

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

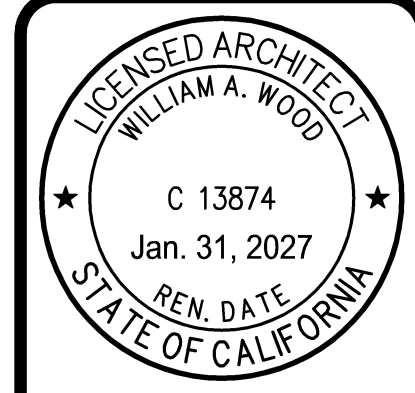
NONRESIDENTIAL MANDATORY MEASURES, SHEET 3 (July 2024 Supplement)

Y = YES
N/A = NOT APPLICABLE
RESPON PARTY = RESPONSIBLE PARTY (IN ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

Y	N/A	RESPON PARTY	Y	N/A	RESPON PARTY	Y	N/A	RESPON PARTY	Y	N/A	RESPON PARTY
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<p>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. The software tools and data sets shall be the same for evaluation of both the baseline building and the proposed building.</p> <p>Notes:</p> <ol style="list-style-type: none"> Software for calculating whole building life cycle assessment is available for free at Athena Sustainable Materials Institute (https://calculatela.com/software/impact-estimator/) and OneClick LCA-Planetary (www.oneclicklca.com/planetary). Paid versions include, but are not limited to, Sphera GaBi Solutions (www.gabi.com), SimaPro (sima.pro), OneClick LCA (www.oneclicklca.com) and Tally for Revit (apps.autodesk.com). ASTM E2924-22 "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. 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. <p>5.409.2.1 Building components. Building enclosure components included in the assessment shall be limited to glazing assemblies, 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.</p> <p>5.409.2.2 Reference study period. The reference study period of the proposed building shall be equal to the reference baseline building and shall be 60 years.</p> <p>5.409.2.3 Verification of compliance. A summary of the GWP analysis produced by the software and Worksheet WS-4 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.</p> <p>5.409.3 Product GWP compliance—prescriptive path. Each product that is permanently installed and listed in Table 5.409.3 shall have a Type III environmental product declaration (EPD), either product-specific or factory-specific.</p>			<p>5.409.3.2 Verification of compliance. Calculations to demonstrate compliance, Type III EPDs for products required to comply, if included in the project, and Worksheet WS-5 signed by the design professional of record 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. 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.</p> <p>SECTION 5.410 BUILDING MAINTENANCE AND OPERATIONS</p> <p>5.410.1 RECYCLING BY OCCUPANTS. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a locally enacted local recycling ordinance, if more restrictive.</p> <p>Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code 42649.52 (a)(2)(A) et seq. shall also be exempt from the organic waste portion of this section.</p> <p>5.410.1.1 Additions. All additions conducted within a 12-month period under single or multiple permits, resulting in an increase of 30% or more in floor area, shall provide recycling areas on site.</p> <p>Exception: Additions within a tenant space resulting in less than a 30% increase in the tenant space floor area.</p> <p>5.410.1.2 Sample ordinance. Space allocation for recycling areas shall comply with Chapter 18, Part 3, Division 30 of the Public Resources Code. Chapter 18 is known as the California Solid Waste Reuse and Recycling Access Act of 1991 (Act).</p> <p>Note: A sample ordinance for use by local agencies may be found in Appendix A of the document at the CalRecycle's web site.</p> <p>5.410.2 COMMISSIONING. [N] New buildings 10,000 square feet and over. For new buildings 10,000 square feet and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements. Commissioning shall be performed in accordance with this section by trained personnel with experience on projects of comparable size and complexity. For L-occupancies that are not regulated by OSHA or for L-occupancies and L-occupancies that are not regulated by the California Energy Code Section 100.0 Scope, all requirements in Sections 5.410.2 through 5.410.2.6 shall apply.</p> <p>Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating, ventilation, air conditioning (HVAC) systems and controls, indoor lighting systems and controls, as well as water heating systems and controls, refer to California Energy Code Section 120.8 for commissioning requirements.</p> <p>Commissioning requirements shall include:</p> <ol style="list-style-type: none"> Owner's or Owner representative's project requirements. Basis of design. Commissioning measures shown in the construction documents. Commissioning plan. Functional performance testing. Documentation and training. Commissioning report. <p>Exceptions:</p> <ol style="list-style-type: none"> Unconditioned warehouses of any size. Areas less than 10,000 square feet used for offices or other conditioned accessory spaces within unconditioned warehouses. Tenant improvements less than 10,000 square feet as described in Section 303.1.1. Open parking garages of any size, or open parking garage areas, of any size, within a structure. <p>Note: For the purposes of this section, unconditioned shall mean a building, area or room which does not provide heating and/or air conditioning.</p> <p>Informational Notes:</p> <ol style="list-style-type: none"> Functional performance testing for heating, ventilation, air conditioning systems and lighting controls must be performed in compliance with the California Energy Code. <p>5.410.2.1 Owner's or Owner Representative's Project Requirements (OPR). [N] The expectations and requirements of the building appropriate to its phase shall be documented before the design phase of the project begins. This documentation shall include the following:</p> <ol style="list-style-type: none"> Environmental and sustainability goals. Building sustainable goals. Indoor environmental quality requirements. Project program, including facility functions and hours of operation, and need for after hours operation. Equipment and systems expectations. Building occupant and operation and maintenance (O&M) personnel expectations. <p>5.410.2.2 Basis of Design (BOD). [N] A written explanation of how the design of the building systems meets the OPR shall be completed at the design phase of the building project. The Basis of Design document shall cover the following systems:</p> <ol style="list-style-type: none"> Renewable energy systems. Landscaping irrigation systems. Water reuse system. <p>5.410.2.3 Commissioning plan. [N] Prior to permit issuance a commissioning plan shall be completed to document how the project will be commissioned. The commissioning plan shall include the following:</p> <ol style="list-style-type: none"> General project information. Commissioning goals. Systems to be commissioned. Plans to test systems and components shall include: <ol style="list-style-type: none"> An explanation of the original design intent. Equipment and systems to be tested, including the extent of tests. Functions to be tested. Conditions under which the test shall be performed. Measurable criteria for acceptable performance. Commissioning team information. Commissioning process activities, schedules and responsibilities. Plans for the completion of commissioning shall be included. <p>5.410.2.4 Functional performance testing. [N] Functional performance tests shall demonstrate the correct installation and operation of each component, system and system-to-system interface in accordance with the approved plans and specifications. Functional performance testing reports shall contain information addressing each of the building components tested, the testing methods utilized, and include any readings and adjustments made.