CALGreen Carbon Reduction Regulations
Building Reuse, Life Cycle Assessment, Global Warming Potential, Environmental Product Declarations

DSA
Eric Driever, Principal Architect
Division of the State Architect

BSC
Irina Brauzman, Supervising Architect
Building Standards Commission
## Carbon Reduction Regulations Application

<table>
<thead>
<tr>
<th>DSA-SS</th>
<th>BSC-CG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public schools K-12</td>
<td>Nonresidential occupancies</td>
</tr>
<tr>
<td>Community colleges</td>
<td>State buildings, UCs and CSUs</td>
</tr>
<tr>
<td>Enforcement</td>
<td>Enforcement delegated to local jurisdictions</td>
</tr>
<tr>
<td>50,000 sf and greater</td>
<td>100,000 sf and greater</td>
</tr>
</tbody>
</table>

New CALGreen carbon reduction regulations apply to new construction and renovation projects, and take effect this July
Why Carbon Reduction Regulations?

RMI REPORT | 2021

Reducing Embodied Carbon in Buildings

“Buildings account for at least 39 percent of energy-related global carbon emissions on an annual basis. At least one-quarter of these emissions result from embodied carbon, or the greenhouse gas (GHG) emissions associated with manufacturing, transportation, installation, maintenance, and disposal of building materials.”

Reducing Embodied Carbon in Buildings - RMI
Why Carbon Reduction Regulations?

First edition of CALGreen included greenhouse gas and embodied carbon reduction:
- Building reuse
- Material sources and recycled content
- Life cycle assessment

Updates to CALGreen over past years in response to enacted legislation and executive orders focused on stormwater pollution prevention, bicycle parking, electric vehicle charging, and other measures.

Carbon reduction topics had less attention in those years.
Former CALGreen Carbon Reduction Regulations

Building Reuse
- No mandatory section for deconstruction and reuse
- Voluntary – maintain at least 75% of existing building structure (including structural, floor and roof decking) and envelope (exterior skin and framing)

Life Cycle Assessment (LCA)
- No mandatory section
- Voluntary – conduct WBLCA and demonstrate at least 10% improvement in environmental impact for specific building components.

Voluntary regulations can be used by design professionals or adopted by local jurisdictions
Greenhouse Gas and Carbon Goals in Executive Action

Executive Orders

B-30-15
Sets interim target of greenhouse gas emissions 40% less than 1990 levels by 2030. [Current California GHG Emission Inventory Data | CARB](#)

B-55-18
Achieve statewide carbon neutrality by 2045

N-19-19
Requires every aspect of state government to increase efforts to reduce greenhouse gas emissions and mitigate the impacts of climate change while building a sustainable, inclusive economy
Legislative Mandates

Buy Clean California Act (BCCA)

- Public Contract Code Sections 3500-3505
- Applicable to public works projects, UC and CSU
- Effective 2018

SB 596 Greenhouse gases: cement sector: net-zero emissions strategy

- Approved Sept 23, 2021, Health and Safety Code Section 38561.2
- CARB to develop strategy by July 1, 2023, for cement industry to achieve net zero-emissions by Dec 31, 2045
- Coordinate and consult with other state agencies, evaluate market demand, financial incentives and other actions
- Establish interim targets for reductions in GHG to 40% of 2019 levels by 2035
Buy Clean California Act (BCCA)

DGS and CARB established the maximum acceptable global warming potential (GWP) for four eligible materials used in public works projects.

Collected EPDs between 2018 and 2022 on listed material categories:

- Structural steel: hot-rolled and hollow structural sections, plate steel
- Concrete reinforcing steel
- Flat glass
- Mineral wool board insulation

When used in public works projects, these eligible materials must have a GWP that does not exceed the limit set by DGS.
How the New Regulations Were Conceived

- **American Institute of Architects** California Outreach

- **Strategic Goals: BSC and DSA Partnership**
  - Consultative
  - Collaborative
  - Sustainable
  - Effective

- **CALGreen Carbon Reduction Collaborative (CCRC)**
  - Established success with the collaborative model on DSA initiatives
  - Outreach to encourage representative participation
  - Launched April 4, 2022
  - Conducted four pre-cycle workshops [2022-PreCycle](#)
CALGreen Carbon Reduction Collaborative

