General Template Specification Language (Division 1)

*Utilize the text below in Division 1 Specification Sections. Can be put in Section 016000 Product Requirements, or Section 018113 Sustainable Design Requirements*

Part 1 - General

***Div 1 Definitions Language***

* + - * 1. Environmental Product Declaration (EPD): Third party verified report based on life-cycle assessment that conforms to ISO 14025 and 14044, and EN 15804 or ISO 21930.

Industry Average EPD: Based on multiple manufacturers of a common product type.

Product Specific EPD: Based on product by single manufacturer but may include average of multiple facilities making the same product.

Facility Specific EPD: Based on product by single manufacturer from single facility.

* + - * 1. Embodied Carbon: Carbon footprint of a material or product, determined by the amount of greenhouse gases (GHGs) released throughout the supply chain, typically including:

Product or Cradle to Gate (A1-A3).

Transportation to site (A4).

Installation on site (A5).

Replacement (B).

End of life (C).

* + - * 1. Embodied Carbon in Construction Calculator (EC3): Free, open-access tool that includes a digital database of third party verified, Type III EPDs and a user interface offering the ability to find and compare materials based on their global warming potential and a project planner that enables construction projects to create an upfront (stage A1-A3) embodied carbon estimate and realized carbon footprint.
				2. Embodied Carbon Limit: Maximum cradle to gate (A1-A3) embodied carbon allowed for a specific product type.
				3. Global Warming Potential (GWP): Measure of how much heat a greenhouse gas traps in the atmosphere up to a specific time horizon, relative to carbon dioxide, measured in kilograms of carbon dioxide equivalent (kgCO2e).
				4. Life Cycle Assessment (LCA): Evaluation of the environmental effects of a product, as defined by ISO 14040-2006 and ISO 14044-2006 in North America, with additional requirements by EN 15804 in Europe.
				5. Product Category Rules (PCRs): Product-type-specific rules, requirements, and guidelines for developing EPDs .
				6. Program Operator: Organization that ensures EPDs meet the PCRs for the associated product category, and third party verifies the life cycle assessment is completed according to the PCR.
				7. System Boundary: Defines the processes (Stages A1-A4, B, C, etc.) in a product’s life cycle that are included in the life cycle assessment.

***Reference Standards Language***

[CLF 2021 Embodied Carbon Baselines:](https://carbonleadershipforum.org/material-baselines/) The CLF Baseline represents a high estimate for embodied carbon in a product category. This value is intended to represent the embodied carbon of a product type if no effort is made to reduce embodied carbon. Most products with available EPDs will fall below this threshold. CLF Baseline numbers are a good starting point to develop carbon caps or reductions, and are publicly available from the Carbon Leadership Forum, with annual updates. For categories in which there are sufficient product-specific EPDs, the CLF Baseline is tied to the 80th percentile value of the category (i.e., the point where 80% of the results have values below this number) as represented in the EC3 database of published, peer-reviewed EPD results. The CLF Baseline is shown within the EC3 tool for all public categories.

General Template Specification Language (Division 1) *continued*

*Utilize the text below in Division 1 Specification Sections. Can be put in Section 01 6000 Product Requirements, or Section 01 8113 Sustainable Design Requirements*

Part 1 - General

***Div 1 Submittal Language***

* + - * 1. General: See other specification sections for additional sustainable design submittals.
				2. Submit and install products in accordance with Sustainable Material Performance requirements.
				3. Monitor the project’s progress regarding embodied carbon goals on a tracking sheet to be presented at construction meetings to provide updates, that includes the following:

Declared unit quantity of material.

Required baseline (if applicable).

Realized carbon emissions (declared unit quantity x kgCO2e/declared unit)

* + - * 1. Sustainable Design Submittals: For building products sourced from manufacturers documenting efforts to minimize environmental impacts, provide the following information:

Type III Environmental Product Declarations.

Part 2 - Products

***Description or Performance Requirements***

1. Project Goals: Section includes general requirements and procedures for compliance with the project's embodied carbon goals needed for the Project to obtain [**embodied carbon goal or requirement**].

