H-0507.1

HOUSE BILL 1342

State of Washington 68th Legislature 2023 Regular Session

By Representatives Steele, Leavitt, Lekanoff, Chapman, and Stokesbary

Read first time 01/16/23. Referred to Committee on Capital Budget.

AN ACT Relating to the modeling, measurement, and reporting of embodied carbon emission reductions from structural building products in state-funded projects; and adding a new chapter to Title 19 RCW.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

NEW SECTION. **Sec. 1.** This act may be known and cited as the build clean act.

NEW SECTION. **Sec. 2.** (1) To preserve quality of life and well-being for Washingtonians and increase the carbon competitiveness of Washington businesses, documented greenhouse gas reductions are required, including embodied carbon reductions in structural products.

(2) Reducing embodied carbon necessitates a focus beyond just procurement. Building clean in the built environment requires the implementation of multiple strategies including: Modeling the lifetime carbon emissions of the structure, programming and budgeting for a long service life, increasing the number of available product-specific environmental product declarations to facilitate embodied carbon measurement, and reporting the embodied carbon intensities and the product quantities of completed projects to inform meaningful reduction targets.

(3) The legislature recognizes the significant accomplishments of Washington state project teams including designers, engineers, construction contractors, and product manufacturers to build award winning sustainable projects regionally and nationally. The legislature also recognizes the importance of incorporating professional industry insights and input to inform the building material selection process, resolve constructability issues, and realize significant and measurable embodied carbon emission reductions.

(4) Through collaboration with all project team members early in the design process and considering all phases of the project's service life, key decisions can be made regarding design, constructability, product innovation, and optimization to identify innovative and synergistic strategies that reduce both energy use and overall carbon emissions over the service life of the project.

(5) To provide design and construction teams the ability to select the product, or combination of products, which satisfies program, cost, schedule, product availability, as well as carbon reduction targets, the project's embodied carbon baseline and reduction targets should measure and compare the impact of all eligible products in aggregate, and not in isolation. Measuring impacts in aggregate enables the contractor to offset the higher impact of an unavoidable eligible product by strategically selecting specific eligible products with a lower impact and provides needed flexibility in procurement and construction decisions.

(6) The legislature recognizes the need to maintain an adequate quantity and resilient supply chain for lower carbon building products to support a robust economy balanced with environmental stewardship.

(7) Furthermore, Washington has a unique combination of natural, clean energy, manufacturing, and knowledge assets that have realized significant embodied carbon reductions in completed public sector projects.

NEW SECTION. **Sec. 3.** The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.

(1) "As-built" means the condition at substantial completion of the eligible project.

(2) "Awarding authority" means:

(a) A state agency for a contract for a public works project that is subject to chapter 39.04 or 39.10 RCW;

(b) Institutions of higher education as defined in RCW 28B.92.030;

(c) Natural resource agencies, including the department of natural resources, the state parks and recreation commission, and the department of fish and wildlife;

(d) Any other state governmental entity that receives funding from the omnibus capital appropriations act for a public works project contracted directly by the state agency; and

(e) The department of transportation.

(3) "Construction contractor" means the business entity, typically a general contractor or joint venture contractor, holding the prime contract with the governmental entity to construct the eligible project.

(4) "Department" means the department of commerce.

(5) "Designer of record" means the licensed design professional, who is responsible for leading the design team. The designer of record shall oversee and manage the design, specification, or both of the eligible products.

(6) "Eligible product" means:

(a) Structural concrete products, specifically ready mix, shotcrete, precast, and concrete masonry units;

(b) Reinforcing steel products, specifically rebar and post tensioning tendons;

(c) Structural steel products, specifically hot rolled sections, hollow sections, plate, and metal deck; and

(d) Engineered wood products including mass timber products such as laminated veneer lumber, parallel strand lumber, cross-laminated timber, dowel laminated timber, nail laminated timber, glulam laminated timber, glulam beams and columns, and structural sawn lumber.

(7) "Eligible project" means a construction project larger than 50,000 gross square feet of space as defined in the Washington state building code adopted under chapter 19.27 RCW.

(8) "Embodied carbon" means greenhouse gas emissions from the harvesting, extracting, manufacturing, transportation, installation, maintenance, replacement, and disposal of eligible products.

(9) "Environmental product declaration" means a type III environmental product declaration, as defined by the ISO 14025. Other

equally robust life-cycle assessment methods and metrics that have uniform standards in data collection consistent with the ISO 14025, industry acceptance, and integrity may also be used. For consistency in the required calculations, only the impacts from life-cycle stages A1 through A3, also referred to as "cradle to gate," may be included.

(10) "Greenhouse gas" has the same meaning as in RCW 70A.45.010.

(11) "Life-cycle assessment" of eligible products means calculation of the projected greenhouse gas emissions using international organization for standardization compliant standards and the United States life cycle inventory database information.

(12) "Successful bidder" means the eligible product supplier, the subcontractor that manufactures or provides for installation, or both, of the eligible product.