Professional, Non-profit, Industry and State Agency Stakeholders

American Institute of Architects California (AIACA)
Collaborative for High Performance Schools (CHPS)
Construction Management Association of America (CMAA)
Building Owners & Managers Association International (BOMA)
Concrete Masonry Association of California and Nevada (CMACN)
CA Construction & Industrial Materials Association (CalCIMA)
National Ready Mixed Concrete Association (NRMCA)
California Nevada Cement Association (CNCA)
American Concrete Institute (ACI)
Portland Cement Association (PCA)
California Building Industry Association (CBIA)
California Building Officials (CALBO)
California Energy Commission (CEC)
Department of General Services (DGS)
State Fire Marshal (SFM)
CA Department of Healthcare Access and Information (HCAI)
CA Department of Housing and Community Development (HCD)
(Seaoc) Structural Engineers Association of California
(NBI) New Buildings Institute
(RMI) Rocky Mountain Institute
(CLF) Carbon Leadership Forum
(USGBC) U.S. Green Building Council
(AISC) American Institute of Steel Construction
(CSPTC) California State Pipe Trades Council
(CRSI) Concrete Reinforcing Steel Institute
(CFSEI) Cold-Formed Steel Engineers Institute
(ICC) International Code Council
(SDI) Steel Deck Institute
(STI) Steel Tube Institute
(CARB) California Air Resources Board
(CNRA) California Natural Resources Agency
(CDPH) California Department of Public Health
(CALRecycle) CA Department of Recycling
(CALTrans) CA Department of Transportation
CALGreen Carbon Reduction Collaborative Charter

All 150+ CCRC Charter participants agreed to the following:

- Review existing voluntary regulations and suggest improvement
- Provide input for updates to support climate action goals
- Develop mandatory measures to address embodied carbon
- Plan incremental increases in mandatory measures over time
- Provide studies, cost/benefit analysis, cost to business, jobs, etc.
- BSC and DSA have decision-making authority
- Solicit support for regulations through rulemaking process
GREEN Code Advisory Committee (CAC) meeting – Feb 8-10, 2023

Recommended “approve” for most of the proposals

Modified scoping to raise the area limit for deconstruction and reuse of existing structures and life cycle assessment for projects within BSC-CG authority

- **100,000 square feet** effective July 1, 2024 (50,000 square feet for DSA)
- **50,000 square feet** effective January 1, 2026

Based upon comments received from California Building Officials (CALBO) representatives
Public Comment Periods

45-Day public comment period: Mar 31 – May 15, 2023
15-Day public comment period: May 25 – June 9, 2023

- **Added required worksheets** making verification of compliance the responsibility of the design professional of record
- **Provided references** to existing CALGreen sections which authorize the enforcing agency to invoke the special inspection and verification requirements
2022 CALGreen Supplement effective July 1, 2024

Approved at August 2023 Commission Meeting

- Supplement (blue pages) to the 2022 edition of CALGreen
- Published Jan 1, 2024
New Carbon Reduction Regulations
Mandatory and Voluntary – Three Compliance Pathways

Mandatory regulations initially 100,000 sf and greater – nonresidential (BSC)
50,000 sf and greater – schools (DSA)

<table>
<thead>
<tr>
<th>BUILDING REUSE</th>
<th>Maintain certain percentage of the existing structure and enclosure if reusing a building: mandatory – maintain 45%</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBLCA PERFORMANCE PATH</td>
<td>Conduct cradle-to-grave WBLCA demonstrating reduction in GWP: mandatory – demonstrate 10% reduction</td>
</tr>
<tr>
<td>PRODUCT GWP PRESCRIPTIVE PATH</td>
<td>Comply with specified product GWP limits and provide EPD with construction documentation</td>
</tr>
</tbody>
</table>
Voluntary Tiers: Carbon Reduction Regulations
Projects 50,000 sf or greater

