March 18, 2024

BSR/ASHRAE/ICC Standard 240P Committee
ASHRAE
180 Technology Parkway
Peachtree Corners, GA 30092

Re: BSR/ASHRAE/ICC Standard 240P – Quantification of Life Cycle Greenhouse Gas Emissions of Buildings

Dear BSR/ASHRAE/ICC Standard 240P Committee,

The American Society of Landscape Architects (ASLA) applauds the development of the draft carbon emissions evaluation standard (Standard 240P), a significant step forward in the standardization to quantify the embodied and operational greenhouse gas (GHG) emissions associated with buildings **and their sites**. ASLA stands firmly behind the overarching objective to provide a methodology that also provides minimum requirements for documentation of life cycle GHG emissions.

Founded in 1899, ASLA is the professional association for landscape architects in the United States, with 49 chapters representing the 50 states and U.S. territories. Landscape architects, using their STEM-focused education and training, plan and design all outdoor spaces, including community master plans, multimodal transportation networks, transit-oriented development projects, outdoor parks and recreation spaces, water management projects, and more. In designing these community infrastructure projects, landscape architects routinely utilize nature-based solutions to mitigate the impacts of climate change, manage stormwater, reduce the heat island effect, protect coastal communities, and more.

The landscape architecture profession offers a unique perspective regarding emissions quantification that is different from peers in the engineering and architecture professions. Not only does our work include embodied and operational emissions, but it uniquely sequesters carbon through landscapes as a climate solution. The nature of our work requires constant interdisciplinary collaboration; landscape architects are often the facilitator between the ecological sciences and the construction industry.

Moreover, **recent Architecture 2030 industry data aggregations shows that the emissions from the exterior built environment – including sites and infrastructure – has been significantly underrepresented, highlighting a missed opportunity for standardization from exclusion in the draft ASHRAE/ICC Standard 240p**. From the research for the Carbon Conscience application at Sasaki, we have learned that the built landscape - plazas, streetscapes, athletic facilities, and even parks - can sometimes have the same embodied carbon footprint as buildings on a per unit area basis.

In 2023, ASLA joined the Embodied Carbon Harmonization and Optimization (ECHO) Project, a coalition of built environment industry groups focused on rapidly reducing

embodied carbon in the built environment. The goal of the project is to ensure all embodied carbon reporting at the whole building and whole project scale in the U.S. — **including landscapes and infrastructure** — follow the same clear definitions and scopes of included impacts. Standardized reporting is critical to advancing the industry's understanding of embodied carbon emissions and its ability to measure meaningful reductions, as well as providing a mechanism to reliably compare emissions reporting between projects.

The group is comprised of representatives from:

- The American Society of Landscape Architects (ASLA)
- A&D Materials Pledge & 2030 Commitment (The American Institute of Architects)
- Architecture 2030
- Building Transparency
- The Carbon Leadership Forum
- Climate Positive Design Challenge
- Contractors Commitment (Sustainable Construction Leaders)
- Infrastructure2050 (American Society of Civil Engineers)
- Institute for Sustainable Infrastructure (ISI)
- The International Living Future Institute
- MEP 2040 Commitment
- SE 2050 Commitment (Structural Engineering Institute of ASCE)
- Urban Land Institute (ULI)
- The U.S. Green Building Council

On behalf of ASLA, we respectfully submit the following comments on the Proposed ASHRAE/ICC Standard 240P:

Exclusion of Sites and Infrastructure

Excluding sites and infrastructure in ASHRAE/ICC 240P, a gap will exist from the stated goal of developing a methodology that "will quantify the embodied and operational GHG emissions associated with buildings **and their sites**."

Architecture 2030's recent new aggregations of International Energy Agency (IEA) data indicate that the global exterior built environment's infrastructure and sitework impact has been underrepresented. The emissions from cement, iron/steel, and aluminum used for infrastructure are responsible for 7.3% of annual global CO2 emissions. Of those total emissions, cement emissions for infrastructure are responsible for 3.9% annually, while steel, iron and aluminum emissions for infrastructure are responsible for an additional 3.4%. **This is roughly the same amount of emissions from these materials that is attributed to buildings**. Add this to the fact that 75% of the infrastructure that will exist in 2050 has yet to be built and one can see how important it is to support efforts and policies dedicated to the exterior built environment.

Through pioneering initiatives such as the Mission Possible Partnership Concrete and Cement Sector Transition Strategy—recognized by Architecture 2030—the report highlights that "using concrete more efficiently reduces emissions by 22% by 2050" (Exhibit D). However, to our knowledge, these design strategies are not covered under current embodied carbon policies for infrastructure, such as Buy Clean, LECCLA, or the Low-Carbon Transportation Materials Grants Program, which focus solely on procurement of low-carbon versions of materials.

By including infrastructure and sites in the Proposed ASHRAE/ICC Standard 240P – *Quantification of Life Cycle Greenhouse Gas Emissions of Buildings,* the industry will begin to standardize the underestimated quantification of the exterior built environment.

