MODERN BUILDING ALLIANCE
Safe and sustainable construction with plastics

POSITION PAPER
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TOWARDS MORE ENERGY-EFFICIENT AND DECARBONISED BUILDINGS

Executive summary:

At 36%,[1] buildings are the largest contributor to CO_2 emissions in Europe, mostly arising from the energy needed to heat, cool and run buildings. As part of the European Commission Green Deal climate strategy, the decarbonisation of the building stock is a key long-term objective as iterated in the Renovation Wave strategy and formalised in several policy measures part of the *Fit for 55* package. The decarbonisation of the building stock must start with a steep reduction of the operational energy consumption of buildings. This can be achieved by more and deeper renovations.

The revision of the Energy Performance of Buildings Directive (EPBD) is an opportunity to reinforce the political direction for the coming decades. The Modern Building Alliance calls for a revised EPBD that will help to achieve safe, high-quality and high-performance building stock. In addition to energy savings, deeply renovated or new nZEBs will bring additional benefits, such as improved health and comfort, reduced energy poverty, the creation of jobs and economic growth.

The Modern Building Alliance is calling for an ambitious EPBD in terms of:

- **Increased number of renovations**: instruments to encourage and ensure renovations, including targets and progress indicators, must be in place to assure the energy consumption of the building stock is declining as required to meet the EU climate and energy efficiency targets;
- **Depth of energy renovation**: priority should be given to the renovation of the 'building envelope' (in line with the Energy Efficiency First principle), as complete and effective thermal insulation saves all kinds of energies, from fossil to renewable origins;
- **Full deployment of Energy Performance Certificates (EPC)**: EPCs have the potential to communicate reliable information to market players (from occupiers to craftsmen). EPCs should also be included in building renovation passports;
- **Required involvement of accredited fire safety experts:** as is already the case with energy experts. Accredited Fire Safety Engineers could be asked to intervene in renovation processes as well as in regular fire and electrical safety inspections to ensure the quality, compliance and safety of buildings.

The Modern Building Alliance believes that a revised EPBD offers an opportunity to address fire safety in buildings. As mentioned in a European Parliament Report published in 2020,[2] renovation works should consider a holistic approach for fire safety with the following 7 layers: prevention, detection, early suppression, evacuation, compartmentation, structural safety and firefighting.
The revised EPBD should suggest embedding in national regulatory frameworks to ensure the involvement of skilled and competent fire safety professionals with clear roles and responsibilities, in the buildings' design, construction and maintenance phases. This will ensure a safe transformation of the building stock.

Find out more: https://www.modernbuildingalliance.eu/fire-safety-skills-competency

[1] European Commission, "The Commission Presents Strategy for a Climate Neutral Europe by 2050 – Questions and Answers.", 2018, http://europa.eu/rapid/press-release_MEMO-18-6545_en.htm

[2] European Parliament report, "Maximising the Energy Efficiency potential of the EU building stock (2020/2070(INI)), 2020, https://www.europarl.europa.eu/doceo/document/A-9-2020-0134_EN.pdf

Greenhouse gas emissions (GHG) are the main driver of climate change. With 36%,[3] buildings are the largest contributors to CO_2 emissions in Europe, mostly arising from the energy needed to heat, cool and run buildings. The decarbonisation of the building stock must be based on a deep reduction of energy consumption. It is the first step in achieving Europe's climate change goals.

Europe can only meet the climate ambitions of the Paris Agreement if it succeeds in making buildings highly energy efficient and decarbonised by 2050. Building-related GHG emissions are set to steadily increase by 2050 if no actions are taken.[4] Globally, the energy consumption per square meter of buildings needs to reduce by at least 30% by 2030 (compared to 2015).[5] Buildings in Europe offer significant untapped potential for cost-effective energy savings, potentially achieving a 14% reduction in final energy demand by 2050.[6]

Leveraging the potential contribution of the building sector to the EU's energy and climate objectives

The Modern Building Alliance supports a revision of the EPBD[7] to better leverage the potential of the building sector. This contribution to the EU's energy and climate objectives is crucial as energy-efficient buildings are needed for Europe to be able to decarbonise its economy by 2050.[8]

The Modern Building Alliance sees, within the EPBD, four key points of attention:

- Increasing the renovation rate: instruments to encourage or ensure energy renovation works (financing, one-stop-shops, etc.), including targets, progress indicators and the introduction of Minimum Energy Performance Standards (MEPS), must be in place to reduce the energy consumption of the building stock as required to meet the EU climate and energy efficiency targets.

