

HB21-1303: Buy Clean Colorado Act - Agency/IHE Training #1

Office of the State Architect
Energy & Environment Program

Agency/IHE Training – Spring 2023

Presented By: *Office of the State Architect* - Bailey Vigil, EIT II



COLORADO

Office of the State Architect

Department of Personnel & Administration

Introductions

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Meeting Agenda

Communications

Important
Definitions

Overview of
HB21-1303

Responsibilities

Global Warming
Potential (GWP)



Communications

Due to the statutory authority of HB21-1303 and the emergence and development of this requirement, OSA will be working with and educating the OSA delegate via communications on the implementation of BCCO through the design and construction of projects.

It is the delegate's responsibility to work with OSA to ensure compliance with this requirement through all phases of a construction project. It is really to ensure that the law is followed. This is to ensure that all waivers and modifications processed by OSA or the delegate are handled within the same criteria.



Important Definitions

- “**Eligible materials**” means materials used in the construction of a public project, including:
 - Asphalt and asphalt mixtures
 - Cement and concrete mixtures
 - Glass
 - Post-tension steel
 - Reinforcing steel
 - Structural steel
 - Wood structural elements



- **“Eligible project”** means a public project defined as any construction, alteration, repair, demolition or improvement of any land, building, structure, facility, or other public improvement for which appropriation or expenditure of moneys is over \$500,000 and for which an agency of government issues a solicitation on or after January 1, 2024. Public project defined in C.R.S. 24-92-102.
- **“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.



- **“Life Cycle Assessment”** or **“LCA”** is 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.
- **“Product category rule”** or **“PCR”** means a set of guidelines that determine what data should be gathered and how it will be evaluated when conducting the LCA of a product.
- **“Global warming potential”** or **“GWP”** is a metric describing the potential climate change impact of a product or process as measured by an LCA, reported in an Environmental Product Declaration (EPD).



- **“Stages A1-A3”** refers to the life cycle stages which define an EPD from cradle-to-gate and considers emissions from the raw materials extraction and processing (A1), transport to the manufacturer (A2), and manufacturing of building materials (A3).
- **“Stage A4”** refers to the life cycle stage involving material transport to the building site.
- **“Industry-Wide Environmental Product Declaration”** or **“IW-EPD”** means an EPD that meets the representativeness criteria and is released by multiple manufacturers to publish the production-weighted average footprint of the entire industry.

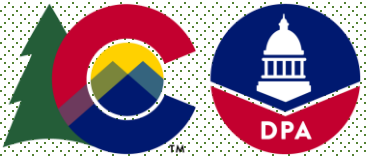


“Environmental Product Declaration” or “EPD” or “Type III EPD” means a third-party verified document that summarizes the life cycle assessment (LCA) of a single product and publicly discloses its environmental impacts. EPDs enable comparisons between products serving the same function. For an EPD to 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 requirements.



Overview of HB21-1303: Buy Clean Colorado (BCCO) Act



Overview of HB21-1303



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

HOUSE BILL 21-1303

24-92-117

OSA

Maximum global warming potentials for materials used in eligible projects – buildings – projects that are not roads, highways, or bridges...

24-92-118

CDOT

Maximum global warming potential for materials used in public projects – road – highway – bridge projects...



Overview of HB21-1303 - OSA Policy

POLICY



- Policy posted to OSA website on July 1, 2022

Energy & Environment

Energy Performance Contracts

New Construction & Major Renovations

Buy Clean Colorado Act

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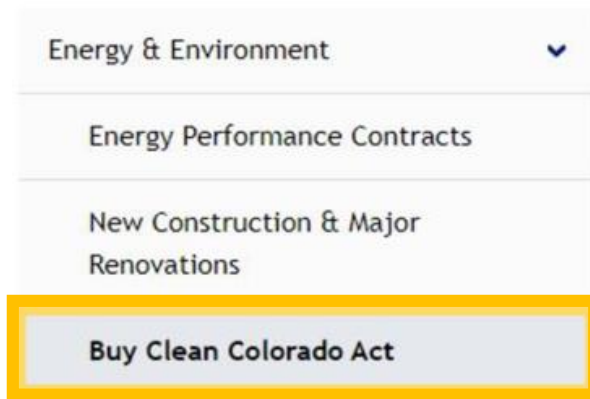
Office of the State Architect

<https://osa.colorado.gov/>



Overview of HB21-1303 – BCCO Act Webpage

Buy Clean Colorado Act



The Buy Clean Colorado (BCCO) Act....