As a precedent for inclusion, over the past few years Architecture 2030 has made an intentional effort to expand their scope of influence and support beyond buildings to the broader built environment, including sites, landscapes, infrastructure, and urban planning. It has been their intention to elevate this critical and under-represented subsector by supporting existing and emerging efforts of design professionals and industry organizations working in this area. Examples include the partnerships forged with the American Society of Landscape Architects, the International Federation of Landscape Architects, Climate Positive Design (see our Official UNFCCC Side Event at COP28), the American Society of Civil Engineers Infrastructure 2050 program and the Institute for Sustainable Infrastructure via the Embodied Carbon Harmonization and Optimization (ECHO) Project.

Need for Alignment

Through tools like the Climate Positive Design Pathfinder tool and the Carbon Conscience tool, landscape architects are measuring the carbon footprints of projects to improve the impact of built landscapes while increasing carbon sequestration. These tools integrate data sourced from manufacturer-provided EPDs found through databases such as Building Transparency's EC3 tool.

ASLA underscores the need for quantification alignment across the entire built environment. The goal is to maintain synchronization with other databases for optimal efficiency and collaboration within the industry.

The landscape architecture industry applauds the rigor behind many of the ASHRAE/ICC Standards. However, we encounter a gap in existing datasets, specifically the lack of clear standardization for living materials[1]. For example, there is a huge gap in verifiable product information for trees procured from landscape nurseries. We recommend standardized quantification for living horticultural materials, which would be transformative and better support this industry to improve and maximize the impacts of their products. We suggest that a living material standardization would also need to discount the global warming potential (GWP) of a given product for the amount of carbon that the product sequesters during its cultivation.

[1] EPD International. (n.d.) *EPD Portal*. The International EPD System. https://www.environdec.com/product-category-rules-pcr/find-your-pcr

In addition, the landscape architecture and civil engineering professions specify vast volumes of raw materials – from blended soils to crushed road base. Those industries largely do not have clear standardization[2], and there is little interest for suppliers to certify due to the wholesale bulk nature of the product. National and international industry-level standardization would be greatly helpful for those materials.

Inclusion of Active Biogenic Sequestration and Bio-Based Materials

Plants sequester carbon dioxide from the air through the process of photosynthesis, during which CO2 is converted to cellulose, sugars and other materials in a chemical reaction catalyzed by sunlight. These are then mostly stored as biomass – wood, roots and leaves, while some CO2 is respired back.

The amount and rate of CO2 storage is directly related to how big and how fast a plant is growing. This in turn depends on species, geographic location (can affect length of growing season) and age of the plant. Warmer regions with more sun exposure have longer growing seasons and thus trees/shrubs in those regions sequester more CO2[3]. These values can vary greatly, and this is an area where standardization in reporting is greatly needed.

While steel, asphalt, concrete, etc. encompass the highest emitting materials, ASLA suggests giving the same weight of scrutiny to wood, bamboo, and natural fiber-based products. At this stage, it is critical to support these industries in maximizing their positive environmental impacts[4]. If these additional products can be included, there is an opportunity to better define how those products are sustainably managed, fabricated, and tracked.

Standardizing the calculations for biogenic materials would enable the reporting of carbon stored within the material—carbon that is sequestered in the environment—as a negative emission, in accordance with the convention on biogenic neutrality within whole-site Life Cycle Analysis standards, provided that sustainable sourcing criteria are satisfied. This would create incentives for American timber and agricultural industries to participate in this standardization effort.

Conclusion

In 2022, ASLA announced a new focus on scaling up equitable, nature-based solutions to the climate and biodiversity crises. The ASLA Climate Action Plan charts a pathway for landscape architects to achieve zero greenhouse gas emissions in their projects and operations and increase carbon sequestration by 2040.

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[2] EPD International. (n.d.) *EPD Portal*. The International EPD System. https://www.environdec.com/product-category-rules-pcr/find-your-pcr

[3] McPherson, EG.; Simpson, JR. (1999). *Carbon dioxide reduction through urban forestry: Guidelines for professional and volunteer tree planters*. Gen. Tech. Rep. PSWGTR-171. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture

[4] University of Kentucky. (2024) *Life Cycle Assessment*. Kentucky Cooperative Extension Service: Nursery Crop Extension Research. https://nursery-crop-extension.ca.uky.edu/current_research_LCA

Thank you for the opportunity to shine light on this important subsector during this comment period. We appreciate the opportunity to shed light on this crucial subsector during the comment period. ASLA welcomes future opportunities to collaborate with ASHRAE on ensuring that this subsector, along with the stakeholders responsible for its planning and design, can actively contribute to demand-side decarbonization efforts concerning the high-impact materials utilized in the built environment, on par with those focused on buildings. If you have questions or need additional information, please contact me or ASLA Climate Action Senior Manager, Jared Green, Hon. ASLA, at jgreen@asla.org.

Sincerely,

Torey Carter-Conneen
Chief Executive Office