



**Office of
General Services**

Executive Order 22: Embodied Carbon Guidance

Summary – UPDATED Jan 2025

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Objectives of the guidance

1. Drive demand for environmental product declarations (EPDs)
 1. Product-, Facility- or Plant-, Supply Chain-specific EPDs
2. Drive demand for reduced embodied carbon construction materials, in particular the materials most used/highest carbon intensity
3. Start to benchmark NYS's env impact of our construction materials
 - Data will inform future strategies for reducing embodied carbon

Our research – What others are doing

- Federal:
 - GSA's response to Federal Buy Clean Initiative: [Asphalt & Concrete](#)
 - GSA, IRA Low Embodied Carbon Materials [Interim requirements](#)
 - EPA – [RFI on IRA programs to reduce GHG from construction materials/products](#)
- State & Local:
 - NYS, [Lower Carbon Concrete Spec](#), and [Low Carbon Concrete State Finance Law](#)
 - California, [Buy Clean California Act](#) (DGS), Caltrans [EPD Implementation Project](#)
 - Colorado, [Buy Clean Colorado Act](#) (OSA), CO DOT, [EDP protocol](#)
 - Oregon, [Buy Clean Oregon](#)
 - Portland, [Low Carbon Concrete Initiative](#)
 - NYC, [EO 23](#)

Our research - other

- Reports and resources from (main sites linked here):
 - [Carbon Leadership Forum](#)
 - [RMI](#)
 - [NRDC](#)
 - [Parsons Healthy Materials Lab](#)
 - [AIA](#)
 - [MIT Concrete Sustainability Hub](#)
- International examples:
 - [Canada: Standard on Embodied Carbon in Construction](#)
 - [Denmark: National Strategy for Sustainable Construction](#)
 - [Norway : National Climate Action Plan for 2021-2023](#)

The Guidance

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Applicability

**Affected Entities are those listed in Exhibit A of the [EO 22: Leading by Example](#)*

For non-transportation construction projects awarded by Affected Entities for their own or State operations, where 1) the total project cost is over \$1 million, and 2) the minimum (or larger) quantities of at least one of the covered construction materials are used.

- Some agencies bundle contracts, while others bid out work on a project for trades individually – hence the GreenNY Council is asking agencies to use a reasonable boundary in reporting contracts for projects over \$1 million. This does not apply to projects supported through programmatic implementation, for example those awarded by NYSERDA or ESD.

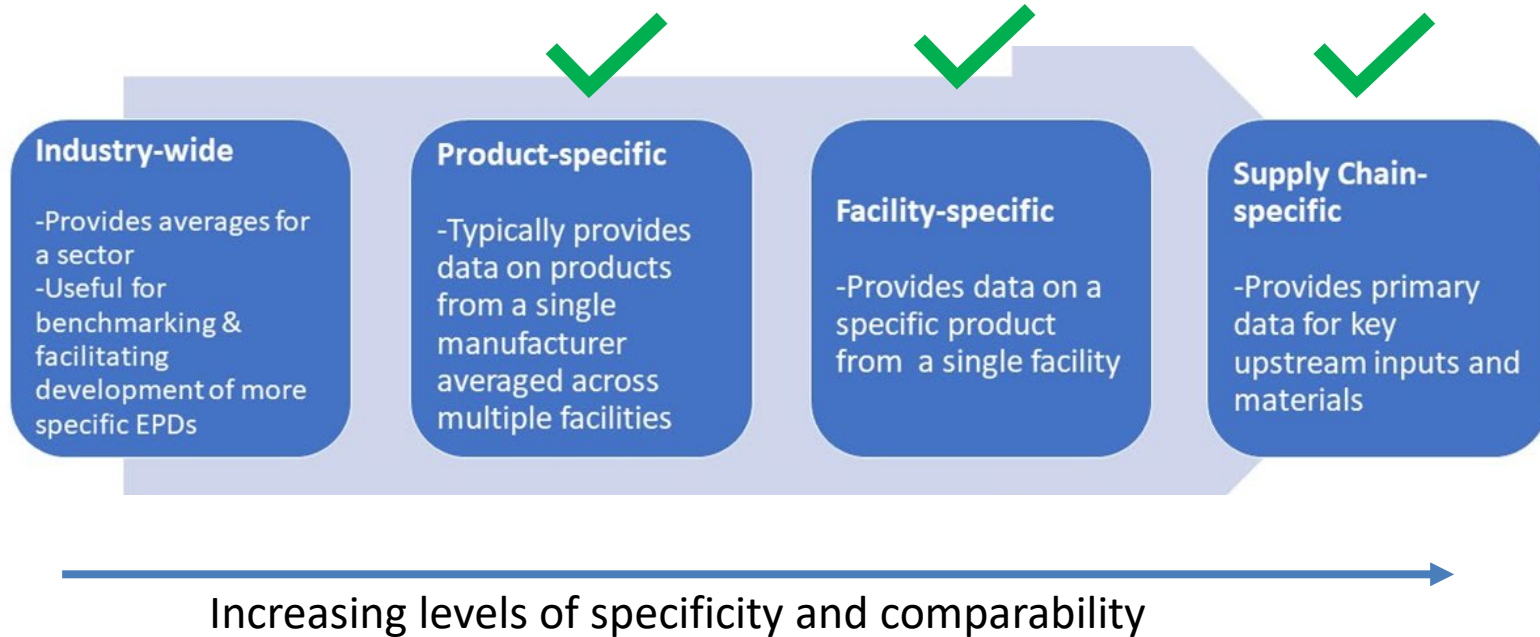
For transportation projects, the thresholds are by material quantities only, not by project value.

