

ORDINANCE NO. 181480

An ordinance amending Chapter IX of the Los Angeles Municipal Code by adding a new Article 9 to incorporate various provisions of the 2010 California Green Building Standards Code (CALGreen Code).

**THE PEOPLE OF THE CITY OF LOS ANGELES  
DO ORDAIN AS FOLLOWS:**

Section 1. Chapter IX of the Los Angeles Municipal Code is amended by adding a new Article 9, Green Building Code, to read as follows:

**ARTICLE 9, DIVISION 1  
ADMINISTRATION**

**99.01.101. ADMINISTRATION.**

**99.01.101.1. Title.** These regulations shall be known as the Los Angeles Green Building Code and may be cited as such and will be referred to herein as "this code". The Los Angeles Green Building Code is Article 9 of a total of 9 Articles of Chapter IX of the Los Angeles Municipal Code, and adopts by reference the CALGreen Code except as amended herein.

**99.01.101.3. Scope** The provisions of this code shall apply to the construction of every new building, every building alteration with a building permit valuation of over \$200,000 and every building addition, unless otherwise indicated in this code, throughout the City of Los Angeles.

**99.01.101.4. Appendices.** Provisions contained in the appendices of this code are not mandatory.

**99.01.101.5. Referenced Codes and Standards.** The codes and standards referenced elsewhere in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference.

**99.01.101.5.1. Building.** The provisions of the Los Angeles Building Code and Los Angeles Residential Code, as applicable, shall apply to the construction, alteration, movement, enlargement, replacement, repair, use and occupancy, location, maintenance, removal and demolition of every structure or any appurtenances connected or attached to such buildings or structures.

**99.01.101.5.2. Electrical.** The provisions of the Los Angeles Electrical Code shall apply to the installation of electrical systems, including but not limited to, alterations, repair, replacement, equipment, appliances, fixtures, fittings and appurtenances thereto.

**99.01.101.5.3. Mechanical.** The provisions of the Los Angeles Mechanical Code shall apply to the installation, alterations, repair and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

**99.01.101.5.4. Plumbing.** The provisions of the Los Angeles Plumbing Code shall apply to the installation, alteration, repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances where connected to a water or sewage system.

**99.01.101.5.5. Fire Prevention.** The provisions of CCR, Title 19, Division 1 and CCR, Title 24, Part 2 and Part 9 relating to fire and panic safety as adopted by the Office of the State Fire Marshal shall apply to all structures, processes and premises for protection from the hazard of fire, panic and explosion.

**99.01.101.5.6. Energy.** The provisions of the California Energy Code shall apply to the minimum design and construction of buildings for energy efficiency.

**99.01.101.6.3. Conflicts.** When the requirements of this code conflict with the requirements of any other part of the Los Angeles Municipal Code, the most restrictive requirement shall prevail.

**99.01.101.8. Alternate Materials, Designs and Methods Of Construction.** The provisions of this code are not intended to prevent the use of any alternate material, appliance, installation, device, arrangement, method, design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternate shall be approved on a case-by-case basis where the Department finds that the proposed alternate is satisfactory and complies with the intent of the provisions of this code and is at least the equivalent of that prescribed in this code in planning and design, energy, water, material resource conservation and efficiency, environmental air quality, performance, safety and the protection of life and health.

**99.01.101.10. Mandatory Requirements.** This code contains both mandatory and voluntary green building measures. Mandatory and voluntary measures are identified in the appropriate divisions in this code.

## **99.01.102. CONSTRUCTION DOCUMENTS AND INSTALLATION VERIFICATION.**

**99.01.102.1. Submittal Documents.** Construction documents and other data shall be submitted in one or more sets with each application for a permit. Where special conditions exist, the Department is authorized to require additional construction documents to be prepared by a licensed design professional and may be submitted separately.

**Exception:** The Department is authorized to waive the submission of construction documents and other data not required to be prepared by a licensed design professional.

**99.01.102.2. Information on Construction Documents.** Construction documents shall be of sufficient clarity to indicate the location, nature and scope of the proposed green building feature and show that it will conform to the provisions of this code, the Los Angeles Building Standards Code and other relevant laws, ordinances, rules and regulations as determined by the Department. The construction document and other data submitted to the Department for checking shall be drawn with ink or indelible pencil, or shall be made by a reproducible process approved by the Department.

**99.01.102.3. Verification.** Documentation of conformance for applicable green building measures shall be provided to the Department. Alternate methods of documentation shall be acceptable when the Department finds that the proposed alternate documentation is satisfactory to demonstrate substantial conformance with the intent of the proposed green building measure.

**99.01.102.4. Official Stamp.** When construction documents and other data fully comply with the provisions of this code, the Department shall place an official stamp of approval on all applicable sheets of each set.

**99.01.102.5. Validity of Approval.** The stamping or approval of any construction document or other data shall not be held to permit, or to be an approval of, the violation of any provision of this code.

**99.01.102.6. Alterations to Stamped Construction Documents.** No stamped or approved set of construction documents or data shall be altered in any manner, except when and as approved by the Department.

**99.01.102.7. Stamped Plans on Job.** The stamped set of construction documents and other data shall be kept at the site of the construction work and shall be available to the authorized representative of the Department. There shall be no deviation from the stamped or approved application, construction document, or other data without the Department's approval.

**99.01.102.8. Validity of Permit.** The issuance of a permit is not an approval or an authorization of the work specified therein. A permit is merely an application for inspection, the issuance of which entitles the permittee to inspection of the work which is described therein.

Permits issued under the requirements of this code shall not relieve the owner of responsibility for securing required permits for work to be done which is regulated by any other code, department or division of the City of Los Angeles. All permits are issued subject to the following conditions:

If the work described by a valid permit is prohibited by a change in the Los Angeles Municipal Code, then such work may be completed only if the Department determined that both substantial liabilities have been incurred, and substantial work has been performed on site, in accordance with the terms of that permit. Work performed and liabilities incurred pursuant to a demolition or relocation permit shall not be considered in determining whether an owner may complete a building or structure for which a building permit has been issued.

**99.01.102.9. Validity of Other Laws.** Neither the issuance of a permit nor the approval by the Department of any document shall constitute an approval of any violation of any provision of this code or of any other law or ordinance, and a permit or other document purporting to give authority to violate any law shall not be valid with respect thereto.

**99.01.102.10. Making False Statements to the Department.** Any person who willfully or knowingly, with the intent to deceive, makes a false statement or representation, or knowingly fails to disclose a material fact in any documentation required by the Department, including any oral or written evidence presented, shall be guilty of a misdemeanor.

#### **99.01.107. FEES.**

**99.01.107.1. Plan Check and Permit Fee.** A fee equal to ten percent of the plan check and permit fee shall be assessed to verify compliance with the mandatory measures of the City of Los Angeles Green Building Code for projects subject to this code. This fee shall be assessed on all building, plumbing, mechanical, electrical, and grading applications.

**Exceptions:** A fee shall not be assessed on grading plan check applications.

**99.01.107.1.1. Tier 1 and Tier 2 Fee.** When Tier 1 or Tier 2 measures (Tier 1 or Tier 2) per Subsections A4.601.4, A4.601.5 or Subsection A5.601 are requested to be verified, an additional fee equal to 5 percent of the plan check and permit fee shall be assessed.

#### **99.01.108. POWERS OF THE DEPARTMENT.**

**99.01.108.1. General.** The powers of the Department are enumerated in Section 98.0403.1 of the Los Angeles Municipal Code.

The Superintendent of Building shall have the duty to render interpretations of this code and to adopt and enforce rules and supplemental regulations to clarify the application of its provisions. These interpretations, rules and regulations shall be in conformance with the intent and purpose of this code.

**99.01.108.2. Authority to Require Exposure of Work.** Whenever any work required by this code is covered and concealed by additional work without first having been inspected, the work shall be exposed for examination upon written notice by the Department. The work of exposing and recovering shall not entail expense to the City of Los Angeles.

**99.01.108.3. Right of Entry.** The authority for right of entry is enumerated in Section 98.0105 of the Los Angeles Municipal Code.

**99.01.108.4. Authority to Stop Work.** Whenever any construction work is being done contrary to the provision of any law or ordinance enforced by the Department, the Department shall have the authority to issue a written notice to the responsible party to stop work on that portion of the work on which the violation has occurred. The notice shall state that the nature of the violation and no work shall be done on that portion until violation has been rectified and approval obtained by the Department.

**99.01.108.5. Modifications.** The Department shall have the power to hear and act upon requests for slight modification in individual cases to the green building ordinances of the City, and regulations under Article 9 of Chapter 9 of the Los Angeles Municipal Code.

In granting a request for a slight modification, the Department shall determine that the slight modification is reasonably equivalent to the code requirement involved, that a special individual reason makes the strict letter of the code impractical and the slight modification is in conformity with the spirit and purpose of the code or codes involved.

## ARTICLE 9, DIVISION 2

### DEFINITIONS

#### **99.02.201. GENERAL.**

**99.02.201.1. Scope.** This section is adopted by reference.

**99.02.201.2. Interchangeability.** This section is adopted by reference.

**99.02.201.3. Terms Defined in Other Documents.** Where terms are not defined in this code and are defined in the Los Angeles Building Standards Code or other referenced document, such terms shall have the meanings ascribed to them as in those publications.

**99.02.201.4. Terms Not Defined.** Where terms are not defined as prescribed in this section, such terms shall have ordinarily accepted meanings such as context applies. The definitions in Webster's Third New International Dictionary of the English

Language, Unabridged shall be considered as providing ordinarily accepted meanings.

Section 202 of CALGreen Code is adopted by reference, except that the following CALGreen Code definitions are not adopted:

- CALIFORNIA BUILDING CODE**
- CALIFORNIA ELECTRICAL CODE**
- CALIFORNIA MECHANICAL CODE**
- CALIFORNIA PLUMBING CODE**
- CALIFORNIA RESIDENTIAL CODE**
- LOW-RISE RESIDENTIAL BUILDING**

The following terms are added as follows:

**ALTERATION.** An alteration shall include any interior and exterior repair, change of use or occupancy, renovation or improvements made to an existing site or structure.

**CALIFORNIA ENERGY CODE.** The current version of the California Code of Regulations, Title 24, Part 6.

**DEPARTMENT.** The Department of Building and Safety.

**HOME ENERGY RATING SYSTEM (HERS).** The program adopted in 1999 to establish a procedure and implement an approach to achieve energy efficiency for residential dwelling units pursuant to the California Code of Regulations, Title 20, Chapter 4, Article 6, Sections 1670 – 1675.

**HIGH-RISE RESIDENTIAL.** A building that is of Occupancy Group R and more than six stories in height.

**LOS ANGELES BUILDING CODE.** The current version of the Los Angeles City Building Code, Article 1 of Chapter IX of the Los Angeles Municipal Code.

**LOS ANGELES BUILDING STANDARDS CODE.** Articles 1 thru 9 of Chapter IX of the Los Angeles Municipal Code.

**LOS ANGELES ELECTRICAL CODE.** The current version of the Los Angeles City Electrical Code, Article 3 of Chapter IX of the Los Angeles Municipal Code.

**LOS ANGELES MECHANICAL CODE.** The current version of the Los Angeles City Mechanical Code, Article 5 of Chapter IX of the Los Angeles Municipal Code.

**LOS ANGELES PLUMBING CODE.** The current version of the Los Angeles City Plumbing Code, Article 4, Chapter IX of the Los Angeles Municipal Code.

**LOS ANGELES RESIDENTIAL CODE.** The current version of the Los Angeles City Plumbing Code, Article 1R, Chapter IX of the Los Angeles Municipal Code.

**LOW-RISE RESIDENTIAL BUILDING.** A building that is of Occupancy Group R and is six stories or less, or that is a one- or two- family dwelling or townhouse.

**SUSTAINABILITY.** Consideration of present development and construction impacts on the community, the economy, and the environment without compromising the needs of the future.

## **ARTICLE 9, DIVISION 3**

### **GREEN BUILDING**

#### **99.03.301. GENERAL.**

**99.03.301.1. Scope.** Buildings shall be designed to include the green building measures specified as mandatory in this code. Voluntary green building measures are also included in this code and may be included in the design and construction of structures covered by this code, but are not required unless they are part of Tier 1 or Tier 2. The checklists in Appendix A4 (Section 99.11.101) and Appendix A5 (Section 99.12.101) are for reference.

#### **99.03.303. PHASED PROJECTS.**

**99.03.303.1. Phased Projects.** For shell buildings and others constructed for future tenant improvements, only those code measures relevant to the building components and systems considered to be new construction (or newly constructed) shall apply.

**99.03.303.1.1. Tenant Improvements.** The provisions of this code shall apply to the initial tenant or occupant improvements to a project and to any future alteration that falls under the scope of 99.01.101.3.

**99.03.304.1.1. Tiers.** The provisions of Appendices A4 and A5 outline the means of achieving enhanced construction levels by incorporating additional green building measures. Buildings complying with tiers specified for each occupancy contain additional prerequisite and elective green building measures necessary to meet the threshold of each tier.

Where there are practical difficulties involved in complying with the threshold levels of a tier, the Department may grant modifications for individual cases. The Department shall first find that a special individual reason makes the strict letter of the tier impractical and that modification is in conformance with the intent and purpose of the measure. The details of any action granting modification shall be recorded and entered in the files of the Department.

#### **ARTICLE 9, DIVISION 4**

#### **MANDATORY MEASURES FOR NEWLY CONSTRUCTED LOW-RISE RESIDENTIAL BUILDINGS**

##### **99.04.106.2. Storm Water Drainage and Retention During Construction.**

Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage during construction one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site:

1. Retention basins of sufficient size shall be utilized to retain storm water on the site;
2. Where storm water is conveyed to a public drainage system, collection point, gutter, or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the Department; or
3. Compliance with City of Los Angeles' storm water management ordinance(s).

##### **99.04.106.6. Electric Vehicle Supply Wiring.**

1. For one- or two- family dwellings and townhouses, provide a minimum of:
  - a. One 208/240 V 40 amp, grounded AC outlet, for each dwelling unit; or
  - b. Panel capacity and conduit for the future installation of a 208/240 V 40 amp, grounded AC outlet, for each dwelling unit.

The electrical outlet or conduit termination shall be located adjacent to the parking area.

2. For other residential occupancies where there is a common parking area, provide one of the following:
  - a. A minimum number of 208/240 V 40 amp, grounded AC outlets equal to 5 percent of the total number of parking spaces. The outlets shall be located within the parking area; or
  - b. Panel capacity and conduit for future installation of electrical outlets. The panel capacity and conduit size shall be designed to accommodate the future installation, and allow the simultaneous charging, of a

minimum number of 208/240 V 40 amp, grounded AC outlets, that is equal to 5 percent of the total number of parking spaces. The conduit shall terminate within the parking area; or

- c. Additional service capacity, space for future meters, and conduit for future installation of electrical outlets. The service capacity and conduit size shall be designed to accommodate the future installation, and allow the simultaneous charging, of a minimum number of 208/240 V 40 amp, grounded AC outlets, that is equal to 5 percent of the total number of parking spaces. The conduit shall terminate within the parking area.

When the application of the 5 percent results in a fractional space, round up to the next whole number.

## **ENERGY EFFICIENCY**

### **99.04.201. GENERAL.**

**99.04.201.1. Scope.** The provisions of this chapter shall establish means of conserving energy.

### **99.04.202. DEFINITIONS.**

**99.04.202.1. Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**ENERGY STAR.** A joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy. ENERGY STAR is a voluntary program designed to identify and promote energy-efficient products and practices.

### **99.04.203. PERFORMANCE APPROACH. (Reserved)**

### **99.04.204. ENERGY REDUCTION.**

**99.04.204.1. Prescriptive Approach.** Equipment and fixtures shall comply with the following where applicable:

1. Installed gas-fired space heating equipment shall have an Annual Fuel Utilization Ratio (AFUE) of .90 or higher.
2. Installed electric heat pumps shall have a Heating Seasonal Performance Factor (HSFP) of 8.0 or higher.
3. Installed cooling equipment shall have a Seasonal Energy Efficiency Ratio (SEER) higher than 13.0 and an Energy Efficiency Ratio (EER) of at least 11.5.
4. Installed tank type water heaters shall have an Energy Factor (EF) higher than .6.

5. Installed tankless water heater shall have an Energy Factor (EF) higher than .80.
6. Perform duct leakage testing to verify a total leakage rate of less than 6 percent of the total fan flow.
7. Building lighting in the kitchen and bathrooms within the dwelling units shall consist of at least 90 percent ENERGY STAR qualified hard-wired fixtures (luminaires).
8. Installed swimming pool circulating pump motors shall be multi-speed or variable-speed. The pump motor controls shall have the capability of operating the pump at a minimum of three speeds; low speed, medium speed, and high speed. The daily low speed shall not exceed 300 watts. The daily medium speed shall be adjustable.

**Exception:**

1. Projects exceeding the California Energy Code requirements by 15 percent using an Alternative Calculation Method (ACM) approved by the California Energy Commission.
2. Buildings for which building plans were submitted to the Department for plan check and the plan check fee was paid prior to July 1, 2011.

**99.04.205. BUILDING ENVELOPE. (Reserved)**

**99.04.206. AIR SEALING PACKAGE. (Reserved)**

**99.04.207. HVAC DESIGN, EQUIPMENT AND INSTALLATION. (Reserved)**

**99.04.208. WATER HEATING DESIGN, EQUIPMENT AND INSTALLATION. (Reserved)**

**99.04.209. LIGHTING. (Reserved)**

**99.04.210. APPLIANCES.**

**99.04.210.1. Appliance Rating.** Each appliance provided and installed shall meet ENERGY STAR if an ENERGY STAR designation is applicable for that appliance.

**99.04.211. RENEWABLE ENERGY.**

**99.04.211.4. Future Access for Electrical Solar System.** An electrical conduit shall be provided from the electrical service equipment to an accessible location in the attic or other location suitable for future connection to a solar system. The conduit shall be adequately sized by the designer but shall not be less than one inch. The conduit shall be labeled as per the Los Angeles Fire Department requirements. The electrical panel shall be sized to accommodate the installation of a future electrical solar system.

**Exception:** Buildings designed and constructed with a solar photovoltaic system or an alternate system with means of generating electricity at time of final inspection.

**99.04.211.4.1. Space for Future Electrical Solar System Installation.** A minimum of 250 square feet of contiguous unobstructed roof area shall be provided for the installation of future photovoltaic or other electrical solar panels. The location shall be suitable for installing future solar panels as determined by the designer.

**Exceptions:**

1. For roofs with an area of less than 1000 square feet, the unobstructed space maybe reduced to 25 percent of the roof area;
2. Buildings designed and constructed with a solar photovoltaic system or an alternate system with renewable means of generating electricity at the time of final inspection;
3. Where it is not feasible to provide one contiguous area due to the roof configuration, two unobstructed roof areas with a minimum combined area of 250 square feet maybe provided;
4. Buildings designed with a green roof making it unfeasible to provide this area.

**99.04.303.1. Twenty Percent Savings.** A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by at least 20 percent shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fitting as required by the California Building Standards Code. The 20 percent reduction in potable water use shall be demonstrated by one of the following methods:

1. Each plumbing fixture and fitting shall meet reduced flow rates specified in Table 4.303.2; or
2. A calculation demonstrating a 20 percent reduction in the building "water use" baseline as established in Table 4.303.1 shall be provided. For low-rise residential occupancies, the calculation shall be limited to the following plumbing fixture and fitting types: water closets, urinals, lavatory faucets, kitchen faucets and showerheads.

**TABLE 4.303.1  
WATER USE BASELINE<sup>1</sup>**

<b>Fixture Type</b>	<b>Flow-rate<sup>2</sup></b>	<b>Duration</b>	<b>Daily uses</b>	<b>Occupants<sup>3</sup></b>
Showerheads Residential	2.5 gpm @ 80 psi	8 min.	1	
Lavatory Faucets Residential	2.2 gpm @ 60 psi	.25 min.	3	
Kitchen Faucets	2.2 gpm @ 60 psi	4 min.	1	
Replacement Aerators	2.2 gpm @ 60 psi			
Gravity tank type Water Closets	1.6 gallons/flush	1 flush	1 male <sup>4</sup> 3 female	
Flushometer Tank Water Closets	1.6 gallons/flush	1 flush	1 male <sup>4</sup> 3 female	
Flushometer Valve Water Closets	1.6 gallons/flush	1 flush	1 male <sup>4</sup> 3 female	
Urinals	1.0 gallons/flush	1 flush	2 male	

**Fixture "Water Use" = Flow rate x Duration x Occupants x Daily uses**

<sup>1</sup>Use Worksheet WS-1 to calculate baseline water use.

<sup>2</sup>The Flow-rate is from the CEC Appliance Efficiency Standards, Title 20, California Code of Regulations; where a conflict occurs, the CEC standards shall apply.

<sup>3</sup>For low rise residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.

<sup>4</sup>The daily use number shall be increased to three if urinals are not installed in the room.

**99.04.303.2. Multiple Showerheads Serving One Shower.** When single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the 20 percent reduction column contained in Table 4.303.2 or the shower shall be designed to only allow one showerhead to be in operation at a time.

**Exception:** The maximum flow rate for showerheads when using the calculation method specified in Section 99.04.303.1, Item 2, is 2.5 gpm @ 80 psi.

**TABLE 4.303.2  
FIXTURE FLOW RATES**

<b>FIXTURE TYPE</b>	<b>FLOW RATE</b>	<b>MAXIMUM FLOW RATE AT &gt; 20 percent</b>
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi
Lavatory faucets residential	2.2 gpm @ 60 psi	1.5 gpm @ 60 psi <sup>2</sup>
Kitchen faucets	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi
Gravity tank type water closets	1.6 gallons/flush	1.28 gallons/flush <sup>1</sup>
Flushometer tank water closets	1.6 gallons/flush	1.28 gallons/flush <sup>1</sup>
Flushometer valve water closets	1.6 gallons/flush	1.28 gallons/flush <sup>1</sup>
Urinals	1.0 gallons/flush	.5 gallons/flush

<sup>1</sup>Includes single and dual flush water closets with an effective flush of 1.28 gallons or less.

Single Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.233.2.

Dual Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.

<sup>2</sup>Lavatory Faucets shall not have a flow rate less than 0.8 gpm at 20 psi.

**99.04.304.1. Irrigation Controllers.** When automatic irrigation system controllers for landscaping are provided and installed at the time of final inspection, the controllers shall comply with the following:

1. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change;
2. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.