- Depth of renovation: priority should be given to the renovation of the 'building envelope' (Energy Efficiency First principle), as complete and effective thermal insulation renovation which saves energy of any kind, from fossil to renewable origins.

- Communication to end-users of their energy performance certificates (EPCs) is not fully implemented everywhere and EPCs have the potential to provide a basis for building renovation passport initiatives.

- Further involve professionals with fire safety skills and competencies to accompany the evolution and quality of the building stock as it is currently required with energy experts.

[3] European Commission, "The Commission Presents Strategy for a Climate Neutral Europe by 2050 – Questions and Answers.", 2018, http://europa.eu/rapid/press-release_MEMO-18-6545_en.htm
[4] According to the Global Alliance for Buildings and Construction with an average of 1.3%/annum.
[5] According to the UN Global Alliance for Buildings and Construction, https://globalabc.org/media-global-advocacy/why-buildings-our-key-messages
[6] Fraunhofer Isi, "Study on Energy Savings Scenarios 2050", https://www.isi.fraunhofer.de/en/competence-center/energiepolitik-energiemaerkte/projekte/energy-saving-scenarios-2050.html
[7] European Union, "Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 Amending Directive 2010/31/EU on the Energy Performance of Buildings and Directive 2012/27/EU on Energy Efficiency", June 2018.
[8] European Commission, European Parliament, the Council, EESC and CoR, "A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives", October 2020, https://eur-lex.europa.eu/resource.html?uri=cellar:0638aa1d-0f02-11eb-bc07-01aa75ed71a1.0003.02/DOC_1&format=PDF

High-performing buildings envelopes are paramount to tapping into the energy-saving potential

Recognising that 80% of the building stock needed for 2050 already exists today, [9] facilitating the cost-effective transformation of existing buildings to ensure the optimal performance of the building envelope is essential for an energy-efficient and decarbonised building stock by 2050.

However, this is a long-term challenge. Research shows that just 3% of the building stock was assessed as highly energy efficient in 2017.[10] Therefore, priority should be given to the performance of the building envelope of existing structures, which corresponds to upgrading the thermal performance of walls, roofs, flooring and windows. Reducing energy demand through both passive (envelope) and active (controls, automated systems etc.) measures are the first steps towards health, comfort and well-being in buildings.

A big part of a building's footprint is comprised of heating and cooling needs.[11] This can be significantly reduced by improving insulation. Due to their performance, durability, weathering resistance, low maintenance, cost-effectiveness, lightweight and design flexibility, plastic insulation materials are a solution of choice for retrofitting existing buildings.

Improving the energy efficiency of buildings will not only support the fight against climate change but will also deliver important socio-economic benefits

Highly energy-efficient buildings have immediate benefits for building owners and tenants, as investments raise the property value and reduce energy bills. Member States now have an opportunity to set incentives to promote upgrade investments that can benefit the 54 million Europeans who cannot afford to heat their homes during the winter and the upwards of 50 million who either have overdue electricity and gas bills or live in damp and leaky homes.[12]

Reducing the energy consumption of buildings will also increase Europe's energy security. As the building sector is the largest single energy consumer and since the EU depends on energy imports for over 50% of its current consumption,[13] increased energy efficiency will help to reduce the dependency on oil, coal, gas and uranium imports, often coming from politically unstable regions.

Research shows that initiatives driven by the Energy Performance in Buildings Directive will lead to a 0.61% increase in GDP and the creation of approximately 568,000 jobs in local economies and SMEs by 2030.[14] Regarding energy savings, Lithuania has demonstrated how improving the quality of dwellings can result in energy savings of up to 70%.[15]

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[9] European Commission, "The Commission Presents Strategy for a Climate Neutral Europe by 2050 – Questions and Answers.", 2018, http://europa.eu/rapid/press-release_MEMO-18-6545_en.htm

