where the collateral used for lending does not reflect the life-span, quality and performance assumed.

It must also be ensured that the costs of renovation measures in rented buildings do not lead to rent increases that significantly exceed the energy costs to be saved (rent neutrality).

Building-level performance standards, focusing on the overall energy efficiency of the building, would be the MEPS that would be the most appropriate. MEPS should be linked to specific moments in the life cycle of a building, for example a transaction (e.g. the sale, rental or lease of a building).

Energy Performance Certificates (EPCs)

ACE considers that EPCs have only minimally achieved reductions in the actual energy consumption of buildings and have led to unintended consequences in terms of overheating, excessive use of plastic products and moisture in buildings, affecting health and well-being. They have also encouraged the elemental upgrade of buildings, that bring minimal performance improvements (between 5-15%) as opposed to whole building renovations, including functional upgrades, which can realise a magnitude reduction (over 60%) in energy use and add significant and long-term value to properties.

ACE therefore considers that the framework for EPCs should be updated and their quality improved.

Harmonization of EPCs, both in terms of the reference values shown and presentation, is needed to accelerate the increase of building performance. It could be achieved by introducing a common template.

EPCs should include the requirement to be able to compare and reconcile calculated with measured performance. EPCs that have been validated should be visually distinct. The registration of EPCs, both calculated and measured, in national databases is essential.

The following options for the improvement of EPCs are supported by the ACE:

- Improve quality control mechanisms
- Include further information on estimated costs, energy savings or cost savings
- Include information on non-financial benefits such as increased comfort and climate resilience

¹ Mandatory renovation/minimum performance requirements are one of the most impactful measures for increasing the rate of building renovation and have already been explored and implemented in some Member States. Their aim is to firm up investors' expectations by setting a path for the improvement of the energy performance of different classes of buildings thus gradually increasing the average performance of the national building stock. Mandatory renovation/minimum performance requirements could be introduced progressively and target specific segments as a priority.



- Tailor the recommendations towards deep renovations
- Develop an accessible EPC database with further information on the EPC, explanation of the different terms, benchmarks and comparison with similar buildings
- Increase the number of mandatory indicators to include: greenhouse gas emissions, generation of renewable energy, breakdown of different energy uses (e.g. heating, ventilation, lighting, etc.) or type of systems installed
- Increase the interoperability with other tools such as digital building logbooks, SRIs and renovation passports. Data from upgraded EPCs should be logged automatically, digitally in a logbook/Building Passport. EPCs should be further developed into roadmaps that are building-specific, tailored to individuals. These roadmaps should describe renovation measures in a time-phased manner.

Building Renovation Passport (BRP)

ACE supports the development of BRP. Legal requirement should be introduced in the EPBD, to make BRP mandatory for certain building types. They should be incorporated within digital EPCs.

Smartness of buildings

In principle, ACE considers that architectural solutions should be preferred to technological approaches, which can cause ecological and economic costs due to their short lifespan. Technology should be used as little as possible, especially in single-family homes, as it saves little in proportion.

SRIs must be further adopted to embrace the reconciliation between calculated and measured performance (cf REHVA publications) and to facilitate remote inspections once an initial reconciliation on site has taken place.

Building-related data

ACE considers that the EPBD should contribute in making a wider range of building-related data on the energy performance of a building and its related construction and renovation works, across its life cycle, available and accessible. This should be done in a harmonised manner, with as much simplicity as possible.

A good data basis on the EU building stock is a fundamental prerequisite for managing the decarbonisation of the building sector and effectively implementing renovation strategies. The reporting and validation of both qualitative and quantitative performance data is the most effective way to overcome the fragmentation of the sector and introduce greater accountability. It must permeate all areas of sustainable building performance: energy, material impacts, indoor environmental quality, health, cultural value. Making feedback and related data accessible to the market would grow the evidence base for continuous improvement, accelerate research and allow knowledge transfer.

Requiring the reporting of whole life impacts for all new buildings and refurbishments and compiling and regularly updating national and EU benchmarks for whole life (operational and embodied) energy and carbon must be a priority for the EU to provide the backbone for certification and guidance.

Building level data should feed into stock level assessments of improvements against 2030/2040/2050 trajectories. Reporting of embodied carbon impacts must precede 'ratings' to allow the necessary data structures and benchmarks to be developed. Whole life carbon ratings for public buildings should be introduced earlier than for the private sector but validation of performance must be a priority for both.



Accessible and affordable financing for building renovation

ACE considers that public financial incentives should be used to stimulate deeper renovations across the EU:

- Architectural design should be financially incentivized to participate in deep renovations to increase value.
- The provision of energy efficiency mortgages must be based on a robust EPC that is based on achieved performance in use, whole-life carbon, indoor environmental quality, adaptability and climate change resilience and value (see Level(s) indicators).
- Funding support to renovations should be linked to the depth of renovation as long as funding is made available only if the depth of the renovation works and resulting performance improvements can be measured and validated.

Consideration should be given to setting subsidies in proportion to the GHG savings achieved. For this, an appropriate, sensible calculation model would have to be developed.

EPCs that are based on real performance gains would remove a major market barrier from energy performance contracting and sustainable finance. The need to target actual achieved performance must permeate the EU Taxonomy for Sustainable Finance so that pension funds and mortgages can be backed up by a resilient built environment. A CO₂ price would provide the necessary incentives here. Municipalities in particular usually do not have their own expertise.