**Note:** More information regarding irrigation controller function and specifications is available from the Irrigation Association.

**99.04.304.1.1. Irrigation Design.** Buildings on sites with over 2,500 square feet of cumulative irrigated landscaped areas shall have irrigation controllers which meet the criteria in Section 99.04.304.1.

#### **99.04.406. ENHANCED DURABILITY AND REDUCED MAINTENANCE.**

**99.04.406.1. Joints and Openings.** Openings in the building envelope separating conditioned space from unconditioned space needed to accommodate gas, plumbing, electrical lines and other necessary penetrations must be sealed in compliance with the California Energy Code.

**Exception:** Annular spaces around pipes, electric cables, conduits, or other openings in plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or similar method acceptable to the Department.

#### **99.04.407. WATER RESISTANCE AND MOISTURE MANAGEMENT.**

**99.04.407.3. Flashing Details.** Provide flashing details on the building plans which comply with accepted industry standards or manufacturer's instructions at the following locations:

1. Around windows and doors;
2. Roof valleys;
3. Chimneys to roof intersections.

**99.04.407.4. Material Protection.** Protect building materials delivered to the construction site from rain and other sources of moisture.

#### **99.04.408. CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING.**

**99.04.408.1. Construction Waste Reduction of at Least 50 Percent.** Comply with Section 66.32 *et seq.* of the Los Angeles Municipal Code.

**99.04.410.1. Operation and Maintenance Manual.** At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the Department which includes all of the following shall be placed in the building:

1. Directions to the owner or occupant that the manual shall remain with the building.
2. Operation and maintenance instructions for the following:
  - a. Equipment and appliances, including water-saving devices and systems, HVAC systems, water-heating systems and other major appliances and equipment.
  - b. Roof and yard drainage including gutters and downspouts.
  - c. Space conditioning systems including condenser and air filters.
  - d. Landscape irrigation systems.
  - e. Water reuse systems.

3. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption including recycle programs and locations.
4. Public transportation and/or carpool options available in the area.
5. Educational material on the positive impacts of an interior relative humidity between 30-60 percent and what methods an occupant may use to maintain the relative humidity level in that range.
6. Information about water-conserving landscape and irrigation design and controllers which conserve water.
7. Instructions for maintaining gutters and downspouts and importance of diverting water at least 5 feet away from foundation.
8. Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around building, etc.
9. Information about state solar energy and incentive programs available.
10. A copy of all special inspection verifications required by the Department or this code.

**99.04.504.1. Covering of Duct Openings and Protection of Mechanical Equipment During Construction.** At the time of rough installation or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the Department to reduce the amount of dust or debris which may collect in the system.

**99.04.504.2.4. Verification.** Verification of compliance with this section shall be provided at the request of the Department. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification; or
2. Field verification of on-site product containers.

**99.04.504.5.1. Documentation.** Verification of compliance with this section shall be provided as requested by the Department. Documentation shall include at least one of the following:

1. Product certifications and specifications;
2. Chain of custody certifications; or
3. Other methods acceptable to the Department.

#### **99.04.505. INTERIOR MOISTURE CONTROL.**

**99.04.505.1. General.** Buildings shall meet or exceed the provisions of the Los Angeles Building Standards Code.

**99.40.505.2. Concrete Slab Foundations.** Concrete slab foundations required to have a vapor retarder by Los Angeles Building Code, Chapter 19, shall also comply with this section.

**99.04.505.2.1. Capillary Break.** A capillary break shall be installed in compliance with at least one of the following:

1. A 4-inch (101.6 mm) thick base of ½ inch (12.7 mm) or larger clean aggregate shall be provided with a vapor barrier in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curling, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06;
2. Other equivalent methods approved by the Department; or
3. A slab design specified by a licensed design professional.

**99.04.505.3. Moisture Content of Building Materials.** Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed until it is inspected and found to be satisfactory by the building inspector.

Insulation products which are visibly wet or have high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.

## ARTICLE 9, DIVISION 5

### FOR NEWLY CONSTRUCTED NONRESIDENTIAL AND HIGH-RISE RESIDENTIAL BUILDINGS

#### 99.05.106. SITE DEVELOPMENT.

**99.05.106.1. Storm Water Pollution Prevention Plan.** For newly constructed projects which disturb less than one acre of soil, develop a Storm Water Pollution Prevention Plan (SWPPP) that has been designed, specific to its site, conforming to the State Storm water NPDES Construction Permit or local ordinance, whichever is stricter, as is required for projects one acre or more. The plan should cover prevention of soil loss by storm water run-off and/or wind erosion, of sedimentation, and/or of dust/particulate matter air pollution.

**Note:** Assistance with the permit may be obtained from the California State Water Resources Control Board (SWRCB) at:  
<http://www.swrcb.ca.gov/stormwtr/>, from a Regional Water Quality Control Board, and at local public works departments.

**99.05.106.4. Bicycle Parking.** Comply with Sections 99.05.106.4.1 and 99.05.106.4.2; or meet local ordinance, whichever is stricter.

**99.05.106.4.1. Short-Term Bicycle Parking.** If the project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack.

**99.05.106.4.2. Long-Term Bicycle Parking.** For buildings with over 10 occupants, based on the Los Angeles Building Code, provide secure bicycle parking for 5 percent of motorized vehicle parking capacity, with a minimum of one space. Acceptable parking facilities shall be convenient from the street and may include:

1. Covered, lockable enclosures with permanently anchored racks for bicycles;
2. Lockable bicycle rooms with permanently anchored racks; or
3. Lockable, permanently anchored bicycle lockers.

**Note:** Additional information on recommended bicycle accommodations may be obtained from Sacramento Bicycle Advocates.

**99.05.106.5.2. Designated Parking.** Provide designated parking, by means of permanent marking or a sign, for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as follows:

**Table 5.106.5.2**

Total Number of Parking Spaces	Number of Required Spaces
0-9	0
10-25	1
26-50	3
51-75	6
76-100	8
101-150	11
151-200	16
201 and over	At least 8 percent of total <sup>1</sup>

<sup>1</sup>When the application of this regulation results in the requirement of a fractional space, round up to the next whole number.

**99.05.106.5.3.1. Electric Vehicle Supply Wiring.** Provide a minimum number of 208/240 V 40 amp, grounded AC outlet(s), that is equal to 5 percent of the total number of parking spaces, rounded up to the next whole number. The outlet(s) shall be located in the parking area.

**99.05.106.8. Light Pollution Reduction.** Comply with lighting power requirements in the California Energy Code, California Code of Regulations (CCR), Title 24, Part 6, and design interior and exterior lighting such that zero direct-beam illumination leaves the building site. Meet or exceed exterior light levels and uniformity ratios for lighting

zones 1-4 as defined in Chapter 10 of the California Administrative Code, CCR, Title 24, Part 1, using the following strategies:

1. Shield all exterior luminaires or provide cutoff luminaires per Section 132 (b) of the California Energy Code;
2. Contain interior lighting within each source;
3. Allow no more than .01 horizontal lumen footcandles to escape 15 feet beyond the site boundary;
4. Automatically control exterior lighting dusk to dawn to turn off or lower light levels during inactive periods.

**Exceptions:**

1. Los Angeles Building Code, Chapter 12, Section 1205.6 for campus lighting requirements for parking facilities and walkways.
2. Emergency lighting and lighting required for nighttime security.

**99.05.106.10. Grading and Paving.** The site shall be planned and developed to keep surface water from entering buildings. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows.

## **ENERGY EFFICIENCY**

### **99.05.201. GENERAL.**

**99.05.201.1. Scope.** The provisions of this chapter shall establish means of conserving energy.

### **99.05.202. DEFINITIONS.**

**99.05.202.1. Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**ENERGY STAR.** A joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy. ENERGY STAR is a voluntary program designed to identify and promote energy-efficient products and practices.

### **99.05.203. PERFORMANCE APPROACH.**

**99.05.203.1. Energy Performance.** Using an Alternative Calculation Method approved by the California Energy Commission, calculate each nonresidential building's TDV energy and CO<sub>2</sub> emissions, and compare it to the standard or "budget" building.

**99.05.203.1.3. Energy Efficiency – Exceed California Energy Code requirements,** based on the 2008 Energy Efficiency Standards, by 15 percent.

**Exception:** Buildings for which building plans were submitted to the Department for plan check and the plan check fee was paid prior to July 1, 2011.

**99.05.204. PRESCRIPTIVE APPROACH. (Reserved)**

**99.05.210. ENERGY SYSTEMS.**

**99.05.210.1. ENERGY STAR Equipment and Appliances.** Residential grade equipment and appliances provided and installed shall be ENERGY STAR labeled if ENERGY STAR is applicable to that equipment or appliance.

**99.05.211. RENEWABLE ENERGY.**

**99.05.211.4. Prewiring for Future Electrical Solar System.** Install conduit from the building roof, eave, or other locations approved by the Department to the electrical service equipment. The conduit shall be labeled as per the Los Angeles Fire Department requirements.

**Exception:** Buildings designed and constructed with a solar photovoltaic system or an alternate system with renewable means of generating electricity at time of final inspection.

**99.05.211.4.1. Off-Grid Prewiring for Future Solar.** If battery storage is anticipated, conduit shall run to a location within the building that is weather-proof and separated from occupied spaces.

**99.05.302. DEFINITIONS.**

**99.05.302.1. Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**GRAYWATER.** Untreated household waste which has not come into contact with toilet waste. Graywater includes used water from bathtubs, showers, bathroom wash basins, and water from clothes washing machines and laundry tubs. It shall not include waste water from kitchen sinks, dishwashers, or laundry water from soiled diapers.

**MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.** The California ordinance regulating landscape design, installation and maintenance practices that will ensure commercial, multifamily and other developer installed landscapes greater than 2,500 square feet meet an irrigation water budget developed based on landscaped area, and climatological parameters.

**POTABLE WATER.** Water that is drinkable and meets the U. S. Environmental Protection Agency (EPA) Drinking Water Standards. See definition in the Los Angeles Plumbing Code.

**RECYCLED WATER.** Water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur (Water Code Section 13050 (n)). Simply put, recycled water is water treated to remove waste matter attaining a quality that is suitable to use the water again.

**SUBMETER.** A meter installed subordinate to a site meter. Usually used to measure water intended for one purpose, such as landscape irrigation. For the purposes of this section, a dedicated meter may be considered a submeter.

**WATER BUDGET.** Estimated total landscape irrigation water use shall not exceed the maximum applied water allowance calculated in accordance with the Department of Water Resources Model Efficient Landscape Ordinance (MLO).

**99.05.303.1. Meters.** Separate meters or metering devices shall be installed for uses described in Sections 5.303.1.1 and 5.303.1.2.

**99.05.303.2. Twenty Percent Savings.** A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 20 percent shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fittings as required by the California Building Standards Code. The 20 percent reduction in potable water use shall be demonstrated by one of the following methods:

1. Each plumbing fixture and fitting shall meet the 20 percent reduced flow rate specified in Table 5.303.2.3, or
2. A calculation demonstrating a 20 percent reduction in the building "water use baseline" as established in Table 5.303.2.2 shall be provided.

**99.05.303.2.1. Multiple Showerheads Serving One Shower.** When single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the 20 percent reduction column contained in Table 5.303.2.2 or the shower shall be designed to only allow one showerhead to be in operation at a time.

**Exception:** The maximum flow rate for shower heads when using the calculation method specified in Section 99.05.303.2, Item 2 is 2.5 gpm @ 80 psi.

**TABLE 5.303.2.2  
INDOOR WATER USE BASELINE<sup>4</sup>**

FIXTURE TYPE	FLOW RATE <sup>2</sup>	DURATION	DAILY USES	OCCUPANTS <sup>3</sup>
Showerheads	2.5 gpm @ 80 psi	8 min.	1	X
Kitchen faucets	2.2 gpm @ 60 psi	4 min.	1	X
Replacement aerators	2.2 gpm @ 60 psi			X

Wash fountains	2.2 [rim space (in.)/20 gpm @ 60 psi]			
Metering faucets	0.25 gallons/cycle	.25 min.	3	
Metering faucets for wash fountains	.25 [rim space (in.)/20 gpm @ 60 psi]	.25 min.		
Gravity tank type water closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Flushometer tank water closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Flushometer valve water closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Urinals	1.0 gallons/flush	1 flush	2 male	X

Fixture "Water Use" = Flow rate x Duration x Occupants x Daily uses

<sup>1</sup>The daily use number shall be increased to three if urinals are not installed in the room.

<sup>2</sup>The Flow-rate is from the CEC Appliance Efficiency Standards, Title 20, California Code of Regulations; where a conflict occurs, the CEC standards shall apply.

<sup>3</sup>Refer to Table A, Chapter 4, Los Angeles Plumbing Code, for occupant load factors.

<sup>4</sup>Use Worksheet WS-1 to calculate base line water use.

**TABLE 5.303.2.3  
FIXTURE FLOW RATES**

FIXTURE TYPE	FLOW RATE	MAXIMUM FLOW RATE AT 20 percent REDUCTION
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi
Kitchen faucets	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi
Wash fountains	2.2 [rim space (in.) / 20 gpm @ 60 psi]	1.8 [rim space (in.) / 20 gpm @ 60 psi]
Metering faucets	0.25 gallons/cycle	0.2 gallons/cycle
Metering faucets for wash fountains	.25 [rim space (in.) / 20 gpm @ 60 psi]	.20 [rim space (in.) / 20 gpm @ 60 psi]
Gravity tank type water closets	1.6 gallons/flush	1.28 gallons/flush <sup>1</sup>
Flushometer tank water closets	1.6 gallons/flush	1.28 gallons/flush <sup>1</sup>
Flushometer valve water closets	1.6 gallons/flush	1.28 gallons/flush <sup>1</sup>
Urinals	1.0 gallons/flush	.5 gallons/flush

<sup>1</sup>Includes single and dual flush water closets with an effective flush of 1.28 gallons or Single flush toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.233.2.

Dual flush toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.

**99.05.303.4. Wastewater Reduction.** Each building shall reduce by 20 percent wastewater by one of the following methods:

1. The installation of water-conserving fixtures (water closets, urinals) meeting the criteria established in sections 5.303.2, or
2. Utilizing non-potable water systems [captured rainwater, graywater, and municipally treated wastewater (recycled water) complying with the current edition of the Los Angeles Plumbing Code or other methods described in Section A5.304].

**99.05.304.2. Outdoor Potable Water Use.** Building on sites with 1,000 square feet or more of cumulative landscaped areas shall have separate meters or submeters for indoor and outdoor potable water use.

**99.05.304.3. Irrigation Design.** Buildings on sites with 1,000 square feet or more of cumulative irrigated landscaped areas shall have irrigation controllers and sensors which include the following criteria, and meet manufacturer's recommendations.

**99.05.407.1. Weather Protection.** Provide a weather-resistant exterior wall and foundation envelope as required by Los Angeles Building Code Section 1403.2 (Weather Protection) and California Energy Code Section 150, (Mandatory Features and Devices), manufacturer's installation instructions, or local ordinance, whichever is more stringent.

#### **99.05.408. CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING.**

**99.05.408.1. Construction Waste Diversion.** Comply with Section 66.32 *et seq.* of the Los Angeles Municipal Code.

**99.05.408.4. Excavated Soil and Land Clearing Debris.** 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project and when approved by the Department, such material may be stockpiled on site until the storage site is developed.

**Exception:** Contaminated soil shall not be reused and shall be disposed of or remediated in accordance with relevant regulations.

**99.05.410.1. 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 and metals.

**99.05.410.2.5. Documentation and Training.** 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.

**99.05.410.2.5.1. Systems Manual.** Documentation of the operational aspects of the building shall be completed within the Systems Manual and delivered to the building owner or representative and facilities operator. The Systems Manual shall include the following:

1. Site information, including facility description, history and current requirements;
2. Site contact information;
3. Basic operations & maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log;
4. Major systems;
5. Site Equipment inventory and maintenance notes;
6. A copy of all special inspection verifications required by the Department or this code;
7. Other resources & documentation.

**99.05.410.4.5. Operation and Maintenance (O & M) Manual.** Provide the building owner or representative with detailed operating and maintenance instructions and copies of guaranties/warranties for each system. O & M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations.

**99.05.410.4.5.1. Inspections and Reports.** Include a copy of all inspection verifications and reports required by the Department.

**99.05.504.3. Covering of Duct Openings and Protection of Mechanical Equipment During Construction.** At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the Department to reduce the amount of dust or debris which may collect in the system.

**99.05.504.4.3.2. Verification.** Verification of compliance with this section shall be provided at the request of the Department. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification;
2. Field verification of on-site product containers;
3. Other methods acceptable to the Department.

**99.05.504.4.5.2. Documentation.** Verification of compliance with this section shall be provided as requested by the Department. Documentation shall include at least one of the following:

1. Product certifications and specifications;
2. Chain of custody certifications; or
3. Other methods acceptable to the Department.

**99.05.504.4.6. Resilient Flooring Systems.** For 50 percent of floor area receiving resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on its Low-emitting Materials List (or Product Registry) or certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.

**99.05.504.7. Environmental Tobacco Smoke (ETS) Control.** Where outdoor areas are provided for smoking, prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows and in buildings; or as enforced by ordinances, regulations, or policies of the city, whichever are more stringent. When ordinances, regulations, or policies are not in place, post signage to inform building occupants of the prohibitions.

**99.05.505.1 Indoor Moisture Control.** Buildings shall meet or exceed the provisions of Los Angeles Building Code Sections 1203 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures not applicable to low-rise residential occupancies, see Section 5.407.2 of this code.

**99.05.507.4.1. Exterior Noise Transmission.** Wall and roof-ceiling assemblies making up the building envelope shall have an STC of at least 50, and exterior windows shall have a minimum STC of 30 for any of the following building locations:

1. Within 1000 ft. (300 m.) of right of ways of freeways.
2. Within 5 mi. (8 km.) of airports serving more than 10,000 commercial jets per year.
3. Where sound levels at the property line regularly exceed 65 decibels, other than occasional sound due to church bells, train horns, emergency vehicles and public warning systems.

**Exception:** Buildings with few or no occupants and where occupants are not likely to be affected by exterior noise, as determined by the Department, such as factories, stadiums, storage, enclosed parking structures, and utility buildings.

**ARTICLE 9, DIVISION 6**

**REFERENCED ORGANIZATIONS AND STANDARDS**

**99.06.601. GENERAL.**

**99.06.601.1. General.** This division lists the standards that are referenced in various sections of this article. The standards are listed herein by the promulgating agency of the standard.

Organization	Standard	Referenced Section
<b>AABC</b> Associated Air Balance Council		
1518 K St. NW Washington, DC 20005 <a href="http://www.aabc.org">www.aabc.org</a>	National Standards, 1989	5.410.4.3.1 10.410.4.3.1 A5.410.5.3.1
<b>ACCA</b> Air Conditioning Contractors of America		
2800 Shirlington Road, Suite 300 Arlington, VA 22206 <a href="http://www.acca.org">www.acca.org</a>	ACCA Manual J ACCA 29-D Manual D ACCA 36-S Manual S	4.507.2, 9.507.2 4.507.2, 9.507.2 4.507.2, 9.507.2
<b>ANSI</b> American National Standards Institute		
Operations Office 25 West 43rd Street Fourth Floor New York, NY 10036 <a href="http://www.ansi.org">www.ansi.org</a>	ANSI A190.1-2002 ANSI ZI24.9-2004 NSF/ANSI 140-2007	4.502 Table 4.303.3, 9.303.3 4.504.3, 5.504.4.4, 9.504.3, 10.504.4.4
<b>ASHRAE</b> American Society of Heating, Refrigerating and Air-		
1791 Tullie Circle, NE Atlanta, GA 30329 <a href="http://www.ashrae.org">www.ashrae.org</a>	52.1-92 52.2-99 62.2 90.1	A5.504.1 A4.502 A5.504.1 5.108.8, 10.108.8
<b>ASME</b> American Society of Mechanical Engineers		
Three Park Avenue New York, NY 10016-5990 <a href="http://www.asme.org">www.asme.org</a>	ASME A112.18.1  ASME A112.19 ASME A112.19.2  ASME A112.19.14  ASME A112.19.19	Table 4.303.3, 5.303.6, Table 9.303.3, 10.303.6 5.303.6, 10.303.6 Table 4.303.3, 5.303.2, Table 9.303.3, 10.303.2 Table 4.303.3, 5.303.6, Table 9.303.3, 10.303.6 Table 4.303.3, 9.303.3
<b>ASTM</b> ASTM International		

100 Barr Harbor Drive West Conshohocken, PA 19428-2859 <a href="http://www.astm.org">www.astm.org</a>	ASTM C 33 ASTM C 1371-98 ASTM E 90 ASTM E 408-71(2002) ASTM E 413 ASTM E1333-96 (2002) ASTM E 1903-97 ASTM E 1980-01	A5.405.5.3.2 A4.205.1 5.507.5, 10.507.5 A4.205.1 5.507.5, 10.507.5 Table 4.504.5, 9.504.5 A5.103.4 A4.106.5.3
<b>CSA Canadian Standards Association</b>		
5060 Spectrum Way, Suite 100 Mississauga, Ontario, Canada L4W 5N6 <a href="http://www.csa.ca">www.csa.ca</a>	CSA B45.1  CSA B125.1	Table 4.303.1, Table 4.303.3 Table 9.303.1, 9.403.3 Table 4.303.3, 5.303.6 Table 9.303.3, 10.303.6
<b>IAPMO International Association of Plumbing and Mechanical Officials</b>		
5001 E. Philadelphia St. Ontario, CA 91761 <a href="mailto:iapmo@iapmo.org">iapmo@iapmo.org</a>	IAPMO Z124.9	Table 4.303.3, 5.303.6 Table 9.303.3, 10.303.6
<b>NEBB National Environmental Balancing</b>		
8575 Grovemont Cir Gaithersburg, MD 20877 <a href="http://nebb.org/index.php">http://nebb.org/index.php</a>	Procedural Standards, 1983	5.410.4.3.1, 10.410.4.3.1 A5.410.5.3.1
<b>NSF International</b>		
789 Dixboro Rd. Ann Arbor, MI 48113-0140 <a href="http://www.nsf.org/">http://www.nsf.org/</a>	NSF/ANSI 140-2007	4.504.3, 5.504.4.4, 9.504.3, 10.504.4.4
<b>TABB Testing, Adjusting and Balancing Bureau</b>		
601 N Fairfax St, Ste 250 Alexandria, VA 22314 <a href="http://www.tabbcertified.org/contact.html">http://www.tabbcertified.org/contact.html</a>	National Standards, 2003	5.410.3.3.1, 10.410.3.3.1 A5.410.5.3.1

## ARTICLE 9, DIVISION 7

### INSTALLER AND SPECIAL INSPECTOR QUALIFICATIONS

**99.07.702.1. Installer Training.** HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:

1. State certified apprenticeship programs;
2. Public utility training programs;
3. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations;
4. Programs sponsored by manufacturing organizations; or
5. Other programs acceptable to the Department.