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Covered materials & minimum thresholds

Covered Construction Material	Minimum quantity for disclosure (subject to change) for Buildings Projects	Minimum quantity for disclosure (subject to change) for Transportation Projects
Concrete mixes	50 cubic yards or more	200 cubic yards (per mix design)
Asphalt mixes	16,854 pounds (or 10 cubic yards) or more	8,000 short tons (per mix design)
Steel i. Rebar ii. Hollow Structural Sections iii. Fabricated Steel Plate iv. Hot-Rolled Sections v. Cold-Formed & Galvanized	20,000 pounds or more for rebar 5,000 pounds or more for all others (categories ii – v)	20,000 pounds or more for rebar (per fabrication location) 15,000 pounds or more for all other categories (ii – v) per fabrication location
Glass (see footnote for conversion factor) i. Flat Glass ii. Processed Glass iii. Insulated Glazing Units	2,000 square feet or more	2,000 square feet

Acceptable EPDs



Updating contracts (no later than 1st Oct 2023)

For inclusion in procurement documents, including solicitations, contracts, RFPs, RFQs, RFIs, SOWs, and standard contract terms and conditions, general conditions, project requirements, reporting guidelines, or individual material specifications:

“For building materials covered by the GreenNY Council Embodied Carbon Guidance, contractors and designers shall disclose, at regular intervals during the course of the contract period (and no less than once a year), the exact materials/product type and estimated quantities used.

For materials for which Environmental Product Declarations (EPDs) exist that comply with the GreenNY Council requirements, contractors are also required to submit kgCO₂ equivalent estimates by material/product, and quantity used, on the project to date, with a link to the digital EPD.”

“Contractors and designers shall be required to submit environmental product declarations (EPDs), if available, for all Covered Construction Materials used in this project under all circumstances.

EPDs must be Product Specific Type III (Third-Party Reviewed), in adherence with ISO 14025 *Environmental labels and declarations*, ISO 14044 *Environmental management – Life cycle assessment*, and ISO 21930 *Core rules for environmental product declarations of construction products and services.*”

Disclosure, Reporting & Timing (Starting August 2024)

a. Materials & quantities – Fiscal Year period

- i. Affected Entities to collect quantities of covered construction materials, and calculate kgCO2 equivalents with data from the EPD, and EPD links where they exist.
- ii. Use of free online database, EC3 is recommended. EC3 provides a NYS specific template under “Plan & Compare Buildings → Public → Template”
- iii. To report out annually on Aug 31. Starting Aug 31, 2024.
- iv. IF AEs do not use EC3, they should reach out to OGS to discuss reporting.

