

**ADDITIONAL 15-DAY EXPRESS TERMS AND RATIONALE
FOR PROPOSED BUILDING STANDARDS
OF THE CALIFORNIA BUILDING STANDARDS COMMISSION
REGARDING THE 2022 INTERVENING CODE ADOPTION CYCLE,
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11
(BSC 04/22)**

No state agency may adopt, amend, or repeal a regulation which has been changed from that which was originally made available to the public pursuant to Section 11346.5, unless the change is (1) nonsubstantial or solely grammatical in nature, or (2) sufficiently related to the original text that the public was adequately placed on notice that the change could result from the originally proposed regulatory action. If a sufficiently related change is made, the full text of the resulting adoption, amendment, or repeal, with the change clearly indicated, shall be made available to the public for at least 15 or 45 days before the agency adopts, amends, or repeals the resulting regulation.

Any written comments received regarding the change must be responded to in the final statement of reasons required by Section 11346.9 (Government Code Section 11346.8(c)).

If using assistive technology, please adjust your settings to recognize underline, strikethrough, double strikethrough, and ellipsis. Double underline will be indicated by parenthetical notes within the text. The notes will not be codified or published in the code.

LEGEND for EXPRESS TERMS (California only codes - Parts 1, 6, 8, 11, 12)

- Existing California amendments appear upright.
- Unmodified California 45-day amendments appear in underline and ~~strikethrough~~.
- California additional 15-day amendments appear in double underline and ~~double strikethrough~~.
- Ellipses (...) indicate existing text remains unchanged.
- **Rationale:** The justification for the change is shown after each section or series of related changes.

ADDITIONAL 15-DAY EXPRESS TERMS

ITEM 5

**Chapter 5 NONRESIDENTIAL MANDATORY MEASURES,
Section 5.106 SITE DEVELOPMENT**

Item 5-9

Section 5.106.5.3.6 Electric vehicle charging stations (EVCS)-Power allocation method

5.106.5.3.6 Electric vehicle charging stations (EVCS)-Power allocation method.

The Power allocation method may be used as an alternative to the requirements in [begin double underline] Section 5.106.5.3.1, [end double underline] Section 5.106.5.3.2 and associated Table 5.106.5.3.1. Use Table 5.106.5.3.6 to determine the total power in kVA required based on the total number of actual parking spaces.

Power allocation method to create EVCS shall include the following:

1. Use any kVA combination of EV capable spaces, Low Power Level 2, Level 2 or DCFC EVSEs.
2. At least one Level 2 EVSE shall be provided.
- ~~3. EV capable spaces shall meet the requirements of Section 5.106.5.3.1 EV capable spaces.~~

Item 5-10

Table 5.106.5.3.6 with footnotes

TABLE 5.106.5.3.6

<u>TOTAL NUMBER OF ACTUAL PARKING SPACES</u>	<u>MINIMUM TOTAL KVA @ 6.6 kVA</u>	<u>TOTAL KVA REQUIRED IN ANY COMBINATION OF EV CAPABLE³, [begin double underline] 4 [end double underline], LOW POWER LEVEL 2, LEVEL 2^{1, 2}, OR DCFC</u>
<u>0-9</u>	<u>0</u>	<u>0</u>
<u>10-25</u>	<u>26.4</u>	<u>26.4</u>
<u>26-50</u>	<u>52.8</u>	<u>52.8</u>
<u>51-75</u>	<u>85.8</u>	<u>85.8</u>
<u>76-100</u>	<u>112.2</u>	<u>112.2</u>
<u>101-150</u>	<u>165</u>	<u>165</u>
<u>151-200</u>	<u>231</u>	<u>231</u>
<u>201 and over</u>	<u>20 percent of actual parking spaces x 6.6</u>	<u>Total required kVA =P x .20 x 6.6 Where P=Parking spaces in facility</u>

1. Level 2 EVSE @ 6.6 kVA minimum.
2. At least one Level 2 EVSE shall be provided.
3. Maximum allowed kVA to be utilized for EV capable spaces is 75 percent.
- [begin double underline] 4. If EV capable spaces are utilized they shall meet the requirements of Section 5.106.5.3.1 EV capable spaces. [end double underline]

Rationale:

During the 45-day public comment period CBSC received comments pertaining to code Section 5.106.5.3.6 Electric vehicle charging stations (EVCS)-Power allocation method, the repeal of the words “to create EVCS” and the repeal of sub-item 3. “EV capable spaces shall meet the requirements of Section 5.106.5.3.1 EV capable spaces.”

Upon further review, BSC-CG is proposing to amend, during 15-day public comment period, the newly proposed code Section 5.106.5.3.6 Electric vehicle charging stations (EVCS)- Power allocation method to add a reference to Section 5.106.5.3.1. Additional proposed code changes include: the repeal of the words “to create EVCS” from the sentence “Power allocation method to create EVCS shall include the following:” and the relocation of sub-item 3 mentioned above “EV capable spaces shall meet the requirements of Section 5.106.5.3.1 EV capable spaces.” Sub-item 3 has been moved and revised as footnote 4 to Table 5.106.5.3.6 to indicate a reference to Section 5.106.5.3.1. Footnote 4 has been added to the table in column 3 adjacent to footnote 3 as it relates to EV capable. These editorial changes to these proposed amendments clarify the intent of the code proposals for section for 5.106.5.3.6 Electric vehicle charging stations (EVCS)-Power allocation method to inform the code user of the two available compliance pathways for EV charging. These proposed code changes are based on HSC 18930 nine-point criteria number 6.