**99.07.702.2. Special Inspection for Low-Rise Residential Buildings.** When required by the Department, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the Department for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the Department, the following certifications or education may be considered by the Department when evaluating the qualifications of a special inspector:

1. Certification by a national or regional green building program or standard publisher.
2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors.
3. Successful completion of a third party apprentice training program in the appropriate trade.
4. Other programs acceptable to the Department.

**Notes:**

1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.
2. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS).

**99.07.702.3. Special Inspection for Non-Residential and High-Rise Buildings.** When required by the Department, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the Department for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national, or international association, as determined by the Department. The area of certification shall be closely related to the primary job function, as determined by the Department..

**Note:** Special inspectors shall be independent entities with no financial

interest in the materials or the project they are inspecting for compliance with this code.

**99.07.703. VERIFICATIONS.**

**99.07.703.1. Documentation.** Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the Department which demonstrate substantial conformance.

**ARTICLE 9, DIVISION 8**

**COMPLIANCE FORMS AND WORKSHEETS**

**ARTICLE 9, DIVISION 9**

**MANDATORY MEASURES FOR ALTERATIONS AND ADDITIONS TO LOW-RISE RESIDENTIAL BUILDINGS**

**99.09.100. Scope.** The provisions herein shall only apply to additions or alterations unless otherwise indicated. Legally existing portions of the building not affected by the addition or alteration may remain as previously permitted.

**PLANNING AND DESIGN**

**99.09.101. GENERAL.**

**99.09.101.1. Purpose.** The provisions of this division outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore, and enhance the environmental quality of the site and respect the integrity of adjacent properties.

**99.09.102. DEFINITIONS.**

**99.09.102.1. Definitions.** Refer to Section 4.102.1 of this code for definitions.

**99.09.103. SITE SELECTION. (Reserved)**

**99.09.104. SITE PRESERVATION. (Reserved)**

**99.09.105. DECONSTRUCTION AND REUSE OF EXISTING STRUCTURES. (Reserved)**

**99.09.106. SITE DEVELOPMENT.**

**99.09.106.1. General.** Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects

on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.

**99.09.106.2. Storm Water Drainage and Retention During Construction.**

Additions which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site:

1. Retention basins of sufficient size shall be utilized to retain storm water on the site;
2. Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the Department;
3. Compliance with City of Los Angeles' storm water management ordinance(s).

**99.09.106.3. Surface Drainage.** The site shall be planned and developed to keep surface water from entering buildings. Construction plans shall indicate how the site grading or drainage system will manage surface water flows. Examples of methods to manage surface water include, but are not limited to, the following:

1. Swales;
2. Water collection and disposal systems;
3. French drains;
4. Water retention gardens; or
5. Other water measures which keep surface water away from building and aid in groundwater recharge.

**Exception:** Alterations and additions not effecting site drainage.

## **ENERGY EFFICIENCY**

**99.09.201. GENERAL.**

**99.09.201.1. Scope.** The provisions of this division shall establish means of conserving energy.

**99.09.202. DEFINITIONS.**

**99.09.202.1. Definitions.** Refer to Section 4.202 for definitions.

**99.09.203. PERFORMANCE APPROACH. (Reserved)**

**99.09.204. ENERGY REDUCTION.**

**99.09.204.1. Prescriptive Approach.** New equipment and fixtures shall comply with the following where applicable:

1. Installed gas-fired space heating equipment shall have an Annual Fuel Utilization Ratio (AFUE) of .90 or higher.
2. Installed electric heat pumps shall have a Heating Seasonal Performance Factor (HSFP) of 8.0 or higher.
3. Installed cooling equipment shall have a Seasonal Energy Efficiency Ratio (SEER) higher than 13.0 and an Energy Efficiency Ratio (EER) of at least 11.5.
4. Installed tank type water heaters shall have an Energy Factor (EF) higher than .6.
5. Installed tankless water heater shall have an Energy Factor (EF) higher than .80.
6. For new ducts, perform duct leakage testing to verify a total leakage rate of less than 6 percent of the total fan flow.
7. Building lighting in the kitchen and bathrooms within the dwelling units shall consist of at least 90 percent ENERGY STAR qualified hard-wired fixtures (luminaires).
8. Installed swimming pool circulating pump motors shall be multi-speed or variable-speed. The pump motor controls shall have the capability of operating the pump at a minimum of three speeds; low speed, medium speed, and high speed. The daily low speed shall not exceed 300 watts. The daily medium speed shall be adjustable.

**Exception:**

1. Projects exceeding the California Energy Code requirements by 15 percent using an Alternative Calculation Method (ACM) approved by the California Energy Commission.
2. Addition and alterations to buildings for which building plans were submitted for plan check and the plan check fee was paid prior to June 1, 2011.

**99.09.205. BUILDING ENVELOPE. (Reserved)**

**99.09.206. AIR SEALING PACKAGE. (Reserved)**

**99.09.207. HVAC DESIGN, EQUIPMENT AND INSTALLATION. (Reserved)**

**99.09.208. LIGHTING. (Reserved)**

**99.09.209. APPLIANCES.**

**99.09.210.1. Appliance Rating.** Each new residential grade appliance provided and installed shall meet ENERGY STAR, if an ENERGY STAR designation is applicable for that appliance.

**99.09.211. RENEWABLE ENERGY.**

**99.09.211.1. (Reserved)**

**99.09.211.2. (Reserved)**

**99.09.211.4. Future Access for Electrical Solar System.** For an addition resulting in more than 2,000 sq. ft. of new roof area, an electrical conduit shall be provided from the electrical service equipment to an accessible location in the attic or other location suitable for future connection to a solar system. The conduit shall be adequately sized by the designer but shall not be less than one inch. The conduit shall be labeled as per the Los Angeles Fire Department requirements. The electrical panel shall be sized to accommodate the installation of a future electrical solar system.

**Exceptions:** Buildings designed and constructed with a solar photovoltaic system or an alternate system with means of generating electricity at time of final inspection.

**99.09.211.4.1. Space for Future Electrical Solar System Installation.** For additions resulting in more than 2,000 sq. ft. of new roof area, a minimum of 250 square feet of contiguous unobstructed roof area shall be provided for the installation of future photovoltaic or other electrical solar panels. The location shall be suitable for installing future solar panels as determined by the designer.

**Exceptions:**

1. Buildings designed and constructed with a solar photovoltaic system or an alternate system with means of generating electricity at time of final inspection are exempt from this requirement.
2. Where it is not feasible to provide one contiguous area due to the roof configuration, two unobstructed roof areas with a minimum combined area of 250 square feet maybe provided.
3. Buildings designed with a green roof making it unfeasible to provide this area.

**WATER EFFICIENCY AND CONSERVATION**

**99.09.301. GENERAL.**

**99.09.301.1. Scope.** The provisions of this division shall establish means of conserving water used indoors, outdoors and in wastewater conveyance.

**99.09.302. DEFINITIONS. (Reserved)**

**99.09.303. INDOOR WATER USE.**

**99.09.303.1. Water Use Reduction.** New plumbing fixtures and fittings shall not exceed maximum allowable flow rate specified in Table 9.303.2.

**99.09.303.2. Multiple Showerheads Serving One Shower.** When single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the maximum allowable flow rate column contained in Table 9.303.2 or the shower shall be designed to only allow one showerhead to be in operation at a time.

**Exception:** When a calculation demonstrating a 20 percent reduction in the building “water use” baseline as established in Table 9.303.1 is provided, the maximum flow rate may be increased to 2.5 gpm @ 80 psi. The calculation shall be limited to the following plumbing fixture and fitting types: water closets, urinals, lavatory faucets, and showerheads.

**TABLE 9.303.1  
INDOOR WATER USE BASELINE<sup>1</sup>**

Fixture Type	Flow-rate <sup>2</sup>	Duration	Daily uses	Occupants <sup>3</sup>
Showerheads, residential	2.5 gpm @ 80 psi	8 min.	1	
Lavatory faucets, residential	2.2 gpm @ 60 psi	.25 min.	3	
Replacement aerators	2.2 gpm @ 60 psi			
Gravity tank type water closets	1.6 gallons/flush	1 flush	1 male <sup>4</sup> 3 female	
Flushometer tank water closets	1.6 gallons/flush	1 flush	1 male <sup>4</sup> 3 female	
Flushometer valve water closets	1.6 gallons/flush	1 flush	1 male <sup>4</sup> 3 female	
Urinals	1.0 gallons/flush	1 flush	2 male	

Fixture “Water Use” = Flow rate x Duration x Occupants x Daily uses

<sup>1</sup>Use Worksheet WS-1 to calculate baseline water use.

<sup>2</sup>The flow-rate is from the CEC Appliance Efficiency Standards, Title 20, California Code of Regulations; where a conflict occurs, the CEC standards shall apply.

<sup>3</sup>For low-rise residential occupancies, the number of occupants shall be based on two people for the first bedroom, plus one additional person for each additional bedroom

<sup>4</sup>The daily use shall be increased to three if urinals are not installed in the room.

**TABLE 9.303.2  
FIXTURE FLOW RATES**

<b>FIXTURE TYPE</b>	<b>FLOW RATE</b>	<b>MAXIMUM ALLOWABLE FLOW RATE</b>
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi
Lavatory faucets residential	2.2 gpm @ 60 psi	1.5 gpm @ 60 psi
Gravity tank type water closets	1.6 gallons/flush	1.28 gallons/flush <sup>1</sup>
Flushometer tank water closets	1.6 gallons/flush	1.28 gallons/flush <sup>1</sup>
Flushometer valve water closets	1.6 gallons/flush	1.28 gallons/flush <sup>1</sup>
Urinals	1.0 gallons/flush	0.125 gallons/flush

<sup>1</sup>Includes single and dual flush water closets with an effective flush of 1.28 gallons or less.  
 Single Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.233.2.  
 Dual Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.  
<sup>2</sup>Lavatory faucets shall not have a flow rate less than 0.8 gpm at 20 psi

**99.09.303.3. Plumbing Fixtures and Fittings.** New plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall meet the standards referenced in Table 9.303.3.

**TABLE 9.303.3  
STANDARDS FOR PLUMBING FIXTURES AND FIXTURE FITTINGS**

<b>REQUIRED STANDARDS</b>	
Water closets (toilets) – flushometer valve type single flush, maximum flush volume	ASME A112.19.2/CSA B45.1 – 1.28 gal (4.8 L)
Water closets (toilets) – flushometer valve type dual flush, maximum flush volume	ASME A112.19.14 and USEPA WaterSense Tank-Type High Efficiency Toilet Specification – 1.28 gal (4.8 L).
Water closets (toilets) – tank-type	U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification
Urinals, maximum flush volume	ASME A112.19.2/CSA B45.1 – 0.5 gal (1.9 L)
Urinals, non-water urinals	ASME A112.19.19 (vitreous china) ANSI Z124.9–2004 or IAPMO Z124.9 (plastic)
Public lavatory faucets: Maximum flow rate –0.5 gpm (1.9 L/min)	ASME A112.18.1/CSA B125.1

Public metering self-closing faucets: Maximum water use – 0.25 gal (1.0 L) per metering cycle	ASME A112.18.1/CSA B125.1
Residential bathroom lavatory sink faucets: Maximum flow rate – 1.5 gpm (5.7 L/min)	ASME A112.18.1/CSA B125.1

#### 99.09.304. OUTDOOR WATER USE.

**99.09.304.1. Irrigation Controllers.** When automatic irrigation system controllers for landscaping are provided and installed at the time of final inspection, the controllers shall comply with the following:

1. Controllers shall be weather - or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.
2. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.

**Note:** More information regarding irrigation controller function and specifications is available from the Irrigation Association.

**99.09.304.1.1. Irrigation Design.** A building addition, on a site with 2,500 square feet or more of cumulative landscaped area being served by a potable water service, shall have irrigation controllers and sensors that meet 99.09.304.1 and the manufacturer's recommendations.

**Exception:** An addition that is less than 500 square feet.

#### 99.09.305. WATER REUSE SYSTEMS. (Reserved)

### MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

#### 99.09.401. GENERAL.

**99.09.401.1. Scope.** The provisions of this division shall outline means of achieving material conservation and resource efficiency through protection of buildings from exterior moisture; construction waste diversion; employment of techniques to reduce pollution through recycling of materials; and building commissioning or testing, adjusting and balancing.

#### 99.09.402. DEFINITIONS.

**99.09.402.1. Definitions.** Refer to Section 4.402 of this code for definitions.

**99.09.403. FOUNDATION SYSTEMS. (Reserved)**

**99.09.404. EFFICIENT FRAMING TECHNIQUES. (Reserved)**

**99.09.405. MATERIAL SOURCES. (Reserved)**

**99.09.406. ENHANCED DURABILITY AND REDUCED MAINTENANCE.**

**99.09.406.1. Joints and Openings.** New openings in the building envelope separating conditioned space from unconditioned space needed to accommodate gas, plumbing, electrical lines and other necessary penetrations must be sealed in compliance with the California Energy Code.

**Exception:** Annular spaces around pipes, electric cables, conduits, or other openings in plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or similar method acceptable to the Department.

**99.09.402. WATER RESISTANCE AND MOISTURE MANAGEMENT.**

**99.09.407.1. (Reserved)**

**99.09.407.2. (Reserved)**

**99.09.407.3. Flashing Details.** Provide flashing details on the building plans which comply with accepted industry standards or manufacturer's instructions at all of the following locations:

1. Around windows and doors;
2. Roof valleys;
3. Chimneys to roof intersections.

**99.09.407.4. Material Protection.** Protect building materials delivered to the construction site from rain and other sources of moisture.

**99.09.408.1. CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING.**

**99.09.408.1 Construction Waste Reduction.** Comply with Section 66.32 *et seq.* of the Los Angeles Municipal Code.

**99.09.409. LIFE-CYCLE ASSESSMENT. (Reserved)**

**99.09.410. BUILDING MAINTENANCE AND OPERATION.**

**99.09.410.1. Operation and Maintenance Manual.** At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the Department which includes all of the following shall be placed in the building:

1. Directions to the owner or occupant that the manual shall remain with the building.
2. Operation and maintenance instructions for the following:
  - a. New equipment and appliances, including water saving devices and systems, HVAC systems, water heating systems and other major appliances and equipment;
  - b. New roof and yard drainage, including gutters and downspouts;
  - c. New space conditioning systems including condenser and air filters;
  - d. New landscape irrigation systems;
  - e. New water reuse systems.

## **ENVIRONMENTAL QUALITY**

### **99.09.501. GENERAL.**

**99.09.501.1. Scope.** The provisions of this division shall outline means of reducing the quantity of air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of a building's installers, occupants and neighbors.

### **99.09.502. DEFINITIONS.**

**99.09.502.1. Definitions.** Refer to Section 4.502 of this code for definitions.

### **99.09.503.1. FIREPLACES.**

**99.09.503.1. General.** Any newly installed gas fireplace shall be a direct-vent sealed-combustion type. Any newly installed woodstove or pellet stove shall comply with US EPA Phase II emission limits where applicable. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.

### **99.09.504. POLLUTANT CONTROL.**

**99.09.504.1. Covering of Duct Openings and Protection of Mechanical Equipment During Construction.** At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the Department to reduce the amount of dust or debris which may collect in the system.

**99.09.504.2. Finish Material Pollutant Control.** Finish materials shall comply with this section.

**99.09.504.2.1. Adhesives, Sealants and Caulks.** Adhesives, sealants and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:

1. 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 9.504.1 or 9.504.2 as applicable. 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;
2. 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 1 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.

**99.09.504.2.2. Paints and Coatings.** Architectural paints and coatings shall comply with VOC limits in Table I of the ARB Architectural Suggested Control Measure as shown in Table 9.504.3 unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 9.504.3, shall be determined by classifying the coating as a Flat, Nonflat, or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat, or Nonflat-High Gloss VOC limit in Table 9.504.3 shall apply.

**99.09.504.2.3. Aerosol Paints and Coatings.** Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.

**TABLE 9.504.1  
ADHESIVE VOC LIMIT<sup>1,2</sup>  
Less Water And Less Exempt Compounds In Grams Per Liter**

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
Indoor carpet adhesives	50
Carpet pad adhesives	50

Outdoor carpet adhesives	150
Wood flooring adhesive	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Drywall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single-ply roof membrane adhesives	250
Other adhesive not specifically listed	50
<b>SPECIALTY APPLICATIONS</b>	
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Contact adhesive	80
Special purpose contact adhesive	250
Structural wood member adhesive	140
Top and trim adhesive	250
<b>SUBSTRATE SPECIFIC APPLICATIONS</b>	
Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fiberglass	80

<sup>1</sup> If an adhesive is used to bond dissimilar substrates together, the adhesive with the highest VOC content shall be allowed.

<sup>2</sup> For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1168.

**TABLE 9.504.2  
SEALANT VOC LIMIT  
Less Water and Less Exempt Compounds in Grams per Liter**

SEALANTS	CURRENT VOC LIMIT
Architectural	250
Marine deck	760
Nonmembrane roof	300
Roadway	250
Single-Ply roof membrane	450
Other	420
SEALANT PRIMERS	
Architectural	
Non porous	250
Porous	775
Modified bituminous	500
Marine deck	760
Other	750

**TABLE 9.504.3  
VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS<sup>2,3</sup>  
Grams of VOC Per Liter of Coating, Less Water and Less Exempt Compounds**

COATING CATEGORY	EFFECTIVE 1/1/2010	EFFECTIVE 1/1/2012
Flat coatings	50	
Nonflat coatings	100	
Nonflat-high gloss coatings	150	
<b>Specialty Coatings</b>		
Aluminum roof coatings	400	
Basement specialty coatings	400	
Bituminous roof coatings	50	
Bituminous roof primers	350	
Bond breakers	350	
Concrete curing compounds	350	
Concrete/masonry sealers	100	
Driveway sealers	50	
Dry fog coatings	150	
Faux finishing coatings	350	

Fire resistive coatings	350	
Floor coatings	100	
Form-release compounds	250	
Graphic arts coatings (sign paints)	500	
High temperature coatings	420	
Industrial maintenance coatings	250	
Low solids coatings <sup>1</sup>	120	
Magnesite cement coatings	450	
Mastic texture coatings	100	
Metallic pigmented coatings	500	
Multicolor coatings	250	
Pre-treatment wash primers	420	
Primers, sealers, and undercoaters	100	
Reactive penetrating sealers	350	
Recycled coatings	250	
Roof coatings	50	
Rust preventative coatings	400	250
Shellacs		
Clear	730	
Opaque	550	
Specialty primers, sealers, and undercoaters	350	100
Stains	250	
Stone consolidants	450	
Swimming pool coatings	340	
Traffic marking coatings	100	
Tub and tile refinish coatings	420	
Waterproofing membranes	250	
Wood coatings	275	
Wood preservatives	350	
Zinc-rich primers	340	

<sup>1</sup>Grams of VOC per liter of coating, including water and including exempt compounds.

<sup>2</sup>The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.

<sup>3</sup>Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available from the Air Resource Board.

**99.09.504.2.4. Verification.** Verification of compliance with this section shall be provided at the request of the Department. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification;
2. Field verification of on-site product containers;
3. Other methods acceptable to the Department.

**99.09.504.3. Carpet Systems.** All new carpet installed in the building interior shall meet the testing and product requirements of one of the following:

1. Carpet and Rug Institute's Green Label Plus Program;
2. California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350);
3. NSF/ANSI 140 at the Gold level; or
4. Scientific Certifications Systems Indoor Advantage™ Gold.

**99.09.504.3.1. Carpet Cushion.** All new carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.

**99.09.504.3.2. Carpet Adhesive.** All carpet adhesive shall meet the requirements of Table 9.504.1.

**99.09.504.4. Resilient Flooring Systems.** Where new resilient flooring is installed, at least 50 percent of floor area receiving resilient flooring shall comply with the VOC-emission limits defined in the Collaborative for High Performance Schools (CHPS) Low-emitting Materials List or certified under the Resilient Floor Covering Institute (RCFI) FloorScore program.

**99.09.504.5. Composite Wood Products.** New hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections as shown in Table 9.504.5.

**99.09.504.5.1. Documentation.** Verification of compliance with this section shall be provided as requested by the Department. Documentation shall include at least one of the following:

1. Product certifications and specifications;
2. Chain of custody certifications; or
3. Other methods acceptable to the Department.

**TABLE 9.504.5  
FORMALDEHYDE LIMITS<sup>1</sup>  
Maximum Formaldehyde Emissions in Parts per Million.**

PRODUCT	CURRENT LIMIT	JANUARY 1, 2012	JULY 1, 2012
Hardwood Plywood Veneer Core	0.05		
Hardwood Plywood Composite Core	0.08		0.05
Particle Board	0.09		
Medium Density Fiberboard	0.11		
Thin Medium Density Fiberboard <sup>2</sup>	0.21	0.13	

<sup>1</sup>Values in this table are derived from those specified by the California Air Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E1333-96 (2002). For additional information, see California Code of Regulations, Title 17, Sections 93120 through 93120.12.

<sup>2</sup>Thin medium density fiberboard has a maximum thickness of 8 millimeters.

**99.09.505. INTERIOR MOISTURE CONTROL.**

**99.09.505.1. General.** Buildings shall meet or exceed the provisions of the Los Angeles Building Standards Code.

**99.09.505.2. Concrete Slab Foundations.** Concrete slab foundations required to have a vapor retarder by Los Angeles Building Code, Chapter 19, shall also comply with this section.

**99.09.505.2.1. Capillary Break.** A capillary break shall be installed in compliance with at least one of the following:

1. A 4-inch (101.6 mm) thick base of ½ inch (12.7 mm) or larger clean aggregate shall be provided with a vapor barrier in direct contact with concrete and a concrete mix design which will address bleeding, shrinkage, and curling, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06;
2. Other equivalent methods approved by the Department; or
3. A slab design specified by a licensed design professional.

**99.09.505.3. Moisture Content of Building Materials.** Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed until it is inspected and found to be satisfactory by the building inspector.

Insulation products which are visibly wet or have high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.