... Buy Clean Colorado Act [Policy](#) (Rev. 07/2022)

[Expand All](#)

- Global Warming Potential (GWP) Limits
- Educational and Training Materials
- Important Definitions
- Tools and Resources

Coming Soon: OSA's Eligible Material Subcategories and GWP Thresholds

Training Videos, Presentation Slides, Q&A's

EPD Tools and Databases, Research, etc.



Overview of HB21-1303 - Benefits of Complying

- Build with lower embodied carbon emissions (i.e. green buildings)
 - Benefits of green buildings include increased asset value, reduced operating costs, workplace productivity/health, and risk mitigation
- Meet sustainability goals and achieve national rankings that require EPD submission (LEED, BREEAM, Green Globes, etc.)
- SB22-051 Tax Exemption: Contractors working on State projects already receive State Tax Exemptions assuming that you share our tax-exempt number with your consultants and contractors
 - Tax exemptions for purchasing eligible materials begin in July 2024



Responsibilities



Responsibilities – Agencies and IHE

State Agencies and Institutions of Higher Education (IHE) shall:

- Update their design standards with materials with EPDs
 - Only necessary if agency requires specific eligible materials
- Build project budgets that include the cost of all eligible materials
 - Note: Product EPDs are free documents – no cost!



Responsibilities – Agencies and IHE

EPD Process:

For any new projects that are in solicitation beginning on or after January 1, 2024, agencies/IHE shall:

- **Require consultants** to specify EPDs for all eligible materials considered in the design
- **Require contractors** to submit EPDs for all procured eligible materials prior to site installation
- **Submit EPDs** to the OSA as part of the L-1 Code Compliance Documentation



Responsibilities - Delegates

For new projects that are in solicitation beginning on or after January 1, 2024, delegates shall:

- Work with consultants on the project specifications to determine if a waiver is needed and initiate the waiver process
- Evaluate each bid and select contractors that can meet the compliance requirements

From LEED: Research shows that **building green does not necessarily need to cost more**, particularly when cost strategies, program management and environmental strategies are integrated into the development process right from the start



Responsibilities – Consultants

For new projects that are in solicitation beginning on or after January 1, 2024, consultants shall:

- Prioritize products with EPDs for the design
- Specify an EPD for each eligible material considered in the design
- Verify that the GWP value included in each EPD is less than or equal to the maximum acceptable GWP limits established by OSA



Responsibilities - Contractors

For new projects that are in solicitation beginning on or after January 1, 2024, contractors shall:

- Obtain EPDs for all eligible materials procured for a public project
- Submit compliant EPDs to the agency/IHE delegate prior to installation on site
- Inform delegates if a waiver process may be needed



Global Warming Potential (GWP) Limits



Maximum Acceptable GWP Limits as set by OSA

C.R.S. 24-92-117 requires the OSA to establish a maximum acceptable Global Warming Potential (GWP) limit for each category of eligible materials used in an eligible project

NOTE: The GWP is an impact metric used to measure how potent a gas is as a contributor to climate change

- A higher GWP means a greater impact on the environment



Maximum Acceptable GWP Limits as set by OSA

Required Parameters:

- Base the max. GWP limits on the industry average GWP
- Determine industry average by consulting EPD databases
- Establish GWP limits that are consistent with criteria in an EPD

Optional Parameters:

- Establish additional subcategories within each eligible material with distinct max. GWP limits



