



NYC EO 23 Embodied Carbon Environmental Product Declaration (EPD) Guidance

NYC Policy Context

NYC EO 23 of 2022 (Clean Construction Executive Order) instructs that capital project agency construction managers “shall submit environmental product declarations (EPDs) to the Building Transparency database, a publicly available database of EPDs, using the OpenEPD format, as set forth below:

- Projects using concrete shall provide a product-specific EPD for all batch plant ready-mixed and precast concrete; and
- Projects using steel shall provide a product-specific EPD for structural steel delivered to the jobsite.

The Mayor’s Office of Climate and Environmental Justice (MOCEJ) is tasked with providing guidance to agencies submitting EPDs to the Building Transparency database, a free and publicly accessible database. As such, the guidance below serves to guide NYC capital project agencies in implementing the EPD section of EO 23 using the EC3 tool. In addition, to the extent practicable, the guidance below clarifies the ability of such agencies to also submit EPDs for projects to any other database that is determined to be comparable and in wide usage at the discretion of MOCEJ.

What are EPDs?

Environmental Product Declarations (EPDs), as defined by the International Organization for Standardization (ISO) 14025, are third-party verified (also known as “type III”) product declarations that quantify environmental information on the life cycle of a product, which could include impacts from raw material supply, transport, manufacturing, installation, and operational use, through to waste processing and disposal at end-of-life.

January 2024:

This NYC EO 23 guidance is modeled on the New York State E.O. #22 [guidance](#) released in 2023.

An EPD is frequently compared to the “nutrition label” of a construction product, listing its environmental impact via several metrics. The metric used as a proxy for embodied carbon emissions is called **global warming potential (GWP)** and measured in kg CO₂ eq per quantity of construction material (e.g. cubic yard, ton). Most EPDs provide a GWP quantity that represents the embodied carbon emissions associated with raw material extraction through production of a given product (stages A1 to A3), also known as “cradle-to-gate.”

EPDs are developed by using a product life cycle assessment methodology following the standards set by the ISO. A key component of the EPD is the Product Category Rule (PCR), which defines how the data is collected for a specific type of product.

A group of stakeholders including industry associations and manufacturers develops PCRs. For the purposes of this guidance, New York City capital project agencies, their contractors, and designers only need to be aware that PCRs are the agreed upon basis for the data collected for EPDs.

EO 23 Implementation Details

Acceptable EPDs: NYC EO 23 accepts non-expired, product-specific, facility or plant-specific, or supply chain-specific type III (third-party reviewed) EPDs 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). Digitized EPDs can be found on online EPD databases such as [EC3](#) or sourced directly from the manufacturer.

Applicable Projects: These guidelines are applicable to any construction projects awarded by New York City capital project agencies, as defined in EO 23, using concrete and steel. The intention of the EO is to collect as many EPDs as possible for these covered materials. For the purposes of EO 23, the term “capital project agencies” means the department of design and construction, department of citywide administrative services, department of environmental protection, department of transportation, and department of parks and recreation.

Covered Construction Materials and Minimum Quantities: While all construction materials contain embodied carbon, the highest-impact materials are those:

- 1) with a high carbon footprint,
- 2) that are used in significant quantities on City capital projects, and
- 3) where reductions will result in the greatest greenhouse gas emissions reductions for City capital projects. For this reason, the Mayor’s Office of Climate & Environmental Justice directs

TEC-CRETE TRANSIT MIX CORP.
ENVIRONMENTAL PRODUCT DECLARATION
Mix 3BAE70%A24 • Long Island City Plant



This Environmental Product Declaration (EPD) reports the impacts for 1 m³ of ready mixed concrete mix, for use in business-to-business (B2B) communication 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

Tec-Crete Transit Mix Corp.
50-09 27th Street
Long Island City, NY 11101

PLANT

Long Island City Plant
50-09 27th Street
Long Island City, NY 11101

EPD PROGRAM OPERATOR

National Ready Mixed Concrete Association
66 Canal Center Pl, Suite 250
Alexandria, VA 22314



