

**California Department of Housing and Community Development
Overview of California Code of Regulations, Title 24, Part 11,
California Green Building Standards Code**

Background

At its July 19, 2007 meeting, the California Building Standards Commission (CBSC) formally directed CBSC staff to develop green building standards for new construction of buildings under its authority and submit these standards for adoption during the 2007 annual code adoption cycle. In addition, the CBSC requested and encouraged the Department of Housing and Community Development (HCD), the Division of the State Architect (DSA), and the Office of Statewide Health Planning and Development (OSHPD) to develop green building standards for new construction of buildings under their respective authority and also submit these standards for adoption during the 2007 annual code adoption cycle.

During the first session of the 2007/2008 legislative cycle, several green building bills passed the legislature (AB 35 concerning state-owned buildings, AB 888 concerning some commercial buildings, and AB 1058 concerning residential construction) and were vetoed by the Governor. However, in his veto messages, the Governor expressed his support for development of green building standards, but advised that they should not be statutory, not conflict with current safety standards, and should not rely on private entities to set standards.

Development Process

HCD has collaborated with the CBSC, stakeholder groups and other state agencies to develop the 2008 California Green Building Code (CGBC) which was approved by the CBSC on July 17, 2008. To develop the 2008 code, HCD has considered public input and also reviewed existing green building standards, best practices, guidelines, and other published material. The 2008 CGBC will provide a framework and meaningful first step to establish green building standards for low-rise residential construction (residential buildings with three stories or less). These standards can be modified, enhanced and built on in the future and are scheduled for enhancement during the next code adoption cycle which is currently under way.

Contents

HCD's portion of the code is based on a phased approach that will allow industry and enforcement agencies to prepare for and adjust to the requirements of the CGBC prior to its effective date. The majority of the green building measures contained in the 2008 CGBC will become mandatory concurrently with the 2010 California Building Code (late 2010 or early 2011). Staff worked with industry regarding some product availability concerns and has proposed a July 1, 2011, effective date for the water conservation portion of the CGBC to allow manufacturers additional production time. The 2008 CGBC contains the following:

- A 20 percent reduction in indoor residential water use;
- Sediment and runoff protection for construction sites not covered by regulations adopted by a state agency or local ordinance (typically sites less than 1 acre);
- Low or no VOC adhesives, paints and coatings on the interior of the residence;
- Low or no VOC carpet systems;
- Low formaldehyde interior finish materials;
- Provide HVAC sizing and selection;
- Interior moisture reduction;
- Protection of air handling equipment during construction;
- Installer and Inspector knowledge requirements;
- Waste stream reduction of at least 50% through reuse or recycle; and
- Improved homeowner or occupant information regarding the maintenance and use of homes and how to properly maintain the home in an environmentally friendly fashion;
- Implementation aids and for local government.

Summary of the 2010 California Green Building Standards Code currently under development

Note: These measures will become mandatory on January 1, 2001. Measures in 2008 code are shown in standard font; measures currently proposed for inclusion in the 2010 code are shown in underline.

Chapter 1 – Administration

- Provisions are consistent with other codes. Minor revisions are proposed for 2010.
-

Chapter 2 - Definitions

- List of definitions used in this code. Minor revisions are proposed for 2010.
-

Chapter 3 - General

- Application of the code. A new section is added to incorporate the use voluntary tiers.
-

Chapter 4 – Division 4.1 Planning and Design

- § 4.1.4.1 Existing Site Resources
This section adds a requirement for existing site resources to be developed and shown on the site plan. The site plan shall then be used to preserve desirable resources.
 - § 4.1.4.1.1 Preservation Methods
This section provides guidance on strategies which can be used to preserve natural resources on the site during the construction process.
 - § 4.1.6.2 Storm Water Drainage and Retention During Construction.
This section will apply to construction projects less than one acre which are outside the scope of the California State Water Resources Control Board (SWRCB). This section will help prevent flooding of adjacent property and prevent pollution from storm water runoff by retaining soil on-site or by providing filtering to restrict sedimentation from reaching storm water drainage systems and receiving streams or rivers. This section establishes criteria for a plan to manage storm water drainage during construction.
 - § 4.1.6.2 Surface Drainage
This section specifies that surface drainage must be planned. Drainage patterns must be analyzed and a method developed to manage the site and building drainage must be developed. Some examples of measures which could be used are included.
-

Chapter 4 – Division 4.2 Energy Efficiency

- § 4.2.1.1 Scope
This proposal clarifies to the code user that currently the California Energy Commission (CEC) adopts regulations to establish the minimum level of energy efficiency a structure that is heated or cooled must meet or exceed. Currently, the CEC energy regulations are approximately 30% more stringent than those contained in the International Energy Conservation Code (a national energy code). In addition, the CEC regulations which become effective on January 1, 2010 will increase that level by an additional 20%.
-

Chapter 4 – Division 4.3 Water Efficiency and Conservation

- § 4.3.3.1 20% Savings.
This section requires an indoor water use reduction of 20%. The standards provide a performance and prescriptive way to meet the requirements. Prescriptively, a designer can simply select the various fixtures listed in a table published in the chapter that provides the reduced flow rates that

equal 20%. The performance measure permits the designer to establish a baseline water use by utilizing an approved calculated method and reducing the buildings use by the prescribed 20%. This can be accomplished by the utilization of waterless urinals, graywater systems, or any other method approved by code. The tables are provided in Chapter 8. Minor revisions are proposed for 2010.