Material Category	Material Subcategories	PCR	Industry-wide EPD	March 2023 GWP Limits
Asphalt and Asphalt Mixtures	1.Bituminous Membrane Roofing 2.Asphalt paving	National Asphalt Pavement Association Product Category Rules For Asphalt Mixtures	No industry-wide EPDs are currently available	Not enough data to set GWP limit
Cement and Concrete Mixtures	1.ReadyMix concrete (including high-early strength and lightweight concrete) at 28 days psi: 2.0 - 2500 psi at 28 days 3.2501 - 3000 psi 4.3001 - 4000 psi 5.4001 - 5000 psi 6.5001 - 6000 psi 7.6001-8000 psi 8.Lightweight 0-3000 psi 9.Lightweight 3001-4000 psi 10.Lightweight 4001-5000 psi	1. ReadyMix Concrete: NSF International PCR for Concrete	1. ReadyMix Concrete	1. ReadyMix Concrete (kg CO2 e per cubic meter) 1.0-2500 psi: 232 2.2501-3000 psi: 255 3.3001-4000 psi: 301 4.4001-5000 psi: 358 5.5001-6000 psi: 379 6.6001-8000 psi: 440 7.Lightweight 0-3000 psi: 484 8.Lightweight 3001-4000 psi: 532 9.Lightweight 4001-5000 psi: 580
Glass	1.Flat Glass	Product Category Rule for Environmental Product Declarations, NGA PCR for Flat Glass: UN CPC 3711. NSF International. 2020	Environmental Product Declaration, Flat Glass, National Glass Association, ASTM International, 2019	1. Flat Glass (1 metric ton): 1.43E+03 kg CO2 eq.
Post-Tension Steel	1.Prestressing steel strands	Part B: Designated Steel Construction Product EPD Requirements	No industry-wide EPDs were identified for this product	Not enough data to set GWP limit
Reinforcing Steel	1.Reinforcement steel bar (rebar)	Part B: Designated Steel Construction Product EPD Requirements	CRSI Fabricated Steel Reinforcement	1. Fabricated Steel Reinforcing Bar "Rebar" (per 1 metric ton): 7.78E+02 kg CO2 eq.
Structural Steel	1.Hot-rolled Structural Sections (fabricated) 2.Plate steel (fabricated) 3.Hollow Structural Sections (fabricated)	UL Product Category Rule (PCR) for Building-Related Products and Services, Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report, v3.2 And Part B: Designated Steel Construction Product EPD Requirements	1. Fabricated hot-rolled structural sections 2. Fabricated steel plate 3. Hollow structural sections	1. Fabricated Hot-rolled steel (per 1 metric ton): 1.22E+03 kg CO2 eq. 2. Fabricated Plate steel (per 1 metric ton): 1.73E+03 kg CO2 eq. 3. Fabricated Hollow Structural Sections (per 1 metric ton): 1.99E+03 kg CO2 eq.
Wood Structural Elements	1.Dimensional lumber 2.Wood framing 2.Plywood 3.OSB Sheathing 4.Composite Lumber 1.Laminated Strand Lumber 2.Laminated Veneer Lumber 5.Glued Laminated timber	UL Product Category Rule (PCR) for Building-Related Products and Services, Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report, v3.2 And UL Product Category Rule (PCR) Guidance for Building-Related Products and Services Part B: Structural and Architectural Wood Products EPD Requirements (Version 1.1)	1. Wood Framing 2. Plywood 3. OSB Sheathing 4. Composite Lumber Laminated Strand Lumber AND Laminated Veneer Lumber 5. Glued Laminated Timber	1. Wood Framing/ Softwood Lumber (1 m3): 63.12 kg CO2 eq 2. Plywood (1 m3): 219.32 kg CO2 eq 3. OSB Sheathing (1 m3): 242.58 kg CO2 eq 4. Composite Lumber A. Laminated Strand Lumber (1 m3): 274.90 kg CO2 eq B. Laminated Veneer Lumber (1 m3): 361.45 kg CO2 eq 5. Glued Laminated Timber (1 m3): 137.19 kg CO2 eq

Maximum Acceptable GWP Limits as set by OSA

OSA to post maximum acceptable GWP limits by April 7th

- Review is still underway
- Will discuss at the 2023 OSA Annual Meeting

Please reach out to the OSA with any questions you have regarding the Buy Clean Colorado (BCCO) Act and please refer to the OSA BCCO Act webpage as necessary





Any Questions?