NRMCAEPD: 20087

ENVIRONMENTAL IMPACTS

Declared Product:

Mix 3BAE70%A24 • Long Island City Plant
Description: 3000 PSI(135/315) A/E 467/B 70%
Compressive strength: 3000 PSI at 28 days

Declared Unit: 1 m³ of concrete (1 cyd)

Global Warming Potential (kg CO ₂ -eq)	172 (131)
Ozone Depletion Potential (kg CFC-11-eq)	5.94E-6 (4.54E-6)
Acidification Potential (kg SO ₂ -eq)	1.44 (1.10)
Eutrophication Potential (kg N-eq)	0.21 (0.16)
Photochemical Ozone Creation Potential (kg O ₃ -eq)	31.9 (24.4)
Abiotic Depletion, non-fossil (kg Sb-eq)	1.89E-5 (1.44E-5)
Abiotic Depletion, fossil (kg)	1,048 (801)
Total Waste Disposed (kg)	22.9 (17.5)
Consumption of Freshwater (m ³)	3.15 (2.41)

Product Components: crushed aggregate (ASTM C33), natural aggregate (ASTM C33), slag cement (ASTM C989), type 1L cement (ASTM C595), admixture (ASTM C494), batch water (ASTM C1602), admixture (ASTM C260)

Additional detail and impacts are reported on page three of this EPD

Figure 1: Sample EPD (Source: Building Transparency)

City capital project agencies to disclose embodied carbon, which will result from projects utilizing the following materials:

NYC EO 23 Covered Construction Materials for EPDs	
CONCRETE	Ready-Mix Concrete
	Precast Concrete (including CMU, Brick, Block, Pavers, etc.)
STEEL	Steel, Hot Rolled, Fabricated
	Steel, Hollow Structural Sections (HSS), Fabricated
	Steel, Plate, Fabricated
	Steel, Rebar/Reinforcing, Fabricated
	Steel, Cold-Formed, Galvanized

City capital project agencies and project contractors are encouraged to provide EPDs for any products with an EPD available outside of these covered construction materials.

Disclosure of Material Quantities and Associated Embodied Carbon Values: For all applicable projects and materials, capital project agencies will be required to provide the following information using the publicly available and free to use Embodied Carbon in Construction Calculator (EC3) tool in the EO23 reporting template or using a comparable database, at the discretion of MOCEJ. As of January 2024, MOCEJ is working to establish a program agreement with Building Transparency that outlines the terms of use of EC3.

1. The quantities of covered construction materials, whether or not there is an EPD for that covered construction material,
2. a link to the selected EPD, if available,
3. and, if an EPD is available, the total GWP calculation (kg CO2e) per used material or product (with the kg CO2e factor from the EPD).

Note: All EPD information required for EO 23 reporting will be automatically populated in the project’s excel report export from EC3 and shared with that capital project agency and MOCEJ.