Notation:

Authority: Health & Safety Code Sections 18930.5 and 18941.10.

Reference(s): Health & Safety Code Sections 18930.5 and 18941.10.

ITEM 9

**Chapter 5 NONRESIDENTIAL MANDATORY MEASURES,
Section 5.402 DEFINITIONS**

5.402 Definitions. The following terms are defined in Chapter 2.

ADJUST.

BALANCE.

BUILDING COMMISSIONING.

BUY CLEAN CALIFORNIA ACT (BCCA).

CRADLE-TO-GRAVE.

TYPE III ENVIRONMENTAL PRODUCT DECLARATION (EPD).

PRODUCT-SPECIFIC EPD.

FACTORY-SPECIFIC EPD.

INDUSTRY-WIDE EPD (IW-EPD).

ORGANIC WASTE.

REFERENCE BASELINE BUILDING[start double underline] **STUDY PERIOD**[end double underline].

TEST.

Rationale: During the 45-day comment period CBSC staff noticed that REFERENCE BASELINE BUILDING is listed in Section 5.402 as one of the items defined in Chapter 2 while instead of REFERENCE BASELINE BUILDING, REFERENCE STUDY PERIOD is defined in Chapter 2. BSC-CG is proposing to correct this accidental error and

replace REFERENCE BASELINE BUILDING with REFERENCE STUDY PERIOD in Section 5.402 for consistency with Chapter 2 language and is based on HSC 18930, the nine-point criteria number 1.

Notation:

Authority: Health and Safety Code Section 18930.5

Reference(s): Health and Safety Code Section 18930.5

ITEM 11

**Chapter 5 NONRESIDENTIAL MANDATORY MEASURES,
Section 5.409 LIFE CYCLE ASSESMENT**

Item 11-3

Section 5.409.2 Whole building life cycle assessment

5.409.2 Whole building life cycle assessment. Projects shall conduct a cradle-to-grave whole building life cycle assessment performed in accordance with ISO 14040 and ISO 14044, excluding operating energy, and demonstrating a minimum 10 percent reduction in global warming potential (GWP) 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. Software used to conduct the whole building life cycle assessment, including reference baseline building, shall have a data set compliant with ISO-14044, and ISO 21930 or EN 15804, and the software shall conform to ISO 21931 and/or EN 15978. [start double underline] The software tools and datasets shall be the same for evaluation of both the baseline building and the proposed building. [end double underline]

[Notes have been moved from section Section of 5.409.2.3 to Section of 5.409.2]

Note: [start double underline] **Notes:**

1. [end double underline] Software for calculating whole building life cycle assessment is available for free at Athena Sustainable Materials Institute (<https://calculatelca.com/software/impact-estimator/>) and OneClick LCA - Planetary (www.oneclicklca.com/planetary). Paid versions include, but are not limited to, Sphera GaBi Solutions (gabi.sphera.com), SimaPro (simapro.com), OneClick LCA (www.oneclicklca.com) and Tally for Revit (apps.autodesk.com).
2. ASTM E2921-22 “Standard Practice for Minimum Criteria for Comparing Whole Building Life Cycle Assessments for Use with Building Codes, Standards, and Rating Systems” may be consulted for the assessment.
3. In addition to the required documentation specified in Section 5.409.2.3, Worksheet WS-9 may be required by the enforcing entity to demonstrate compliance with the requirements. [end double underline]

Rationale: BSC-CG is proposing to add the language to Section 5.409.2 to ensure a relevant comparison can be made by using the same software and datasets. Adding

this language to Section 5.409.2 removes ambiguity and provides clarity and is based on HSC 18930 nine-point criteria 6.

Furthermore, BSC-CG is correcting a format error for the notes. In the 45-day submission, the format placed the notes as applying solely to Section 5.409.2.3. The notes apply to the entire Section of 5.409.2, including subsections, and requires a format change by moving the notes to the left margin and from under Section of 5.409.2.3 to under Section of 5.409.2.

BSC-CG is also proposing to add note 2 for the reference standard for use by the design professional. This standard is used and included in several green building rating systems as a basis for whole building life cycle assessment comparisons. As a note, this document is not required for the performance of the whole building life cycle analysis, but may be helpful to the design professional, and is based on HSC 18930, the nine-point criteria number 7.

In addition, BSC-CG is proposing to add note 3 about Worksheet 9 for optional use by the design professional, and for required use if invoked by the enforcement entity. Worksheet 9 has been developed to create consistency in documentation submitted to the enforcing entity to ease review by their staff, and if required by the enforcement entity, is provided in addition to the required summary of the GWP analysis produced by the software and Worksheet WS-4 signed by the design professional of record as stipulated in the regulations for compliance with Section 5.409.2 and Section A5.409.2. Adding the proposed worksheet is intended to remove ambiguity and provide clarity and is based on HSC 18930 nine-point criteria number 6.

