

American Institute of Steel Construction

Comments Relative to Content Distributed following October 30, 2025 Meeting

Afternoon Session – Covered Project Reporting

This document consists of two parts:

- Part 1 are general comments
- Part 2 are answers to the questions posed at the end of the session

PART 1 – GENERAL COMMENTS

The American Institute of Steel Construction (AISC), a not-for-profit technical institute supported by the steel industry, partners with the architecture, engineering, and construction (AEC) community to develop safe and efficient steel specifications and codes while driving innovation to make steel the most sustainable, economic, and resilient structural material. For more than a century, AISC has been a reliable resource for information and advice on the design and construction of domestically fabricated structural steel buildings and bridges. As such, we represent the vast majority of structural steel producers, service centers and fabricators throughout the United States including 122 firms and 6,773 individual members, not including those working at member firms, throughout California.

The reporting of overall GWP impacts for a building structure to a central data repository is an important task and will result in the ability to define acceptable parameters for building performance. It is an important task that CARB has taken on but must take into account a myriad of variations in building design and the uncertainties associated with the calculation of GWP values for specific products.

Our general comments regarding the proposal for product reporting are:

1. The reporting program fails to recognize the uncertainty surrounding reported values both in terms of material quantities and GWP impact values.

Independent of the source of the data (LCAs, EPDs, or regulatory reporting) the determination of GWP is not precise based on variation in background datasets, data collection processes, calculation methodologies and modeling assumptions. These variations should be identified and recognized in the calculation of GWP-100 presented with a stated range of certainty.

It is recommended that all results published be considered with a uncertainty factor of +/- 10% unless determined differently.

2. The requirement that the property owner (or designated third-party) must report all required information within one year of the issuance of the building permit issuance is not an effective approach as the period from building permit issuance and issuance of a certificate of occupancy often extends beyond a period of one year and the report should reflect as-built rather than as-designed quantities and products procured.
3. As noted in the previous point, an accurate accounting of the total GWP associated with the building must be based on the as-built quantities and products procured, not the as-designed data. Unless the project is being delivered using a design-build framework or project specifications that include specific GWP thresholds for product procurement, the variation between industry-average GWP values typically used during the design phase and the actual procured product can vary significantly. For example, the industry average for steel plate is 1.47 tons of CO₂e/metric ton of plate but domestically produced plate can be as high 2.37 tons of CO₂e/metric ton of plate – a variation of 60%.
4. Basing the inventory of material in Bill of Quantities on the purchase price of the material significantly complicates the calculation process and increases the uncertainty around the results. The documented purchase price for a construction product is greatly affected by purchase volume, existing customer-client relationships, the annual bidding cycle, whether the product is intended for off-site fabrication or installation preparation (included in product cost) or on-site preparation for installation (not included in product cost) and a variety of other factors.
5. Using CARB generated default carbon intensities for materials and products steps outside the accepted use of ISO compliant EPD results on both an industry-wide and facility-specific basis creates uncertainty in results, confusion and reduced credibility for the program. GWP values are transparently published in EPDs consistent with the PCR for the product. Any other basis for the carbon intensity of a product would be inconsistent with PCR, ignore accepted practices and call into question the veracity of the proposed program and its results.
6. Reporting the “results” of a WBLCA is contrary to the purpose of a WBLCA. A WBLCA is not a one-time calculation of GWP impacts but is intended to be an interactive process used to evaluate design decisions that is part of an overall design process considering cost, functionality, constructability and environmental considerations. Reporting WBLCA

at permitting or final design stage does not capture the GWP of the as-built project. All results should be published for all stages of the project with only as-built reporting used to determine compliance.

7. The use of ASHRAE 240P is not appropriate as it is not a published standard and still subject to public comment and modification.
8. A5 – construction emissions is not limited to fuel usage on the construction site but also includes waste generated on the project site as part of the construction process. Identifying and quantifying this waste is critical to determining A5. This is particularly important as the amount of waste generated varies by whether products are fabricated offsite and then site installed (fabrication waste would appear in A1 for fabricated material and products and A5 would only be emissions at the site and a minimal amount of on-site waste) and materials and products fabricated at the project site and waste resulting from installation of the product (waste would be in A5). This confusion has resulted in some WBLCA tools double counting waste generated during offsite fabrication as both A1 and A5 while others completely ignore onsite waste in A5.

