



ENERGY & ENVIRONMENT PROGRAM POLICIES AND PROCEDURES

BUY CLEAN COLORADO ACT POLICY

Intent

The Buy Clean Colorado (BCCO) Act is focused on reducing embodied carbon emissions of state public projects by means of eligible material selection. Through design optimization and responsible selection of materials, the reduction of embodied carbon emissions from building materials can be accomplished. The BCCO Act requires the Office of the State Architect (OSA) to establish a maximum acceptable global warming potential (GWP) limit for each category of eligible materials, which include: asphalt and asphalt mixtures, cement and concrete mixtures, glass, post-tension steel, reinforcing steel, structural steel, and wood structural elements. These materials are the focus for BCCO due to their high carbon emissions impact and volume use in public projects.

Meeting the BCCO Act does not alleviate any code or other requirements of a design engineer/architect.

Statutory Authority

Colorado Revised Statutes (C.R.S.):

C.R.S. 24-92-117 Maximum global warming potentials for materials used in eligible projects – buildings – projects that are not roads, highways, or bridges

C.R.S. 24-92-118 Maximum global warming potential for materials used in public projects – road – highway – bridge projects

Definitions as used throughout this document:

- (A) "Agency of government" or "agency" has the same meaning as defined in section 24-92-102 (1), C.R.S., meaning any agency, department, division, board, bureau, commission, institution, or section of this state which is a budgetary unit exercising construction contracting authority or discretion. ¹
- (B) "Consultant" has the same meaning as defined in C.R.S. 24-32-1402 (6), meaning any professional services provided by architects, industrial hygienists, engineers, landscape architects, and land surveyors. ²
- (C) "Cost" has the same meaning as defined in section 24-92-102 (3), C.R.S., meaning the total cost of labor, materials, provisions, supplies, equipment rentals, equipment purchases, insurance, supervision, engineering, clerical, and accounting services, the value of the use of equipment, including its replacement value, owned by a state agency/IHE, and reasonable estimates of other administrative costs not otherwise directly attributable to the public project which may be reasonably apportioned to such project in accordance with generally accepted cost accounting principles and standards. ³
- (D) "Eligible materials" or "material categories" means materials used in the construction of a public project, including⁴:
 - (a) Asphalt and asphalt mixtures
 - (b) Cement and concrete mixtures
 - (c) Glass
 - (d) Post-tension steel
 - (e) Reinforcing steel

¹ C.R.S. §24-92-102 (1)

² C.R.S. §24-32-1402 (6)

³ C.R.S. §24-92-102 (3)

⁴ C.R.S. §24-92-117 (2)(a)

- (f) Structural steel
 - (g) Wood structural elements
- (E) “Eligible project” means a public project as defined in section 24-92-102, C.R.S., for projects with total project costs \$500,000 or greater; except that “eligible project” does not include any maintenance program for the upkeep of a public project or any road, highway, or bridge project. ⁵
- (F) “Embodied Carbon” is reported as global warming potential (GWP) and includes greenhouse gas emissions arising from the production, construction, use, and end-of-life of products or systems used in the construction of buildings, roads, and other infrastructure. The BCCO Act is focused on reducing the embodied carbon emissions generated during the production stage (Stages A1-A3).
- (G) “Environmental Product Declaration”, “EPD”, or “Type III EPD” means a third-party verified document that summarizes the life cycle assessment (LCA) of a single product and publicly discloses its environmental impacts. EPDs enable comparisons between products serving the same function. For an EPD to be deemed approved:
- (a) The EPD must be a current product-specific, Type III EPD.
 - (b) The EPD must reference all ISO Standards - ISO 14025:2006, ISO 14040:2006, ISO 14044:2006, and ISO 21930:2017.
 - (c) The EPD must align with the applicable product category rule (PCR) requirements.
- Agencies/IHE, consultants, and contractors shall demonstrate compliance with these requirements by verifying that the GWP value in the submitted EPD is less than or equal to the maximum acceptable GWP limit established by OSA for each eligible material.
- (H) “Greenhouse gas” or “GHG” has the same meaning as set forth in section 25-7-140 (6), C.R.S., which includes carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃). ⁶
- (I) “Global warming potential” or “GWP” means the potential climate change impact of a product or process as measured by an LCA, reported in an EPD.
- (J) “Life Cycle Assessment” or “LCA” means an independently verified study of a product or building. Product-level LCAs must be done in accordance with ISO 14040 and ISO 14044 for incorporation in a product’s environmental product declaration. ^{7, 8}
- (K) “Office of the State Architect” or “OSA” means the Office of the State Architect in the Department of Personnel & Administration. ⁹
- (L) “Product category rule” or “PCR” means a set of specific rules, requirements, and guidelines necessary for developing Type III environmental declarations for one or more product categories. The PCR provides the instructions for how the life-cycle assessment (LCA) should be conducted. It sets out what needs to be considered, including but not limited to, system boundaries, declared/functional units, how to define the use phase and end-of-life options, and what impact categories need to be assessed. PCRs ensure that functionally similar products are assessed in the same way when conducting the LCA and for product comparison.
- (M) “Project description” has the same meaning as defined in section 24-92-102 (7), C.R.S., meaning the words used in a solicitation to describe the construction to be performed, and includes specifications attached to, or made a part of, the solicitation. ¹⁰
- (N) “Public Project” has the same meaning as defined in section 24-92-102 (8), C.R.S. ¹¹