Item 11-4

Section 5.409.2.1 Building components

5.409.2.1 Building components. Building enclosure components included in the assessment shall be limited to glazing [start double underline] assemblies.[end double underline] insulation, and exterior finishes. Primary and secondary structural members included in the assessment shall be limited to footings and foundations, and structural columns, beams, walls, roofs, and floors.

Rationale: BSC-CG is proposing to add this language for clarity to ensure “glazing” includes components that hold the glazing in place, provided by the manufacturer in glazing assemblies, and are relevant to the applicable data sets in the whole building life cycle assessment. Adding this language to Section 5.409.2.1 removes ambiguity and provides clarity and is based on HSC 18930 nine-point criteria 6.

Item 11-6

Section 5.409.2.3 Verification of compliance

5.409.2.3 Verification of compliance. A summary of the GWP analysis produced by the software [start double underline] and Worksheet WS-4 signed by the design professional of record [end double underline] shall be provided in the construction documents as documentation of compliance. A copy of the whole building life cycle assessment which includes the GWP analysis produced by the software, in addition to

maintenance and training information, shall be included in the operation and maintenance manual and shall be provided to the owner at the close of construction. [start double underline] The enforcing agency may require inspection and inspection reports in accordance with Sections 702.2 and 703.1 during and at completion of construction to demonstrate substantial conformance. Inspection shall be performed by the design professional of record or third party acceptable to the enforcing agency. [end double underline]

[Notes have been moved from section Section of 5.409.2.3 to Section of 5.409.2]

Rationale: BSC-CG is proposing to add the worksheet information and reference back into Section 5.409.2.3. This reference was included in the version that went before the GREEN Code Advisory Committee; however, it was removed prior to the 45-day comment period. After further review and based on a 45-day public comment, BSC-CG is adding the worksheet reference back into the section to provide clear direction to the design professional and enforcement agency. Item 15 below contains rationale for the worksheets. The 15-day language also proposes referencing Sections 702.2 and 703.1 which authorize the enforcing agency to require inspection and inspection reports. Sections 702.2 and 703.1 have been in CALGreen for multiple code cycles and is not a new code change, nor is it a requirement. At any time, the enforcement agency can invoke this section. Adding this language to Section 5.409.2.3 removes ambiguity and provides clarity and is based on HSC 18930 nine-point criteria 6.

Furthermore, BSC-CG is correcting a format error for the notes. In the 45-day submission, the format placed the notes as applying solely to Section 5.409.2.3. The notes apply to the entire Section of 5.409.2, including subsections, and requires a format change by moving the notes to the left margin and from under Section of 5.409.2.3 to under Section of 5.409.2.

Notation:

Authority: Health and Safety Code Section 18928.1, 18930.5

Reference(s): Health and Safety Code Section 18928.1, 18930.5

ITEM 12

Chapter 5 NONRESIDENTIAL MANDATORY MEASURES, Section 5.409, LIFE CYCLE ASSESMENT

Item 12-3

Exception EQUATION 5.409.3.1

Exception EQUATION 5.409.3.1

$$GWP_n < GWP_{allowed}$$

where

$$\underline{GWP_n = (\sum GWP_n)(v_n) \text{ and } GWP_{allowed} = (\sum GWP_{allowed})(v_n)}$$

[start double underline]

$$GWP_n = \sum (GWP_n)(v_n) \text{ and } GWP_{allowed} = \sum (GWP_{allowed})(v_n)$$

[end double underline]

and

n = each concrete mix installed in the project

GWP_n = the GWP for concrete mix n per concrete mix EPD, in kg/m^3 [start double underline] $\text{kg CO}_2\text{e}/\text{m}^3$ [end double underline]

$GWP_{allowed}$ = the GWP potential allowed for concrete mix n per Table 5.409.3

v_n = the volume of concrete mix n installed in the project, in m^3 [start double underline] m^3 [end double underline]

Rationale: BSC-CG is proposing to correct the equation for accuracy. The summation symbol should be placed outside of the parentheses. Additionally, BSC-CG is correcting the unit of measurement for accuracy. Correcting the equation removes ambiguity and provides clarity and is based on HSC 18930 nine-point criteria 6.

Item 12-4

Section 5.409.3.2 Verification of compliance

5.409.3.2. Verification of compliance. Calculations to demonstrate compliance, and Type III EPDs for products required to comply, if included in the project, [start double underline] and Worksheet WS-5 signed by the design professional of record [end double underline] shall be provided on the construction documents. Updated EPDs for products used in construction shall be provided to the owner at the close of construction and to the enforcement entity upon request. [start double underline] The enforcing agency may require inspection and inspection reports in accordance with Sections 702.2 and 703.1 during and at completion of construction to demonstrate substantial conformance. Inspection shall be performed by the design professional of record or third party acceptable to the enforcing agency. [end double underline]

Rationale: BSC-CG is proposing to add the worksheet information and reference back into Section 5.409.3.2. These references were included in the version that went before the GREEN Code Advisory Committee; however, they were removed prior to the 45-day comment period. After further review and based on a 45-day public comment, BSC-CG is adding the worksheet reference back into the section to provide clear direction to the design professional and enforcement agency. Item 15 below contains rationale for the worksheets. The 15-day language also proposes referencing Sections 702.2 and 703.1 which authorize the enforcing agency to require inspection and inspection reports. Sections 702.2 and 703.1 have been in CALGreen for multiple code cycles and is not a new code change, nor is it a requirement. At any time, the enforcement agency can invoke this section. Adding this language to Section 5.409.3.2 removes ambiguity and provides clarity and is based on HSC 18930 nine-point criteria 6.