 1. Specific requirements are included in other Sections.

1. Embodied Carbon. For the following material types, provide information needed to document embodied carbon reductions:
2. Concrete: ready mix

Steel: rebar, plate steel, structural hollow and hot-rolled sections, steel decking, cold formed framing

Aluminum Framing: aluminum extrusions, thermally improved aluminum extrusions

Wood & Composits: dimension lumber, plywood and osb sheathing, glas mat gypsum sheathing, prefabricated wood products composite lumber, mass timber

Insulation: board, blanked, foamed in place, blown

Cladding: insulated metal panel, metal panel

Finishes: gypsum wall board, acoustic ceiling tiles, resilient flooring, carpet

Flat Glass

Communications: fiber data cabling, twisted pair data cabling, other data cabling

Others as selected by Owner

1. For each of the above material types provide an Environmental Product Declaration (EPD) that includes the following:

Product Category rule

Declared Unit

System Boundary

Global Warming Potential/Baseline Value

1. Environmental Product Declarations: Maximize permanently installed products with EPDs that meet the following criteria:
	1. Product-Specific, Facility Specific Type III EPD: EPD conforming to ISO 14025 and EN 15804 or ISO 21930 with at least a cradle to gate (A1-A3) scope, third-party certification (Type III), that is manufacturing plant specific, including external verification and external critical review in which the manufacturer is explicitly recognized as the participant by the program operator.
	2. EPDs shall be unexpired at time of product procurement.

2.1 LOW-EMBODIED CARBON MATERIALS

A. In addition to the embodied carbon savings accrued from the reuse of existing structures, the project has a goal to show embodied carbon reductions from industry baselines for all new products in identified low-embodied carbon reporting categories.

1. Low-Embodied Carbon Product Reporting Categories

a. Concrete: Including concrete mixes and steel rebar.

b. Structural steel.

c. Cold-formed metal framing.

d. Flat glass.

e. Gypsum board.

f. Acoustical ceiling panels or tiles.

g. Resilient flooring.

h. Carpet

2. Embodied Carbon Reductions: Provide proof of each product’s embodied carbon as specified in individual product sections.

3. Monitor the project’s progress regarding embodied carbon goals on a tracking sheet to be presented at construction meetings to provide updates, that includes the following:

a. Declared unit quantity of material.

b. Required baseline (if applicable).

c. Realized carbon emissions (declared unit quantity x kgCO2e/declared unit)

4. Contractor to complete as-built EC3 model to confirm embodied carbon reductions.

Project Specific EMBODIED CARBON REDUCTION

*Utilize Embodied Carbon Specification Matrix and EC3 to set product specific limits (if part of scope/approach) that support Owner’s project specific goals.*

**\*Owners:**

1. **Utilize** [**ownersCAN Embodied Carbon Action Plan**](https://www.buildingtransparency.org/programs/ownerscan/ecap/) **(ECAP) to set approach and scope of embodied carbon accounting and reduction goals.**
2. **Utilize** [**ECAP Template RFP Language**](https://docs.google.com/document/u/0/d/1RerDPRxxrdOclQmJoquoXao5dUkMLCD8DHmsZKLjmNs/edit) **and** [**Template Basis of Design/Contract Language**](https://docs.google.com/document/u/0/d/1RrGjVsqoOuK9xZt0Tqxii3PWLbL_1x2EyvX0OndVpKo/edit) **to communicate embodied carbon requirements at the beginning of the project.**
3. **Select approach to embodied carbon reduction, either setting Embodied Carbon Limits from** [**ECAP specifications matrix template**](https://docs.google.com/spreadsheets/u/0/d/1_ljj5duT8WHGcOiJ8NhlQ015o6gAUcziyoBuk5SphiI/edit) **OR requiring EPDs at time of bid utilizing** [**ECAP bid language templates**](https://app.box.com/s/mama6l86etdmqevits98w8ijggtv168o) **and EC3 bid leveling form.**

Product Specific SPECIFICATION TEMPLATE LANGUAGE

*Utilize the text below in product specifications. See Embodied Carbon Specification Matrix for product specific information to fill in highlighted blanks with corresponding information in each section.*

**Design Teams: Require EPDs in Product Specifications, include Embodied Carbon Limits (if part of approach/scope) as Performance Requirements, and select products that comply.**

**Part 1 - GENERAL**

***Submittal Language***

1. Embodied Carbon Submittals: Type III Environmental Product Declaration indicating compliance**[ with embodied carbon limits]**.
2. Include values in **[Insert name for your project specific tracking sheet]**.
3. [List product type here]: Provide product specific EPD.

**Part 2 - PRODUCTS**

***Sustainable Materials Language***

2.01 Performance Requirements:

1. Embodied Carbon - [Product Type]
2. Provide a Type III [Industry Wide] [Product-Specific] [Facility Specific] Environmental Product Declaration (EPD) that documents compliance with the following:
3. [Embodied Carbon Limit: [XX] kgCO2e]
4. System Boundary: Product Stage A1-A3.
5. Declared Unit: [XX sq ft, kg, sq]
6. Product Category Rules:
7. [Insert from provided material spec matrix. There may be more

than one PCR for a product category]

2.02 Materials:

1. [Product Type]:
2. Manufacturer: Product Series: [Product Name].
3. Embodied Carbon: [Product Embodied Carbon] kgCO2e