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Source Reduction  
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April 14, 2025

California Air Resources Board  
1001 I Street  
Sacramento, CA 95814

**RE: March 13, 2025 workshop titled "Reporting and Baseline Options for Building Embodied Carbon."**

Dear Air Resources Board:

Thank you for the opportunity to comment at this stage of development for the frameworks and requirements for quantifying and reporting embodied carbon in construction.

Founded in 1976, StopWaste helps advance the responsible use of resources through strong partnerships with local governments, businesses, and community organizations. We have implemented market transformation initiatives to promote sustainable buildings since the early 2000s, and have been active in advancing embodied carbon policies and initiatives since 2015. We were part of the team that developed the low carbon concrete code in Marin County, and provides technical assistance to our jurisdictions to implement carbon reduction measures in municipal and multifamily projects and to enforce CALGreen's new embodied carbon requirements.

Our contribution to advancing the understanding and reduction of embodied carbon in the built environment is based on the principle of better resource use and management. While reducing the embodied carbon intensity of high-intensity materials is an important strategy, and one we pioneered with Marin County, we provide these comments to highlight three other key strategies that are critical to reach AB 2446's ambitious goal.

Our Board of Member Agencies adopted a support position on the AB 2446 legislation, and we commend the intent to create a standardized state level framework for quantifying embodied carbon in building materials. The overarching direction of our recommendations is to prioritize advancing practices that are known to be lower carbon even if current quantification methodologies lack precision of measurement of emissions. The emerging best practices of using salvaged and bio-based materials and optimizing use of existing buildings should be supported even if their quantification methodologies are less developed than those for Buy Clean materials. The State should actively develop methodologies to quantify the benefits of re-use and bio-based strategies which can yield the largest carbon reductions yet are less easy to calculate due to a more complex supply chain than conventionally produced building materials.

## **1. Salvaged Materials Significantly Reduce Embodied Carbon**

The materials already in our built environment have embodied carbon that was spent years or decades ago. Salvaging these materials when they are decommissioned through deconstruction enables them to replace new materials. This results in avoidance of the majority of embodied emissions from the displaced new materials, which no longer need to be extracted and manufactured. While minimal processing is needed, and the embodied carbon intensity depends on the product, material, and processing needed, the A1-A3 emissions are typically less than 10% compared to sourcing new materials.

We encourage CARB to monitor and support current efforts to quantify the embodied carbon reduction benefits of reused materials so that they can inform how reused materials are reflected in CARB's framework and quantification methodology. This is consistent with the embodied carbon requirement in CalGreen which provides for reuse as a compliance pathway. The reuse supply chain is inherently less standardized than new material supply chains because their source is the diverse and complex existing building stock. We therefore support the development of "rule of thumb" approaches, such as discounting the embodied carbon intensity of reused materials by a conservative percentage compared to its new material counterpart, grounded in a review of existing or commissioned studies on reused product LCAs.

## **2. Biobased Materials Can Be Net Carbon Storing**

Biobased materials such as straw, other agricultural outputs, and sustainably sourced wood typically have lower carbon emissions compared to products like steel, concrete, and petroleum-derived products that serve the same structural, insulative, and finishes purposes. Additionally, they have the potential to absorb atmospheric carbon into their cellular structures and store it in physical form within the building materials during the building's lifetime. If regeneratively grown, biobased materials can additionally sequester carbon for long-term storage in the soil. Current work on this topic includes an Agricultural Fiber PCR committee and development of a review paper by the Carbon Leadership Forum on biogenic carbon in wood EPD's.

## **3. Optimizing Use of the Existing Built Environment Avoids Entire Buildings of Embodied Carbon**

According to the World Green Building Council, the highest leverage strategies for reducing embodied carbon is to "build nothing: explore alternatives" and "build less: maximize use of existing assets". This conservative approach aligns with long-standing goals of reducing the volume of construction and demolition debris generation. Paired with the state's investment in energy efficiency and electrification of existing buildings, these strategies are key to avoiding total carbon emissions from buildings.

In order to ensure that these whole building and community-planning strategies are part of the portfolio to reduce embodied carbon, we support CARB's framework to focus on **total** embodied carbon from the construction sector. There are some practices that focus on measurement that convey carbon intensity (e.g. kg of embodied carbon per square meter of floor area). While these are helpful metrics for

informing a given building's design and specifications, it has the potential to unintentionally enable many more buildings to be constructed if they are lower carbon intensity and thereby result in an overall increase in total emissions. While we support the construction of necessary and community-benefitting buildings, particularly housing, we also believe there is more that can be done with our existing buildings.

Please reach out to our staff Miya Kitahara, Program Manager ([miya@stopwaste.org](mailto:miya@stopwaste.org)) if you have any questions. Thank you again for the opportunity to provide our perspective at this time and as this process continues.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Burroughs". The signature is stylized with a large initial 'T' and a cursive 'B'.

Timothy Burroughs  
Executive Director