Item 12-5

Table 5.409.3 PRODUCT GWP LIMITS

TABLE 5.409.3 **PRODUCT GWP LIMITS**

...

Footnotes:

1. The GWP values of the products listed in Table 5.409.3 are based on 175 percent of Buy Clean California Act (BCCA) GWP values, except for concrete products which are not included in BCCA.
2. For concrete, 175 percent of the National Ready Mix Concrete Association (NRMCA) ~~2024~~ [start double underline] 2022 [end double underline] version 3 Pacific Southwest regional benchmark values are used for the GWP allowed, except for High Early strength.
3. Concrete High Early Strength ready-mixed shall be calculated at 130 percent of the Ready mixed concrete GWP allowed values for each product category.

Rationale: BSC-CG is proposing to correct the year for the referenced values upon which the 175% of National Ready Mix Concrete Association benchmark values established in the table are determined. This correction removes ambiguity and provides clarity and is based on HSC 18930 nine-point criteria 6.

Notation:

Authority: Health and Safety Code Section 18930.5

Reference(s): Health and Safety Code Section 18930.5

ITEM 14

Chapter 6 REFERENCED ORGANIZATIONS AND STANDARDS

**SECTION 601
GENERAL**

601.1 This chapter lists the organizations and standards ...

ORGANIZATION	STANDARD	REFERENCED SECTION
...		
ACI AMERICAN CONCRETE INSTITUTE		
...		
ASTM International		
...		
	[start double underline] ASTM E2921-2022	<u>5.409.2, A5.409.2</u> [end double underline]
EN EUROPEAN STANDARDS		
...		

Rationale: BSC-CG is proposing to add ASTM E2921 to the referenced standards as this standard has been referenced in notes to Sections 5.409.2 and A5.409.2. This

addition is based on HSC 18930 nine-point criteria 7.

Notation:

Authority: Health and Safety Code Section 18928.1, 18930.5

Reference(s): Health and Safety Code Section 18928.1, 18930.5

ITEM 15

Chapter 8 COMPLIANCE FORMS, WORKSHEETS AND REFERENCE MATERIALS

Items 15-1 through 15-6 (New CAM Item)

WORKSHEET (WS-3)

[start double underline] **Section 5.105.2** [end double underline] **BUILDING REUSE**

...

[start double underline]

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.

<u>Signature:</u>	
<u>Company:</u>	<u>Date:</u>
<u>Address:</u>	<u>License:</u>
<u>City/State/Zip:</u>	<u>Phone:</u>

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.

<u>Signature:</u>	
<u>Company:</u>	<u>Date:</u>
<u>Address:</u>	<u>License:</u>
<u>City/State/Zip:</u>	<u>Phone:</u>

[end double underline]

WORKSHEET (WS-4) [start double underline] **(WS-6)**
Section A5.105.2 [end double underline] **DOCUMENTATION OF COMPLIANCE OF**
EXISTING BUILDING REUSE
TIER 1 AND TIER 2

...

[start double underline]

WORKSHEET (WS-7)
Section A5.409.2 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 A5.409.2 and has met the minimum 15 percent (Tier 1) or 20 percent (Tier 2) 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 reduction in global warming potential is thereby secured.

<u>Signature:</u>	
<u>Company:</u>	<u>Date:</u>
<u>Address:</u>	<u>License:</u>
<u>City/State/Zip:</u>	<u>Phone:</u>

WORKSHEET (WS-8)

Section A5.409.3 PRODUCT GWP COMPLIANCE-PRESCRIPTIVE PATH

Designer's Declaration Statement:

I attest that prescriptive compliance has been performed according to the requirements of Section A5.409.3 and products have met the maximum acceptable GWP value for the products listed in Table A5.409.3 for either Tier 1 or Tier 2. Furthermore, I will ensure during construction that any material specification substitution will be reviewed for substantial conformance with the requirements of Section A5.409.3 so at the close of construction the minimum 15 percent reduction in global warming potential is thereby secured.

<u>Signature:</u>	
<u>Company:</u>	<u>Date:</u>
<u>Address:</u>	<u>License:</u>
<u>City/State/Zip:</u>	<u>Phone:</u>

[end double underline]

Rationale: BSC-CG is proposing to add Worksheets 4, 5, 7, and 8. Other than Worksheet 3 and 6 (numbered as WS-4 in 45-day ET), the worksheets were not fully developed in the version that went before the GREEN Code Advisory Committee (CAC), but a reference that worksheets would be developed at a later date was presented to the CAC. References to the worksheets were removed prior to the 45-day comment period. After further review and based on a 45-day public comment, BSC-CG has developed the worksheets and proposes them during the 15-day comment period. All worksheets are similar and require the design professional to attest that the work has been performed in accordance with the code requirements. The signed worksheet is also required to be included in the construction documents pursuant to the verification of compliance sections. Adding the proposed worksheets is intended to remove ambiguity and provide clarity and is based on HSC 18930 nine-point criteria number 6.