#### **99.09.506. INDOOR AIR QUALITY AND EXHAUST.**

**99.09.506.1. Bathroom Exhaust Fans.** New mechanical exhaust fans which exhaust directly from bathrooms shall comply with the following:

1. Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building;
2. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidistat which shall be readily accessible.

Humidistat controls shall be capable of adjustment between a relative humidity range of 50 to 80 percent.

**Note:** For the purposes of this section, a bathroom is a room which contains a bathtub, shower, or tub/shower combination.

#### **99.09.507. ENVIRONMENTAL COMFORT.**

**99.09.507.1. Openings.** New whole house exhaust fans shall have insulated louvers or covers which close when the fan is off. Covers or louvers shall have a minimum insulation value of R-4.2.

**99.09.507.2. Heating and Air Conditioning System Design.** New heating and air conditioning systems shall be sized, designed, and have their equipment selected using the following methods:

1. The heat loss and heat gain is established according to ACCA Manual J, ASHRAE handbooks or other equivalent design software or methods;
2. Duct systems are sized according to ACCA 29-D Manual D, ASHRAE handbooks or other equivalent design software or methods;
3. Select heating and cooling equipment according to ACCA 36-S Manual S or other equivalent design software or methods.

**Exception:** Use of alternate design temperatures necessary to ensure the systems function are acceptable.

#### **99.09.508. OUTDOOR AIR QUALITY. (Reserved)**

## ARTICLE 9, DIVISION 10

### MANDATORY MEASURES FOR ADDITIONS AND ALTERATIONS TO NONRESIDENTIAL AND HIGH-RISE RESIDENTIAL BUILDINGS

**99.10.100. Scope.** The provisions herein shall only apply to additions or alterations unless otherwise indicated. Legally existing portions of the building not affected by the addition or alteration may remain as previously permitted.

#### PLANNING AND DESIGN

##### **99.10.101. GENERAL.**

**99.10.101.1. Purpose.** The provisions of this division outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore and enhance the environmental quality of the site and respect the integrity of adjacent properties.

##### **99.10.102. DEFINITIONS.**

**99.10.102.1. Definitions.** Refer to Section 5.102 of this code for definitions.

##### **99.10.103. SITE SELECTION. (Reserved)**

##### **99.10.104. SITE PRESERVATION. (Reserved)**

##### **99.10.105. DECONSTRUCTION AND REUSE OF EXISTING STRUCTURES. (Reserved)**

##### **99.10.106. SITE DEVELOPMENT.**

###### **99.10.106.1. Storm Water Drainage and Retention During Construction.**

Additions which disturb less than one acre of soil, shall manage storm water drainage during construction. In order to manage storm water drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site:

1. Retention basins of sufficient size shall be utilized to retain storm water on the site;
2. Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the Department; or
3. Compliance with City of Los Angeles' storm water management ordinance(s).

##### **99.10.106.2. (Reserved)**

**99.10.106.3. (Reserved)**

**99.10.106.4. Bicycle Parking.** Additions or alterations resulting in ten or more additional vehicular parking spaces shall be provided with permanently anchored bicycle racks within 200 feet of the building's entrance. The number of bicycle parking provided shall be equal to 5 percent of the new vehicular parking spaces being provided, rounded up to the next whole number.

**99.10.106.5. Designated Parking.** Additions or alterations resulting in additional vehicular parking shall designate a number of parking spaces for any combination of low-emitting, fuel- efficient, and carpool/van pool vehicles by means of a permanent marking or a sign as follows:

**TABLE 10.106.5.2**

<b>NUMBER OF ADDITIONAL PARKING SPACES PROVIDED</b>	<b>NUMBER OF REQUIRED DESIGNATED SPACES</b>
1-9	0
10-25	1
26-50	3
51-75	6
76-100	8
101-150	11
151-200	16
201 and over	At least 8 percent of total <sup>1</sup>

<sup>1</sup>When the application of this regulation results in the requirement of a fractional space, round up to the next whole number.

**99.10.106.7. (Reserved)**

**99.10.106.8. Light Pollution Reduction.** Comply with lighting power requirements in the California Energy Code, California Code of Regulations (CCR), Title 24, Part 6, and design interior and exterior lighting such that zero direct-beam illumination leaves the building site. Meet or exceed exterior light levels and uniformity ratios for lighting zones 1-4 as defined in Chapter 10 of the California Administrative Code, CCR, Title 24, Part 1, using the following strategies:

1. Shield all exterior luminaires or provide cutoff luminaires per Section 132 (b) of the California Energy Code;
2. Contain interior lighting within each source;
3. Allow no more than .01 horizontal lumen footcandles to escape 15 feet beyond the site boundary; and
4. Automatically control exterior lighting dusk to dawn to turn off or lower light levels during inactive periods.

**Exceptions:**

1. Los Angeles Building Code, Chapter 12, Section 1205.6 for campus lighting requirements for parking facilities and walkways.
2. Emergency lighting and lighting required for nighttime security.

**99.10.106.9. (Reserved)**

**99.10.106.10. Grading and Paving.** The site shall be planned and developed to keep surface water from entering buildings. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows.

**Exception:** Additions and alterations not altering the drainage path.

**ENERGY EFFICIENCY**

**99.10.201. GENERAL.**

**99.10.201.1. Scope.** The provisions of this division shall establish means of conserving energy.

**99.10.203. PERFORMANCE APPROACH.**

**99.10.203.1. Energy Performance.** Using an Alternative Calculation Method approved by the California Energy Commission, calculate the building's TDV energy and CO<sub>2</sub> emissions, and compare it to the standard or "budget" building.

**99.10.203.1.1. Energy Efficiency – Exceed California Energy Code, based on the 2008 Energy Efficiency Standards, by 15 percent.**

**Exception:**

1. Buildings for which building plans were submitted for plan check to the Department and the plan check fee was paid prior to June 1, 2011.
2. Exceed the California Energy Code by ten percent, if using existing mechanical equipment.
3. Alterations.

**99.10.204. PRESCRIPTIVE MEASURES. (Reserved)**

**99.10.210. ENERGY SYSTEMS.**

**99.10.210.1. ENERGY STAR Equipment and Appliances.** New residential grade equipment and appliances provided and installed shall be ENERGY STAR labeled if ENERGY STAR is applicable to that equipment or appliance.

**99.10.211. RENEWABLE ENERGY.**

**99.10.211.1. (Reserved)**

**99.10.211.2. (Reserved)**

**99.10.211.3. (Reserved)**

**99.10.211.4. Prewiring for Future Electrical Solar System.** For additions resulting in more than 2,000 sq. ft. of new roof area, install conduit from the building roof, eave, or other location approved by the Department to the electrical service equipment. The conduit shall be labeled as per the Los Angeles Fire Department requirements.

**Exception:** Buildings designed and constructed with a solar photovoltaic system or an alternate system with means of generating electricity at time of final inspection.

**99.10.211.4.1. Off-Grid Prewiring for Future Solar.** If battery storage is anticipated, conduit shall run to a location within the building that is weather-proof and separated from occupied spaces.

**WATER EFFICIENCY AND CONSERVATION**

**99.10.301. GENERAL.**

**99.10.301.1. Scope.** The provisions of this division shall establish means of conserving water used indoors, outdoors, and in wastewater conveyance.

**99.10.302. DEFINITIONS.**

**99.10.302.1. Definitions.** Refer to Section 5.302 of this code for definitions.

**99.10.303. INDOOR WATER USE.**

**99.10.303.1. Meters.** For every addition, separate meters or metering device shall be installed for the uses described in Sections 99.10.303.1.1 and 99.10.303.1.2.

**99.10.303.1.1. Additions in Excess of 50,000 Square Feet.** Separate submeters shall be installed for each tenant space within an addition when the tenant is projected to consume more than 100 gal/day.

**99.10.303.1.2. Excess Consumption.** Any addition or space within an addition that is projected to consume more than 1,000 gal/day.

**99.10.303.2. Water Use Reduction.** New plumbing fixtures and fittings shall not exceed the maximum allowable flow rate specified in Table 10.303.2.3.

**99.10.303.3. Multiple Showerheads Serving One Shower.** For newly installed showerheads, when single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the maximum allowable flow rate column contained in Table 10.303.2.3 or the shower shall be designed to only allow one showerhead to be in operation at a time.

**Exception:** When a calculation demonstrating a 20 percent reduction in the building “water use” baseline as established in Table 10.303.2.2 is provided, the maximum flow rate may be increased to 2.5 gpm @ 80 psi.

**TABLE 10.303.2.2  
INDOOR WATER USE BASELINE<sup>4</sup>**

FIXTURE TYPE	FLOW RATE <sup>2</sup>	DURATION	DAILY USES	OCCUPANTS <sup>3</sup>
Showerheads	2.5 gpm @ 80 psi	8 min.	1	X
Kitchen faucets	2.2 gpm @ 60 psi	4 min.	1	X
Replacement aerators	2.2 gpm @ 60 psi			X
Wash fountains	2.2 [rim space (in.)/20 gpm @ 60 psi]			X
Metering faucets	0.25 gallons/cycle	.25 min.	3	X
Metering faucets for wash fountains	.25 [rim space (in.)/20 gpm @ 60 psi]	.25 min.		X
Gravity tank type water closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Flushometer tank water closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Flushometer valve water closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Urinals	1.0 gallons/flush	1 flush	2 male	X

Fixture “Water Use” = Flow rate x Duration x Occupants x Daily uses

<sup>1</sup>The daily use number shall be increased to three if urinals are not installed in the room.

<sup>2</sup>The Flow-rate is from the CEC Appliance Efficiency Standards, Title 20, California Code of Regulations; where a conflict occurs, the CEC standards shall apply.

<sup>3</sup>Refer to Table A, Chapter 4, Los Angeles Plumbing Code, for occupant load factors.

<sup>4</sup>Use Worksheet WS-1 to calculate base line water use.

**TABLE 10.303.2.3  
FIXTURE FLOW RATES**

<b>FIXTURE TYPE</b>	<b>FLOW RATE</b>	<b>MAXIMUM ALLOWABLE FLOW RATE</b>
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi
Kitchen faucets	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi
Wash fountains	2.2 [rim space (in.) / 20 gpm @ 60 psi]	1.8 [rim space (in.) / 20 Gpm @ 60 psi]
Metering faucets	0.25 gallons/cycle	0.2 gallons/cycle
Metering faucets for wash fountains	.25 [rim space (in.) / 20 gpm @ 60 psi]	.20 [rim space (in.) / 20 Gpm @ 60 psi]
Gravity tank type water closets	1.6 gallons/flush	1.28 gallons/flush <sup>1</sup>
Flushometer tank water closets	1.6 gallons/flush	1.28 gallons/flush <sup>1</sup>
Flushometer valve water closets	1.6 gallons/flush	1.28 gallons/flush <sup>1</sup>
Urinals	1.0 gallons/flush	0.125 gallons/flush

<sup>1</sup>Includes single and dual flush water closets with an effective flush of 1.28 gallons or.

Single flush toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.233.2.

Dual flush toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.

**99.10.303.4. Wastewater Reduction. (Reserved)**

**99.10.303.6. Plumbing Fixtures and Fittings.** Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall meet the standards referenced in Table 10.503.6.

**TABLE 10.303.6  
STANDARDS FOR PLUMBING FIXTURES AND FIXTURE FITTINGS**

<b>REQUIRED STANDARDS</b>	
Water closets (toilets) – flushometer valve type single flush, maximum flush volume	ASME A112.19.2/CSA B45.1 – 1.28 gal (4.8 L)
Water closets (toilets) – flushometer valve type dual flush, maximum flush volume	ASME A112.19.14 and USEPA WaterSense Tank-Type High Efficiency Toilet Specification – 1.28 gal (4.8 L).
Water closets (toilets) – tank-type	U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification

Urinals, maximum flush volume	ASME A112.19.2/CSA B45.1 – 0.5 gal (1.9 L)
Urinals, nonwater urinals	ASME A112.19.19 (vitreous china) ANSI Z124.9–2004 or IAPMO Z124.9 (plastic)
Public lavatory faucets: Maximum flow rate – 0.5 gpm (1.9 L/min)	ASME A112.18.1/CSA B125.1
Public metering self-closing faucets: Maximum water use – 0.25 gal (1.0 L) per metering cycle	ASME A112.18.1/CSA B125.1
Residential bathroom lavatory sink faucets: Maximum flow rate – 1.5 gpm (5.7 L/min)	ASME A112.18.1/CSA B125.1

#### **99.10.304. OUTDOOR WATER USE.**

##### **99.10.304.1. Water Budget. (Reserved)**

**99.10.304.2. Outdoor Potable Water Use.** Building additions or alterations resulting in a water service upgrade and are located on sites with 1,000 square feet or more of cumulative landscaped areas served by potable water service, shall have separate meters or submeters for indoor and outdoor potable water use.

**99.10.304.3. Irrigation Design.** Building addition and alteration projects, on sites with 1,000 square feet or more of cumulative landscaped areas being served by a potable water service, shall have irrigation controllers and sensors that meet 99.10.304.3.1 and the manufacturer's recommendations.

##### **Exception:**

1. Additions with a permit valuation of less than \$50,000.

**99.10.304.3.1. Irrigation Controllers.** When new automatic irrigation system controllers are installed in conjunction with the addition or alteration, the controllers shall comply with the following:

1. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.
2. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.

##### **99.10.305. WATER REUSE SYSTEMS. (Reserved)**

## MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

### 99.10.401. GENERAL.

**99.10.401.1. Scope.** The provisions of this division shall outline means of achieving material conservation and resource efficiency through protection of buildings from exterior moisture, construction waste diversion, employment of techniques to reduce pollution through recycling of materials, and building commissioning or testing, adjusting and balancing.

### 99.10.402. DEFINITIONS.

**99.10.402.1. Definitions.** Refer to Section 5.402 of this code for definitions.

### 99.10.403. FOUNDATION SYSTEMS. (Reserved)

### 99.10.404. EFFICIENT FRAMING TECHNIQUES. (Reserved)

### 99.10.405. MATERIAL SOURCES. (Reserved)

### 99.10.406. ENHANCED DURABILITY AND REDUCED MAINTENANCE. (Reserved)

### 99.10.407. WATER RESISTANCE AND MOISTURE MANAGEMENT.

**99.10.407.1. Weather Protection.** Provide a weather-resistant exterior wall and foundation envelope as required by Los Angeles Building Code Section 1403.2 (Weather Protection) and California Energy Code Section 150, (Mandatory Features and Devices), manufacturer's installation instructions, or local ordinance, whichever is more stringent.

**99.10.407.2. Moisture Control.** Employ moisture control measures by the following methods.

**99.10.407.2.1. Sprinklers.** For new systems, design and maintain landscape irrigation systems to prevent spray on structures.

**99.10.407.2.2. Entries and Openings.** Design new exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings.

#### Notes:

1. Use features such as overhangs and recesses, and flashings integrated with a drainage plane.
2. Use nonabsorbent floor and wall finishes within at least two feet around and perpendicular to such openings.

**99.10.408. CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING.**

**99.10.408.1. Construction Waste Diversion.** Comply with Section 66.32 *et seq.* of the Los Angeles Municipal Code.

**99.10.408.2. (Reserved)**

**99.10.408.3. (Reserved)**

**99.10.408.4. Excavated Soil and Land Clearing Debris. (Reserved)**

**99.10.409. LIFE CYCLE ASSESSMENT. (Reserved)**

**99.10.410. BUILDING MAINTENANCE AND OPERATION.**

**99.10.410.1. Recycling by Occupants.** Additions exceeding 30 percent of existing floor area shall 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, plastic, and metals.

**99.10.410.2. (Reserved)**

**99.10.410.3. (Reserved)**

**99.10.410.4. Testing and Adjusting.** Testing and adjusting of systems shall be required for any new system.

**99.10.410.4.1. (Reserved)**

**99.10.410.4.2. Systems.** Develop a written plan of procedures for testing and adjusting new systems. Systems to be included for testing and adjusting shall include at a minimum, as applicable to the project:

1. HVAC systems and controls;
2. Indoor and outdoor lighting and controls;
3. Water heating systems;
4. Renewable energy systems;
5. Landscape irrigation systems;
6. Water reuse systems.

**99.10.410.4.3. Procedures.** Perform testing and adjusting procedures in accordance with industry best practices and applicable standards on each system as determined by the building official.

**99.10.410.4.3.1. 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; or Associated Air Balance Council National Standards or as approved by the building official.

**99.10.410.4.4. Reporting.** After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.

**99.10.410.4.5. Operation and Maintenance (O & M) Manual.** Provide the building owner or representative with detailed operating and maintenance instructions and copies of guaranties/warranties for each new system. O & M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations.

**99.10.410.4.5.1. Inspections and Reports.** Include a copy of all inspection verifications and reports required by the Department.

## ENVIRONMENTAL QUALITY

### 99.10.501. GENERAL.

**99.10.501.1. Scope.** The provisions of this division shall outline means of reducing the quantity of air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of a building's installers, occupants, and neighbors.

### 99.10.502. DEFINITIONS.

**99.10.502.1. Definitions.** Refer to Section 5.502 of this code for definitions.

### 99.10.503. FIREPLACES.

**99.10.503.1. General.** 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.

**99.10.503.1.1. Woodstoves.** Woodstoves and pellet stoves shall comply with US EPA Phase II emission limits.

### 99.10.504. POLLUTANT CONTROL.

**99.10.504.1. (Reserved)**

**99.10.504.2. (Reserved)**

**99.10.504.3. Covering of Duct Openings and Protection of Mechanical Equipment During Construction.** At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the Department to reduce the amount of dust or debris which may collect in the system.

**99.10.504.4. Finish Material Pollutant Control.** Finish materials shall comply with Sections 10.504.4.1 through 10.504.4.4.

**99.10.504.4.1. Adhesives, Sealants, and Caulks.** Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards:

1. 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 10.504.4.1 and 10.504.4.2. 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.
2. 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.

**TABLE 10.504.4.1  
ADHESIVE AND SEALANT VOC LIMIT<sup>1,2</sup>  
Less Water and Less Exempt Compounds in Grams per Liter**

Architectural Applications	Current VOC Limit
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesive	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65

VCT and asphalt tile adhesives	50
Drywall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single-ply roof membrane adhesives	250
Other adhesive not specifically listed	50
<b>Specialty Applications</b>	
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Contact adhesive	80
Special purpose contact adhesive	250
Structural wood member adhesive	140
Top and trim adhesive	250
<b>Substrate Specific Applications</b>	
Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fiberglass	80

<sup>1</sup> If an adhesive is used to bond dissimilar substrates together the adhesive with the highest VOC content shall be allowed.

<sup>2</sup> For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1168, <http://www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF>.

**TABLE 10.504.4.2  
SEALANT VOC LIMIT  
Less Water and Less Exempt Compounds in Grams per Liter**

SEALANTS	CURRENT VOC LIMIT
Architectural	250
Marine Deck	760
Nonmembrane roof	300
Roadway	250

Single-ply roof membrane	450
Other	420
<b>SEALANT PRIMERS</b>	
Architectural	
Non porous	250
Porous	775
Modified bituminous	500
Marine deck	760
Other	750

**Note:** For additional information regarding methods to measure the VOC content specified in these tables, see South Coast Air Quality Management District Rule 1168:  
<http://www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF>.

**99.10.504.4.3. Paints and Coatings.** Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 10.504.4.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 10.504.4.3, shall be determined by classifying the coating as a Flat, Nonflat, or Nonflat-High Gloss coating, based on its gloss, as defined in Subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat, or Nonflat-High Gloss VOC limit in Table 10.504.4.3 shall apply.

**99.10.504.4.3.1. Aerosol Paints and Coatings.** Aerosol paints and coatings shall meet the PWMIR Limits for ROC in section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.

**TABLE 10.504.4.3**  
**VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS<sup>2,3</sup>**  
**Grams of VOC Per Liter of Coating, Less Water and Less Exempt Compounds**

COATING CATEGORIES	EFFECTIVE 1/1/2010	EFFECTIVE 1/1/2012
Flat coatings	50	
Nonflat coatings	100	
Nonflat high gloss coatings	150	
<b>Specialty Coatings</b>		
Aluminum roof coatings	400	

Basement specialty coatings	400	
Bituminous roof coatings	50	
Bituminous roof primers	350	
Bond breakers	350	
Concrete curing compounds	350	
Concrete/masonry sealers	100	
Driveway sealers	50	
Dry fog coatings	150	
Faux finishing coatings	350	
Fire resistive coatings	350	
Floor coatings	100	
Form-release compounds	250	
Graphic arts coatings (sign paints)	500	
High temperature coatings	420	
Industrial maintenance coatings	250	
Low solids coatings <sup>1</sup>	120	
Magnesite cement coatings	450	
Mastic texture coatings	100	
Metallic pigmented coatings	500	
Multicolor coatings	250	
Pretreatment wash primers	420	
Primers, sealers and undercoaters	100	
Reactive penetrating sealers	350	
Recycled coatings	250	
Roof coatings	50	
Rust preventative coatings	400	250
Shellacs:		
Clear	730	
Opaque	550	
Specialty primers, sealers and undercoaters	350	100
Stains	250	
Stone consolidants	450	
Swimming pool coatings	340	
Traffic marking coatings	100	
Tub and tile refinish coatings	420	
Waterproofing membranes	250	

Wood coatings	275	
Wood preservatives	350	
Zinc-rich primers	340	

<sup>1</sup>Grams of VOC per Liter of coating, including water and including exempt compounds

<sup>2</sup>The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.

<sup>3</sup>Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available from the Air Resources Board.

**99.10.504.4.3.2. Verification.** Verification of compliance with this section shall be provided at the request of the Department. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification;
2. Field verification of on-site product containers;
3. Other methods acceptable to the Department.

**99.10.504.4.4. Carpet Systems.** All new carpet installed in the building interior shall meet the testing and product requirements of one of the following:

1. Carpet and Rug Institute's Green Label Plus Program;
2. California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350);
3. NSF/ANSI 140 at the Gold level; or
4. Scientific Certifications Systems Sustainable Choice.