b. Annual Project List – Fiscal Year period

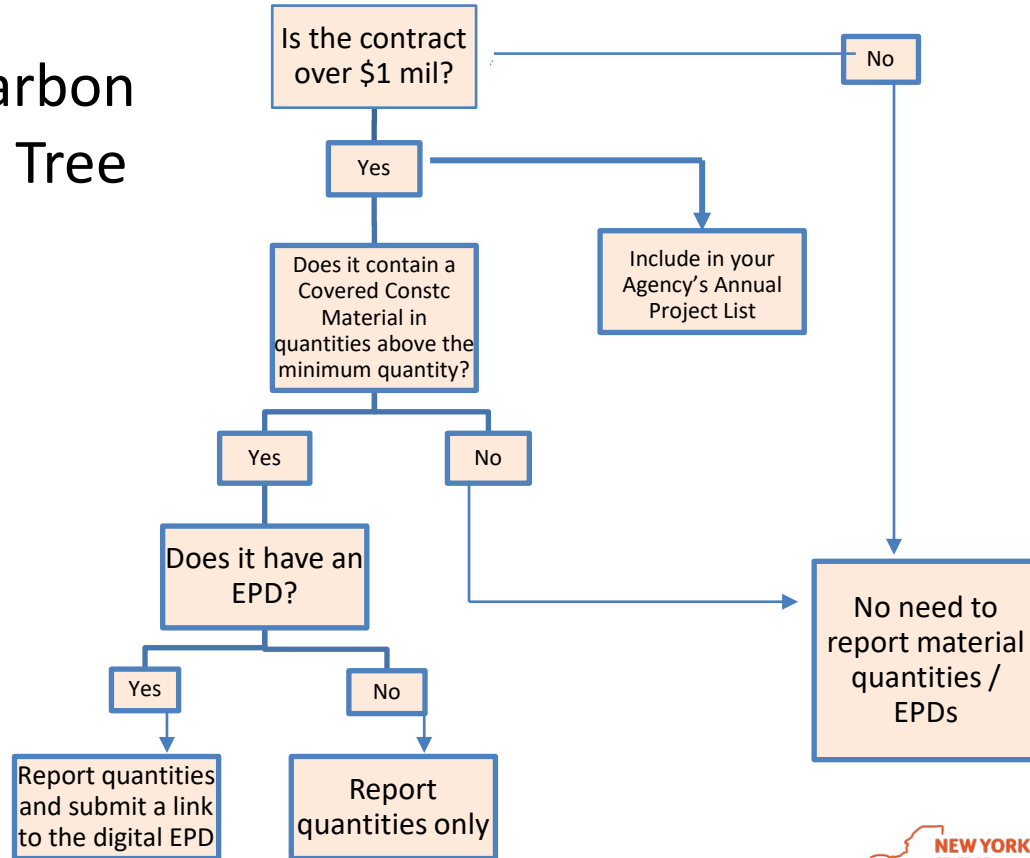
- i. AEs to report on all projects over \$1m, and indicate which ones did not have relevant covered construction materials
- ii. Provide this via spreadsheet to sustainability@ogs.ny.gov
- iii. To report out annually on Aug 31. Starting Aug 31, 2024.



EO 22 Embodied Carbon Reporting Decision Tree

Covered Materials & thresholds

- **Concrete** mixes (at least 50 cubic yards)
- **Asphalt** mixes (at least 10 cubic yards)
- **Steel** (Rebar, Hollow Structural Sections, Fabricated Steel Plate, Hot-Rolled Sections, Cold-Formed and Galvanized) – at least 20,000lbs for rebar, or 5000lb for other
- **Glass** (Flat Glass, Processed Glass, Insulated Glazing Units) – at least 2000 sq ft



Screenshot of free online EPD database & reporting tool (EC3)

EC3 Building Transparency

Ordinary Stacy PROFESSIONAL USER

Measurement Units: USA

NYS E022, STACY'S EXAMPLE PROJECT, CONTRACT NUMBER 123456

PRIVATE ANONYMIZE & PUBLISH SAVE... CANCEL

91% Mapped Reorganize This View

Uniformat 2 Transport Construction

Search for EPDs of products that could be used in this application, by category and performance specs. Your search terms will create a 'collection' of matching EPDs; the statistics of the collection will give you a conservative estimate of the impact per unit of this material, and an achievable target to shoot for in procurement. If you select a specific EPD, then that EPD will determine the 'realized' impact intensity. In each case, the intensity from the EPD(s) is multiplied by the Quantity field to get the impact total.

