MODERN BUILDING ALLIANCE
Safe and sustainable construction with plastics

POSITION PAPER
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TOWARDS MORE ENERGY-EFFICIENT AND DECARBONISED BUILDINGS

Executive summary:

Greenhouse gas emissions (GHG), particularly carbon dioxide (CO_2), are the main driver of climate change. At 36%[1], buildings are the largest contributor to CO_2 emissions in Europe, with this mostly comprised of the energy needed to heat, cool and run buildings.

Reducing energy consumption in buildings is the very first step in achieving Europe's goals on climate change and the renovation wave that is part of the European Commission' Green Deal agenda.
The revised Energy Performance of Buildings Directive (EPBD) reinforces the political direction for the coming decades. **The Modern Building Alliance is calling for an EPBD implementation at national level and a renovation wave that are ambitious in terms of:**

- The establishment of a 2050 Long-term Renovation Strategies (LTRS, see article 2a of the EPBD), supported by 2030 and 2040 milestones and measurable progress indicators;
- A methodology for calculating the energy performance of buildings (Annex I) which looks at the building envelope first (Energy Efficiency First principle);
- A nearly-zero energy building (nZEB) standard which is applied by default to all new buildings by 1 January 2021 at the latest; and
- The full deployment of Energy Performance Certificates to the market with their possible use in building renovation passports;
- Further involve the right **fire safety skills and competencies** to accompany the evolution of the building stock as what is it currently required by with energy experts.

The Modern Building Alliance **calls on Member States to address the energy wastage in buildings via ambitious transposition of the EPBD,** but also via the revised Energy Efficiency Directive (2018/2002) and the governance Regulation (2018/199). For renovation work, both regulations will help to achieve high quality and safety performance of the building stock. In addition, deeply renovated or brand new nZEBs will bring other benefits like improved health and comfort, reduced energy poverty and the creation of jobs and economic growth.

We call for the identification of a way to embed the need for **fire safety competency** in legislation. We remind that fire and other safety aspects are essential to be considered during design, construction, renovation and operation of buildings. Renovations must also be considered as an opportunity to review the fire safety design thinking known as the **7 layers of fire safety**: prevention, detection, early suppression, evacuation, compartmentation, structural safety and fire-fighting.

Finally, we ask EU policy makers to support and follow-up on this ambitious implementation and to further recognise the **instrumental role of buildings in achieving the EU's climate goals** in all climate-related policies and strategies.

[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

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[2]. Globally, the energy intensity per square meter of buildings needs to improve by at least 30% by 2030 (compared to 2015)[3]. In Europe, buildings offer significant untapped potential for cost-effective energy savings, potentially achieving a 14% reduction in final energy demand by 2050[4].

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

The Modern Building Alliance fully supported the revision of the EPBD[5], which is currently in its implementation phase. We believe that the contribution of the building sector to the EU's energy and climate objectives will be crucial since energy efficient buildings are needed for Europe to be able to decarbonise its economy by 2050[6]. Member States need to act at the national level through an ambitious implementation of the EPBD which should also include parts of the revised EED as well as the governance of the energy union and climate action regulation, both of which particularly mention the building sector.

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

- Long term Renovation Strategies (LTRS) with the objective of a highly energy efficient and decarbonised building stock by 2050: Article 2a contains provisions for the establishment of milestones for 2030 and 2040 for the renovation of the building stock, as well as the need for a roadmap with measurable progress indicators, both of which would greatly improve confidence of market operators and secure the necessary contribution of the building stock to the overall energy and climate objectives.

- Energy Efficiency First principle: changes introduced in Annex I clarify several misunderstandings around the calculation of the energy performance of a building which aligned with the definition of a nZEB. Ensuring that Member States focus on the reduction of energy demand in the calculation methodology is of utmost importance for our industry.

- A nZEB standard should be applied by default to all new buildings by 1 January 2021 at the latest.

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

[2] According to the Global Alliance for Buildings and Construction with an average 1.3%/annum
[3] According to the Global Alliance for Buildings and Construction
[4] Fraunhofer Isi, "Study on Energy Savings Scenarios 2050", https://www.isi.fraunhofer.de/en/competence-center/energiepolitik-energiemaerkte/projekte/energy-saving-scenarios-2050.html
[5] 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.
[6] European Parliament, "Energy efficiency of buildings: An early zero-energy future?", May 2016, http://www.europarl.europa.eu/RegData/etudes/BRIE/2016/582022/EPRS_BRI(2016)582022_EN.pdf

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

Considering that 80% of the building stock needed for 2050[7] already exists today, facilitating the cost-effective transformation of existing buildings into nZEBs and ensuring 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[8]. 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 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. This can be significantly reduced by improving insulation. Due to their performance, durability, weathering resistance, low maintenance, cost-effectiveness, light weight 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 will bring direct benefits to building owners and tenants as investments raise the value of their properties 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 in winter, and the more than 50 million who are either behind with their electricity and gas bills or live in damp and leaky homes[9].

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[10], increased energy efficiency will help to reduce dependency on oil, coal, gas and uranium imports, often coming from politically unstable regions.

Numbers show that initiatives driven by the Energy Performance in Buildings Directive will lead to an increase in GDP of 0.61% and the creation of approximately 568,000 jobs in local economies and SMEs by 2030[11]. In terms of energy savings, in a country such as Lithuania, improving the quality of dwellings would bring energy savings of up to 70%[12].

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[7] 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
[8] 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
[9] 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
[10] 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
[11] 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
[12] Renovate Europe, "REDay2015 – It's more than renovation", September 2015, https://renovate-europe.eu/wp-content/uploads/2015/09/igdm.png

Building renovation is also an opportunity for fire safety

Fire safety is mentioned in two paragraphs of the 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)*

Fire and other safety aspects are essential to be addressed during design, construction, renovation and operation of buildings. The 7 layers of fire safety in buildings[13] must be considered : prevention, detection, early suppression, evacuation, compartmentation, structural safety and fire-fighting.
In line with the Commission recommendations on building renovation[14], Modern Building Alliance encourages Member States to consider the following elements when transposing the EPBD within their own 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 sprinklers in high-rise/high-risk buildings or for vulnerable occupants.

Fire safety competency must accompany the renovation of the building stock

Achieving net zero carbon and circular buildings is an ambition that requires many solutions, such as high-performance insulation, resource efficient materials, renewable energy and energy storage technologies.
Such innovations lead to opportunities for a safe energy transition.

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, in particular to accompany the sustainable transformation of the building stock. Read more about the Modern Building Alliance' Call for Action on Fire Safety Competency.

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[13] EU Fire Safety Guide, Modern Building Alliance, May 2019, https://www.modernbuildingalliance.eu/EU-fire-safety-guide
[14] European Commission recommendation on building renovation (EU) 2019/786, 8 May 2019, https://eur-lex.europa.eu/eli/reco/2019/786/oj

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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 for greater fire safety across the construction industry. It is a key driver of our product design and manufacturing: improving the fire safety in buildings is a joint responsibility of the whole value chain involved in building and construction. That's why, by engaging with policy makers and stakeholders, we are committed to supporting the EU in ensuring safe and sustainable construction for people across Europe.

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