**99.10.504.4.4.1. Carpet Cushion.** All new carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.

**99.10.504.4.4.2. Carpet Adhesive.** All carpet adhesive shall meet the requirements of Table 10.504.4.1.

**99.10.504.4.5. Composite Wood Products.** New hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 10.504.4.5.

**99.10.504.4.5.1. Early Compliance. (Reserved)**

**99.10.504.4.5.2. Documentation.** Verification of compliance with this section shall be provided as requested by the Department. Documentation shall include at least one of the following:

1. Product certifications and specifications;
2. Chain of custody certifications; or

3. Other methods acceptable to the Department

**TABLE 10.504.4.5  
FORMALDEHYDE LIMITS<sup>1</sup>  
Maximum Formaldehyde Emissions in Parts per Million.**

PRODUCT	CURRENT LIMIT	JANUARY 1, 2012	JULY 1, 2012
Hardwood plywood veneer core	0.05		
Hardwood plywood composite core	0.08		0.05
Particle board	0.09		
Medium density fiberboard	0.11		
Thin medium density fiberboard <sup>2</sup>	0.21	0.13	

<sup>1</sup>Values in this table are derived from those specified by the California Air Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E1333-96 (2002). For additional information, see California Code of Regulations, Title 17, Sections 93120 through 93120.12.

<sup>2</sup>Thin medium density fiberboard has a maximum thickness of eight millimeters.

**99.10.504.4.6. Resilient Flooring Systems.** For 50 percent of floor area receiving new resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on its Low-emitting Materials List (or Product Registry) or certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.

**99.10.504.4.6.1. Verification of Compliance.** Documentation shall be provided verifying that resilient flooring materials meet the pollutant emission limits.

**99.10.504.5. Filters.** In new mechanical systems, provide air filtration media for outside and return air prior to occupancy that provides at least a Minimum Efficiency Reporting Value (MERV) of 8.

**99.10.504.6. (Reserved)**

**99.10.504.7. Environmental Tobacco Smoke (ETS) Control.** Where outdoor areas are provided for smoking, prohibit smoking within 25 feet of new building entries, new outdoor air intakes and new operable windows; or as enforced by any other ordinance, whichever is more stringent.

**99.10.505. INDOOR MOISTURE CONTROL.**

**99.10.505.1. Indoor Moisture Control.** Buildings shall meet or exceed the provisions of Los Angeles Building Code, CCR, Title 24, Part 2, Sections 1203 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures not applicable

to low-rise residential occupancies, see Section 99.10.407.2 of this code.

#### **99.10.506. INDOOR AIR QUALITY.**

**99.10.506.1. Outside Air Delivery.** For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 (Requirements For Ventilation) of the California Energy Code, CCR, Title 24, Part 6, or the applicable local code, whichever is more stringent, and Division 1, Chapter 4 of CCR, Title 8.

**99.10.506.2. Carbon Dioxide (CO<sub>2</sub>) Monitoring.** For additions equipped with demand control ventilation, CO<sub>2</sub> sensors and ventilation controls shall be specified and installed in accordance with the requirements of the current edition of the California Energy Code, CCR, Title 24, Part 6, Section 121(c).

#### **99.10.507. ENVIRONMENTAL COMFORT.**

**99.10.507.1. (Reserved)**

**99.10.507.2. (Reserved)**

**99.10.507.3. (Reserved)**

**99.10.507.4. Acoustical Control.** Employ building assemblies and components with Sound Transmission Coefficient (STC) values determined in accordance with ASTM E90 and ASTM E413.

**99.10.507.4.1. Exterior Noise Transmission.** New wall and roof-ceiling assemblies making up the building envelope shall have an STC of at least 50, and new exterior windows shall have a minimum STC of 30 for any of the following building locations:

1. Within 1000 ft. (300 m.) of right of ways of freeways.
2. Within 5 mi. (8 km.) of airports serving more than 10,000 commercial jets per year.

**Exception:** Buildings with few or no occupants and where occupants are not likely to be affected by exterior noise, as determined by the Department, such as factories, stadiums, storage, enclosed parking structures, and utility buildings.

**99.10.507.4.2. Interior Sound.** Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40.

**Exception:** Alterations.

#### **99.10.508. OUTDOOR AIR QUALITY.**

**99.10.508.1. Ozone Depletion and Greenhouse Gas Reductions.** Installations of HVAC, refrigeration, and fire suppression equipment shall comply with Sections 10.508.1.1 and 10.508.1.2.

**99.10.508.1.1. Chlorofluorocarbons (CFCs.)** Install HVAC, refrigeration and fire suppression equipment that do not contain CFCs.

**99.10.508.1.2. Halons.** Install HVAC, refrigeration and fire suppression equipment that do not contain Halons.

## ARTICLE 9, DIVISION 11

### VOLUNTARY MEASURES FOR NEWLY CONSTRUCTED LOW-RISE RESIDENTIAL BUILDINGS

**99.11.101. INTENT.** This section shall set forth the Voluntary Measures for Newly Constructed Low-Rise Residential Buildings.

**A4.105.2 Reuse of Materials.** Use salvaged, refurbished or reused materials from the following categories, for a minimum of 2.5 percent of the total value, based on estimated cost of materials on the project:

1. Light fixtures
2. Plumbing fixtures
3. Doors and trim
4. Masonry (re-used masonry may only be used for flatwork)
5. Electrical devices
6. Appliances
7. Foundations or portions of foundations

**Note:** Reused material must be in compliance with the appropriate Title 24 and Los Angeles Building Standards Code requirements; and be in the original listed conditions.

**A4.106.2.3. Topsoil Protection.** Topsoil shall be protected or saved for reuse as specified in this section.

**Tier 1.** Displaced topsoil shall be stockpiled for reuse in a designated area and covered or protected from erosion.

**Note:** Protection from erosion includes covering with tarps, straw, mulch, chipped wood, vegetative cover, or other means acceptable to the Department to protect the topsoil for later use.

**Tier 2.** The construction area shall be identified and delineated by fencing or flagging to limit construction activity to the construction area. Heavy equipment

or vehicle traffic and material storage outside the construction area shall be limited to areas that are planned to be paved.

**A4.106.7. Bicycle Parking.** For multi-family dwellings, provide secure bicycle parking for 15 percent, rounded up to the next whole number, of the total number of bedrooms, with a minimum of one space.

**A4.205.2. Window Shading.** Exterior shading at least 18 inches in depth is provided on south and west windows by at least one of the following methods:

1. Permanently attached exterior awnings or louvers;
2. Porch or patio covers;
3. Overhangs.

**A4.208.3. Distribution Systems.** Where the hot water source is more than ten feet from a fixture, the potable water distribution system shall convey hot water using one of the following methods:

1. A central manifold plumbing system with parallel piping configuration ("home-run system") is installed using the smallest diameter piping allowed by the Los Angeles Plumbing Code or an approved alternate;
2. The plumbing system design incorporates the use of a demand controlled circulation pump;
3. A gravity-based hot water recirculation system is used;
4. A timer-based hot water recirculation system is used;
5. Other methods approved by the Department.

**A4.303.2. Nonwater Supplied Urinals.** Non water supplied urinals are installed throughout.

**A4.304.1. Low-water Consumption Irrigation System.** Install a low-water consumption irrigation system which minimizes the use of spray type heads. Spray type irrigation may only be used at turf areas. The remaining irrigation systems shall use only the following types of low-volume irrigation systems:

1. Drip irrigation;
2. Bubblers;
3. Drip emitters;
4. Soaker hose;
5. Stream-rotator spray heads;
6. Other systems acceptable to the Department.

**A4.403.2. Reduction in Cement Use.** As allowed by the Los Angeles Building Code, cement used in foundation mix design shall be reduced as follows:

- Tier 1.** Not less than a 20% reduction in cement use.  
**Tier 2.** Not less than a 25% reduction in cement use.

**Note:** Products commonly used to replace cement in concrete mix designs include, but are not limited to:

1. Fly ash;
2. Slag;
3. Silica fume;
4. Rice hull ash.

**A4.404.2.** Building dimensions and layouts are designed to minimize waste by one or more of the following measures in at least 80 percent of the structure:

1. Building design dimensions in 2 foot increments are used;
2. Windows and doors are located at regular 16" or 24" stud positions;
3. Other methods acceptable to the Department.

**A4.404.3. Building Systems.** Use pre-manufactured building systems to eliminate solid sawn lumber whenever possible. One or more of the following pre-manufactured building systems is used throughout:

1. Composite floor joist or pre-manufactured floor truss framing;
2. Composite roof rafters or pre-manufactured roof truss framing;
3. Panelized (SIPS, ICF or similar) wall framing system;
4. Other methods approved by the Department.

**A4.405.1. Prefinished Building Materials.** Utilize prefinished building materials which do not require additional painting or staining at all applicable locations throughout the building.

Use one or more of the following building materials that do not require additional resources for finishing:

1. Exterior trim not requiring paint or stain;
2. Windows not requiring paint or stain; or
3. Siding or exterior wall coverings which do not require paint or stain.

**A4.405.2. Concrete Floors.** 75 percent of all slab-on-grade and structural concrete slab floors use no additional coverings including but not limited to stained, natural, or stamped concrete floors.

**Note:** Uncovered floors must still remain durable and maintain any required acoustical insulation required elsewhere by the Los Angeles Building Standards.

**A4.405.4. Use of Building Materials From Renewable Sources.** One or more of the following materials manufactured from rapidly renewable sources or agricultural by-products is used for a minimum of 2.5 percent of the total value, based on estimated cost of materials on the project:

1. Insulation;
2. Bamboo or cork;
3. Engineered wood products;
4. Agricultural based products; or
5. Solid wood products.

**Note:** The intent of this section is to utilize building materials and products which are typically harvested within a 10-year or shorter cycle.

**A4.407.1. Drainage Around Foundations.** Install non-required foundation and landscape drains which discharge to a dry well, sump, bioswale or other approved on-site location.

**A4.407.6. Door Protection.** Exterior doors to the dwelling are covered to prevent water intrusion by one or more of the following:

1. A non-retractable awning at least 4 feet in depth is installed;
2. The door is protected by a roof overhang at least 4 feet in depth;
3. The door is recessed at least 4 feet; or
4. Other methods which provide equivalent protection.

**A4.407.7. Roof Overhangs.** When permitted by the Los Angeles Municipal Code, a permanent overhang or non-retractable awning at least 2 feet in depth is provided at all exterior walls.

**A4.408.1. Enhanced Construction Waste Reduction.** Non-hazardous construction and demolition debris generated at the site is diverted to recycle or salvage in compliance with one of the following:

- Tier 1.** At least a 65% reduction; or  
**Tier 2.** At least a 75% reduction.

**A4.601.2. Prerequisite Measures.** Tier 1 and Tier 2 thresholds require compliance with the mandatory provisions of this code and incorporation of the required prerequisite measures listed in Subsection A4.601.4.2 for Tier 1 and A4.601.5.2 for Tier 2. Prerequisite measures are also identified in the City of Los Angeles Residential Checklist for Newly-Constructed Buildings in Subsection A4.602.

**A4.601.5.2. Prerequisite and Elective Measures for Tier 2.** In addition to the mandatory measures, compliance with the following prerequisites and elective measures from Appendix A4 is also required to achieve Tier 2 status.

1. From Subsection A4.1, Planning and Design.
  - 1.1. Comply with the topsoil protection requirements for Tier 1 and Tier 2 in Subsection A4.106.2.3.
  - 1.2. Comply with the 30 percent permeable paving requirements in Subsection A4.106.4.

- 1.3. Comply with the cool roof requirements in Subsection A4.106.5.
- 1.4. Comply with at least four elective measures selected from Subsection A4.1.
2. From Subsection A4.2, Energy Efficiency.
  - 2.1. Exceed the California Energy Code requirements, based on the 2008 Energy Efficiency Standards by 30 percent.
  - 2.2. Comply with at least six elective measures selected from Division A4.2.
3. From Subsection A4.3, Water Efficiency and Conservation.
  - 3.1. Comply with the Tier 1 reduced flow rate for kitchen sink faucets in Subsection A4.303.1.
  - 3.2. Comply with the Tier 2 dishwasher requirements in Subsection A4.303.1.
  - 3.3. Comply with the Tier 2 potable water use reduction for landscape irrigation design in Subsection A4.304.4.
  - 3.4. Comply with at least two elective measures selected from Subsection A4.3.
4. From Subsection A4.4, Material Conservation and Resource Efficiency.
  - 4.1. Comply with the 25 percent cement reduction requirements in Subsection A4.403.2.
  - 4.2. Comply with the 15 percent recycled content requirements in Subsection A4.405.3.
  - 4.3. Comply with the 75 percent reduction in construction waste in Subsection A4.408.1.
  - 4.4. Comply with at least four elective measures selected from Subsection A4.4.
5. From Subsection A4.5, Environmental Quality.
  - 5.1. Comply with the 90 percent resilient flooring systems requirements in Subsection A4.504.2.
  - 5.2. Comply with the thermal insulation requirements for Tier 1 and Tier 2 in Subsection A4.504.3.
  - 5.3. Comply with at least one elective measure selected from Subsection A4.5.

**Note:** The City of Los Angeles Low-Rise Residential Checklist for Newly-Constructed Buildings contained in Section 99.11.602 may be used to show which elective measures are selected.

**99.11.602 CITY OF LOS ANGELES LOW-RISE RESIDENTIAL CHECKLIST FOR NEWLY-CONSTRUCTED BUILDINGS**

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
<b>PLANNING AND DESIGN</b>			
<b>Site Selection</b>			
<b>A4.103.1</b> A site which complies with at least one of the following characteristics is selected: 1. An infill site is selected. 2. A greyfield site is selected. 3. An EPA-recognized Brownfield site is selected.		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Site Preservation</b>			
<b>A4.104.1</b> An individual with oversight responsibility for the project has participated in an educational program promoting environmentally friendly design or development and has provided training or instruction to appropriate entities.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Deconstruction and Reuse of Existing Materials</b>			
<b>A4.105.2</b> Existing buildings are disassembled for reuse or recycling of building materials. The proposed structure utilizes at least one of the following materials which can be easily reused: 1. Light fixtures 2. Plumbing fixtures 3. Doors and trim 4. Masonry (re-used for flatwork) 5. Electrical devices 6. Appliances 7. Foundations or portions of foundations		<input type="checkbox"/>	<input type="checkbox"/>
<b>Site Development</b>			

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
<b>A4.106.2</b> A plan is developed and implemented to manage storm water drainage during construction.	<input checked="" type="checkbox"/>		
<b>A4.106.3</b> The site shall be planned and developed to keep surface water away from buildings. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows.	<input checked="" type="checkbox"/>		
<b>A4.106.1</b> Orient buildings to optimize the use of solar energy with the long side of the house oriented within 30° of south.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.106.2.1</b> Soil analysis is performed by a licensed design professional and the findings utilized in the structural design of the building.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.106.2.2</b> Soil disturbance and erosion are minimized by at least one of the following: 1. Natural drainage patterns are evaluated and erosion controls are implemented to minimize erosion during construction and after occupancy. 2. Site access is accomplished by minimizing the amount of cut and fill needed to install access roads and driveways. 3. Underground construction activities are coordinated to utilize the same trench, minimize the amount of time the disturbed soil is exposed and the soil is replaced using accepted compaction methods.		<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>

Feature or Measure	Levels Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
		Tier 1	Tier 2
<p><b>A4.106.2.3</b> Topsoil shall be protected or saved for reuse as specified in this section.</p> <p>Tier 1. Displaced topsoil shall be stockpiled for reuse in a designated area and covered or protected from erosion.</p> <p>Tier 2. The construction area shall be identified and delineated by fencing or flagging to limit construction activity to the construction area.</p>		<input checked="" type="checkbox"/> <sup>2</sup>	<input checked="" type="checkbox"/> <sup>2</sup>  <input checked="" type="checkbox"/> <sup>2</sup>
<p><b>A4.106.3</b> Postconstruction landscape designs accomplish one or more of the following:</p> <p>1. Areas disrupted during construction are restored to be consistent with native vegetation species and patterns.</p> <p>2. Limit turf areas to the greatest extent possible.</p> <p>a. Not more than 50 percent for Tier 1.</p> <p>b. Not more than 25 percent for Tier 2.</p> <p>3. Utilize at least 75 percent native Californian or drought tolerant plant and tree species appropriate for the climate zone region.</p> <p>4. Hydrozoning irrigation techniques are incorporated into the landscape design.</p>		<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
<p><b>A4.106.4</b> Permeable paving is utilized for the parking, walking, or patio surfaces in compliance with the following.</p> <p>Tier 1. Not less than 20 percent of the total parking, walking, or patio surfaces shall be permeable.</p> <p>Tier 2. Not less than 30 percent of the total parking, walking, or patio surfaces shall be permeable.</p>		<input checked="" type="checkbox"/> <sup>2</sup>	<input checked="" type="checkbox"/> <sup>2</sup>
<p><b>A4.106.5</b> Roofing materials shall have a minimum 3-year aged solar reflectance and thermal emittance or a minimum aged Solar Reflectance Index (SRI) equal to or greater than the values specified in Tables A4.106.5(1) and A4.106.5(2).</p> <p>Tier 1 roof covering shall meet or exceed the values contained in Table A4.106.5(1).</p> <p>Tier 2 roof covering shall meet or exceed the values contained in Table A4.106.5(2).</p>		<input checked="" type="checkbox"/> <sup>2</sup>	<input checked="" type="checkbox"/> <sup>2</sup>
<p><b>A4.106.6</b> For one- or two- family dwellings and townhouses, provide a minimum of:</p> <ol style="list-style-type: none"> <li>1. A minimum number of 208/240 V 40 amp, grounded AC outlets equal to five percent of the total number of parking spaces, or</li> <li>2. Panel capacity and conduit installed for future installation of electrical outlets, or</li> <li>3. Additional service capacity, space for future meter, and conduit for future installation of electrical outlets.</li> </ol>			

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
<b>A4.106.7 Bicycle parking.</b> For multi-family dwellings, provide secure bicycle parking for 15 percent of the total number of bedrooms.		<input type="checkbox"/>	<input type="checkbox"/>
<b>ENERGY EFFICIENCY</b>			
<b>General</b>			
<b>Performance Approach</b>			
<b>A4.203.1</b> Exceed the California Energy Code requirements, based on the 2008 Energy Efficiency Standards requirements by 15 percent.		<input checked="" type="checkbox"/> <sup>2</sup>	
<b>A4.203.1</b> Exceed the California Energy Code requirements, based on the 2008 Energy Efficiency Standards requirements by 30 percent.			<input checked="" type="checkbox"/> <sup>2</sup>
<b>Energy Reduction</b>			
<b>A4.204.1 Prescriptive Approach.</b> Equipment and fixtures shall comply with the following: <ol style="list-style-type: none"> <li>1. Installed gas-fired space heating equipment shall have an Annual Fuel Utilization Ratio (AFUE) of .90 or higher.</li> <li>2. Installed electric heat pumps shall have a Heating Seasonal Performance Factor (HSFP) of 8.0 or higher.</li> <li>3. Installed cooling equipment shall have a Seasonal Energy Efficiency Ratio (SEER) higher than 13.0 and an Energy Efficiency Ratio (EER) of at least 11.5.</li> <li>4. Installed tank type water heaters shall have an Energy Factor (EF) higher than .6.</li> <li>5. Installed tankless water heater</li> </ol>	As applicable <input checked="" type="checkbox"/> 6/01/11  <input checked="" type="checkbox"/> 6/01/11  <input checked="" type="checkbox"/> 6/01/11  <input checked="" type="checkbox"/> 6/01/11  <input checked="" type="checkbox"/> 6/01/11		

Feature or Measure	Levels Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
		Tier 1	Tier 2
<p>shall have an Energy Factor (EF) higher than .80.</p> <p>6. Perform duct leakage testing to verify a total leakage rate of less than 6 percent of the total fan flow.</p> <p>7. Building lighting in the kitchen and bathrooms shall consist of at least 90 percent ENERGY STAR qualified hard-wired fixtures.</p> <p>8. Installed swimming pool circulating pump and motor combinations shall be multi-speed and variable-speed. The pump motor controls shall have the capability of operating the pump at a minimum of three speeds; low speed, medium speed, and high speed. The daily low speed shall not exceed 300 watts. The daily medium speed shall be adjustable.</p> <p><b>Exception:</b> Projects exceeding the California Energy Code requirements by 15 percent using an Alternative Calculation Method (ACM) approved by the California Energy Commission.</p>	<input checked="" type="checkbox"/> 6/01/11  <input checked="" type="checkbox"/> 6/01/11  <input checked="" type="checkbox"/> 6/01/11  <input checked="" type="checkbox"/> 6/01/11		
<b>Building Envelope</b>			
<b>A4.205.1</b> Radiant roof barrier is installed in Climate Zones 2, 4, and 8 through 15.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.205.2</b> Exterior shading at least 18 inches in depth is provided on south and west windows.			
<b>Air Sealing Package</b>			

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
<b>A.4.206.1</b> Third party blower door test is conducted and passed to verify building envelope tightness.		<input type="checkbox"/>	<input type="checkbox"/>
<b>HVAC Design, Equipment and Installation</b>			
<b>A4.207.1</b> Radiant, hydronic, ground source and other innovative space heating and cooling systems included in the proposed design shall be designed using generally accepted industry-approved guidelines and design criteria.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.207.2</b> An HVAC system commissioning plan is developed and the following items, as appropriate, pertaining to the heating and cooling systems are inspected and certified by an independent third party agency: 1. Verify compliance with the manufacturer's recommended start-up procedures. 2. Verify refrigerant charge by super-heat or other methods specified by the manufacturer. 3. Burner is set to fire at the nameplate input rating. 4. Temperature drop across the evaporator is within the manufacturers recommended range. 5. Test and verify air flow to be within ten percent of the initial design air flow. 6. Static pressure within the duct system is within the manufacturer's acceptable range. 7. Verify that the whole house and exhaust ventilation systems meet Title 24 requirements.		<input type="checkbox"/>	<input type="checkbox"/>

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
8. Verify that the recommended maintenance procedures and schedules are documented and provided to the home owner.			
<b>A4.207.2.3</b> Results of the commissioning inspection shall be included in the Operation and Maintenance Manual required in Section 4.410.1.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.207.4</b> Install gas-fired (natural or propane) space heating equipment with an Annual Fuel Utilization Ratio (AFUE) of .90 or higher.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.207.5</b> If an electric heat pump must be used, select equipment with a Heating Seasonal Performance Factor (HSPF) of 8.0 or higher.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.207.6</b> When climatic conditions necessitate the installation of cooling equipment, select cooling equipment with a Seasonal Energy Efficiency Ratio (SEER) higher than 13.0 and an Energy Efficiency Ratio (EER) of at least 11.5.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.207.7</b> Install ductwork to comply with at least one of the following: 1. Install ducts within the conditioned envelope of the building. 2. Install ducts in an underfloor crawl space. 3. Use ducts with an R-6 insulation value or higher. 4. Install ductwork which is buried in the ceiling insulation.		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>A4.207.8</b> Perform duct leakage testing to verify a total leakage rate of less than 6 percent of the total fan flow.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.207.9</b> In climate zones 2, 4, and			