Item 15-7 (New CAM Item)

[start double underline]

WORKSHEET (WS-9)
Section 5.409.2 and Section A5.409.2 WHOLE BUILDING LIFE CYCLE
ASSESSMENT

CalGreen Whole Building LCA Reporting Template						
LCA model run	User input	Units	Overall scope included (select all that apply)			
LCA Modeler (company) [private]			Structure (required)	<input type="checkbox"/>		
Date of Model Run (mm/yyyy)			Enclosure (required)	<input type="checkbox"/>		
Project Phase at Model Run			Interiors (optional)	<input type="checkbox"/>		
Reference Study Period (years)			MEP (optional)	<input type="checkbox"/>		
Software and Version Used*			Site/Landscaping (optional)	<input type="checkbox"/>		
Biogenic Carbon Included* (y/n)			FFE (optional)	<input type="checkbox"/>		
Model Floor Area		m2				

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							
	Upfront Carbon			Use Phase	End of Life	Total	
	A1-3	A4	A5	B1-5	C1-4		
Baseline Structure GWP (kgCO2e):						4.00	A1-A3* (A1) Raw Material Supply, (A2) Transport to Factory, and (A3) Manufacturing A4* (A4) Transportation to site A5* (A5) Construction Installation or "on-site energy use". Leave blank if unknown B1-B5* (B1) Use, (B2) Maintenance, (B3) Repair, (B4) Replacement, (B5) Refurbishment C1-C4* (C1) Deconstruction/Demolition, (C2) Transport to Waste Processing/Disposal, (C3) Waste Processing, (C4) Disposal of Waste D* (D) Reuse-Recovery & Recycling Potential
Baseline Enclosure GWP (kgCO2e):						4.00	
Baseline Whole Building GWP (kgCO2e):						4.00	
Proposed Structure GWP (kgCO2e):						4.00	
Proposed Enclosure GWP (kgCO2e):						4.00	
Proposed Whole Building GWP (kgCO2e):						4.00	
Percent Reduction							

Optional Items - Proposed Design ONLY							
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							
	Upfront Carbon			Use Phase	End of Life	Total	
	A1-3	A4	A5	B1-5	C1-4		
Interiors GWP (kgCO2e):							
MEP GWP (kgCO2e):							
Site/Landscaping GWP (kgCO2e):							
FF&E GWP (kgCO2e):							

[end double underline]

Rationale: BSC-CG is proposing to add Worksheet 9 for optional use by the design professional, and for required use if invoked by the enforcement entity. Worksheet 9 has been developed to create consistency in documentation submitted to the enforcing entity to ease review by their staff, and if required by the enforcement entity, is provided in addition to the required summary of the GWP analysis produced by the software and Worksheet WS-4 signed by the design professional of record as stipulated in the regulations for compliance with Section 5.409.2 and Section A5.409.2. Adding the proposed worksheet is intended to remove ambiguity and provide clarity and is based on HSC 18930 nine-point criteria number 6.

Notation:

Authority: Health and Safety Code Section 18928.1, 18930.5

Reference(s): Health and Safety Code Section 18928.1, 18930.5

ITEM 18

**Chapter A5 NONRESIDENTIAL VOLUNTARY MEASURES, DIVISION A5.106
PLANNING AND DESIGN, Section A5.106 SITE DEVELOPMENT**

Item 18-4

**Section A5.106.5.3.2 Electric vehicle charging stations (EVCS)-Power allocation
method**

A5.106.5.3.2 Electric vehicle charging stations (EVCS)-Power allocation method. The Power allocation method may be used as an alternative to the requirements in [begin double underline] Section 5.106.5.3.1, [end double underline] Section 5.106.5.3.2 and associated Table A5.106.5.3.1 Tier 1. Use Table A5.106.5.3.2 Tier 1 to determine the total power in kVA required based on the total number of actual parking spaces.

Power allocation method to create EVCS shall include the following:

1. Use any kVA combination of EV capable spaces, Low Power Level 2, Level 2 or DCFC EVSEs.
2. At least one Level 2 EVSE shall be provided.
- ~~3. EV capable spaces shall meet the requirements of Section 5.106.5.3.1 EV capable spaces.~~

Item 18-5

Table A5.106.5.3.2 Tier 1 with footnotes

TABLE A5.106.5.3.2 Tier 1

<u>TOTAL NUMBER OF ACTUAL PARKING SPACES</u>	<u>MINIMUM TOTAL kVA @ 6.6 kVA</u>	<u>TOTAL kVA REQUIRED IN ANY COMBINATION OF EV CAPABLE ³, [begin double underline] ⁴ [end double underline], LOW POWER LEVEL 2 LEVEL 2 ^{1, 2}, OR DCFC</u>
<u>0-9</u>	<u>13.2</u>	<u>13.2</u>
<u>10-25</u>	<u>33</u>	<u>33</u>
<u>26-50</u>	<u>72.6</u>	<u>72.6</u>
<u>51-75</u>	<u>125.4</u>	<u>125.4</u>
<u>76-100</u>	<u>171.6</u>	<u>171.6</u>
<u>101-150</u>	<u>250.8</u>	<u>250.8</u>
<u>151-200</u>	<u>349.8</u>	<u>349.8</u>
<u>201 and over</u>	<u>30 percent of actual parking spaces x 6.6</u>	<u>Total required kVA = P x .30 x 6.6 Where P=Parking spaces in facility</u>