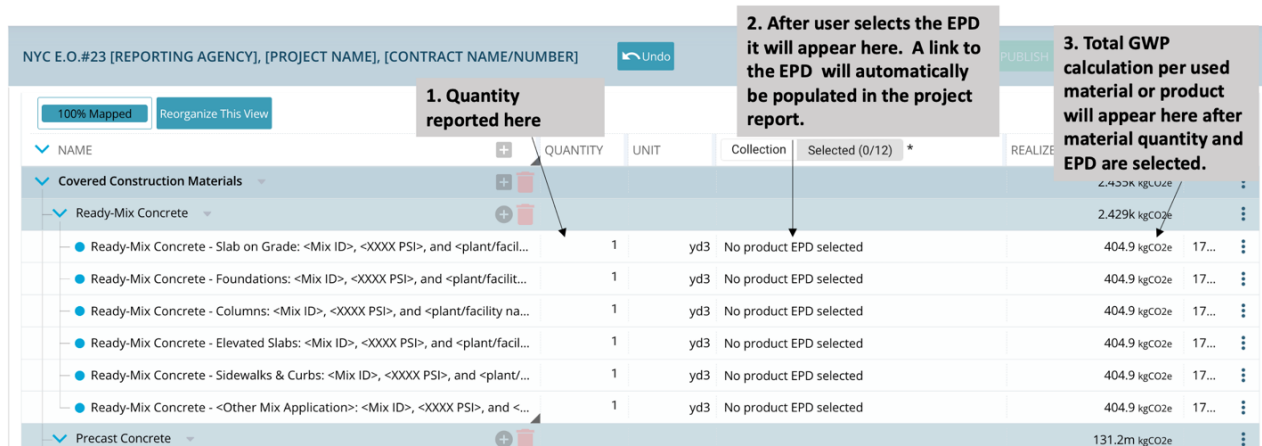


Figure 2: NYC EO 23 Reporting Template and Step-by-Step

Please reference the EC3 EO 23 User Guide for more detailed information.

4. If an EPD is not available, agencies are encouraged to provide resources and guidance on EPD creation available in the “How to Get an EPD” section in EC3.

Product Impacts
Declared Unit: 1 m³ of 10,000 psi concrete at 28 days

Amount Per Declared Unit	
Global Warming Potential	445 kgCO ₂ eq
Emitted	460 kgCO ₂ eq
Sequestered	-15 kgCO ₂ eq
Ozone Depletion	0.000 kgCFCl ₁ eq
Acidification	2.96 kgSO ₂ eq
Eutrophication	0.09 kgNeq
Smog Formation	0.61 kgO ₃ eq
Primary Energy Demand	3017 MJ
Non-renewable	3000 MJ
Renewable	17 MJ

Figure 3: EC3’s Guide to Getting an EPD if an EPD is Unavailable

Capital project agencies or their contractors should enter their project data in EC3 or another comparable database of acceptable EPDs, if approved by MOCEJ. The use of a central database will greatly streamline and simplify the reporting and tracking of the above information and allow for efficient sourcing of available EPDs in the U.S. market today. Before the report is finalized, a project manager, or equivalent, from the agency should be responsible for verifying the accuracy of the information contained in it.

Sample Scope of Work Language:

To ensure contractors of NYC capital project agencies disclose the requested information on quantities and emissions of Covered Construction Materials, the following sample scope of work language is recommended to be used in procurement documents. This text could also be included, with any modifications necessary, in agency project requirements, reporting guidelines, or individual material specifications.

1. “Embodied Carbon Disclosure: For EO 23 Covered Construction Materials, designers and contractors shall disclose, at regular intervals during the course of the contract term (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 EO 23 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.

a. Covered Construction Materials shall be defined as ready mix and pre-cast concrete, hot rolled fabricated steel, hollow structural sections fabricated steel, plate fabricated steel, rebar/reinforcing fabricated steel, and cold-formed galvanized steel.

b. Environmental Product Declarations (EPDs) shall be defined as a third-party-verified International Organization for Standardization (ISO) Series 14025 Type III declaration that quantifies environmental information in the life cycle of a product to enable comparisons between products fulfilling the same function.”

Or:

2. “Embodied Carbon Disclosure: Designers and contractors shall be required to submit environmental product declarations (EPDs), if available, for all EO 23 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.

Digitized EPDs can be found on EPD databases and sent as a link to [the designated person/entity collecting the EPDs on behalf of the agency] as part of the submittals process or entered directly into [EPD reporting software EC3].

a. Covered Construction Materials shall be defined as ready mix and pre-cast concrete, hot rolled fabricated steel, hollow structural sections fabricated steel, plate fabricated steel, rebar/reinforcing fabricated steel, and cold-formed galvanized steel.

b. Environmental Product Declarations (EPDs) shall be defined as a third-party-verified International Organization for Standardization (ISO) Series 14025 Type III declaration that quantifies environmental information in the life cycle of a product to enable comparisons between products fulfilling the same function.”



Photo credits: NYC Department of Design and Construction (DDC).