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
8 through 15 install a whole-house fan with insulated louvers or an insulated cover.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.207.10</b> ENERGY STAR ceiling fans are installed in all bedrooms and living areas.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Water Heating Design, Equipment and Installation</b>			
<b>A4.208.1</b> The Energy Factor (EF) for a gas fired storage water heater is higher than .60.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.208.2</b> The Energy Factor (EF) for a gas fired tankless water heater is .80 or higher.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.208.3</b> Where the hot water source is more than ten feet from a fixture, the potable water distribution system shall convey hot water using a method designed to minimize wait time for hot water to arrive at the fixture.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Lighting</b>			
<b>A4.209.1</b> Building lighting consists of at least 90 percent ENERGY STAR. qualified hard-wired fixtures.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Appliances</b>			
<b>A4.210.1</b> Each appliance provided and installed meets ENERGY STAR if an ENERGY STAR designation is applicable for that appliance.	<input checked="" type="checkbox"/>		
<b>Renewable Energy</b>			
<b>A4.211.1</b> Install a solar photovoltaic (PV) system in compliance with the California Energy Commission New Solar Homes Partnership (NSHP). <sup>1, 2</sup> Install energy efficiency measures meeting either Tier I or Tier II below. Tier 1. Exceed the California Energy Code requirements, based on the 2008 Energy		<input type="checkbox"/>	<input type="checkbox"/>

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
<p>Efficiency Standards requirements by 15 percent. Tier 2. Exceed the California Energy Code requirements, based on the 2008 Energy Efficiency Standards requirements by 30 percent.</p> <p>Solar water heating may be used to assist in meeting the energy efficiency requirements of either Tier I or Tier II.</p> <p><sup>1</sup> In addition, for either Tier I or II, each appliance provided by the builder must be ENERGY STAR if an ENERGY designation is applicable for that appliance.</p> <p><sup>2</sup> Information on NSHP incentives available through the California Energy Commission may be obtained at the "Go Solar California" website: www.GoSolarCalifornia.ca.gov/nsHP/index.html.</p>			
<b>A4.211.2</b> A solar water heating system is installed.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.211.3</b> Space on the roof surface and penetrations through the roof surface are provided for future solar installation.	<input checked="" type="checkbox"/>		
<b>A4.211.4</b> A minimum one inch conduit is provided from the electrical service equipment for the future installation of a photovoltaic (PV) or other electrical solar system.	<input checked="" type="checkbox"/>		
<b>A4.211.4.1</b> A minimum of 250 square feet of contiguous unobstructed roof area shall be provided for the installation of future photovoltaic or other electrical solar panels. The location shall be suitable for installing future solar panels as determined by the designer.	<input checked="" type="checkbox"/>		

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
<b>Elevators, Escalators and Other Equipment</b>			
<b>WATER EFFICIENCY AND CONSERVATION</b>			
<b>Indoor Water Use</b>			
<b>A4.303.1</b> Indoor water use shall be reduced by at least 20 percent using one of the follow methods. 1. Water saving fixtures or flow restrictors shall be used. 2. A 20 percent reduction in baseline water use shall be demonstrated.	<input checked="" type="checkbox"/> 7/01/11		
<b>A4.403.2</b> When using the calculation method specified in Section 4.303.1, multiple showerheads shall not exceed maximum flow rates.	<input checked="" type="checkbox"/> 7/01/11		
<b>A4.303.3</b> Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with specified performance requirements.	<input checked="" type="checkbox"/> 7/01/11		
<b>A4.303.1</b> Kitchen faucets and dishwashers shall comply with this section. Tier 1. The maximum flow rate at a kitchen sink faucet shall not be greater than 1.5 gallons per minute at 60 psi. Tier 2. In addition to the kitchen faucet requirements for Tier 1, dishwashers in Tier 2 buildings shall be ENERGY STAR qualified and not use more than 5.8 gallons of water per cycle.		<input checked="" type="checkbox"/> <sup>2</sup>	<input checked="" type="checkbox"/> <sup>2</sup>  <input checked="" type="checkbox"/> <sup>2</sup>
<b>A4.303.2</b> Nonwater supplied urinals are installed.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Outdoor Water Use</b>			
<b>A4.304.1</b> Automatic irrigation systems installed at the time of final	<input checked="" type="checkbox"/>		

Feature or Measure	Levels Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
		Tier 1	Tier 2
inspection shall be weather-based.			
<b>A4.304.1</b> Install a low-water consumption irrigation system which minimizes the use of spray type heads.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.304.2</b> A rainwater capture, storage and re-use system is designed and installed.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.304.3</b> A water budget shall be developed for landscape irrigation.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.304.4</b> Provide water efficient landscape irrigation design that reduces the use of potable water. Tier 1. Does not exceed 65 percent of ETo times the landscape area. Tier 2. Does not exceed 60 percent of ETo times the landscape area.		<input checked="" type="checkbox"/> <sup>2</sup>	<input checked="" type="checkbox"/> <sup>2</sup>
<b>A4.304.5</b> A landscape design is installed which does not utilize potable water.		<input type="checkbox"/>	<input type="checkbox"/>
<b>WATER REUSE SYTEMS</b>			
<b>A4.305.1</b> Piping is installed to permit future use of a graywater irrigation system served by the clothes washer or other fixtures.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.305.2</b> Recycled water piping is installed.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.305.3</b> Recycled water is used for landscape irrigation.		<input type="checkbox"/>	<input type="checkbox"/>
<b>MATERIAL CONSERVATION AND RESOURCE EFFICIENCY</b>			
<b>Foundation Systems</b>			
<b>A4.403.2</b> Cement use in foundation mix design is reduced. Tier 1. Not less than a 20 percent reduction in cement use. Tier 2. Not less than a 25 percent reduction in cement use.		<input checked="" type="checkbox"/> <sup>2</sup>	<input checked="" type="checkbox"/> <sup>2</sup>

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
<b>Efficient Framing Techniques</b>			
<b>A4.404.2</b> Building dimensions and layouts are designed to minimize waste.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.404.3</b> Use pre-manufactured building systems to eliminate solid sawn lumber whenever possible.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.404.4</b> Material lists are included in the plans which specify material quantity and provide direction for on-site cuts.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Material Sources</b>			
<b>A4.405.1</b> One or more of the following building materials, that do not require additional resources for finishing are used at all applicable locations throughout the building: 1. Exterior trim not requiring paint or stain. 2. Windows not requiring paint or stain. 3. Siding or exterior wall coverings which do not require paint or stain.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.405.2</b> 75 percent of all slab-on-grade and structural concrete slab floors use no additional coverings including but not limited to stained, natural, or stamped concrete floors.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.405.3</b> Post-consumer or pre-consumer recycled content value (RCV) materials are used on the project. Tier 1. Not less than a ten percent recycled content value. Tier 2. Not less than a 15 percent recycled content value.		<input checked="" type="checkbox"/> <sup>2</sup>	<input checked="" type="checkbox"/> <sup>2</sup>
<b>A4.405.4</b> Renewable source building products are used for a minimum of 2.5 percent of the total		<input type="checkbox"/>	<input type="checkbox"/>

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
value, based on estimated cost of materials on the project.			
<b>Enhanced Durability and Reduced Maintenance</b>			
<b>A4.406.1 Joints and openings.</b> Annular spaces around pipes, electric cables, conduits, or other openings in plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or similar method acceptable to the Department.	☒		
<b>Water Resistance and Moisture Management</b>			
<b>A4.407.1</b> Install foundation and landscape drains.		☐	☐
<b>A4.407.2</b> Install gutter and downspout systems to route water at least five feet away from the foundation or connect to landscape drains which discharge to a dry well, sump, bioswale, rainwater capture system or other approved on-site location.		☐	☐
<b>A4.407.3</b> Provide flashing details on the building plans and comply with accepted industry standards or manufacturer's instructions.	☒		
<b>A4.407.4</b> Protect building materials delivered to the construction site from rain and other sources of moisture.	☒		
<b>A4.407.6</b> Exterior doors to the dwelling are protected to prevent water intrusion.		☐	☐
<b>A4.407.7</b> When permitted by the Los Angeles Municipal Code, a permanent overhang or non-retractable awning at least two feet		☐	☐

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
in depth is provided.			
<b>Construction Waste Reduction, Disposal and Recycling</b>			
<b>A4.408.1</b> Comply with Section 66.32 of the Los Angeles Municipal Code.	<input checked="" type="checkbox"/>		
<b>A4.408.1</b> Construction waste generated at the site is diverted to recycle or salvage in compliance with one of the following: Tier 1. at least a 65 percent reduction Tier 2. at least a 75 percent reduction		<input checked="" type="checkbox"/> <sup>2</sup>	<input checked="" type="checkbox"/> <sup>2</sup>
<b>Building Maintenance and Operation</b>			
<b>A4.410.1</b> An operation and maintenance manual shall be provided to the building occupant or owner.	<input checked="" type="checkbox"/>		
<b>ENVIRONMENTAL QUALITY</b>			
<b>Fireplaces</b>			
<b>A4.503.1</b> Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with US EPA Phase II emission limits where applicable. Woodstove, pellet stoves and fireplaces shall also comply with applicable local ordinances.	<input checked="" type="checkbox"/>		
<b>Pollutant Control</b>			
<b>A4.504.1</b> Duct openings and other related air distribution component openings shall be covered during construction.	<input checked="" type="checkbox"/>		

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
<b>A4.504.2.1</b> Adhesives, sealants and caulks shall be compliant with VOC and other toxic compound limits.	<input checked="" type="checkbox"/>		
<b>A4.504.2.2</b> Paints, stains and other coatings shall be compliant with VOC limits.	<input checked="" type="checkbox"/>		
<b>A4.504.2.3</b> Aerosol paints and coatings shall be compliant with product weighted MIR limits for ROC and other toxic compounds.	<input checked="" type="checkbox"/>		
<b>A4.504.2.4</b> Documentation shall be provided to verify that compliant VOC limit finish materials have been used.	<input checked="" type="checkbox"/>		
<b>A4.504.3</b> Carpet and carpet systems shall be compliant with VOC limits.	<input checked="" type="checkbox"/>		
<b>A4.504.4</b> 50 percent of floor area receiving resilient flooring shall comply with the VOC-emission limits defined in the Collaborative for High Performance Schools (CHPS) Low-emitting Materials List or be certified under the Resilient Floor Covering Institute (RCFI) FloorScore program.	<input checked="" type="checkbox"/>		
<b>A4.504.5</b> Particleboard, medium density fiberboard (MDF), and hardwood plywood used in interior finish systems shall comply with low formaldehyde emission standards.	<input checked="" type="checkbox"/>		
<b>A4.504.1</b> Meet the formaldehyde limits contained in Table 4.504.6 before the mandatory compliance date, or use composite wood products made with either California Air Resources Board approved no-added formaldehyde (NAF) resins or ultra-low emitting formaldehyde (ULEF) resins.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A4.504.2</b> Install VOC compliant			

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
resilient flooring systems. Tier 1. At least 80 percent of the resilient flooring installed shall comply. Tier 2. At least 90 percent of the resilient flooring installed shall comply.		<input checked="" type="checkbox"/> <sup>2</sup>	<input checked="" type="checkbox"/> <sup>2</sup>
<b>A4.504.3</b> Thermal insulation installed in the building shall meet the following requirements: Tier 1. Install thermal insulation in compliance with the VOC-emission limits defined in Collaborative for High Performance Schools (CHPS) Low-emitting Materials List. Tier 2. Install insulation which contains No-Added Formaldehyde (NAF) and is in compliance with the VOC-emission limits defined in Collaborative for High Performance Schools (CHPS) Low-emitting Materials List.		<input checked="" type="checkbox"/> <sup>2</sup>	<input checked="" type="checkbox"/> <sup>2</sup>
<b>Interior Moisture Control</b>			
<b>A4.505.2</b> Vapor retarder and capillary break is installed at slab on grade foundations.	<input checked="" type="checkbox"/>		
<b>A4.505.3</b> Moisture content of building materials used in wall and floor framing is checked before enclosure.	<input checked="" type="checkbox"/>		
<b>Indoor Air Quality and Exhaust</b>			
<b>A4.506.1</b> Exhaust fans which terminate outside the building are provided in every bathroom.	<input checked="" type="checkbox"/>		
<b>A4.506.1</b> Higher than MERV 6 filters are installed on central air or ventilation systems.		<input type="checkbox"/>	<input type="checkbox"/>

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
<b>A4.506.2</b> Direct vent appliances are used or equipment is isolated from the conditioned space.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Environmental Comfort</b>			
<b>A4.507.1</b> Whole house exhaust fans shall have insulated louvers or covers which close when the fan is off. Covers or louvers shall have a minimum insulation value of R-4.2.	<input checked="" type="checkbox"/>		
<b>A4.507.2.</b> Duct systems are sized, designed, and equipment is selected using the following methods: 1. Establish heat loss and heat gain values according to ACCA Manual J or equivalent. 2. Size duct systems according to ACCA 29-D (Manual D) or equivalent. 3. Select heating and cooling equipment according to ACCA 36-S (Manual S) or equivalent.	<input checked="" type="checkbox"/>		
<b>Outdoor Air Quality</b>			
<b>Innovative Concepts and Local Environmental Conditions</b>			
<b>INSTALLER AND THIRD PARTY QUALIFICATIONS</b>			
<b>Qualifications</b>			
<b>A702.1</b> HVAC system installers are trained and certified in the proper installation of HVAC systems.	<input checked="" type="checkbox"/>		
<b>A702.2</b> Special inspectors employed by the Department must be qualified and able to demonstrate competence in the discipline they are inspecting.	<input checked="" type="checkbox"/>		
<b>Verifications</b>			
<b>A703.1</b> Verification of compliance with this code may include construction documents, plans, specifications builder or installer	<input checked="" type="checkbox"/>		

Feature or Measure	Levels		
	Applicant to select elective measures		
	Mandatory	Prerequisites and electives <sup>1</sup>	
Tier 1		Tier 2	
certification, inspection reports, or other methods acceptable to the Department which show substantial conformance.			

1. Required prerequisite for this Tier.

## ARTICLE 9, DIVISION 12

### VOLUNTARY MEASURES FOR NEWLY CONSTRUCTED NONRESIDENTIAL AND HIGH-RISE RESIDENTIAL BUILDINGS

**99.12.101. INTENT.** This section shall set forth the Voluntary Measures for Newly Constructed Low-Rise Residential Buildings.

**A5.105.1.1. Existing Building Structure.** Maintain at least 75 percent of existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing) based on surface area.

**Exceptions:**

1. Window assemblies and nonstructural roofing material.
2. Hazardous materials that are remediated as a part of the project.

**A5.105.1.2. Existing Non-Structural Elements.** Reuse existing interior non-structural elements (interior walls, doors, floor coverings and ceiling systems) in at least 50 percent of the area of the completed building

**A5.106.2. Storm Water Design.** Design storm water runoff rate and quantity in conformance with Subsection A5.106.2.1 and storm water runoff quality by Subsection A5.106.2.2, or by local requirements, whichever are stricter.

**A5.106.2.1. Storm Water Runoff Rate and Quantity.** Implement a storm water management plan resulting in no net increase in rate and quantity of storm water runoff from existing to developed conditions.

**Exception:** If the site is already greater than 50 percent impervious, implement a storm water management plan resulting in a 25 percent decrease in rate and quantity.

**A5.106.2.2. Storm Water Runoff Quality.** Use post construction treatment control best management practices (BMPs) to mitigate (infiltrate, filter, or treat) storm

or the runoff produced by a rain event equal to two times the 85th percentile hourly intensity (for flow-based BMPs).

**A5.106.4.3. Changing Room.** Provide changing/shower facilities for tenant-occupants in accordance with Table A5.106.4.3 or document arrangements with nearby/shower facilities.

**Table A5.106.4.3**

<b>NUMBER OF TENANT-OCCUPANTS</b>	<b>SHOWER/CHANGING FACILITIES REQUIRED<sup>2</sup></b>	<b>2-TIER (12"X15"73") PERSONAL EFFECTS LOCKERS<sup>1,2</sup> REQUIRED</b>
0-10	1 unisex shower	1
11-50	1 unisex shower	2
51-100	1 unisex shower	3
101-200	1 shower stall per gender	4
Over 200	1 shower stall per gender for each 200 additional tenant-occupants	One 2-tier locker for each 50 additional tenant-occupants

1. One 2-tier locker serves two people. Lockers shall be lockable with either padlock or combination lock.

**Note:** Additional information on recommended bicycle accommodations may be obtained from Sacramento Area Bicycle Advocates.

**A5.106.5.1. Designated Parking for Fuel-Efficient Vehicles.** Provide designated parking, by means of permanent marking or a sign, for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as shown in Table A5.106.5.1.1 or A5.106.5.1.2.

**Table A5.106.5.1.1  
Tier 1**

<b>Total Number of Parking Spaces</b>	<b>Number of Required Spaces</b>
0-9	1
10-25	2
26-50	4
51-75	6

76-100	9
101-150	11
151-200	18
201 and over	At least 10 percent of total <sup>(1)</sup>

<sup>1</sup>When the application of the ten percent results in a fraction of a space, round up to the next whole number

**Table A5.106.5.1.2  
Tier 2**

<b>Total Number of Parking Spaces</b>	<b>Number of Required Spaces</b>
0-9	1
10-25	2
26-50	5
51-75	7
76-100	9
101-150	13
151-200	19
201 and over	At least 12 percent of total <sup>(1)</sup>

<sup>1</sup>When the application of the 12 percent results in a fraction of a space, round up to the next whole number

**A5.106.5.3.2. Additional Electric Vehicle Supply Wiring.** Provide a minimum number of 208/240 V 40 amp, grounded AC outlet(s), that is equal to ten percent, rounded up to the next whole number, of the total number of parking spaces.

**A5.106.6. Parking Capacity.** Design parking capacity to meet but not exceed minimum local zoning requirements.

**A5.106.6.1. Reduce Parking Capacity.** With the approval of the Department of City Planning, employ strategies to reduce on-site parking area or number of stalls by 20 percent.

**A5.106.9. Building Orientation and Window Shading.** Locate, orient and shade the building as follows:

1. When site and location permit orient the building with the long sides facing north and south;
2. Protect the building from thermal loss, drafts, and degradation of the building envelope caused by wind and wind-driven materials such as dust, sand, snow, and leaves with building orientation and landscape features;
3. Where permitted by the Los Angeles Municipal Code, provide exterior shade for south and west-facing windows during the peak cooling season.

**Note:** For information on sun angles and shading, visit:  
<http://www2.aud.ucla.edu/energy-design-tools/>. Calculations may be made using the Solar-2 tool.

**A5.211.1. On-Site Renewable Energy.** Use on-site renewable energy sources such as solar, wind, geothermal, low-impact hydro, biomass and bio-gas for at least 1 percent of the electric power calculated as the product of the building service voltage and the amperage specified by the electrical service overcurrent protection device rating or 1kW, (whichever is greater), in addition to the electrical demand required to meet 1 percent of the natural gas and propane use. The building project's electrical service overcurrent protection device rating shall be calculated in accordance with the Los Angeles Electrical Code. Natural gas or propane use is calculated in accordance with the Los Angeles Plumbing Code.

**A5.303.2.3.1. Tier 1 – 30 % Savings.** A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 30 percent shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fittings as required by the California Building Standards Code. The 30 percent reduction in potable water use shall be demonstrated by one of the following methods:

1. Each plumbing fixture and fitting shall meet the 30 percent reduced flow rate specified in Table A5.303.2.3.1, or
2. A calculation demonstrating a 30 percent reduction in the building "water use baseline" as established in Table A5.303.2.2 shall be provided.

**A5.304.2.1. Outdoor Potable Water Use.** For new water service not subject to the provisions of Section 5.304.2, separate meters or submeters shall be installed for indoor and outdoor potable water use for landscaped areas.

**A5.304.4.2. Tier 2.** Reduce the use of potable water to a quantity that does not exceed 55 percent of ETO times the landscape area.

**Note:** Methods used to accomplish the requirements of this section must be designed to the requirements of the Los Angeles Building Standards Code and shall include, but not be limited to, the following:

1. Plant coefficient;
2. Irrigation efficiency and distribution uniformity;

3. Use of captured rainwater;
4. Use of recycled water;
5. Water treated for irrigation purposes and conveyed by a water district or public entity;
6. Use of graywater.

**A5.304.4.4. Potable Water Reduction.** Provide water efficient landscape irrigation design that reduces the use of potable water beyond the initial requirements for plant installation and establishment by 50 percent. Calculations for the reduction shall be based on the water budget developed pursuant to Subsection A5.304.1.1.

Methods used to accomplish the requirements of this section must be designed to the requirements of the Los Angeles Building Standards Code and shall include, but not be limited to, the following:

1. Plant coefficient;
2. Irrigation efficiency and distribution uniformity;
3. Use of captured rainwater;
4. Use of recycled water; or
5. Water treated for irrigation purposes and conveyed by a water district or public entity.

**A5.304.5. Potable Water Elimination.** Provide a water efficient landscape irrigation design that eliminates the use of potable water beyond the initial requirements for plant installation and establishment. Methods used to accomplish the requirements of this section must be designed to the requirements of the Los Angeles Building Standards Code and shall include, but not be limited to, the following:

1. Plant coefficient;
2. Irrigation efficiency and Distribution Uniformity;
3. Use of captured rainwater;
4. Use of recycled water;
5. Water treated for irrigation purposes and conveyed by a water district or public entity; or
6. Use of graywater.

**A5.304.8. Graywater Irrigation System.** Install a graywater collection system for onsite subsurface irrigation using graywater collected from bathtubs, showers, bathroom wash basins, and laundry water. See Appendix G, Los Angeles Plumbing Code.

**A5.404.1. Wood Framing.** Employ advanced wood framing techniques, or OVE, as recommended by the US Department of Energy's Office of Building Technology, State and Community Programs and as permitted by the Department.

**A5.404.1.1. Structural or Fire-Resistance Integrity.** The OVE selected shall not conflict with structural framing methods or fire-rated assemblies required by the Los Angeles Building Code.

**A5.405.3. Reused Materials.** Use salvaged, refurbished, refinished, or reused materials for a minimum of 5% of the total value, based on estimated cost of materials on the project. Provide documentation as to the respective values. All materials shall fully comply with the Los Angeles Building Standards Code.