1. Level 2 EVSE @ 6.6 kVA minimum.

2. At least one Level 2 EVSE shall be provided.

3. Maximum allowed kVA to be utilized for EV capable spaces is 67 percent.

[begin double underline] 4. If EV capable spaces are utilized they shall meet the requirements of Section 5.106.5.3.1 EV capable spaces. [end double underline]

Item 18-8

Section A5.106.5.3.4 Electric vehicle charging stations (EVCS)-Power allocation method

A5.106.5.3.4 Electric vehicle charging stations (EVCS)-Power allocation method.

The Power allocation method may be used as an alternative to the requirements in [begin double underline] Section 5.106.5.3.1, [end double underline] Section 5.106.5.3.2 and associated Table A5.106.5.3.3 Tier 2. Use Table A5.106.5.3.4 Tier 2 to determine the total power in kVA required based on the total number of actual parking spaces.

Power allocation method to create EVCS shall include the following:

1. Use any kVA combination of EV capable spaces, Low Power Level 2, Level 2 or DCFC EVSEs.

2. At least one Level 2 EVSE shall be provided.

~~3. EV capable spaces shall meet the requirements of Section 5.106.5.3.1 EV capable spaces.~~

Item 18-9

Table A5.106.5.3.4 Tier 2 with footnotes

TABLE A5.106.5.3.4 Tier 2

<u>TOTAL NUMBER OF ACTUAL PARKING SPACES</u>	<u>MINIMUM TOTAL KVA @ 6.6 kVA</u>	<u>TOTAL kVA REQUIRED IN ANY COMBINATION OF EV CAPABLE³, [begin double underline] 4 [end double underline], LOW POWER LEVEL 2, LEVEL 2^{1,2}, OR DCFC</u>
<u>0-9</u>	<u>28.8</u>	<u>28.8</u>
<u>10-25</u>	<u>76.8</u>	<u>76.8</u>
<u>26-50</u>	<u>163.2</u>	<u>163.2</u>
<u>51-75</u>	<u>268.8</u>	<u>268.8</u>
<u>76-100</u>	<u>384</u>	<u>384</u>
<u>101-150</u>	<u>547.2</u>	<u>547.2</u>
<u>151-200</u>	<u>758.4</u>	<u>758.4</u>
<u>201 and over</u>	<u>45 percent of actual parking spaces x 6.6</u>	<u>Total required kVA = P x .45 x P x 6.6 Where P=Parking spaces in facility</u>

1. Level 2 EVSE @ 6.6 kVA minimum.
 2. At least one Level 2 EVSE shall be provided.
 3. Maximum allowed kVA to be utilized for EV capable spaces is 67 percent.
- [begin double underline] 4. If EV capable spaces are utilized they shall meet the requirements of Section 5.106.5.3.1 EV capable spaces. [end double underline]

Rationale:

During the 45-day public comment period CBSC received comments, to Item 5, pertaining to code Section 5.106.5.3.6 Electric vehicle charging stations (EVCS)-Power allocation method, the repeal of the words “to create EVCS” and the repeal of sub-item 3, "EV capable spaces shall meet the requirements of Section 5.106.5.3.1 EV capable spaces." These suggested changes mentioned in Item 5 affect related voluntary code amendments in Tier 1 and Tier 2 found in Item 18.

Upon further review, BSC-CG is proposing to amend, during 15-day public comment period, the newly proposed code Sections (A5.106.5.3.2 Tier 1 and A5.106.5.3.4 Tier 2) Electric vehicle charging stations (EVCS)- Power allocation method to add a reference to Section 5.106.5.3.1. Additional proposed code changes include: the repeal of the

words “to create EVCS” from the sentence “Power allocation method to create EVCS shall include the following:” and the relocation of sub-item 3 mentioned above “EV capable spaces shall meet the requirements of Section 5.106.5.3.1 EV capable spaces.” Sub-item 3 has been moved and revised as footnote 4 to Table A5.106.5.3.2 and Table A5.106.5.3.4 to indicate a reference to Section 5.106.5.3.1. Footnote 4 has been added to the tables in column 3 adjacent to footnote 3 as it relates to EV capable. As previously mentioned in Item 5, these editorial changes to these proposed amendments clarify the intent of the code proposals for (Sections A5.106.5.3.2 and A5.106.5.3.4) Electric vehicle charging stations (EVCS)-Power allocation method to inform the code user of the two available compliance pathways for EV charging if implementing a Tier 1 or Tier 2 option. These proposed code changes are based on HSC 18930 nine-point criteria number 6.

Notation:

Authority: Health & Safety Code Sections 18930.5 and 18941.10.

Reference(s): Health & Safety Code Sections 18930.5 and 18941.10.

ITEM 22

**Chapter A5 NONRESIDENTIAL VOLUNTARY MEASURES,
Section A5.402 DEFINITIONS**

A5.402.1 Definitions. The following terms are defined in Chapter 2.

