



COLORADO

Division of State Property

Department of Personnel & Administration

Buy Clean Colorado Act: Maximum Acceptable Global Warming Potential (GWP) Limits

The Buy Clean Colorado (BCCO) Act (C.R.S. 24-92-117), requires the Office of the State Architect (OSA) to establish the maximum acceptable Global Warming Potential (GWP) limit for each category of eligible materials that are used in an eligible project. This legislation requires the OSA to establish by policy a maximum acceptable GWP for each category of *eligible materials* (C.R.S. 24-92-117(2)(a)) used in an eligible project by January 1, 2024. The BCCO Act targets carbon emissions associated with the production or manufacturing of eligible materials further defined as asphalt and asphalt mixtures, cement and concrete mixtures, glass, post-tension steel, reinforcing steel, structural steel, and wood structural elements. When used in eligible projects, these eligible materials must have a GWP that does not exceed the limits set by OSA. These materials are the focus of the BCCO Act due to their high carbon emissions impact and reducing the impact of these materials will provide the greatest reduction of greenhouse gas emissions during the construction of Colorado public projects. For further information regarding this program, please refer to the OSA policy and resources available on the OSA [Buy Clean Colorado Act \(BCCO\)](#) webpage.

Eligible project means a public project for which an appropriation or expenditure of moneys may be reasonably expected to exceed or equal to five hundred thousand dollars in the aggregate for any fiscal year (C.R.S. 24-92-102(8)(b)), and for which an agency or institution of higher education issues a solicitation on or after January 1, 2024 (C.R.S. 24-92-117(2)(b)). By statute, *public project* means any construction, alteration, repair, demolition, or improvement of any land, building, structure, facility, or other public improvements suitable for and intended for use in the promotion of public health, welfare, or safety, except that "eligible project" does not include any maintenance program for the upkeep of a public project or any road, highway, or bridge project. Please refer to the CDOT website for projects under their purview.

The information utilized to determine the eligible material GWP thresholds is subject to change due to background data updates. EPDs, both product-specific and industry-wide, expire after 5 years. Therefore, each industry may improve its data and EPD information within the 5 years resulting in more accurate EPDs. However, improving the background EPD information may result in increased GWP values as reported in an EPD. The OSA is utilizing current EPD information to determine its GWP thresholds. Given that the EPD information available now is relatively generic, the OSA will take precautions to set the GWPs as feasible thresholds that incorporate room for improvement in background data sources. However, if background data improvements result in increased GWP reporting above the OSA's limit, then the OSA will make necessary adjustments to improve the feasibility of the GWP limits for State public projects.

The OSA was unable to establish maximum acceptable GWP limits for several categories of eligible materials due to the lack of industry data currently available. For products with industry-available data, the OSA determined the initial GWP thresholds based on the industry average of GWP emissions for that material. For products demonstrating less than 50% U.S. market share, OSA chose to include uncertainty within the GWP limit. The OSA is required to update the GWP limits at a minimum of every 4 years. However, OSA may update the table that follows on an annual basis determined by the availability of EPDs as EPDs have a 5-year life.

For the ReadyMix Concrete categories, the cement GWP impact is considered within each strength category. Therefore, projects that meet the ReadyMix Concrete GWP Limit for the required strength category meet the associated cement GWP limit.



Material ¹	2024 OSA Updated Limits ²
Asphalt and Asphalt Mixtures³	1. Asphalt Mixtures (1 metric ton): 85 kg CO2 eq.
Cement & Concrete Mixtures⁴	1. ReadyMix Concrete (in kgCO2e/m ³ or kilograms of carbon dioxide equivalent per cubic meter) at 28 days:
	a. 2500 psi: 232
	b. 3000 psi: 255
	c. 4000 psi: 301
	d. 5000 psi: 358
	e. 6000 psi: 379
	f. 8000 psi: 440
	g. Lightweight (LW) 3000 psi: 484
	h. LW 4000 psi: 532
	j. LW 5000 psi: 580
	2. Cement (in kgCO2e/t or kilograms of carbon dioxide equivalent per metric ton): 1,112
Glass⁵	1. Flat Glass (1 metric ton): 1510 kg CO2 eq.
Post-Tension Steel⁶	No sufficient data to set a valid threshold at this time
Reinforced Steel⁷	1. Fabricated Steel Reinforcing Bar "Rebar" (1 metric ton): 1030 kg CO2 eq.
Structural Steel⁸	1. Fabricated Hot-rolled steel (1 metric ton): 1220 kg CO2 eq.
	2. Fabricated Plate steel (1 metric ton): 1730 kg CO2 eq.
	3. Fabricated Hollow Structural Sections (1 metric ton): 1990 kg CO2 eq.
Wood Structural Elements⁹	1. Wood Framing/ Softwood Lumber (1 m ³): 63.12 kg CO2 eq
	2. Plywood (1 m ³): 219.32 kg CO2 eq
	3. OSB Sheathing (1 m ³): 242.58 kg CO2 eq
	4a. Laminated Strand Lumber (1 m ³): 274.90 kg CO2 eq
	4b. Laminated Veneer Lumber (1 m ³): 361.45 kg CO2 eq
	5. Glued Laminated Timber (1 m ³): 137.19 kg CO2 eq

¹ Only consider permanently installed materials.

² OSA subcategories align with available products, product categories, and building codes.

³ Inclusive of all paving asphalt mixes supplied.

⁴ Subcategories based upon regional compressive strength specifications at 28 days

⁵ Designs specify processed glass and flat glass is a component of processed glass assemblies.

⁶ Zero post-tension steel subcategories identified at this time.

⁷ Rebar is the only identified subcategory for Reinforced Steel at this time.

⁸ Structural steel subcategories as defined by AISC Code of Standard Practice (ANSI/AISC 303-16). HVAC units as manufactured do not need to conform.

⁹ Subcategories based upon available IW-EPDs. Only consider permanently installed wood products.