Global Cement and Concrete Association

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GCCA Policy Document on Creating Market Demand For Carbon Neutral Construction And Decarbonised Value Chains

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Background

Policy measures are needed to reduce both the embodied and operational emissions of buildings and structures. Concrete is a key enabler of this net zero transition, both through its own decarbonisation and through reducing emissions in the built environment and society (ranging from buildings to sustainable infrastructure).

Policy should incentivise innovation, lead to increased demand for low carbon solutions and facilitate the introduction of low carbon products on the market, whilst maintaining essential traditional criteria (e.g., technical performance, strength, durability, safety). Its local availability and versatility mean that if the policy signals are right, concrete's possibilities as a net zero enabler are virtually limitless.

GCCA members are aware of the need for the correct demand-side signals to drive procurement of low carbon structures and products – while recognising the potential complexity, trade-offs and risks. GCCA already provides a harmonised lifecycle assessment tool for concrete and commits to working further on practical approaches to define what low carbon procurement should look like.

What do we need?

The industry is committed to accelerating the introduction of net zero products on global markets and will continue to drive innovation in new products. The long-term success of our innovation is highly dependent on the regulatory and standardisation frameworks that will lead to a market transformation and establishes market demand for low carbon products.

We need policy frameworks that:

- enable the integration of CO_2 performance in public procurement, building standards and construction codes alongside traditional criteria (e.g. technical performance)
- provide harmonised tools to assess CO_2 performance of buildings and infrastructure based on whole-life performance in a technology and material neutral manner, to ensure the best results for the climate and society
- provide standards for energy performance of buildings that are demanding and sophisticated enough to take into account the benefits of properties such as thermal mass
- tackle systemic barriers to selection of the best performing materials from an emissions standpoint.

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More details on whole life performance

The integration of CO_2 performance in buildings and construction – alongside traditional priorities such as cost, performance and safety – is a must, and should be based on full lifecycle performance and the principle of material neutrality. Whole-life assessments allow for circularity benefits – such as reuse of concrete elements – and phenomena that occur beyond the factory gate – such as natural recarbonation of concrete – to be included. Prescriptive approaches, where certain materials are specified for their perceived climate advantages, risk leading to worse overall outcomes for the climate if a whole-life assessment is not made.

Concrete offers the means to save emissions in the structures it is used in. For example, its thermal mass reduces the energy demand of buildings; another example is renewable energy infrastructure built from concrete that offers huge emissions savings. This demonstrates the need for a system-wide view when assessing the climate contribution of any material. And energy performance of buildings standards must be sophisticated enough to take dynamic effects like thermal mass into account.

More details on the removal of systemic barriers

Concrete design and construction can be optimised to reduce CO_2 impact, but there are often systemic barriers and practical constraints preventing this potential from being realised. For example:

- demands on speed of construction meaning low-carbon mixes are less economical
- fragmented value chains meaning the possibility and responsibility to reduce CO_2 is spread across different actors with diverging incentives
- the pace of change in revision of standards and building codes which (justifiably) prioritise avoiding risk.

An understanding and recognition of these barriers is needed to start to remove them. Prioritisation of CO_2 performance alongside other constraints at the procurement, design and construction stages would help to align value chains to the same goal.