**TIER 1**

**REUSE** – maintain 75% of the existing structure and enclosure

**WBLCA** – demonstrate 15% reduction in GWP

**PRODUCT GWP** – Comply with product GWP limits specified in Table A5.409.3 (GWP limits for Tier 1)

**TIER 2**

**REUSE** – maintain 75% of the existing structure and enclosure, plus 30% of the interior non-structural elements

**WBLCA** – demonstrate 20% reduction in GWP

**PRODUCT GWP** – Comply with product GWP limits specified in Table A5.409.3 (GWP limits for Tier 2)
Voluntary Tiers: Carbon Reduction Regulations

Projects less than 50,000 sf

**TIER 1**
- **REUSE** – maintain 45% of the existing structure and enclosure
- **WBLCA** – demonstrate 10% reduction in GWP
- **PRODUCT GWP** – Comply with product GWP limits specified in Table 5.409.3 (GWP limits for mandatory compliance)

**TIER 2**
- **REUSE** – maintain 75% of the existing structure and enclosure
- **WBLCA** – demonstrate 15% reduction in GWP
- **PRODUCT GWP** – Comply with product GWP limits specified in Table A5.409.3 (GWP limits for Tier 1)
Why Target Larger Buildings?

The **2018 Commercial Buildings Energy Consumption Survey** estimates:

- 5.9 million buildings and 96 billion square feet of total commercial floorspace
- The smallest buildings (1,001 sf to 5,000 sf) account for almost half of all commercial buildings but occupy only 9% of total commercial floorspace
- Buildings 50,000 sf and larger account for 6% of commercial buildings but 50% of commercial floorspace.

CCRC determined a proposal targeting larger buildings would provide:

- Greater acceptance and less resistance by stakeholders
- Cost of analysis for larger building projects is nominal
- Design teams of larger buildings have capacity to learn or contract for analysis
- Product manufacturers can address GWP limits using federal funds through Inflation Reduction Act (IRA)
## Will regulations apply?

<table>
<thead>
<tr>
<th>Measures Not Applicable</th>
<th>Apply Mandatory Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-residential Projects &lt; 100,000 sf (&lt; 50,000 sf effective January 1, 2026)</td>
<td>Non-residential Projects ≥ 100,000 sf (≥ 50,000 sf effective January 1, 2026) Industrial, Commercial Office, Retail, Lab, Private School (K-12), University Academic (Public &amp; Private), Institutional/Civic, etc.</td>
</tr>
<tr>
<td>Public school (K-12) and community college (projects &lt; 50,000 sf)</td>
<td>Public school (K-12) and community college (projects ≥ 50,000 sf)</td>
</tr>
<tr>
<td>Projects under OSHPD authority Hospitals, Skilled Nursing Facilities, etc.</td>
<td></td>
</tr>
<tr>
<td>Residential Projects under HCD authority Single Family, Multifamily, Hotel, Motel, etc.</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 5.105
DECONSTRUCTION AND REUSE OF EXISTING STRUCTURES

5.105.1 Scope. [BSC-CG] Effective July 1, 2024, alteration(s) to existing building(s) where the combined altered floor area is 100,000 square feet or greater shall comply with either Section 5.105.2, 5.409.2, or 5.409.3. Addition(s) to existing building(s) where the total floor area combined with the existing building(s) is 100,000 square feet or greater shall comply with either Section 5.105.2, Section 5.409.2, or Section 5.409.3. Effective January 1, 2026, the combined floor area shall be 50,000 square feet or greater.

Exception: Combined addition(s) to existing building(s) of two times the area or more of the existing building(s) is not eligible to meet compliance with Section 5.105.2.

Pathway 1: Building Reuse Scope

50,000 sf and greater – Schools K-12 (DSA)
100,000 sf and greater (50,000 sf in Jan 2026) – Nonresidential (BSC)
A building of 300,000 square feet contains several suites occupied by different tenants. The project is to:

- Alter one suite of 50,000 square feet
- Alter another suite of 60,000 square feet
- Keep all other suites in the building not altered

Calculations:

50,000 sf + 60,000 sf = 110,000 sf
110,000 sf > 100,000 sf

Result:
The work in both suites must comply with either building reuse, WBLCA, or product GWP compliance regulations
Will regulations apply? Example #2

An existing commercial building of 30,000 square feet is proposed to have two additions:

- 25,000 square feet
- 35,000 square feet

Calculations:
30,000 sf + 25,000 sf + 35,000 sf = 90,000 sf
90,000 sf < 100,000 sf

Result:
This project is not required to comply with either building reuse, WBLCA, or product GWP compliance regulations
Will regulations apply? Example #3

An existing building of 95,000 square feet is proposed to have one addition:

- 5,000 square feet

Calculations:
95,000 sf + 5,000 sf = 100,000 sf
100,000 sf = 100,000 sf

Result:
This project must comply with either building reuse, WBLCA, or product GWP compliance regulations

Note: The entire existing building can be considered in calculating the required percentage for compliance with building reuse regulations
Will regulations apply? Example #4

An existing retail building of 200,000 square feet is proposed for alterations. The project is to:

- Alter 80,000 square feet of the building area

**Calculations:**
80,000 sf < 100,000 sf

**Result:**
This project is not required to comply with either building reuse, WBLCA, or product GWP compliance regulations
Pathway 1: Building Reuse Requirements

**Reuse** – Maintain a minimum 45% combined of the existing building’s primary structural elements (foundations, columns, beams, walls, floors, lateral elements) and enclosure (roof framing, wall framing, exterior finishes)

- Window assemblies, insulation, and portions of a building deemed structurally unsound or hazardous shall not be included in the calculation

**Verification of Compliance** – Documentation shall be provided to demonstrate compliance with Section 5.105.2. Worksheet WS-3 is available in Chapter 8
Scope of work:
- An existing office building of 50,000 square feet
- Alterations to 35,000 square feet (primary structural elements not affected, enclosure mostly maintained, window assemblies and insulation replaced)
- Addition of 10,000 square feet
- Addition of 80,000 square feet
- Demolition of 15,000 square feet (‘u’ shape to provide more natural light)

Step 1 calculations: Section 5.105.1 Scope

\[
50,000 \text{ sf} + 10,000 \text{ sf} + 80,000 \text{ sf} = 140,000 \text{ sf}
\]

\[
140,000 \text{ sf} > 100,000 \text{ sf}
\]

Result:
This project is required to comply with either building reuse, WBLCA, or product GWP compliance regulations
Demonstrate Compliance - Example #1

**Step 2 calculations:** Exception to Section 5.105.1 Scope

\[ 10,000 \text{ sf} + 80,000 \text{ sf} < 50,000 \text{ sf} \times 2 \]
\[ 90,000 \text{ sf} < 100,000 \text{ sf} \]

**Result:**
This project is eligible to use Section 5.105.2 for compliance.

**Step 3 calculations:** Section 5.105.2 Reuse of existing building

\[ 35,000 \text{ sf} / 50,000 \text{ sf} \times 100\% = 70\% \]

\[ 70\% > 45\% \text{ by a comfortable margin} \]

**Result:**
Worksheet WS-3 to demonstrate compliance

<table>
<thead>
<tr>
<th>DOCUMENTATION OF COMPLIANCE OF EXISTING BUILDING REUSE:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of Existing Building</td>
<td>50,000 SF</td>
</tr>
<tr>
<td>Area of Aggregate Additions</td>
<td>90,000 SF</td>
</tr>
<tr>
<td><strong>Gross floor area of Existing Building</strong></td>
<td></td>
</tr>
<tr>
<td>Existing Total Area (A)</td>
<td>50,000 SF</td>
</tr>
<tr>
<td>Retained Total Area (B)</td>
<td>35,000 SF</td>
</tr>
<tr>
<td>% of Retained Structure (B)/(A)</td>
<td>70%</td>
</tr>
</tbody>
</table>

Total % Reuse of Required Elements = 70%
Demonstrate Compliance - Example #2

Scope of work:
- An existing office building of 50,000 square feet
- Alterations to 25,000 square feet (primary structural elements not affected)
- Addition of 10,000 square feet
- Addition of 40,000 square feet
- Demolition of 25,000 square feet

**Step 1 calculations:** Section 5.105.1 Scope

\[
50,000 \text{ sf } + 10,000 \text{ sf } + 40,000 \text{ sf } = 100,000 \text{ sf} \\
100,000 \text{ sf } = 100,000 \text{ sf}
\]