[10] Buildings Performance Institute Europe, "Factsheet: 97% of buildings in the EU need to be upgraded", December 2017, http://bpie.eu/wp-content/uploads/2017/12/State-of-the-building-stock-briefing_Dic6.pdf

[11] European Commission, A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives COM/2020/662 final, October 2020, p. 23 - 24 https://eur-lex.europa.eu/resource.html?uri=cellar:0638aa1d-0f02-11eb-bc07-01aa75ed71a1.0003.02/DOC_1&format=PDF

[12] European Parliament, "Briefing on Energy Poverty, Protecting vulnerable consumers", May 2016, http://www.europarl.europa.eu/RegData/etudes/BRIE/2016/583767/EPRS_BRI(2016)583767_EN.pdf

[13] European Commission, "Questions and answers on security of energy supply in the EU", May 2014, http://europa.eu/rapid/press-release_MEMO-14-379_fr.htm

[14] European Commission, "Questions & Answers on Energy Performance in Buildings Directive", April 2018, https://ec.europa.eu/info/news/questions-answers-energy-performance-buildings-directive-2018-apr-17_en

[15] Renovate Europe, "REDay2015 – It's more than renovation", September 2015, https://renovate-europe.eu/wp-content/uploads/2015/09/igdm.png

[13] EU Fire Safety Guide, Modern Building Alliance, May 2019, https://www.modernbuildingalliance.eu/EU-firesafety-guide

[14] European Commission recommendation on building renovation (EU) 2019/786, 8 May 2019, https://eurlex.europa.eu/eli/reco/2019/786/oj

Building renovation is an opportunity for Fire Safety

Fire safety is mentioned in two paragraphs of the current EPBD:

> Each Member State may use its long-term renovation strategy to address fire safety and risks related to intense seismic activity affecting energy efficiency renovations and the lifetime of buildings. (New article 2a, paragraph 7)
>
> Member States shall encourage, in relation to buildings undergoing major renovation, high efficiency alternative systems, in so far as this is technically, functionally and economically feasible, and shall address the issues of healthy indoor climate conditions, fire safety and risks related to intense seismic activity. (Article 7, paragraph 5)

The Own Initiative report,[16] voted in September 2020, indicates that it is essential to address fire and other safety aspects during the design, construction, renovation and operation of buildings. A holistic approach to fire safety must be considered through prevention, detection, early suppression, evacuation, compartmentation, structural safety and fire-fighting, as described in the 7 layers of fire safety in buildings.[13]

In line with the Commission's recommendations on building renovation,[14] the Modern Building Alliance encourages Member States to consider the following elements when transposing the EPBD to their legislation:

- The quality of the electrical and gas installation and appliances;
- The presence of smoke detection mechanisms;
- The quality of escape routes and compartmentation; and
- The possibility of early suppression systems in high-rise/high-risk buildings or for vulnerable occupants.

Fire safety competency must accompany the renovation of the building stock

Achieving high energy efficient and decarbonised buildings is an ambition that requires many solutions, such as high-performance insulation, resource-efficient materials, renewable energy and energy storage technologies. Fire safety considerations must accompany the building renovation efforts and must be led by competent professionals with clear roles and responsibilities who are involved during the buildings' design, construction and maintenance phases.

The Modern Building Alliance believes that developing knowledge and competencies is a necessity, particularly to accompany the sustainable transformation of the building stock.

The revision of the EPBD is an opportunity to emphasise the importance of considering the 7 layers of fire safety in buildings and to stress the importance of involving qualified professionals to inspect electrical installations and the fire safety designs of buildings.

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[16] European Parliament report, "Maximising the Energy Efficiency potential of the EU building stock (2020/2070(INI)), 2020, https://www.europarl.europa.eu/doceo/document/A-9-2020-0134_EN.pdf

About the Modern Building Alliance

We are an alliance of trade associations and companies representing the plastics industry in the construction sector. Plastics are increasingly used in building and construction applications to make our buildings more sustainable, from window frames and durable pipes to state-of-the-art insulation solutions. An essential pillar of our cause is the ambition of greater fire safety across the construction industry. It is a key driver of our product design and manufacturing; improving fire safety in buildings is a joint responsibility of the whole value chain involved in building and construction. By engaging with policymakers and stakeholders, we are committed to supporting the EU in ensuring safe and sustainable construction for people across Europe.

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