This is why WBLCA's and the data used in them must carefully follow industry specific PCRs not generalized PCR development rules.

9. Specification of GWP should include the time horizon for which the calculations are being performed (time horizon is not the service life of the project but the decay rate of the greenhouse gases being generated). Typically for construction products and materials documented with an EPD a 100-year time horizon is used (GWP-100). For emissions associated with the operation of the building a 20-year time horizon is used (GWP-20). These cannot and must not simply be added together and converting one to the other is not a simple multiply-by process.
10. E2921-22 which is referenced requires a 75-year building service life unless otherwise stated and, as such, 75 years is typically used in WBLCA's and is used in the WBLCA section of the International Green Construction Code (IgCC/ASHRAE 189.1).
11. The reporting of primary results with and without RECs should follow guidelines of ACLCA which allow the crediting of RECs and other voluntary renewable energy purchase vehicles in the primary results section the EPD along with the reporting without the RECs in the additional environmental information section of the EPD. Few

EPDs contain both sets of tables and most other EPDs will not do so until their 5-year publication cycle occurs, this will result in marketplace confusion and inaccurate impacts being assigned to a product.

12. The notion of CARB-approved EPDs is a significant regulatory overreach, and it introduces significantly complexity and uncertainty into calculated GWP values. EPDs are not approved by an agency but approved for compliance with ISO Standards and PCRs. Product manufacturers should not be expected to publish multiple EPDs complying with different approval standards – that is the role of the international standards and industry generated PCRs reflecting the specific nuances of industry.

Updating PCRs is an expensive and time-consuming process. The steel industry just completed that process with the next update not being anticipated for another 5 years. For CARB to mandate EPD changes that would require PCR updating is not a justifiable approach, particularly as representatives of the State of California were invited to participate on the PCR committee that completed its work in April of 2025 and did so during which time they made no suggestions to align the recently published PCR with the requirements implied by CARB to generate CARB-approved EPDs.

13. Linking building materials to any one of three sources for emissions data increases uncertainty and marketplace confusion.

PART 2 – REQUESTED FEEDBACK

Group 1

1. Do you **anticipate any challenges** in reporting data in the proposed format?

Yes, the reporting of this level of detail on each project will require significant additional tracking and effort. Bid prices typically included multiple products and quantities are not broken down by individual product but rather lumped together. In addition, breaking costs down to this level breaches confidentiality of the suppliers.

2. How **much time** do you anticipate it will take your entity to complete the proposed worksheets for a project? Are there ways CARB can streamline the reporting process?

Our members will be greatly challenged to provide this level of detail and it is our anticipation that the cost of doing so will result in significant cost increases for projects in California. In terms of times – it would probably be measured in additional days rather hours for a typical mid-sized project.

3. Are there **additional reference datasets, life cycle inventories or optional LCA modules** that CARB staff should evaluate for inclusion?

Rather than attempting to dot every i and cross every t, CARB should recognize the lack of precision in GWP values even under the best of circumstances and instead follow current industry practice of using ISO compliant EPDs at both the industry-average and facility-specific level while recognizing the uncertainty of any results.

Group 2

1. Does your entity already report **similar or related data** for other purposes that CARB could build upon or use to meet reporting requirements discussed today?

The structural steel industry leads the nation in transparency of embodied carbon reporting for our products through the use of industry standard LCAs and EPDs. Any program should be built around existing tools if it is to be successful in the marketplace.

2. How do you anticipate the proposed reporting requirements would **impact the cost or feasibility** of projects you construct?

The proposed tools are not feasible, impinging on confidentiality and will significantly increase the cost of projects constructed in the State of California.

3. How should CARB assign **defaults for material transport emissions (A4)**?

By following current industry practice through the use of documented industry-average defaults until a specific supplier is determined and then the use of supplier specific averages or direct calculations from supplier to project site. Note: the supplier must be carefully defined and care must be taken to ensure no double counting exists between A2 and A4. For example, if the impacts are being determined for fabricated structural steel, A2 is the transport from the producing mill to the fabricator and A4 is the transport from the fabricator to the project site. In many cases we have seen the distance from the mill to the project site being used as A4 – this is not correct.