**Note:** Sources of some reused materials can be found at CALRecycle. See also Subsection A5.105.1 for on-site materials reuse.

**A5.405.4. Recycled Content, Tier 1.** Use materials, equivalent in performance to virgin materials, with postconsumer or preconsumer recycled content value (RCV) for a minimum of 10 percent of the total value, based on estimated cost of materials on the project. Provide documentation as to the respective values.

**A5.405.5.2. Concrete.** Unless otherwise directed by the engineer, use concrete manufactured with cementitious materials in accordance with Subsections A5.405.5.2.1 and A5.405.5.2.1.1, as approved by the Department.

**A5.405.5.2.1. Supplementary Cementitious Materials (SCMs).** Use concrete made with one or more of the following supplementary cementitious materials (SCMs):

1. Fly ash meeting ASTM C 618, Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete;
2. Ultra fine fly ash (UFFA) meeting ASTM C 618, Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete, and CalTrans Standard Specification, Section 90-2.01B;
3. Metakaolin meeting ASTM C 618, Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete, and CalTrans Standard Specification, Section 90-2.01B;
4. Natural pozzolan meeting ASTM C 618, Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete;
5. Slag cement (GGBFS) meeting ASTM C 989, Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars;
6. Silica fume meeting ASTM C 1240, Specification for Silica Fume Used in Cementitious Mixtures;
7. Other materials with comparable or superior environmental benefits, as approved by the engineer and Department.

**Note:** CalTrans specifications for UFFA and metakaolin may be found in the 2009-09 updates to the 2006 CalTrans specifications on pages 339 and 340.

**A5.406.1. Choice of Materials.** Compared to other products in a given product category, choose materials proven to be characterized by one or more of the following for a minimum of 5% of the total value, based on estimated cost of materials on the project.

**A5.406.1.1. Service Life.** Select materials for longevity and minimal deterioration under conditions of use.

**A5.406.1.2. Reduced Maintenance.** Select materials that require little, if any, finishing. For those with surface protection, choose materials that do not require frequent applications of toxic or malodorous finishes.

**A5.408.3.1. Enhanced Construction Waste Reduction.** Divert to recycle or salvage nonhazardous construction and demolition debris generated at the site in compliance with one of the following:

- Tier 1.** At least a 65 percent reduction; or
- Tier 2.** At least an 80 percent reduction.

**Exceptions:**

- 1. Excavated soil and land-clearing debris.

**A5.409.1. Materials and System Assemblies.** Select materials assemblies based on life cycle assessment of their embodied energy and/or green house gas emission potentials for a minimum of 5% of the total value, based on estimated cost of materials on the project.

**Notes:**

- 1. Software for calculating life cycle costs for materials and assemblies may be found at:
  - a. The Athena Institute website.
  - b. The NIST BEES website.
  - c. Life Cycle assessment may also be done in accordance with ISO Standard 14044.
- 2. More information on life cycle assessment may be found at the Sustainable Products Purchasers Coalition; at the American Center for Life Cycle Assessment; at U.S. EPA Life Cycle Assessment Research; and at U.S. EPA Environmentally Preferable Products.

**A5.504.4.8. Thermal Insulation.** Comply with Chapters 12 – 13 (Standards for Insulating Materials) in Title 24, Part 12, the California Referenced Standards Code, and with the VOC-emission limits defined in 2009 CHPS criteria and listed on its Low-emitting Materials List, (or Product Registry).

**A5.504.4.9. Acoustical Ceilings and Wall Panels.** Comply with Chapter 8 of the Los Angeles Building Code, and with the VOC-emission limits defined in the 2009 CHPS criteria and listed on its Low-emitting Materials List (or Product Registry).

**A5.504.4.9.1. Verification of Compliance.** Documentation shall be provided verifying that acoustical finish materials meet the pollutant emission limits.

**Note:** Products compliant with CHPS criteria certified under the Greenguard Children & Schools program also be used.

**A5.507.2. Daylight.** For other than high-rise residential dwelling units and hotel/motel guest rooms, provide daylit spaces as required for toplighting and sidelighting in the California Energy Code. In constructing a design, consider the following:

1. Use of light shelves and reflective room surfaces to maximize daylight penetrating the rooms;
2. Means to eliminate glare and direct sun light, including through skylights;
3. Use of photosensors to turn off electric lighting when daylight is sufficient;
4. Not using diffuse daylighting glazing where views are desired.

**99.12.508. CITY OF LOS ANGELES CHECKLIST FOR NEWLY-CONSTRUCTED NONRESIDENTIAL AND HIGH-RISE RESIDENTIAL BUILDINGS**

CHECKLIST FOR THE CITY OF LOS ANGELES	MANDATORY	VOLUNTARY	
		CALGREEN Tier 1	CALGREEN Tier 2
<b>Requirements</b>			
Project meets all of the requirements of Divisions 5.1 through 5.5.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Planning and Design</b>			
<b>Site Selection</b>			
<b>A5.103.1 Community connectivity.</b> Locate project on a previously developed site within a 1/2 mile radius of at least ten basic services, listed in Section A5.103.1.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.103.2 Brownfield or greyfield site redevelopment or infill area development.</b> Select for development a brownfield in accordance with Section A5.103.2.1 or on a greyfield or infill site as defined in Section A5.102.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.103.3.1 Brownfield redevelopment.</b> Develop a site documented as contaminated and fully remediated or on a site defined as a brownfield.			
<b>Site Preservation</b>			
<b>A5.104.1.1 Local zoning requirement in place.</b> Exceed the zoning's open space requirement for vegetated open space on the site by 25 percent.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.104.1.2 No local zoning requirement in place.</b>		<input type="checkbox"/>	<input type="checkbox"/>

**A5.504.4.9. Acoustical Ceilings and Wall Panels.** Comply with Chapter 8 of the Los Angeles Building Code, and with the VOC-emission limits defined in the 2009 CHPS criteria and listed on its Low-emitting Materials List (or Product Registry).

**A5.504.4.9.1. Verification of Compliance.** Documentation shall be provided verifying that acoustical finish materials meet the pollutant emission limits.

**Note:** Products compliant with CHPS criteria certified under the Greenguard Children & Schools program also be used.

**A5.507.2. Daylight.** For other than high-rise residential dwelling units and hotel/motel guest rooms, provide daylit spaces as required for toplighting and sidelighting in the California Energy Code. In constructing a design, consider the following:

1. Use of light shelves and reflective room surfaces to maximize daylight penetrating the rooms;
2. Means to eliminate glare and direct sun light, including through skylights;
3. Use of photosensors to turn off electric lighting when daylight is sufficient;
4. Not using diffuse daylighting glazing where views are desired.

**99.12.508. CITY OF LOS ANGELES CHECKLIST FOR NEWLY-CONSTRUCTED NONRESIDENTIAL AND HIGH-RISE RESIDENTIAL BUILDINGS**

CHECKLIST FOR THE CITY OF LOS ANGELES	MANDATORY	VOLUNTARY	
		CALGREEN Tier 1	CALGREEN Tier 2
<b>Requirements</b>			
Project meets all of the requirements of Divisions 5.1 through 5.5.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Planning and Design</b>			
<b>Site Selection</b>			
<b>A5.103.1 Community connectivity.</b> Locate project on a previously developed site within a 1/2 mile radius of at least ten basic services, listed in Section A5.103.1.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.103.2 Brownfield or greyfield site redevelopment or infill area development.</b> Select for development a brownfield in accordance with Section A5.103.2.1 or on a greyfield or infill site as defined in Section A5.102.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.103.3.1 Brownfield redevelopment.</b> Develop a site documented as contaminated and fully remediated or on a site defined as a brownfield.			
<b>Site Preservation</b>			
<b>A5.104.1.1 Local zoning requirement in place.</b> Exceed the zoning's open space requirement for vegetated open space on the site by 25 percent.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.104.1.2 No local zoning requirement in place.</b>		<input type="checkbox"/>	<input type="checkbox"/>

CHECKLIST FOR THE CITY OF LOS ANGELES	MANDATORY	VOLUNTARY	
		CALGREEN Tier 1	CALGREEN Tier 2
<p>Provide vegetated open space area adjacent to the building equal to the building footprint area.</p> <p><b>A5.104.1.3 No open space required in zoning ordinance.</b> Provide vegetated open space equal to 20 percent of the total project site area.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<b>Deconstruction and Reuse of Existing Structures</b>			
<p><b>A5.105.1.1 Existing building structure.</b> Maintain at least 75 percent of existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing) based on surface area.</p> <p><b>Exceptions:</b></p> <ol style="list-style-type: none"> <li>1. Window assemblies and non-structural roofing material.</li> <li>2. Hazardous materials that are remediated as a part of the project.</li> </ol> <p><b>A5.105.1.2 Existing non-structural elements.</b> Reuse existing interior non-structural elements (interior walls, doors, floor coverings and ceiling systems) in at least 50 percent of the area of the completed building</p> <p><b>A5.105.1.3 Salvage.</b> Salvage additional items in good condition such as light fixtures, plumbing fixtures, and doors for reuse on this project in an onsite storage area or for salvage in dedicated collection bins. Document the weight or number of the items salvaged.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<b>Site Development</b>			
<p><b>A5.106.1 Storm water pollution prevention plan.</b> For projects which disturb less than one acre, develop a Storm Water Pollution Prevention Plan (SWPPP) that has been designed, specific to its site, conforming to the State Storm water NPDES Construction Permit or local ordinance, whichever is stricter, as is required for projects over one acre. The plan should cover prevention of soil loss by storm water run-off and/or wind erosion, of sedimentation, and/or of dust/particulate matter air pollution.</p> <p><b>A5.106.2 Storm water design.</b> Design storm water runoff rate and quantity in conformance with Section A5.106.3.1 and storm water runoff quality by Section A5.106.2.2, or by local requirements, whichever are stricter.</p> <p><b>A5.106.2.1 Storm water runoff rate and quantity.</b> Implement a storm water management plan resulting</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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spaces Table A5.106.5.1.2 for Tier 2 at 12 percent of total spaces <b>A5.106.5.2 Designated parking.</b> Provide designated parking, by means of permanent marking or a sign, for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as shown in Table 5.106.6.2.	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
<b>A5.106.5.3.1 Electric vehicle supply wiring.</b> Provide a minimum number of 208/240 V 40 amp, grounded AC outlet(s), that is equal to 5% of the total number of parking spaces. <b>A5.106.5.3.2 Additional Electric vehicle supply wiring.</b> Provide a minimum number of 208/240 V 40 amp, grounded AC outlet(s), that is equal to ten percent of the total number of parking spaces.	<input checked="" type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>
<b>A5.106.6 Parking capacity.</b> Design parking capacity to meet but not exceed minimum local zoning requirements. <b>A5.106.6.1 Reduce parking capacity.</b> With the approval of the enforcement authority, employ strategies to reduce on-site parking area or number of stalls by 20 percent:		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.106.7 Exterior walls.</b> Meet requirements in the current edition of the California Energy Code and select one of the following for wall surfaces: 1. Provide vegetative or man-made shading devices for east-, south-, and west-facing walls with windows. 2. Use wall surfacing with SRI 25 (aged), for 75 percent of opaque wall areas.	<input type="checkbox"/> <input type="checkbox"/>		
<b>A5.106.8 Light pollution reduction.</b> Comply with lighting power requirements in the California Energy Code and design interior and exterior lighting such that zero direct-beam illumination leaves the building site. Meet or exceed exterior light levels and uniformity ratios for lighting zones 1-4 as defined in Chapter 10 of the California Administrative Code, using the following strategies: 1. Shield all exterior luminaires or use cutoff luminaires. 2. Contain interior lighting within each source.	<input checked="" type="checkbox"/>  <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		

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<p>3. Allow no more than .01 horizontal foot candle 15 ft beyond the site.</p> <p>4. Contain all exterior lighting within property boundaries.</p> <p><b>Exception:</b> See Los Angeles Building Code Chapter 12, for campus lighting requirements for parking facilities and walkways.</p>	<input checked="" type="checkbox"/>		
<p><b>A5.106.9 Building orientation and window shading.</b> Locate and orient the building as follows:</p> <ol style="list-style-type: none"> <li>1. Long sides facing north and south</li> <li>2. Protect the building from thermal loss, drafts, and degradation of the building envelope caused by wind and wind-driven materials.</li> <li>3. Where permitted by Los Angeles Municipal Code, provide exterior shade for south and west-facing windows during the peak cooling season</li> </ol>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p><b>A5.106.10 Grading and Paving.</b> The site shall be planned and developed to keep surface water away from buildings. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows.</p>	<input checked="" type="checkbox"/>		
<p><b>A5.106.11 Heat island effect.</b> Reduce nonroof heat islands, and roof heat islands as follows:</p> <p><b>A5.106.11.1 Hardscape alternatives.</b> Use one or a combination of strategies 1 through 3 for 50 percent of site hardscape or put 50 percent of parking underground.</p> <ol style="list-style-type: none"> <li>1. Provide shade (mature within five years of occupancy).</li> <li>2. Use light colored/ high-albedo materials</li> <li>3. Use open-grid pavement system.</li> </ol> <p><b>A5.106.11.2 Cool Roof.</b> Use roofing materials having a solar reflectance, thermal emittance, or Solar Reflectance Index (SRI)<sup>3</sup> equal to or greater than the values shown in:  Table A5.106.11.2.1 – Tier 1 or  Table A5.106.11.2.2 – Tier 2</p>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Energy Efficiency</b>			
<b>Performance Requirements</b>			

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		CALGREEN Tier 1	CALGREEN Tier 2
<p><b>A5.203.1 Energy performance.</b> Using an Alternative Calculation Method approved by the California Energy Commission, calculate each nonresidential building's TDV energy and CO<sub>2</sub> emissions, and compare it to the standard or "budget" building.</p> <p><b>A5.203.1.1 Tier 1.</b> Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 15 percent.</p> <p><b>A5.203.1.2 Tier 2.</b> Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 30 percent.</p> <p><b>5.203.1.3 Energy efficiency</b> Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 15 percent.</p>	<input checked="" type="checkbox"/> 6/01/11	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Prescriptive Measures</b>			
<p><b>A5.204.1 ENERGY STAR equipment and appliances.</b> All equipment and appliances provided by the builder shall be ENERGY STAR labeled if ENERGY STAR is applicable to that equipment or appliance</p>		<input type="checkbox"/>	<input type="checkbox"/>
<p><b>A5.204.2 Energy monitoring.</b> Provide sub-metering or equivalent combinations of sensor measurements and thermodynamic calculations, if appropriate, to record energy use data for each major energy system in the building.</p> <p><b>A5.204.2.1 Data storage.</b> The data management system must be capable of electronically storing energy data and creating user reports showing hourly, daily, monthly and annual energy consumption for each major energy system.</p> <p><b>A5.204.2.2 Data access.</b> Hourly energy use data shall be accessible through a central data management system and must be available daily.</p>		<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>
<p><b>A5.204.3 Demand response.</b> HVAC systems with Direct Digital Control Systems and centralized lighting systems shall include pre-programmed demand response strategies that are automated with either a Demand Response Automation Internet Software Client or dry contact relays.</p> <p><b>A5.204.3.1 HVAC.</b> The pre-programmed demand response strategies should be capable of reducing the peak HVAC demand by cooling temperature set point adjustment.</p> <p><b>A5.204.3.2 Lighting.</b> The pre-programmed demand</p>		<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>

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<p>response strategies should be capable of reducing the total lighting load by a minimum 30 percent through dimming control or bi-level switching.</p> <p><b>A5.204.3.3 Software clients.</b> The software clients will be capable of communicating with a DR Automation Server.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<b>Energy Systems</b>			
<p><b>A5.210.1 ENERGY STAR equipment and appliances.</b> All residential grade equipment and appliances provided and installed shall be ENERGY STAR labeled if ENERGY STAR is applicable to that equipment or appliance.</p>	<input checked="" type="checkbox"/>		
<b>Renewal Energy</b>			
<p><b>A5.211.1 On-site renewable energy.</b> Use on-site renewable energy for at least 1 percent of the electrical service overcurrent protection device rating calculated in accordance with the Los Angeles Electrical Code, or 1KW, whichever is greater, in addition to the electrical demand required to meet one percent of natural gas and propane use calculated in accordance with the Los Angeles Plumbing Code.</p> <p><b>A5.211.1.1 Documentation.</b> Using a calculation method approved by the California Energy Commission, calculate the renewable on-site energy system to meet the requirements of Section A5.211.1, expressed in kW.</p> <p><b>A5.211.3 Green Power.</b> If offered by the local utility provider, participate in a renewable energy portfolio program that provides a minimum of 50 percent electrical power from renewable sources. Maintain documentation through utility billings.</p> <p><b>A5.211.4 Prewiring for future solar.</b> Install conduit from the building roof or eave to a location within the building identified as suitable for future installation of a charge controller (regulator) and inverter.</p> <p><b>A5.211.4.1 Off grid prewiring for future solar.</b> If battery storage is anticipated, conduit shall run to a location within the building that is stable, weather-proof, insulated against very hot and very cold weather, and isolated from occupied spaces.</p>	<input checked="" type="checkbox"/>		
<b>Elevators, Escalators, and other Equipment</b>			
<p><b>A5.212.1 Elevators and escalators.</b> In buildings with more than one elevator or two escalators, provide controls to reduce the energy demand of elevators and</p>		<input type="checkbox"/>	<input type="checkbox"/>

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		CALGREEN Tier 1	CALGREEN Tier 2
reduce the speed of escalators. Document the controls in the project specifications and commissioning plan.			
<b>Energy efficient steel framing</b>			
<b>A5.213.1 Steel framing.</b> Design for and employ techniques to avoid thermal bridging.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Water Efficiency and Conservation</b>			
<b>Indoor Water Use</b>			
<b>A5.303.1 Meters.</b> Separate meters shall be installed for the uses described in Sections 5.503.1.1 through 5.503.1.3. <b>A5.303.1.1 Buildings in excess of 50,000 square feet.</b> Separate submeters shall be installed as follows: 1. For each individual leased, rented, or other tenant space within the building projected to consume more than 100 gal/day. 2. For spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory or beauty salon or barber shop projected to consume more than 100 gal/day. <b>A5.303.1.2 Excess consumption.</b> Any building within a project or space within a building that is projected to consume more than 1,000 gal/day.	<input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>
<b>A5.303.2 20 Percent Savings.</b> A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 20 percent shall be provided. (Calculate savings by Water Use Worksheets.) <b>A5.303.2.1 Multiple showerheads serving one shower.</b> When single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the 20 percent reduction column contained in Table 5.303.2.3 or the shower shall be designed to only allow one showerhead to be in operation at a time.	<input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>		
<b>A5.303.2.3.1 Tier 1 – 30 percent savings.</b> A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 30 percent shall be provided. <b>A5.303.2.3.2 Tier 2 – 35 percent savings.</b> A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 35 percent shall be provided.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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<b>A5.303.2.3.3 40 percent savings.</b> A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 40 percent shall be provided. (Calculate savings by Water Use Worksheets.)		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.303.4 Wastewater reduction.</b> Each building shall reduce the generation of wastewater by one of the following methods: 1. The installation of water-conserving fixtures or 2. Utilizing non-potable water systems	As applicable <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		
<b>A5.303.3 Appliances.</b> 1. Clothes washers shall have a maximum Water Factor (WF) that will reduce the use of water. 2. Dishwashers shall meet the criteria in A5.303.3 (2) (a) and (b). 3. Ice makers shall be air cooled. 4. Food steamers shall be connectionless or boilerless. 5. The use and installation of water softeners shall be limited or prohibited by local agencies.		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>A5.303.5 Dual plumbing.</b> New buildings and facilities shall be dual plumbed for potable and recycled water systems		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.303.6 Plumbing Fixtures and Fittings.</b> Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the requirements listed for each type in Items listed in Table 5.303.6. 1. Water closets (toilets) – flushometer type 2. Water closets (toilets) – tank type 3. Urinals 4. Public lavatory faucets 5. Public metering self-closing faucets 6. Residential bathroom lavatory sink faucets 7. Residential kitchen faucets 8. Residential shower heads 9. Single shower fixtures served by more than one showerhead	As applicable <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		
<b>Outdoor Water Use</b>			
<b>A5.304.1 Water budget.</b> A water budget shall be developed for landscape irrigation use. <sup>1</sup>	<input checked="" type="checkbox"/>		
<b>A5.304.2 Outdoor potable water use.</b> Building on sites with 1,000 square feet or more of cumulative landscaped area shall have separate meters or submeters for indoor and outdoor potable water use.	<input checked="" type="checkbox"/>		

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<p><b>A5.304.2.1 Outdoor potable water use.</b> For new water service not subject to the provisions of Section 5.304.2, separate meters or submeters shall be installed for indoor and outdoor potable water use for landscaped areas.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<p><b>A5.304.3 Irrigation design.</b> Buildings on sites with 1000 square feet or more of cumulative irrigated landscaped area shall have irrigation controllers and sensors which include the following criteria, and meet manufacturer's recommendations.</p> <p><b>A5.304.3.1 Irrigation controllers.</b> Automatic irrigation system controllers installed at the time of final inspection shall comply with the following:</p> <ol style="list-style-type: none"> <li>1. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.</li> <li>2. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.</li> </ol>	<p style="text-align: center;"><input checked="" type="checkbox"/></p> <p style="text-align: center;">As applicable</p> <p style="text-align: center;"><input checked="" type="checkbox"/></p>		
<p><b>A5.304.4 Potable water reduction.</b> Provide water efficient landscape irrigation design that reduces by the use of potable water.</p> <p><b>A5.304.4.1 Tier 1</b> – Reduce the use of potable water to a quantity that does not exceed 60 percent of ETo times the landscape area.</p> <p><b>A5.304.4.2 Tier 2</b> –Reduce the use of potable water to a quantity that does not exceed 55 percent of ETo times the landscape area.</p> <p>Methods used to accomplish the requirements of this section shall include, but not be limited to, the items listed in A5.304.4.</p> <p><b>A5.304.4.3 Verification of compliance.</b> A calculation demonstrating the applicable potable water use reduction required by this section shall be provided.</p>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<p><b>A5.304.5 Potable water elimination.</b> Provide a water efficient landscape irrigation design that eliminates the use of potable water beyond the initial requirements for plant installation and establishment.</p> <p>Methods used to accomplish the requirements of this</p>		<input type="checkbox"/>	<input type="checkbox"/>

