

HOW TO BEST ACHIEVE A SUSTAINABLE AND DECARBONISED BUILDING STOCK

WHY IT IS CRITICAL TO DECARBONISE THE EU BUILDING STOCK

Eurima recognises that buildings can have a significant climate impact through their 'operational' and 'embodied' carbon emissions. Today, buildings are responsible for 40% of EU total emissions: of those, operational emissions (coming from energy needed to heat, cool and power) account for 79%, while embodied emissions (coming from materials and constructions) make up the remaining 21%¹. In 2021 the building sector's operational emissions reached a new peak of ten gigatonnes of CO2 equivalent – five per cent over 2020 levels.²



This clearly shows that without addressing the operational emissions of the building stock, the 2050 climate neutrality objectives will remain unachievable. At the same time, while operational emissions can gradually decrease thanks to the progressive reduction in energy demand, decarbonisation of the energy grid and the expansion of district heating, embodied carbon percentage will keep growing³. Action is therefore needed to reduce embodied carbon, already starting at the building design stage. This makes self-evident the importance of taking a Whole Life Carbon (WLC) approach to tackling building emissions, which requires a holistic consideration of both the operational and embodied carbon of buildings at each stage of their life-cycle.

As producers of mineral wool insulation, our industry plays a pivotal role in contributing to the reduction of operational emissions in the EU building stock. In fact, mineral wool insulation has not only the capacity to create a comfortable and healthy indoor environment but it also allows significant improvements in energy efficiency and consequent emissions reductions. Indeed, over a 50-year lifetime of a home, mineral wool insulation can save 100 times more greenhouse gas emissions than result from its manufacture⁴. Thus, as a sector with a long-standing enabling role and expertise and vision on the topic, the mineral wool industry is committed⁵ to actively contribute to the decrease of operational carbon from the building stock while constantly reducing embodied carbon through improvements in the carbon footprint of our products. In this context, we support the elaboration of a common regulatory framework to empower already engaged stakeholders in fulfilling this ambition.

¹ Ramboll estimation from 2023.

² UNEP, (2022) '2022 Global Status Report for Buildings and Construction' ([available here](#))

³ WorldGBC (2019), Bringing embodied carbon upfront ([available here](#)).

⁴ Eurima, (2023), 'Mineral wool insulation and the road to a climate neutral Europe - A decarbonisation roadmap for Europe's mineral wool insulation industry' ([available here](#)).

⁵ Eurima (2019), 'The Future of the European Built Environment' ([available here](#))



The mineral wool industry considers it fundamental to put this debate on a sound track by pursuing a Whole Life Cycle approach through the regulation, accounting and disclosure of the environmental impacts associated with all the stages of a building or product life. Simultaneously, the mineral wool industry notes that a number of alternative proposed approaches fall short in calculating the full carbon footprint of construction products, which can lead to suboptimal decision-making regarding decarbonisation and sustainability of the building sector and thereby jeopardising the built environment climate ambitions.

HOW TO EFFECTIVELY MEET THE GOAL

A prerequisite for achieving a decarbonised building stock by 2050 is a solid and well-understood level playing field when it comes to assessing, disclosing and reducing carbon emissions. In this sense, the mineral wool industry considers carbon emission accounting must always be based on a harmonised performance-/science-based approach. For this reason, Eurima supports Level(s), the sustainability assessment and reporting framework developed by the European Commission in 2015-2020. Indeed, by bringing together all relevant European standards from product level – EN15804+A2 (EPDs) – to building level with EN15978, Level(s) represents a clear common language for assessing and communicating the sustainability performance of buildings.



In recent years, alternative approaches and accounting methodologies have started trying to respond to the concern that a reduction in embodied emissions needs to be accelerated. An example of this is represented by the diffusion of the Dynamic LCA (DLCA) methodology, which claims to overcome the limits of static LCA by taking into account the timing of carbon uptake and GHG emissions - particularly important for products that can temporarily store carbon and delay emissions (e.g. bio-based products and materials). However, by disproportionately relying on temporary carbon storage and downplaying the End of Life phase of products - where the emissions would be released back

into the atmosphere - this approach encompasses possible undesired long-term impacts. Particularly, DLCA creates distortion in terms of assessing bio-based products' carbon footprint, leaving an impression that a large part of the stored carbon equals permanent reduction, when, in fact, carbon emissions are just shifted to future generations, which will need to deal with the emissions linked to the disposal of those materials through incineration or landfill. By granting discounts on future impacts, this accounting methodology can jeopardise the achievement of the EU climate goals and severely impact land use and biodiversity.

A second example of alternative approaches to embodied carbon reduction is represented by the arising of national LCA methodologies covering only the production and construction stages of the building life cycle (A1-A3 or A1-A5). The first issue connected to this approach is the fact that it is intrinsically in contradiction with the very aim of LCA to cover the entire life cycle and avoid any potential burden shifts. Moreover, limiting the environmental assessment to upfront carbon leads inevitably to market distortions. Indeed, this methodology automatically advantages those products which have limited emissions, or even the capacity to temporarily absorb carbon in their initial stages, while not reporting their biggest impacts share which corresponds to the end-of-life stage of their cycle. Finally, applying both the above-mentioned methodologies (i.e. DLCA and A1-A3/A1-A5) would reduce the benefit of recycling construction products, driving the building sector towards solutions that have high impacts at their end-of-life (e.g. plastics incineration CO2 emissions from combustion). On the contrary, a solid WLC framework should support businesses to invest in decarbonizing and making the construction sector more circular.

WHAT IS NEEDED TO PROGRESS

For the reasons listed above and to keep progressing in reducing the WLC emissions of EU building stock, Eurima calls for a harmonised EU framework on WLC that sets a level playing field for all actors both at building and product levels.



At building level, the Energy Performance of Buildings Directive (EPBD) represents a crucial opportunity to set the necessary requirements for low-carbon construction and use for new buildings and renovation over the whole life cycle of the products used – including their post-use phase. In this sense, the EPBD should include provisions regarding harmonised reporting, targets and thresholds for WLC covering all the stages of the building's life cycle. In this context, Eurima also welcomes the Commission's initiative to develop a 2050 Whole Life Carbon performance roadmap to reduce carbon emissions from buildings. This exercise should explore how the scope of the EPBD should evolve over the coming decades based on a sound EU-wide methodology in line with mandatory EU standards to deliver a decarbonised building stock by 2050.



At product level, the revision of the Construction Product Regulation (CPR) should ensure the establishment of a material Neutral Level-Playing-Field. Particularly, in order to boost transparency, it is essential that distinctions between construction products are exclusively made on the basis of harmonized, sound science-based methodologies where data are analysed in a consensus-based whole LCA approach, consequently leading to well-balanced conclusions. Simultaneously, sustainability requirements and assessment of construction products in the CPR should go beyond the disclosing of Global Warming Potential (GWP) and be based on the existing standard EN 15804+A2 as reflected in the Environmental Product Declarations (EPD).

Eurima is the European Insulation Manufacturers Association, representing the interests of all major European mineral wool insulation producers. Our industry members produce a wide range of mineral wool products for thermal and acoustic insulation, providing fire protection of domestic and commercial buildings and industrial facilities while offering innovative growing media and green-roofing solutions.