BUILDING COMMISSIONING

BUY CLEAN CALIFORNIA ACT (BCCA).

CRADLE-TO-GRAVE.

EMBODIED ENERGY

TYPE III ENVIRONMENTAL PRODUCT DECLARATION (EPD).

PRODUCT-SPECIFIC EPD.

FACTORY-SPECIFIC EPD.

INDUSTRY-WIDE EPD (IW-EPD).

EUTROPHICATION

LIFE CYCLE ASSESSMENT (LCA)

LIFE CYCLE INVENTORY (LCI)

OVE.

POST CONSUMER CONTENT

PRECONSUMER (or POSTINDUSTRIAL) CONTENT.

RECYCLED CONTENT.

RECYCLED CONTENT VALUE (RCV).

~~REFERENCE BASELINE BUILDING~~ [start double underline] **STUDY PERIOD [end**

double underline].

Rationale: During the 45-day comment period CBSC staff noticed that REFERENCE BASELINE BUILDING is listed in Section A5.402.1 as one of the items defined in Chapter 2 while instead of REFERENCE BASELINE BUILDING, REFERENCE STUDY PERIOD is defined in Chapter 2. BSC-CG is proposing to correct this accidental error and replace REFERENCE BASELINE BUILDING with REFERENCE STUDY PERIOD in Section A5.402.1 for consistency with Chapter 2 language and is based on HSC 18930, the nine-point criteria number 1.

Notation:

Authority: Health and Safety Code Section 18930.5

Reference(s): Health and Safety Code Section 18930.5, 18941.5

ITEM 25

**Chapter A5 NONRESIDENTIAL VOLUNTARY MEASURES,
Section A5.409 LIFE CYCLE ASSESSMENT**

Item 25-4

Section A5.409.2.1 Tier 1

A5.409.2 Whole building life cycle assessment. Projects shall meet the minimum requirements of Section A5.409.2 for Tier 1 or Tier 2 compliance.

A5.409.2.1 Tier 1. Projects shall conduct a cradle-to-grave whole building life cycle assessment meeting the requirements of Section 5.409.2 and performed in accordance with ISO 14040 and ISO 14044, excluding operating energy, demonstrating a minimum 15 percent reduction in global warming potential (GWP) as compared to a reference baseline building of similar size, function, complexity, type of construction, material specification, and location that meets the requirements of all parts of the *California Building Standards Code* currently in effect. Software used to conduct the whole building life cycle assessment, including reference baseline building, shall have a data set compliant with ISO-14044, and ISO 21930-2017 or EN 15804, and the software shall conform to ISO 21931 and/or EN 15978. [start double underline] The software tools and datasets shall be the same for evaluation of both the baseline building and the proposed building. [end double underline]

Exception: ...

Rationale: BSC-CG is proposing to add this language to Section A5.409.2.1 to ensure a relevant comparison can be made by using the same software and datasets. Adding this language to Section A5.409.2.1 removes ambiguity and provides clarity and is based on HSC 18930 nine-point criteria 6.

Item 25-5

Section A5.409.2.2 Tier 2

A5.409.2.2 Tier 2. Projects shall conduct a cradle-to-grave whole building life cycle assessment meeting the requirements of Section 5.409.2 and performed in

accordance with ISO 14040 and ISO 14044, excluding operating energy, demonstrating a minimum 20 percent reduction in GWP as compared to a reference baseline building of similar size, function, complexity, type of construction, material specification, and location that meets the requirements of all parts of the California Building Standards Code currently in effect. Software used to conduct the whole building life cycle assessment, including reference baseline building, shall have a data set compliant with ISO-14044, and ISO 21930 or EN 15804, and the software shall conform to ISO 21931 and/or EN 15978. [start double underline] The software tools and datasets shall be the same for evaluation of both the baseline building and the proposed building. [end double underline]

Exception: ...

Rationale: BSC-CG is proposing to add this language to Section A5.409.2.2 to ensure a relevant comparison can be made by using the same software and datasets. Adding this language to Section A5.409.2.2 removes ambiguity and provides clarity and is based on HSC 18930 nine-point criteria 6.

Item 25-5.1 (New Commission Action Matrix (CAM) Item)
Section A5.409.2.3 Verification of compliance

[start double underline]

A5.409.2.3 Verification of compliance. A summary of the GWP analysis produced by the software and Worksheet WS-7 signed by the design professional of record shall be provided in the construction documents as documentation of compliance. A copy of the whole building life cycle assessment which includes the GWP analysis produced by the software, in addition to maintenance and training information, shall be included in the operation and maintenance manual and shall be provided to the owner at the close of construction. The enforcing agency may require inspection and inspection reports in accordance with Sections 702.2 and 703.1 during and at completion of construction to demonstrate substantial conformance. Inspection shall be performed by the design professional of record or third party acceptable to the enforcing agency.

[end double underline]

Rationale: During the 45-day comment period CBSC staff noticed that the verification of compliance is missing from the voluntary whole building life cycle assessment section. BSC-CG is adding the 15-day language in for consistency with the mandatory section 5.409.2.3 and is intended to remove ambiguity and provide clarity is based on HSC 18930, the nine-point criteria number 6.