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section shall include, but not be limited to, the items listed in A5.304.4.			
<b>A5.304.6 Restoration of areas disturbed by construction.</b> Restore all areas disturbed during construction by planting with local native and/or noninvasive vegetation		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.104.7 Previously developed sites.</b> On previously developed or graded sites, restore or protect at least 50 percent of the site area with native and/or noninvasive vegetation.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.304.8 Graywater irrigation system.</b> Install graywater collection system for onsite subsurface irrigation using graywater.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Material Conservation and Resource Efficiency</b>			
<b>Efficient Framing Systems</b>			
<b>A5.404.1 Wood framing.</b> Employ advanced wood framing techniques or OVE, as permitted by the Department.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Material Sources</b>			
<b>A5.405.1 Regional materials.</b> Select building materials or products for permanent installation on the project that have been harvested or manufactured in California or within 500 miles of the project site, meeting the criteria listed in A5.405.1.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.405.2 Bio-based materials.</b> Select bio-based building materials per Section A5.405.2.1 or A5.405.2.2. <b>A5.405.2.1 Certified wood products.</b> Certified wood is an important component of green building strategies and the California Building Standards Commission will continue to develop a standard through the next code cycle. <b>A5.405.2.2 Rapidly renewable materials.</b> Use materials made from plants harvested within a ten-year cycle for at least 2.5 percent of total materials value, based on estimated cost.		<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
<b>A5.405.3 Reused materials.</b> Use salvaged, refurbished, refinished, or reused materials for at least 5 percent of the total value, based on estimated cost of materials on the project.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.405.4 Recycled content, Tier 1.</b> Use materials, equivalent in performance to virgin materials, with post-consumer or pre-consumer recycled content value (RCV)		<input checked="" type="checkbox"/>	

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<p>equaling at least 10 percent of the total value, based on estimated cost of materials on the project. Provide documentation as to the respective values.</p> <p><b>A5.405.4.1 Recycled content, Tier 2.</b> Use materials, equivalent in performance to virgin materials, with post-consumer or pre-consumer recycled content value (RCV) for a minimum of 15 percent of the total value, based on estimated cost of materials on the project. Provide documentation as to the respective values.</p>			<input checked="" type="checkbox"/>
<p><b>A5.405.5 Cement and concrete.</b> Use cement and concrete made with recycled products and complying with the following sections:</p> <p><b>A5.405.5.1 Cement.</b> Meet the following standards for cement:</p> <ol style="list-style-type: none"> <li>1. Portland cement shall meet ASTM C 150.</li> <li>2. Blended hydraulic cement shall meet ASTM C 595.</li> </ol> <p><b>A5.405.5.2 Concrete.</b> Unless otherwise directed by the engineer, use concrete manufactured with cementitious materials in accordance with Sections A5.405.5.2.1 and A5.405.5.2.2, as approved by the Department.</p> <p><b>A5.405.5.2.1 Supplementary cementitious materials (SCMs).</b> Use concrete made with one or more of the SCMs listed in Section A5.405.5.2.1.</p> <p><b>A5.405.5.2.1.1 Mix design equation.</b> Use any combination of one or more SCMs, satisfying Equation A5.4-1.</p> <p><b>Exception:</b> Minimums for concrete products requiring high early strength may be lower as directed by the engineer.</p> <p><b>A5.405.5.3 Additional means of compliance.</b> Any of the following measures may be employed for the production of cement or concrete, depending on their availability and suitability, in conjunction with Section A5.405.5.2.</p> <p><b>A5.405.5.3.1 Cement.</b> The following measures may be used in the manufacture of cement.</p> <p><b>A5.405.5.3.1.1 Alternative fuels.</b> Where permitted by state or local air quality standards, use alternative fuels.</p> <p><b>A5.405.5.3.1.2 Alternative power.</b> Use alternate electric power generated at the cement plant and/or green power purchased from the utility</p>		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

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<p>meeting the requirements of A5.211.</p> <p><b>A5.405.5.3.1.3 Alternative ingredients.</b> Use inorganic processing additions and limestone meeting ASTM C 150.</p> <p><b>A5.405.5.3.2 Concrete.</b> The following measures may be used in the manufacture of concrete,</p> <p><b>A5.405.5.3.2.1 Alternative energy.</b> Use renewable or alternative energy meeting the requirements of Section A5.211.</p> <p><b>A5.405.5.3.2.2 Recycled aggregates.</b> Use concrete made with one or more of the materials listed in Section A5.405.5.3.2.2.</p> <p><b>A5.405.5.3.2.3 Mixing water.</b> Use water meeting ASTM C1602, either recycled water provided by the local water purveyor or water reclaimed from manufacturing processes.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<b>Enhanced Durability and Reduced Maintenance</b>			
<p><b>A5.406.1 Choice of materials.</b> Compared to other products in a given product category, choose materials proven to be characterized by one or more of the following for a minimum of 5% of the total value, based on estimated cost of materials on the project.</p> <p><b>A5.406.1.1 Service life.</b> Select materials for longevity and minimal deterioration under conditions of use.</p> <p><b>A5.406.1.2 Reduced maintenance.</b> Select materials that require little, if any, finishing.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<b>Weather Resistance and Moisture Management</b>			
<p><b>A5.407.1 Weather protection.</b> Provide a weather-resistant exterior wall and foundation envelope as required by Los Angeles Building Code Section 1403.2 and California Energy Code Section 150, manufacturer's installation instructions, or local ordinance, whichever is more stringent.<sup>1</sup></p>	<input checked="" type="checkbox"/>		
<p><b>A5.407.2 Moisture control.</b> Employ moisture control measures by the following methods;</p> <p><b>A5.407.2.1 Sprinklers.</b> Prevent irrigation spray on structures.</p> <p><b>A5.407.2.2 Entries and openings.</b> Design exterior entries and openings to prevent water intrusion into buildings.</p>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		
<b>Construction Waste Reduction, Disposal and Recycling</b>			

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<b>A5.408.1 Construction waste diversion.</b> Comply with Section 66.32 of the Los Angeles Municipal Code.	<input checked="" type="checkbox"/>		
<b>A5.408.3.1 Enhanced construction waste reduction.</b> Divert to recycle or salvage nonhazardous construction and demolition debris generated at the site in compliance with one of the following: Tier 1. At least a 65 percent reduction. Tier 2. At least an 80 percent reduction.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>A5.408.4 Excavated soil and land clearing debris.</b> 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled.	<input checked="" type="checkbox"/>		
<b>Life Cycle Assessment</b>			
<b>A5.409.1 Materials and system assemblies.</b> Select materials assemblies based on life cycle assessment of their embodied energy and/or green house gas emission potentials for a minimum of 5 percent of the total the value.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Building Maintenance and Operation</b>			
<b>A5.410.1 Recycling by occupants.</b> Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling. <sup>1</sup>	<input checked="" type="checkbox"/>		
<b>A5.410.2 Commissioning.</b> For new buildings 10,000 square feet and over, building commissioning for all building systems covered by T24, Part 6, process systems, and renewable energy systems shall be included in the design and construction processes of the	<input checked="" type="checkbox"/>		

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<p>building project. Commissioning requirements shall include as a minimum items listed in 5.410.2.</p> <p><b>A5.410.2.1 Owner's Project Requirements (OPR).</b> Documented before the design phase of the project begins the OPR shall include items listed in 5.410.4.</p> <p><b>A5.410.2.2 Basis of Design (BOD).</b> 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 and updated periodically to cover the systems listed in 5.410.2.2.</p> <p><b>A5.410.2.3 Commissioning plan.</b> A commissioning plan describing how the project will be commissioned shall be started during the design phase of the building project and shall include as a minimum items listed in 5.410.2.3.</p> <p><b>A5.410.2.4 Functional performance testing</b> shall demonstrate the correct installation and operation of each component, system, and system-to-system interface in accordance with the approved plans and specifications.</p> <p><b>A5.410.2.5 Post construction documentation and training.</b> A systems manual and systems operations Training are required.</p> <p><b>A5.410.2.5.1 Systems manual.</b> The Systems manual shall be delivered to the building owner and facilities operator and shall include the items listed in 5.410.2.5.1.</p> <p><b>A5.410.2.5.2 Systems operations training.</b> The training of the appropriate maintenance staff for each equipment type and/or system shall include as a minimum items listed in 5.410.2.5.2.</p> <p><b>A5.410.2.6 Commissioning report.</b> A complete report of commissioning process activities undertaken through the design, construction and postconstruction phases of the building project shall be completed and provided to the owner or representative.</p>	<input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>		
<p><b>A5.410.4 Testing, adjusting and balancing.</b> Testing and adjusting of systems shall be required for buildings less than 10,000 square feet.</p> <p><b>A5.410.4.2 Systems.</b> 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, the systems listed in 5.410.3.2.</p>	<input checked="" type="checkbox"/>		

CHECKLIST FOR THE CITY OF LOS ANGELES	MANDATORY	VOLUNTARY	
		CALGREEN Tier 1	CALGREEN Tier 2
<p><b>A5.410.4.3 Procedures.</b> Perform testing and adjusting in accordance with industry best practices and applicable national standards on each system.</p> <p><b>A5.410.4.3.1 HVAC balancing.</b> Before a new space-conditioning system serving a building or space is operated for normal use, the system should be balanced in accordance with the procedures defined by national standards listed in 5.410.3.3.1.</p> <p><b>A5.410.4.4 Reporting.</b> After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.</p> <p><b>A5.410.4.5 Operation and maintenance manual.</b> Provide the building owner with detailed operating and maintenance instructions and copies of guaranties/warranties for each system prior to final inspection.</p> <p><b>A5.410.4.5.1 Inspections and reports.</b> Include a copy of all inspection verifications and reports required by the Department.</p>	<input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>		
<b>Environmental Quality</b>			
<b>Fireplaces</b>			
<p><b>A5.503.1.</b> Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove, and refer to residential requirements in the California Energy Code, Title 24, Part 6, Subchapter 7, Section 150.</p> <p><b>A5.503.1.1 Woodstoves.</b> Woodstoves shall comply with US EPA Phase II emission limits.</p>	<input checked="" type="checkbox"/>  As applicable <input checked="" type="checkbox"/>		
<b>Pollutant Control</b>			
<p><b>A5.504.1 Indoor air quality (IAQ) during construction.</b> Maintain IAQ as provided in Sections A5.504.1.1 and A5.504.1.2.</p> <p><b>A5.504.1.1 Temporary ventilation.</b> Provide temporary ventilation during construction in accordance with Section 121 of the California Energy Code, CCR, Title 24, Part 6, and Chapter 4 of CCR, Title 8, and as listed in Items 1 through 4 in A5.504.1.2.</p> <p><b>A5.504.1.2 Additional IAQ measures.</b> Employ additional measures as listed in Items 1 through 5 in A5.504.1.3.</p>		<input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>
<p><b>A5.504.2 IAQ postconstruction.</b> Flush out the building per Section A5.504.2 prior to occupancy or if the building</p>		<input type="checkbox"/>	<input type="checkbox"/>



CHECKLIST FOR THE CITY OF LOS ANGELES	MANDATORY	VOLUNTARY	
		CALGREEN Tier 1	CALGREEN Tier 2
<p>1. 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.</p> <p>2. 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.</p> <p><b>A5.504.4.3 Paints and coatings.</b> Architectural paints and coatings shall comply with Table 5.504.4.3 unless more stringent local limits apply.</p> <p><b>A5.504.4.3.1 Aerosol Paints and Coatings.</b> Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for ROC in section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances (CCR, Title 24, Section 94520 <i>et seq.</i>)</p> <p><b>A5.504.4.3.2 Verification.</b> Verification of compliance with this section shall be provided at the request of the Department.</p> <p><b>A5.504.4.4 Carpet systems.</b> All carpet installed in the building interior shall meet the testing and product requirements of one of the standards listed in 5.504.4.4.</p> <p><b>A5.504.4.4.1 Carpet cushion.</b> All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.</p> <p><b>A5.504.4.4.2 Carpet adhesive.</b> All carpet adhesive shall meet the requirements of Table 804.4.1.</p> <p><b>A5.504.4.5 Composite wood products.</b> Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in Table 5.504.4.</p> <p><b>A5.504.4.5.1 Early compliance with</b></p>	<p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>	<p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>

CHECKLIST FOR THE CITY OF LOS ANGELES	MANDATORY	VOLUNTARY	
		CALGREEN Tier 1	CALGREEN Tier 2
<p><b>formaldehyde limits.</b> Where complying composite wood product is readily available for nonresidential occupancies, meet Phase 2 requirements before the compliance dates indicated in Table 5.504.4.5 (Tier I) or use composite wood products made with either CARB-approved no-added formaldehyde (NAF) resins or CARB-approved ultra-low emitting formaldehyde (ULEF) resins (Tier II).</p> <p><b>A5.504.4.5.2 Documentation.</b> Verification of compliance with this section shall be provided as requested by the Department. Documentation shall include at least one of the following.</p> <ol style="list-style-type: none"> <li>1. Product certifications and specifications</li> <li>2. Chain of custody certifications</li> <li>3. Other methods acceptable to the Department</li> </ol>	<input checked="" type="checkbox"/>  As applicable <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/>	
<p><b>A5.504.4.6 Resilient flooring systems.</b> Comply with the VOC-emission limits defined in the 2009 CHPS criteria and listed on its Low-emitting Materials List (or Product Registry) or certified under the FloorScore program of the Resilient Floor Covering Institute.</p> <p><b>A.504.4.4.6.1 Verification of compliance.</b> Documentation shall be provided verifying that resilient flooring materials meet pollutant emission limits.</p> <p><b>A5.504.4.7 Resilient flooring systems, Tier 1.</b> For 80 percent of floor area receiving resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 CHPS criteria and listed on its Low-emitting Materials List, or certified under the FloorScore program of the Resilient Floor Covering Institute.</p> <p><b>A5.504.4.7.1 Resilient flooring systems, Tier 2.</b> For 100 percent of floor area scheduled to receive resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 CHPS criteria and listed on its Low-emitting Materials List or certified under the FloorScore program of the Resilient Floor Covering Institute.</p> <p><b>A.504.4.4.7.2 Verification of compliance.</b> Documentation shall be provided verifying that resilient flooring materials meet pollutant emission limits.</p> <p><b>A5.504.4.8 Thermal Insulation, Tier 1.</b> Comply with</p>	<input checked="" type="checkbox"/>   <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>         <input checked="" type="checkbox"/>

CHECKLIST FOR THE CITY OF LOS ANGELES	MANDATORY	VOLUNTARY	
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<p>Chapter 12-13 in Title 24, Part 12 and with the VOC-emission limits defined in 2009 CHPS criteria and listed on its Low-emitting Materials List.</p> <p><b>A5.504.4.8.1 Thermal insulation, Tier 2.</b> Install No-Added Formaldehyde thermal insulation in addition to meeting A5.504.4.8.</p> <p><b>A.504.4.8.2 Verification of compliance.</b> Documentation shall be provided verifying that thermal insulation materials meet pollutant emission limits.</p> <p><b>A5.504.4.9 Acoustical ceilings and wall panels.</b> Comply with Chapter 8 of the Los Angeles Building Code and with the VOC-emission limits defined in the 2009 CHPS criteria and listed on its Low-emitting Materials List (or Product Registry).</p> <p><b>A5.504.4.9.1 Verification of compliance.</b> Documentation shall be provided verifying that acoustical finish materials meet the pollutant emission limits.</p>		<input type="checkbox"/>  <input checked="" type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input checked="" type="checkbox"/>  <input checked="" type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>
<p><b>A5.504.5 Hazardous particulates and chemical pollutants.</b> Minimize and control pollutant entry into buildings and cross-contamination of regularly occupied areas.</p> <p><b>A5.504.5.1 Entryway systems.</b> Install permanent entryway systems measuring at least six feet in the primary direction of travel to capture dirt and particulates at entryways directly connected to the outdoors as listed in Items 1 through 3 in A5.504.5.1.</p> <p><b>A5.504.5.2 Isolation of pollutant sources.</b> In rooms where activities produce hazardous fumes or chemicals, exhaust them and isolate them from their adjacent rooms as listed in Items 1 through 3 in A5.504.5.2.</p> <p><b>A5.504.5.3 Filters.</b> In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a MERV of 8.</p> <p><b>A5.504.5.3.1 Filters.</b> In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a MERV of 11.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>

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<b>A5.504.7 Environmental tobacco smoke (ETS) control.</b> Prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows where outdoor areas are provided for smoking or as enforced by ordinances, regulations, or policies, whichever are more stringent.	<input type="checkbox"/>		
<b>Indoor Moisture and Radon Control</b>			
<b>A5.505.1 Indoor moisture control.</b> Buildings shall meet or exceed the provisions of Los Angeles Building Code, Sections 1203 and Chapter 14. <sup>1</sup>	<input checked="" type="checkbox"/>		
<b>Air Quality and Exhaust</b>			
<b>A5.506.1 Outside air delivery.</b> For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 of the California Energy Code, CCR, Title 24, Part 6 and Chapter 4 of CCR, Title 8, or the applicable local code, and Division 1, whichever is more stringent. <sup>1</sup>	<input checked="" type="checkbox"/>		
<b>A5.506.2 Carbon dioxide (CO<sub>2</sub>) monitoring.</b> For buildings equipped with demand control ventilation, CO <sub>2</sub> sensors and ventilation controls shall be specified and installed in accordance with the requirements of the latest edition of the California Energy Code, CCR, Title 24, Part 6, Section 121(c). <sup>1</sup>	<input checked="" type="checkbox"/>		
<b>Environmental Comfort</b>			
<b>A5.507.1 Lighting and thermal comfort controls.</b> Provide controls in the workplace as described in Sections A5.507.1.1 and A5.507.1.2. <b>A5.507.1.1 Single-occupant spaces.</b> Provide individual controls that meet energy use requirements in the California Energy Code by Sections A5.507.1.1.1 and A5.507.1.1.2. <b>A5.507.1.1.1 Lighting.</b> Provide individual task lighting and/or daylighting controls for at least 90 percent of the building occupants. <b>A5.507.1.1.2 Thermal comfort.</b> Provide individual thermal comfort controls for at least 50 percent of the building occupants by Items 1 and 2 in A5.507.1.1.2. <b>A5.507.1.2 Multi-occupant spaces.</b> Provide lighting and thermal comfort system controls for all shared multi-occupant spaces.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.507.2 Daylight.</b> For other than high-rise residential dwelling units and hotel/motel guest rooms, provide daylight spaces as required for toplighting and sidelighting in the		<input type="checkbox"/>	<input type="checkbox"/>

CHECKLIST FOR THE CITY OF LOS ANGELES	MANDATORY	VOLUNTARY	
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California Energy Code. In constructing a design, consider Items 1 through 4 in A5.507.3.			
<p><b>A5.507.3 Views.</b> Achieve direct line of sight to the outdoor environment via vision glazing between 2'6" and 7'6" above finish floor for building occupants in 90 percent of all regularly occupied areas.</p> <p><b>A5.507.3.1 Interior office spaces.</b> Entire areas of interior office spaces may be included in the calculation if at least 75 percent of each area has direct line of sight to perimeter vision glazing.</p> <p><b>A5.507.3.2 Multi-occupant spaces.</b> Include in the calculation the square footage with direct line of sight to perimeter vision glazing.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<p><b>A5.507.4 Acoustical control.</b> Employ building assemblies and components with STC values determined in accordance with ASTM E 90 and ASTM E413.</p> <p><b>A5.507.4.1 Exterior noise transmission.</b> Wall and floor-ceiling assemblies making up the building envelope shall have an STC of at least 50, and exterior windows shall have a minimum STC of 30 for any of the building locations listed in Items 1 through 3 in 5.507.5.1.</p> <p><b>A5.507.4.2 Interior sound.</b> Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40.</p>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		
<b>Outdoor Air Quality</b>			
<p><b>A5.508.1 Ozone depletion and global warming reductions.</b> Installations of HVAC, refrigeration, and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.</p> <p><b>A5.508.1.1 CFCs.</b> Install HVAC and refrigeration equipment that does not contain CFCs.<sup>1</sup></p> <p><b>A5.508.1.2 Halons.</b> Install fire suppression equipment that does not contain Halons.<sup>1</sup></p> <p><b>A5.508.1.3 Hydrochlorofluorocarbons (HCFCs).</b> Install HVAC and refrigeration equipment that does not contain HCFCs.</p> <p><b>A5.508.1.4 Hydrofluorocarbons (HFCs).</b> Install HVAC complying with either of the following:</p> <p>1. Install HVAC, refrigeration and fire suppression equipment that do not contain HFCs or that do not contain HFCs with a global warming potential greater</p>	As applicable <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>

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than 150. 2. Install HVAC and refrigeration equipment that limit the use of HFC refrigerant through the use of a secondary heat transfer fluid with a global warming potential no greater than 1.		<input type="checkbox"/>	<input type="checkbox"/>

1. These measures are currently required elsewhere in statute or in regulation.

Sec. 2 **Urgency Clause.** The City Council finds and declares that this Ordinance is required for the immediate protection of the public peace, health and safety for the following reason: In order for the City of Los Angeles to facilitate a seamless transition of green building requirements and maintain predictability and streamlined case processing for the benefit of economic development during distressed times, it is necessary to immediately modify the existing green building requirements, incentives and related Green Team. The Council, therefore, with the Mayor's concurrence, adopts this ordinance to become effective upon publication pursuant to Los Angeles City Charter Section 253.

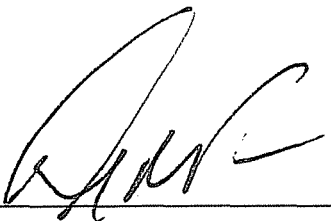
Sec. 3. The City Clerk shall certify to the passage of this ordinance and have it published in accordance with Council policy, either in a daily newspaper circulated in the City of Los Angeles or by posting for ten days in three public places in the City of Los Angeles: one copy on the bulletin board located at the Main Street entrance to the Los Angeles City Hall; one copy on the bulletin board located at the Main Street entrance to the Los Angeles City Hall East; and one copy on the bulletin board located at the Temple Street entrance to the Los Angeles County Hall of Records.

I hereby certify that this ordinance was passed by the Council of the City of Los Angeles, at its meeting of DEC 14 2010.

JUNE LAGMAY, City Clerk


By  \_\_\_\_\_  
Deputy

Approved DEC 15 2010 \_\_\_\_\_

 \_\_\_\_\_  
Mayor

Approved as to Form and Legality

CARMEN A. TRUTANICH, City Attorney

By  \_\_\_\_\_  
KIM RODGERS WESTHOFF  
Deputy City Attorney

Date November 30, 2010

File No. CF 10-0735