Result:
This project is required to comply with either building reuse, WBLCA, or product GWP compliance regulations.
Step 2 calculations: Exception to Section 5.105.1 Scope
10,000 sf + 40,000 sf < 50,000 sf x 2
      50,000 sf < 100,000 sf

Result:
This project is eligible to use Section 5.105.2 for compliance

Step 3 calculations: Section 5.105.2 Reuse of existing building
25,000 sf / 50,000 sf x 100% = 50%
      50% > 45% not by a comfortable margin

Result:
The project team should provide a more detailed component-based calculation
The results of the component-based calculation and guidance for calculating the area of key structural components.

<table>
<thead>
<tr>
<th>Component</th>
<th>Guidance for area calculations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundations</td>
<td>Surface area</td>
</tr>
<tr>
<td>Slabs</td>
<td>Gross floor area</td>
</tr>
<tr>
<td>Lateral Elements</td>
<td>Surface area of longitudinal face</td>
</tr>
<tr>
<td>Columns</td>
<td>Surface area of longitudinal column face</td>
</tr>
<tr>
<td>Structural Walls</td>
<td>Surface area (one side)</td>
</tr>
<tr>
<td>Cladding / Envelope</td>
<td>Surface area (one side)</td>
</tr>
</tbody>
</table>

**DOCUMENTATION OF COMPLIANCE OF EXISTING BUILDING REUSE.**

<table>
<thead>
<tr>
<th>Area of Existing Building</th>
<th>50,000 SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of Aggregate Additions</td>
<td>50,000 SF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Existing Total Area (A)</th>
<th>Retained Total Area (B)</th>
<th>% of Retained Structure (B)/(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Structural Elements of Existing Building(s)</td>
<td>57,000 SF</td>
<td>29,000 SF</td>
<td>51%</td>
</tr>
<tr>
<td>(foundations; columns, beams, walls, and floors; and lateral elements)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Enclosure of Existing Building(s) (roof framing, wall framing and exterior finishes only)</td>
<td>40,000 SF</td>
<td>17,000 SF</td>
<td>43%</td>
</tr>
</tbody>
</table>

Total % Reuse of Required Elements = 47%
Pathway 1: Building Reuse - Enforcement

Plan review:
- Confirm Building Reuse pathway is identified on construction documents
- Review plans and calculations for required %
- Worksheet WS-3 - not mandatory
  - Can help design professionals show compliance
  - Assists local jurisdictions

On-site enforcement:
- Review the permit set of plans
- Verify existing primary structural elements and enclosure are maintained per construction documentation
Definitions

ENVIRONMENTAL PRODUCT DECLARATION (EPD)
A third-party verified report that summarizes how a product impacts the environment

Per ISO 14025 (+14020) and ISO 21930, type III EPDs can be:

INDUSTRY-WIDE EPD
Environmental impacts are an average of the typical manufacturing impacts for a range of products within the same product category for a group of manufacturers.

PRODUCT-SPECIFIC EPD
Environmental impacts can be attributed to a product design and manufacturer across multiple facilities.

FACTORY-SPECIFIC EPD
product-specific Type III EPD in which the environmental impacts can be attributed to a single manufacturer and manufacturing facility.
GLOBAL WARMING POTENTIAL (GWP)
A measure of how much energy the emissions of 1 ton of a gas will absorb over a given period relative to the emissions of 1 ton of carbon dioxide (CO₂). The larger the GWP, the more a given gas warms the earth. GWP allows policymakers to compare emissions reduction opportunities across sectors and gases.

CO₂ EQUIVALENT (CO₂ₑ)
The number of metric tons (MT) of CO₂ emissions with the same global warming potential as one metric ton of another greenhouse gas.

Greenhouse Gas Equivalencies Calculator | US EPA
Pathway 2: WBLCA – Performance Path

50,000 sf and greater – Schools K-12 (DSA)
100,000 sf and greater (50,000 sf in Jan 2026) – Nonresidential (BSC)

**WBLCA** – Cradle-to-grave. Demonstrates minimum 10% reduction in GWP compared to baseline building. Operational energy excluded. Reference study period is 60 years.