</p> <p>5.410.2.5 Documentation and training. [N] A Systems Manual and Systems Operations Training are required, including Occupational Safety and Health Act (OSHA) requirements in California Code of Regulations (CCR), Title 8, Section 5142, and other related regulations.</p> <p>5.410.2.5.1 Systems manual. [N] Documentation of the operational aspects of the building shall be completed within the systems manual and delivered to the building owner or representative. The systems manual shall include the following:</p> <ol style="list-style-type: none"> Site information, including facility description, history and current requirements. Site contact information. Basic operations and maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log. Major systems. Site equipment inventory and maintenance notes. A copy of verifications required by the enforcing agency or this code. Other resources and documentation, if applicable. <p>5.410.2.5.2 Systems operations training. [N] A program for training of the appropriate maintenance staff for each equipment type and/or system shall be developed and documented in the commissioning report and shall include the following:</p> <ol style="list-style-type: none"> System/equipment overview (what it is, what it does and with what other systems and/or equipment it interfaces). Review and demonstration of servicing/preventive maintenance. Review of the information in the Systems Manual. Review of the record drawings on the system/equipment. <p>5.410.2.6 Commissioning report. [N] A report of commissioning process activities undertaken through the design and construction phases of the building project shall be completed and provided to the owner or representative.</p> <p>5.410.4 TESTING AND ADJUSTING. New buildings less than 10,000 square feet. Testing and adjusting of systems shall be required for new buildings less than 10,000 square feet or new systems to serve an addition or alteration subject to Section 303.1.</p>			<p>5.410.4.2 (Reserved)</p> <p>Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating, ventilation, air conditioning (HVAC) systems and controls, indoor lighting system and controls, as well as water heating systems and controls, refer to California Energy Code Section 120.8 for commissioning requirements and Sections 120.5, 120.6, 130.4, and 140.9(b) for additional testing requirements of specific systems.</p> <p>5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be included for testing and adjusting shall include at a minimum, as applicable to the project:</p> <ol style="list-style-type: none"> Renewable energy systems. Landscaping irrigation systems. Water reuse systems. <p>5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with manufacturer's specifications and applicable standards on each system.</p> <p>5.410.4.3.1 HVAC balancing. In addition to testing and adjusting, before a new space-conditioning system serving a building or space is operated for normal use, the system shall be balanced in accordance with the procedures defined by the Testing, Adjusting and Balancing Bureau National Standards, the National Environmental Balancing Bureau Procedural Standards, Associated Air Balance Council National Standards or as approved by the enforcing agency.</p> <p>5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.</p> <p>5.410.4.5 Operation and maintenance (O & M) manual. Provide the building owner or representative with detailed operating and maintenance instructions and copies of warranties/warranties for each system. O & M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations.</p> <p>5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the enforcing agency.</p>			<p>SECTION 5.503 FIREPLACES</p> <p>5.503.1 FIREPLACES. Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove or pellet stove, and refer to residential requirements in the California Energy Code, Title 24, Part 6, Subchapter 7, Section 150. Woodstoves, pellet stoves and fireplaces shall comply with applicable local ordinances.</p> <p>5.503.1.1 Woodstoves. Woodstoves and pellet stoves shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits.</p> <p>SECTION 5.504 POLLUTANT CONTROL</p> <p>5.504.1 TEMPORARY VENTILATION. The permanent HVAC system shall only be used during construction if necessary to condition the building or areas of addition or alteration within the required temperature range for material and equipment installation. If the HVAC system is used during construction, use return air filters with a Minimum Efficiency Reporting Value (MERV) of 8, based on ASHRAE 52.2-1999, or an average efficiency of 30% based on ASHRAE 52.1-1992. Replace all filters immediately prior to occupancy, or, if the building is occupied during alteration, at the conclusion of construction.</p> <p>5.504.3 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation and during storage on the construction site until final startup of the heating, cooling and ventilation equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust, water and debris which may enter the system.</p> <p>5.504.4 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.6.</p> <p>5.504.4.1 Adhesives, sealants and caulks. Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards:</p> <ol style="list-style-type: none"> Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products as specified in subsection 2, below. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507. 		

DISCLAIMER: THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.

REVISIONS	DATE



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OF SHEETS

PLT DATE: Aug 30, 2023 - 10:54am GN2-P CALGREEN-CHG