⁵ C.R.S. §24-92-117 (2)(b)

⁶ C.R.S. §24-92-117 (2)(c)

⁷ ISO 14040:2006

⁸ ISO 14044:2006

⁹ C.R.S. §24-92-117 (2)(d)

¹⁰ C.R.S. §24-92-102 (7)

¹¹ C.R.S. §24-92-102 (8)

- (a) "Public project" means any construction, alteration, repair, demolition, or improvement of any land, building, structure, facility, road, bridge, or other public improvement suitable for and intended for use in promotion of the public health, welfare, or safety and any maintenance programs for the upkeep of such projects. [Exemption from "eligible project" definition].
- (b) Except as provided in paragraph (C) of this subsection (8), "public project" does not include any project for which appropriation or expenditure of money may be reasonably expected not to exceed five hundred thousand dollars in the aggregate for any fiscal year. Nothing in this paragraph (b) shall affect the requirements for the delivery of bonds or security pursuant to sections 24-105-202, 38-26-105, and 38-26-106, C.R.S.
- (c) "Public project" does not include any project under the supervision of the department of transportation for which appropriation or expenditure of funds may be reasonably expected not to exceed one hundred fifty thousand dollars in the aggregate of the fiscal year.
- (O) "Sourced" means the act of supplying, acquiring or procuring a product that is ready for installation.
- (P) "Stages A1-A3" refers to the life cycle stages which define an EPD from cradle-to-gate and include the raw materials extraction and processing, transport to the manufacturer, and manufacturing of building materials.
- (Q) "Stage A4" refers to the life cycle stage involving material transport to the building site.

Office of the State Architect (OSA) Responsibilities

The OSA has been directed to establish maximum acceptable GWP limits for categories of eligible materials used in State public projects. Following C.R.S. 21-1303-3(a), by January 1, 2024, the OSA shall establish by policy a maximum acceptable global warming potential for each category of eligible materials used in an eligible project in accordance with the following requirements:

- (A) The OSA shall express the maximum acceptable GWP as a number that states the maximum acceptable GWP limit for each eligible material. The GWP limit shall be provided in a manner that is consistent with criteria in an EPD. Refer to EE-5.1 for the OSA's GWP limits.
- (B) The OSA may include transportation-related emissions (Stage A4) as part of the GWP emissions. The OSA may establish subcategories within each eligible material with distinct maximum acceptable GWP limits.
- (C) By January 1, 2026, and every four years thereafter, the OSA shall review the maximum acceptable GWP for each eligible material and may adjust the number for any eligible material to reflect industry conditions. The OSA shall not adjust the number upward for any eligible material. The OSA shall strive to achieve a continuous reduction of GHG emissions over time. Reduction of GHG emissions achieved under this section shall be credited under the process created in section 25-7-105 (1) (e), C.R.S.
- (D) Beginning in 2026, and in each year thereafter, the OSA shall review the policy implementation, review waivers, and waiver justifications, as well as prepare a report for the general assembly.

Colorado Department of Transportation (CDOT) Responsibilities

See CDOT's website for information pertaining to C.R.S. 24-92-118.

Principal Representative Responsibilities (State Agencies and Institutions of Higher Education)

- (A) It is the Principal Representative's (agencies/IHE's) responsibility to create a budget that includes the cost of all eligible materials that are proposed to be used on a project. When building a budget, Principal Representatives must consider and review the list of eligible materials as well as any available EPDs for those materials.
- (B) Principal Representatives that have construction design standards shall update their design standards with materials with EPDs that meet OSA's requirements.
- (C) For any contract solicitation for an eligible project, Principal Representatives have the option to specify the eligible materials that will be used in the project and establish minimum usage thresholds below which the BCCO Act requirements shall not apply. The OSA recommends that the minimum

usage thresholds be established to reflect material cost estimates less than \$50K and considers previous agency purchasing to establish these thresholds. Please refer to the OSA for assistance in establishing the minimum usage thresholds and plan to share the thresholds established with the OSA for consistency across agencies.

EPD Process:

- (A) For any design solicitation beginning on or after January 1, 2024, Principal Representatives shall require consultants to specify EPDs within the project specifications for all eligible materials proposed to be used on a project. The GWP limits (EE-5.1) that are available at the point of solicitation shall be used.
- (B) Principal Representatives shall require contractors who are awarded a project to submit EPDs for all permanently installed eligible materials prior to installation at the site. EPDs supplied by the contractor may be requested with each construction purchase. Principal Representatives shall verify the installment of eligible materials.
- (C) Principal Representatives are responsible for ensuring that all eligible materials are considered within the cost estimate and that contractor-supplied EPDs are collected as part of the final project acceptance (EE-5.2). EPDs should then be submitted in a zip-folder along with the EE-5.2 Submittal to the OSA as part of the L-1 Code Compliance Documentation. All EPDs shall be submitted digitally as a PDF.