Charts Reports Comparisons Import

NAME	QUANTITY	UNIT	Realized (1/11) *	Realized	%
Covered Construction Materials					
Concrete					
Concrete - 5000 PSI at Foundations	1,000	x		450k kgCO2e	
Concrete - 4000 PSI at Columns	2,500	x yd3		449k kgCO2e	
Glass				19.8 kgCO2e	
Glass - Processed <add description of glass product>	1.0	x ft2	No material selected	8.82 kgCO2e	45 %
Glass - Insulated Glazing Units <add description of glass product>	1.0	x ft2	No material selected	11 kgCO2e	55 %
Asphalt					
Steel				3.61 kgCO2e	
Steel - Hot Rolled, Fabricated	1.0	x lbs	No material selected	743m kgCO2e	21 %
Steel - Hollow, Fabricated	1.0	x lbs	No material selected	1,14 kgCO2e	32 %
Steel - Plate, Fabricated	1.0	x lbs	No material selected	1,09 kgCO2e	30 %
Steel - Rebar/Reinforcing, Fabricated	1.0	x lbs	No material selected	639m kgCO2e	18 %
Gypsum Board				430m kgCO2e	
Gypsum Board - <add description of gypsum board product>	1.0	x ft2	No material selected	430m kgCO2e	100 %
Structural Engineered Wood				333 kgCO2e	
Cross Laminated Timber - <add description of cross laminated timber product>	1.0	x yd3	No material selected	163 kgCO2e	49 %
Mass Timber - <add description of mass timber product>	1.0	x yd3	No material selected	170 kgCO2e	51 %
Other					

Right-click for more commands

Q EPDs Multi-Material

Report Bugs & Feedback

services

Next steps: Implementation of Embodied Carbon Guidance

- a. Agencies to update their authorized contracts to require data collection beginning Oct 1, 2023.
- b. Agencies to disclose materials and embodied carbon data through annual reporting starting Aug 31, 2024. Using fiscal year period.
- c. OGS & NYSERDA to provide capacity building, technical assistance, interagency working group & database solution
- d. OGS to convene Technical Advisory group that includes industry/academics/other experts
- e. Engaging with US Climate Alliance's Buy Clean Federal-State Partnership

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Questions

Updated information on Embodied Carbon can be found on the GreenNY Sharepoint site, including additional resources and webinars.

To join the Embodied Carbon Working Group please email sustainability@ogs.ny.gov with the subject “Embodied Carbon Guidance Working Group”, or Mariane Jang mariane.jang@ogs.ny.gov.

Appendix

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Environmental Product Declaration (EPD)

ENVIRONMENTAL PRODUCT DECLARATION (EPD)



This Environmental Product Declaration (EPD) reports the impacts for 1 m³ of ready mixed concrete mix, meeting the following specifications:

- ASTM C94: Ready-Mixed Concrete
- UNSPSC Code 30111505: Ready Mix Concrete
- CSA A23.1/A23.2: Concrete Materials and Methods of Concrete Construction
- CSI Division 03-30-00: Cast-in-Place Concrete

COMPANY

Holcim
8700 Bryn Mawr Ave Suite #300
Chicago, IL 60631-3512

PLANT

Fort Totten (DC) Plant
5001 Fort Totten Dr. NE
Washington, DC 20011

EPD PROGRAM OPERATOR



ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428

DATE OF ISSUE

07/16/2021 (valid for 5 years until 07/16/2026)

ENVIRONMENTAL IMPACTS

Declared Product:

Mix ECOS80504 • Fort Totten (DC) Plant
Description: 8000,ECOPACT, STANDARD PST NAE
HRWR
Compressive strength: 8000 PSI at 28 days

Declared Unit: 1 m³ of concrete

Global Warming Potential (kg CO ₂ -eq)	320
Ozone Depletion Potential (kg CFC-11-eq)	9.31E-6
Acidification Potential (kg SO ₂ -eq)	1.27
Eutrophication Potential (kg N-eq)	0.59
Photochemical Ozone Creation Potential (kg O ₂ -eq)	22.1
Abiotic Depletion, non-fossil (kg Sb-eq)	4.49E-5
Abiotic Depletion, fossil (MJ)	1,712
Total Waste Disposed (kg)	4.37
Consumption of Freshwater (m ³)	3.67

Product Components: crushed aggregate (ASTM C33), natural aggregate (ASTM C33), Portland cement (ASTM C150), slag cement (ASTM C989), admixture (ASTM C494), batch water (ASTM C1602)

*Equivalent of
“nutrition label”
providing information
on multiple
environmental
impact categories*



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Environmental Impact: Embodied Carbon