**Software** – Shall be compliant with ISO 14044, and ISO 21930 or EN 15804, and shall conform to ISO 21931 and/or EN 15978. Free software is available.

**Building Components** – Glazing assemblies, insulation and exterior finishes. Primary and secondary structural members: footings and foundations, and structural columns, beams, walls, roofs and floors.
Pathway 2: WBLCA – Enforcement

Plan review:
- Confirm WBLCA pathway is identified on construction documents
- Confirm the following is included in the construction documents (drawings or specifications)
  - Summary of the GWP analysis (Worksheet WS-9 may be used)
  - Worksheet WS-4 signed by the design professional of record

On-site enforcement:
- The enforcing agency may require inspection and reports in accordance with Sections 702.2 and 703.1 during and at completion of construction
Pathway 2: WBLCA – Required Worksheet WS-4

WORKSHEET (WS-4)
Section 5.409.2 WHOLE BUILDING LIFE CYCLE ASSESSMENT

Responsible Designer’s Declaration Statement:
I attest that the Whole Building Life Cycle Analysis has been performed according to the requirements of Section 5.409.2 and has met the minimum 10 percent reduction in global warming potential as compared to a reference baseline building of similar size, function, complexity, type of construction, material specification, and location that meets the requirements of the California Energy Code currently in effect. Furthermore, I will ensure during construction that the material specifications will be reviewed for substantial conformance with the life cycle assessment indicated on the approved plans so at the close of construction the minimum 10 percent reduction in global warming potential is thereby secured.

<table>
<thead>
<tr>
<th>Signature:</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Company:</th>
<th>Date:</th>
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<tbody>
<tr>
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<table>
<thead>
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<th>Address:</th>
<th>License:</th>
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</table>

<table>
<thead>
<tr>
<th>City/State/Zip:</th>
<th>Phone:</th>
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</tbody>
</table>
**Pathway 2: WBLCA – GWP Analysis Summary**

Worksheet WS-9 example

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**WORKSHEET (WS-9)**

*Section 5.409.2 and Section A5.409.2 WHOLE BUILDING LIFE CYCLE ASSESSMENT*

**CALGreen Whole Building LCA Reporting Template**

<table>
<thead>
<tr>
<th>LCA model run</th>
<th>User Input</th>
<th>Overall scope included (select all that apply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCA Modeler (company) [private]</td>
<td>Atelier Ten</td>
<td>Structure (required)</td>
</tr>
<tr>
<td>Date of Model Run (mm/yyyy)</td>
<td>March 24</td>
<td>Enclosure (required)</td>
</tr>
<tr>
<td>Project Phase at Model Run</td>
<td>Design Development</td>
<td>Interiors (optional)</td>
</tr>
<tr>
<td>Reference Study Period (years)</td>
<td>60</td>
<td>MEP (optional)</td>
</tr>
<tr>
<td>Software and Version Used*</td>
<td>One Click LCA 0.24.1</td>
<td>Site/Landscaping (optional)</td>
</tr>
<tr>
<td>Biogenic Carbon Included* (y/n)</td>
<td>no</td>
<td>FFE (optional)</td>
</tr>
<tr>
<td>Model Floor Area</td>
<td>25,000 m²</td>
<td></td>
</tr>
</tbody>
</table>

**Mandatory Scope Items**

Please break out the following in per element emissions by life cycle in kgCO₂e. Leave blank any sections that were not calculated separately from Whole Building GWP.

<table>
<thead>
<tr>
<th>Upfront Carbon Use Phase</th>
<th>End of Life</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1-3</td>
<td>A4</td>
<td>A5</td>
</tr>
<tr>
<td>Baseline Structure GWP (kgCO₂e)</td>
<td>9,000,000</td>
<td>500,000</td>
</tr>
<tr>
<td>Baseline Enclosure GWP (kgCO₂e)</td>
<td>2,400,000</td>
<td>200,000</td>
</tr>
<tr>
<td>Baseline Whole Building GWP (kgCO₂e)</td>
<td>11,400,000</td>
<td>520,000</td>
</tr>
<tr>
<td>Proposed Structure GWP (kgCO₂e)</td>
<td>7,100,000</td>
<td>500,000</td>
</tr>
<tr>
<td>Proposed Enclosure GWP (kgCO₂e)</td>
<td>2,300,000</td>
<td>200,000</td>
</tr>
<tr>
<td>Proposed Whole Building GWP (kgCO₂e)</td>
<td>9,400,000</td>
<td>520,000</td>
</tr>
</tbody>
</table>