Waivers During Design:

- Principal Representatives may utilize the design-phase waiver process based upon the unavailability of EPDs during the design/specification phase of the project. Consultants may request that the Principal Representative complete and submit a design-phase waiver (EE-5.30). If the Principal Representative initiates a design-phase waiver, the Principal Representatives delegate shall submit it to the OSA for approval. OSA will review and respond to each complete design-phase waiver request with a decision or a request for more detail.
- Principal Representatives may utilize the construction-phase waiver (EE-5.30) process based upon the unavailability of EPDs during the construction phase of the project. These waiver requests must be submitted by the contractor to the Principal Representative and consultant. Principal Representatives must be diligent when approving waivers. OSA will hold the Principal Representative responsible for the waivers that they grant. Principal Representatives shall work with OSA on waiver requests and shall ensure that all approved waivers are included within the L-1 Code Compliance documentation submitted to the OSA.

Consultant Responsibilities

Consultants must produce designs that strive to reduce the embodied carbon content of State public projects. Beginning January 1, 2024, consultants shall specify an EPD for each eligible material within the project specifications included in the bid documents. When specifying materials, consultants shall prioritize products with EPDs for the design. If an assembly containing one or more eligible materials must be installed, then a product-specific Type III EPD must be submitted for each eligible material component of the assembly. If the embodied carbon of each eligible material in the assembly is less than the embodied carbon limits established by OSA, then it can be reasonably assumed that the embodied carbon of the assembly is compliant with the BCCO Act. Consultants shall track the flat glass EPD used for processed glazing products from the glass fabricator. Consultants shall verify that glass fabricators utilize flat glass that meets OSA's limit. Consultants must verify that the specified EPDs contain GWP values that are less than or equal to the maximum GWP limits established by OSA (EE-5.1). For concrete strengths between the stated values, use linear interpolation to determine embodied carbon limits, rounded to the nearest whole number. Example: For a 3300psi ReadyMix Concrete mix: $(301-255)/(4000-3000) = 0.046 \rightarrow (0.046*(3300-3000)) + 255 = 268.8 \rightarrow 269$ is the Maximum GWP/m³ for a 3300psi mix.

The consultant shall work with the contractor to ensure that eligible materials are obtainable and can be installed. If an eligible material with a compliant EPD is unobtainable, the consultant shall work with the contractor to find an alternative product with a compliant EPD. If necessary, consultants may request that

the Principal Representative complete and submit a design-phase waiver (EE-5.30). If the Principal Representative initiates a design-phase waiver, the SBP Delegate shall submit it to the OSA for approval. Refer to EE-5.31 for EPD Exemption Justifications.

Contractor Responsibilities

EPD Process:

- (A) During eligible material procurement, contractors shall work with material suppliers to collect compliant EPDs. Online tools may be used to obtain an EPD given that the EPD corresponds to the material and is compliant with the BCCO Act and OSA's GWP limits (EE-5.1). Given the lack of EPDs currently in the marketplace, only third-party verified EPDs will be accepted.
- (B) Contractors shall furnish EPDs to the Principal Representatives/design team prior to installation. Materials subject to this statute shall not be installed on the project until the contractor obtains an EPD for that material.

Waivers During Construction:

- If an EPD is unavailable, the contractor shall notify the Principal Representative, and with Principal Representative approval, may install an alternative eligible material with an EPD. Contractors may work with consultants to determine alternative products with EPDs.
- If an eligible material that meets the maximum acceptable GWP limit for a category of eligible materials is not reasonably priced or is not available to the contractor on a reasonable basis, the contractor shall begin the construction-phase waiver process (EE-5.30). Contractors shall notify the Principal Representative if a waiver process is needed. Refer to EE-5.31 for EPD Exemption Justifications.

Transportation-Related Emissions Requirements

Beginning January 1, 2024, products sourced over 100 miles (160 km) outside of the project site, contractors shall record and report information relating to the transportation of eligible materials (Stage A4). Contractors shall record the weight of the cargo (lbs. or kg), the type of vehicle used for transporting eligible materials, and the total distance traveled (miles or km) or the zip codes of the distributor and project site. Contractors shall report this information to the Principal Representative for each transport of eligible materials (EE-5.2). Principal Representatives shall submit this information along with product EPDs to the OSA.

Exhibits (By Reference)

- A) OSA Maximum Acceptable Global Warming Potential Thresholds: EE-5.1
- B) EPD Submittal & Sign-Off: EE-5.2
- C) BCCO Act Design-Phase Waiver & Construction-Phase Waiver: EE-5.30
- D) Environmental Product Declaration (EPD) Exemption Justifications: EE-5.31
- E) BCCO Act Waiver Management Form: EE-5.32

END OF POLICY