BUY CLEAN GUIDANCE FOR PRECAST CONCRETE PRODUCTS

NATIONAL PRECAST CONCRETE ASSOCIATION

The National Precast Concrete Association (NPCA) is a leading voice in the precast concrete industry guiding stakeholders and manufacturers to craft and implement smart Buy Clean policies and actions. This document summarizes our guidance for the benefit of future Buy Clean policy authors.

Following this guidance will ensure that a policy aligns with the realities of precast concrete design, manufacture and installation, avoids unintended confusion and functions effectively to reduce embodied carbon.

1. Recognize that many products are made from concrete, but only some are precast concrete.

a. A ready-mix concrete environmental product declaration (EPD) presenting data for A1-A3 (cradle-to-gate) encompasses only part of the precast concrete process and does not include all the environmental impacts of the final formed product. The precast concrete A1 – A3 EPD encompasses all the processes to make a formed structure. Policy should not make blanket requirements for different concrete processes.

2. Distinguish between the major product types of precast concrete

a. There are different requirements for precast concrete products depending on their use. There will be distinct embodied carbon profiles for underground, structural, architectural, and architectural with insulation components. For Buy Clean policy to establish appropriate requirements, each product category should be treated separately.

3. Focus requirements on a product life cycle

a. Before the precast product is cast, upwards of 90% of the environmental impacts are embodied in the raw materials. Precast concrete is comprised predominately of natural materials that are easily recyclable and has a 100-year or greater design life; however, EPDs examining the global warming potential (GWP) at stages A1-A3 are extremely limited and may lead to choosing materials that are have higher impacts when reviewed over the complete life cycle. Policy should make every effort to assess the full life cycle of the material.

4. Include all relevant materials

a. Many competing materials to precast are not currently targeted to share GWP potential. Policy should ensure all materials serving the same function are being assessed for their environmental impacts when making material decisions. Additionally, environmental impacts assessment should go beyond GWP to include toxicity as well.

5. Use verified regional industry-wide values as the basis of thresholds

a. Precast concrete is an inherently local product. As such, different localities through the U.S. will have access to different supplementary cementitious materials, which can be the biggest impact on the GWP of a precast structure. Ensure that any thresholds established are based on local data.

6. Balance policy with applicable regulatory requirements

a. The strength, performance and durability of a precast concrete structure is critical to our national, regional and local infrastructure. As such, many specifying agencies and owners have prescriptive and performance requirements in project specifications. Buy Clean policy and requirements must balance with performance requirements established to ensure a safe and durable product.

7. Enable consistent comparisons

a. EPDs are commonly used by Buy Clean policies because they are the best available mechanism for quantifying and reporting environmental impacts. However, life cycle assessment (LCA) literature makes clear that the comparability of EPDs is limited and urges caution when comparing EPDs outside the context of a robust LCA.

b. Limit applicable EPDs to those that comply with the current or prior version of the product category rule (PCR), a consensus-based set of rules for developing EPDs for a particular type of product, used in the determination of the industry-wide values.

8. Increase thresholds above industry-wide values

a. EPD results represent snapshots in time, based upon the best available background data and methodologies. But they include uncertainties due to variations in data sources, calculation methodology, data collection processes, changes to background data sets over time, production levels, changing standard and PCR requirements, and electric grid energy mix changes over the 5-year life of an EPD - just to name a few!

b. This reality is commonly accepted. Building Transparency's EC3 tool estimates the uncertainty surrounding GWP values in EPDs to be between 25% and 40% for various products. The California Department of General Services originally recommended an uncertainty factor as high as 35%.

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precast.org/environmental-product-declarations/

GOT QUESTIONS?

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The National Precast Concrete Association (NPCA), is a non-partisan, not-for-profit trade association representing the precast concrete industry