NEW SECTION. **Sec. 4.** (1) During the schematic design phase and when considering structural products that will satisfy the anticipated project applications and the project requirements including, but not limited to, project program, financial budget, construction schedule, product availability, and overall constructability, the designer of record or their designated consultant must conduct a life-cycle assessment of the eligible structural products in the project.

(2) The life-cycle assessment modeled components must consist of the primary and secondary structural members pursuant to the Washington state building code adopted under chapter 19.27 RCW.

(3) The assessment of the eligible products selected by the design team must be reported in accordance with ISO 14044, excluding operating energy, and disclose the modeled global warming potential.

(4) Software used to conduct the whole building life-cycle assessment must have a data set compliant with ISO 14044, and ISO 21930 or EN 15804, and the software must conform to ISO 21931-2017, EN 15978:2011, or both.

(5) This assessment per ISO 14044 may use a local, regional, or national industry average dataset that considers the potential range of possible outcomes associated with the uncertainties and variability at this point in the project. The range of potential outcomes must be reported in the assessment.

(6) For purposes of the life-cycle assessment, the assessment must measure impacts at the 60-year point of the building project's modeled service life. The designed service life of the project may

differ from the modeled service life assumption used in the life-cycle assessment model.

(7) Modeling assumptions for life-cycle stage A4 (transportation from manufacturing location to jobsite) must be based on the usual method of transportation and average distance from an eligible product's typical manufacturing locations to the jobsite that would be reasonably anticipated in the project's current market.

(8) For projects with a designed service life of less than 100 years, the modeling assumptions for the extent of reuse and recycling in life-cycle stage D must be similar to the economically feasible practices commonly found in the project's current market.

(9) The designer of record must upload a summary of the life-cycle assessment of the structural systems to the online database, as described in section 8 of this act. The uncertainty and variability factors creating a range of possible outcomes must be disclosed.

NEW SECTION. **Sec. 5.** To support informed product selection and to document the availability of lower embodied carbon Washington products, the department must partially reimburse manufacturers for the costs of producing product-specific environmental product declarations of eligible products as follows:

(1) Reimbursements are available only to manufacturers that currently harvest, extract, recycle, produce, or assemble an eligible product within the state of Washington.

(2) Reimbursement must be for one-half of the substantiated direct financial costs for producing product-specific environmental product declarations, not covered by other grants, up to an amount of $15,000 per manufacturing location or batch plant, with a maximum of $45,000 for manufacturer, associated companies, or both.

(3) Eligible products with a previously published environmental product declaration or that are produced by a previously purchased on-demand environmental declaration software license are not eligible for reimbursement.

(4) Reimbursement requires that all environmental product declarations comply with ISO 14025, are product-specific, third-party reviewed, and published by or before December 31, 2025.

NEW SECTION. **Sec. 6.** To enable accurate bid pricing and to inform the construction contractor of the embodied carbon implications of a specific product procurement, the designer of

record must include in the contract documents or project specifications for eligible projects the following requirements:

(1) For projects with product or subcontractor bidding commencing on or after January 1, 2025:

(a) The successful bidder must submit one month prior to the project's substantial completion to the construction contractor, product-specific environmental product declarations for at least 90 percent by weight or volume of all eligible products and their installed product quantities. The unit of measurement for the installed eligible products must match the units used in that eligible product's product-specific environmental product declarations.

(b) The construction contractor must transmit the product-specific environmental product declarations and associated eligible product quantities to the awarding authority and to the department at substantial completion of the construction contract.

(2) For projects with eligible product bidding or subcontractor bidding commencing on or after January 1, 2027:

(a) The successful bidder must submit to the construction contractor at the time of bid submission and one month prior to the project's substantial completion, product-specific environmental product declarations for at least 90 percent by weight or volume of all eligible products and their estimated product quantities. The unit of measurement for the installed quantities must match the units used in that eligible product's product-specific environmental product declarations. The successful bidder must update the eligible product quantities, environmental product declarations, or both at substantial completion to reflect as-built conditions.

(b) The construction contractor must transmit the product-specific environmental product declarations and associated eligible product quantities to the awarding authority and to the department at the time of the successful bidder award and update the information at the time of substantial completion of the construction contract.

(3) This section does not apply to an eligible product for a specific project if:

(a) The awarding authority determines, based on its examination of written justification, that it is not technically feasible to provide a product-specific environmental product declaration; or

(b) The awarding authority determines that a state of emergency exists and submitting documentation would pose a clear and imminent

danger, requiring immediate action to prevent or mitigate the loss or impairment of life, health, property, or essential public services.

NEW SECTION. **Sec. 7.** (1) To provide consistency in targeting and measuring embodied carbon reductions and in reporting data, the project-specific baseline, the project-specific reduction percentage, and the embodied carbon intensity must be calculated and reported pursuant to this section.

(2) Prior to bidding of eligible products, the designer of record or the project's life-cycle assessment consultant under the designer of record's direction must:

(a) Calculate an estimated embodied carbon emissions for the project's eligible products and include this calculation in the construction specifications used for bidding of the eligible products.