Item 25-6
Sections A5.409.3 and A5.409.3.1

A5.409.3 Product GWP compliance – prescriptive path. Each product that is permanently installed and listed in Table A5.409.3, shall have a Type III environmental product declaration (EPD), either product-specific or factory-specific.

[start double underline]

A5.409.3.1 [end double underline] Products shall comply with the requirements for product GWP performance in accordance with Section ~~5.409.3~~ [start double underline] **A5.409.3** [end double underline] using for the maximum acceptable GWP value for the product category listed in Table A5.409.3 for Tier 1 or Tier 2 compliance for the verified reduction calculation resulting in a minimum 15 percent reduction in total GWP.

Exception: Concrete may be considered one product category to meet compliance with this section. A weighted average of the maximum GWP for all concrete mixes installed in the project shall be less than the weighted average maximum GWP allowed per Table A5.409.3 using Exception Equation A5.409.3.1. Calculations shall be performed with consistent units of measurement for the material quantity and the GWP value. For the purposes of this exception, industry wide EPD's are acceptable.

Rationale: BSC-CG is proposing to reformat Section A5.409.3 splitting it into two sections A5.409.3 and A5.409.3.1 to match formatting of the mandatory Section 5.409.3 and avoid inconsistent numbering. In addition to that, BSC-CG is proposing to correct a reference from Section 5.409.3 to A5.409.3. The proposed changes are based on HSC 18930 nine-point criteria number 8.

Item 25-7

Exception EQUATION A5.409.3.1

Exception EQUATION A5.409.3.1

$$GWP_n < GWP_{allowed}$$

where

~~$$GWP_n = (\sum GWP_n)(v_n) \text{ and } GWP_{allowed} = (\sum GWP_{allowed})(v_n)$$~~

[start double underline]

$$GWP_n = \sum (GWP_n)(v_n) \text{ and } GWP_{allowed} = \sum (GWP_{allowed})(v_n)$$

[end double underline]

and

n = each concrete mix installed in the project

GWP_n = the GWP for concrete mix n per concrete mix EPD, in ~~kg/m³~~ [start double underline] kg CO₂e /m³ [end double underline]

$GWP_{allowed}$ = the GWP potential allowed for concrete mix n per Table A5.409.3

v_n = the volume of concrete mix n installed in the project, in ~~kg³~~ [start double underline] m³ [end double underline]

Rationale: BSC-CG is proposing to correct the equation for accuracy. The summation symbol should be placed outside of the parentheses. Additionally, BSC-CG is correcting the unit of measurement for accuracy. Correcting the equation removes ambiguity and provides clarity and is based on HSC 18930 nine-point criteria 6.

Item 25-8

Section A5.409.3.2. Verification of compliance.

A5.409.3.2. Verification of compliance. Calculations to demonstrate compliance, ~~and~~ Type III EPDs for products required to comply if included in the project, [start double underline] and Worksheet WS-8 signed by the design professional of record [end double underline] shall be provided on the construction documents. Updated EPDs for products used in construction shall be provided to the owner at the close of construction and to the enforcement entity upon request. [start double underline] The enforcing agency may require inspection and inspection reports in accordance with Sections 702.2 and 703.1 during and at completion of construction to demonstrate substantial conformance. Inspection shall be performed by the design professional of record or third party acceptable to the enforcing agency. [end double underline]

Rationale: BSC-CG is proposing to add the worksheet reference back into Section A5.409.3.2. This reference was included in the version that went before the GREEN Code Advisory Committee; however, they were removed prior to the 45-day comment period. After further review and based on a 45-day public comment, BSC-CG is adding the worksheet reference back into the section to provide clear direction to the design professional and enforcement agency. Item 15 contains rationale for the worksheets. The 15-day language also proposes referencing Sections 702.2 and 703.1 which authorize the enforcing agency to require inspection and inspection reports. Sections 702.2 and 703.1 have been in CALGreen for multiple code cycles and is not a new code change, nor is it a requirement. At any time, the enforcement agency can invoke this section. Adding this language to Section A5.409.3.2 is intended to remove ambiguity and provide clarity and is based on HSC 18930 nine-point criteria number 6.

Item 25-9

Table A5.409.3 PRODUCT GWP LIMITS

TABLE A5.409.3 **PRODUCT GWP LIMITS TIER 1 AND TIER 2**

...

Footnotes:

1. The GWP values of the products listed in Table A5.409.3 are based on 150% of Buy Clean California Act (BCCA) GWP values, except for concrete products which are not included in BCCA.
2. For concrete, Tier 1 is 150%, Tier 2 is 100% of the National Ready Mixed Concrete Association (NRMCA) ~~2021~~ [start double underline] 2022 [end double underline] version 3 Pacific Southwest regional benchmark values are used for the GWP allowed, except for High Early strength.
3. Concrete High Early Strength ready-mixed shall be calculated at 130% of the Ready mixed concrete GWP allowed values for each product category.

Rationale: BSC-CG is proposing to correct the year for the referenced values upon which the percentage of National Ready Mix Concrete Association benchmark values

established in the table are determined. This correction removes ambiguity and provides clarity and is based on HSC 18930 nine-point criteria 6.

Notation:

Authority: Health and Safety Code Section 18928.1, 18930.5

Reference(s): Health and Safety Code Section 18928.1, 18930.5, 18941.5