**Percent Reduction**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>COMPLIANT</td>
</tr>
<tr>
<td>Tier 2</td>
<td></td>
</tr>
</tbody>
</table>

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**Logo and Branding:**

CBSC DIVISION OF THE STATE ARCHITECT

DSA DEPARTMENT OF GENERAL SERVICES
Pathway 3: Product GWP Compliance – Prescriptive Path

50,000 sf and greater – Schools K-12 (DSA)
100,000 sf and greater (50,000 sf in Jan 2026) – Nonresidential (BSC)

**Product GWP Compliance** – Each installed product listed in Table 5.409.3 shall have a Type III EPD, either product-specific or factory-specific, and shall not exceed the maximum GWP limits

**Exception** – Concrete may be considered one product category. A weighted average of the maximum GWP for all concrete mixes installed in the project shall be less than that allowed per Table 5.409.3 using Exception Equation 5.409.3.1

**Verification of Compliance** – Calculations, Type III EPDs, and signed Worksheet WS-5 shall be provided with the construction documents
GWP values are based on 175% of BCCA except concrete products

For **concrete**, 175% of NRMCA 2022 Version 3 Pacific Southwest regional benchmark values is used for GWP allowed, except **High Early Strength**

**High Early Strength** is calculated at 130% of the ready mixed concrete GWP allowed values for each product category.
Pathway 3: Product GWP – Enforcement

Plan review:

- Confirm Product GWP pathway is identified on construction documents
- Confirm the following is included in the construction documents (drawings or specifications)
  - Calculations (if exception for concrete is used)
  - Type III EPDs for products required to comply
  - Worksheet WS-5 signed by the design professional of record

On-site enforcement:

- The enforcing agency may require inspection and reports in accordance with Sections 702.2 and 703.1 during and at completion of construction
Pathway 3: Product GWP – Required Worksheet WS-5

**WORKSHEET (WS-5)**
**Section 5.409.3 PRODUCT GWP COMPLIANCE—PRESCRIPTIVE PATH**

Responsible Designer’s Declaration Statement:
I attest that prescriptive compliance has been performed according to the requirements of Section 5.409.3 and products have met the minimum 10 percent reduction in global warming potential as specified in Table 5.409.3. Furthermore, I will ensure during construction that the material specifications will be reviewed for substantial conformance with the global warming potential limits indicated on the approved plans so at the close of construction the minimum 10 percent reduction in global warming potential is thereby secured.

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Pathway 3: Product GWP – Type III EPDs
DSA Project Verification

DSA Plan Review:

- DSA HQ trains key intake staff
- Intake staff verifies *inclusion* of required information and design professional certification
- Project architect certifies compliance
- DSA HQ available for consultation
- Project inspectors verify conformance to approved plans and submit a final verified report
- Project architect submits a final verified report
Design professional indicates where in the documents the information is located simplifying an audit by regional intake staff or HQ
Future CALGreen Amendments

2024 Triennial Code Adoption Cycle

- There will be no changes to these regulations
  ≥ 50,000 sf effective January 1, 2026

Future Code Adoption Cycles

- SB 596 requires concrete emissions reduction to 40% of 2019 levels by 2035 and NZE by 2045
- Current levels are well above BCCA and NRMCA (175%) thresholds
- Voluntary tiers transition to mandatory for triggers, performance and prescriptive limits
- Additional prescriptive materials
- “...these pathways will facilitate the mainstreaming of increasingly rigorous decarbonization standards in the future...”
Embodied Carbon Regulations
Education and Outreach

- 2022 CALGreen Guide Supplement (dgs.ca.gov/BSC/CALGreen)
- CCRC Education & Outreach Workgroup
- DSA Learning Management System
- CBSC YouTube channel