(i) The project's estimated embodied carbon emissions must be expressed in kilograms of carbon dioxide equivalence and is equal to the sum of: Each eligible product quantity multiplied by the corresponding embodied emissions intensity factor found in the most recently published industry-average environmental product declaration, if available, as published by the following organizations:

(A) Wood products: American wood council (AWC);

(B) Steel sections, and steel tendons: American institute of steel construction (AISC);

(C) Steel reinforcing: Concrete reinforcing steel institute (CRSI);

(D) Ready-mixed concrete: National ready-mixed concrete association (NRMCA, Pacific Northwest regional baseline data);

(ii) For concrete, quantities must be grouped by the mixes' individual strength class and type of weight, such as lightweight concrete or conventional concrete. The applicable strength class baseline must be determined as the minimum specified design strength as documented by cylinder testing, maturity testing, or both. The embodied greenhouse gases of mixes may be reduced through the use of material and mix design innovations.

(iii) Eligible products without published regional or national industry-average environmental product declarations, such as ready-mixed concrete mixes exceeding 8,000 pounds per square inch, must use

available data from a mix-specific benchmark calculated from verifiable data from a life-cycle analysis practitioner.

(iv) The designer of record's estimated embodied carbon emissions calculation must be based on the estimated quantity of eligible products in the bid documents. For building projects, eligible products used on site must be excluded from the quantity estimate.

(b) Calculate an estimated embodied carbon intensity, which is the ratio of the total carbon dioxide equivalents in kilograms for the quantities of all eligible products divided by the square meters of project area.

(3) At the project's substantial completion, the project's construction contractor must:

(a) Calculate an updated estimate of embodied carbon emissions for eligible products as defined by this section using the procured as-built product quantities and transmit this calculation to the awarding authority and the department.

(b) Calculate an as-built embodied carbon reduction percentage of the sum of all eligible products and transmit this calculation to the awarding authority and the department.

(i) The as-built embodied carbon reduction percentage is the percentage reduction between: The embodied carbon emissions from the as-built quantities of all eligible products using industry average data and the as-built embodied carbon from as-built quantities of all eligible product quantities using product-specific environmental product declarations data for the installed eligible products.

(ii) Eligible products having a specific strength class pursuant to subsection (2)(a)(iii) of this section, or a specific product subcategory lacking a corresponding published industry average baseline relevant for that specific strength class or product subcategory, must use available verifiable data from a life-cycle practitioner to develop a mix-specific benchmark. If a mix-specific benchmark is not available for a specific product, an explanation must be submitted.

(iii) In the case of building projects, eligible products used on site outside the building's footprint must be excluded from the calculation under this subsection (3)(b).

(c) Calculate the as-built embodied carbon intensity which is the ratio of the total carbon dioxide equivalence in kilograms for all eligible products divided by the gross square meters of project area

and transmit this calculation to the awarding authority and the department.

(i) All as-built eligible products must be included, including ones that do not have corresponding industry-average environmental product declarations.

(ii) In the case of building projects, eligible products used on site must be excluded from the calculation under this subsection (3)(c).

NEW SECTION. **Sec. 8.** (1) To inform project stakeholders of the achievable reductions specific to a given market, products and structural systems, and to inform future reduction targets and stretch goals, the department must select a public or nonprofit entity to collect data for the following information. Information in this online database must remain in the public domain, be accessible without cost or limitation, and include the following data for all eligible projects bidding on eligible products on or after January 1, 2025:

(a) Name of project;

(b) Type of project;

(c) The awarding authority;

(d) Primary use types of project;

(e) Date of bidding;

(f) Date of substantial completion;

(g) Zip code of project location;

(h) The type of eligible products included in the project;

(i) The primary eligible products and primary types of structural systems used in the superstructure and lateral system;

(j) The primary products and primary types of structural systems;

(k) Summary of the life-cycle assessment of the structural systems with the range of possible outcomes disclosed;

(l) The gross project area. In the case of a building project, site area outside the building footprint when calculating the gross project area must be excluded;

(m) The project's estimated embodied carbon emissions as calculated with estimated quantities prior to bidding;

(n) The project's updated estimated embodied carbon emissions as calculated with actual quantities at substantial completion;

(o) The project's estimated embodied carbon intensity as calculated prior to bidding;

(p) The project's as-built embodied carbon emissions;

(q) The project's as-built embodied carbon reduction percentage; and

(r) The project's as-built embodied carbon intensity.

(2) The department may, at a future date, require reporting of additional project information to align this database with the structural engineering institute of the American society of civil engineers SE2050 commitment program database.

(3) Awarding authorities may review the database annually to inform embodied carbon targets for future projects constructed of like products for a like purpose in a similar location.

(4) Awarding authorities must require the designer of record to review applicable projects in this database prior to completion of schematic design.

NEW SECTION. **Sec. 9.** Sections 1 through 8 of this act constitute a new chapter in Title 19 RCW.

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