4. Are you tracking your project's **construction emissions (A5)**? If so, what methods do you use? Have you experienced any barriers to collecting this data?

AISC is currently in the process of initiating a research project identifying A5 impacts of structural steel products. This will be a funded university research project with researchers working with steel erectors and general contractors to gather the necessary data.

It is important to note that A5 is not just construction emissions, but also waste generated on the construction site by the construction process. Identifying and quantifying this waste is critical to determining A5. This is particularly important as the

amount of waste generated varies by whether products are fabricated offsite and then site installed (fabrication waste would appear in A1 for fabricated material and products and A5 would only be emissions at the site and a minimal amount of site waste) and materials and products fabricated at the project site (waste would be in A5). This confusion has resulted in some WBLCA tools double counting waste generated during offsite fabrication as both A1 and A5 while others completely ignore onsite waste in A5.

This is why WBLCA and the data used in them must carefully follow industry specific PCRs not generalized PCR development rules.

5. *Are there **additional data sources, required fields or emissions calculations** that should be considered to improve or enhance the accuracy of the reporting tool?*

See answer to question 4 relative to A5 values. The most important and only data that accurately addresses emissions are LCAs and EPDs that are compliant with an industry specific PCR.

6. *Are there **specific types of buildings** (occupancies or non-residential designations) that face unique reporting challenges or barriers to reporting?*

All non-public buildings will face challenges disclosing confidential information regarding product and project cost.

7. *Are there any barriers you've experienced that have prevented you from producing whole building Life Cycle Assessments (LCAs) for your projects? What were the costs of preparing any LCA(s) you have completed for your projects?*

This question points to a basic misunderstanding regarding the nature and purpose of conducting a WBLCA. A WBLCA is not a one-time inventory and assessment of the quantity and environmental impacts of a building project, but rather a process to be iteratively followed during the design of a building optimizing the balance of environmental, cost, functionality and constructability factors. Ideally every designer should integrate such a process into their design process.

The WBLCA process should not be discontinued until as-built quantities and sources are identified at project completion.

8. *How do you **track changes in specified building materials** from the permit stage to project completion? Are the changes generally significant? Can you describe typical changes to us or submit examples? Are the changes most common from the client, subcontractors, supply chain constraints, somewhere else?*

An as-built analysis should be completed as the only means of capturing the actual quantities and material sources used in the project. This is particularly important on projects subject to a bidding process where the low bidder will be acquiring product from a variety of different sources that are not identified until time of construction.

The GWP of procured material can vary significantly. For example, one metric ton of domestically hot-rolled sections can vary from 0.527 tons of CO₂e/metric ton to 1.15 tons of CO₂e/metric ton based on the mill producing the material. The range is even more significant for steel plate that can vary between 0.849 and 2.37.

Typically, at the design stage industry-average values are used. Actual values reflecting facility-specific impacts of the product are used when calculating as-built overall impacts.

9. *Should there be **thresholds or cut off considerations for materials** that are reported for BOQ documentation? Such as an exception for less than 5% of the total element Level 3 subcategory, in cost or mass.*

If a cut-off is specified, then it is no longer a whole building life cycle assessment. To provide a cutoff based on cost or mass assumes a linearity between the cost or mass of a product and its contributory GWP. Low cost or mass products can have high GWP and high cost or mass products can have low GWP.

10. *Should CARB encourage the **submission of multiple iterations of embodied carbon data** from covered projects?*

Yes, that is central to the very nature of a WBLCA process and would be the basis for any waiver of requirements based on a series of attempts to achieve a specific threshold.

11. *In addition to permit stage reporting, should **additional reporting be encouraged at the Certificate of Occupancy stage** to ensure accurate tracking of materials used in the completed building? Particularly, in cases where the material quantities and costs may have changed significantly from the Permit application stage.*

Reporting at the permit stage will probably be based only on industry averages, not actual product sources. If anything, the requirement should be for submissions at the Certificate of Occupancy or As-Built stages, not the permit stage.