- § 4.3.3.2 Multiple Showerheads Serving One Shower.
This section clarifies multiple head showers would not be allowed to exceed the required 20% indoor water use reduction HCD has adopted. To further clarify the original intent of reducing the indoor water use by specified fixtures within the dwelling unit, HCD explains that the flow of multiple showerheads must be combined and the sum of those combined flow rates cannot exceed the maximum showerhead flow rate specified in Table 4.3.3.2.
- § 4.3.3.3 Plumbing Fixtures and Fittings.
This section identifies the performance standards and test standards toilets, urinals, lavatory faucets, kitchen faucets and showerheads must meet.
- § 4.3.4.1, 4.3.4.1.1 and 4.3.4.1.2 Irrigation Controllers.
This section requires that irrigation controllers installed at the time of final inspection must be weather- or soil moisture-based controllers capable of delaying an irrigation cycle during wet weather.

Chapter 4 – Division 4.4 Material Conservation and Resource Efficiency

- § 4.4.6.1 Joints and Openings.
This section is to address covering and sealing of openings to prevent the passage of rodents and is different from the CEC requirements used to restrict infiltration and exfiltration between conditioned and unconditioned space. This condition is prevalent at cuts in wall plates for plumbing piping and is most often filled with insulation which does not deter rodents.
- § 4.4.8.1 Construction Waste Reduction, Disposal and Recycling.
This section addresses the need to utilize a local jurisdiction's waste management plan when available or to establish a waste management plan for the diversion of waste during construction. This section includes a list of waste reduction methods that must be included in the plan. Additionally, this section establishes a requirement to recycle and/or salvage for reuse a minimum of 50% of nonhazardous construction and demolition debris, or meet a local waste ordinance, whichever is more stringent.
- §§ 4.4.8.2, 4.4.8.2.1 and 4.4.8.2.2 Construction Waste Management Plan.
This section specifies what needs to be included and verified in a waste management plan. A sample waste management plan is include in Chapter 8, which can be used by specifiers and contractors and tailored as needed for each user. An exception for isolated jobsites where C & D waste processing facilities are not readily available has also been included.
- § 4.4.10 Building Maintenance and Operation.
As construction practices become more sophisticated, a certain level of knowledge is required to maintain building systems and equipment. This proposal requires that educational materials, operation and maintenance manuals and other important information are provided to occupants and owners to ensure buildings and equipment are properly maintained. Required additional information provided to owners and occupants regarding other activities such as landscape design and maintenance, public transportation options, and recycle opportunities will encourage additional environmental benefits. Minor revisions are proposed for 2010.

Chapter 4 – Division 4.5 Environmental Quality

- § 4.5.4.1 Covering of Duct Openings and Protection of Mechanical Equipment During Construction.

This section requires that duct openings, permanent mechanical equipment and other related ventilation components that will be used to move air in the building after occupancy be protected from contamination during construction. Currently, these systems are commonly used to condition the building during construction. They are not required to be protected leading to a collection of dust and debris exposed to the circulated air within the structure. In addition, these contaminants can reduce the efficiency of the space conditioning equipment.

- § 4.5.4.2 Finish Material Pollutant Control.

This proposal addresses pollutants derived from the use of finish materials inside a residence. Tables are provided that establish limits on the emissions of VOCs in adhesives, paints, and other coatings placed on material products, e.g. primer, shellac, paint and others. The VOC limitations also include carpet, carpet cushions and carpet pad adhesives. A table addressing the formaldehyde limits was developed based on maximum allowable limits recently established by the California Air Resources Board (ARB). In addition to the limits established in the ARB rulemaking, this proposal will ensure these levels are met by including a mandatory verification component which requires certification or documentation that the composite wood products commonly used in cabinets, doors, trim and other finish products meet the specified formaldehyde limits. Major revisions proposed for 2010.

- § 4.5.5.1 Concrete Slab Foundations.

This proposal provides explicit requirements for the installation of vapor barriers in slab on grade foundations. This proposal will specify an aggregate base of ½" or larger material must be used as a capillary break and clarify that the vapor retarder must be placed above the aggregate and in direct contact with the concrete slab. This proposal also will allow equivalent methods to be used provided the same protections will be maintained. HCD is including these requirements to address moisture and mold issues that can negatively affect indoor air quality as well as damage floor coverings.

- § 4.5.5.3 Moisture Content of Building Materials.

HCD currently adopts sections of the CBC which specify maximum grading and mill certification levels of moisture in framing materials. Depending on the type of materials, those levels range between 15% and 20% and do not address construction during wet weather. Currently, there is no requirement for moisture content to be verified prior to enclosure of a wall or floor cavity which can lead to the growth of mold or other biological growth. This proposal will require the moisture content of construction materials and insulation to be verified prior to approval to enclose wall and floor cavities with drywall or other finish surfaces.

- § 4.5.6.1 Bathroom Exhaust Fans.

This section requires exhaust fans be provided in any room which contains a bathtub or shower. This requirement is intended to reduce moisture inside the residence. The requirement would also allow a whole house ventilation system designed to provide outside air to be used to comply with this section. Major revisions are proposed for 2010.

- § 4.5.7.1 Other Openings.

This proposed section establishes a mandatory minimum for the insulation or covering of whole house exhaust fans and louvers which penetrate the conditioned envelope of the building.

- § 4.5.7.2 HVAC System Design.

HCD is proposing the adoption of this new California amendment section to require HVAC systems to be appropriately sized to the heating and cooling loads of the structure. In addition, HCD is proposing an exception to allow qualified individuals latitude to use appropriate design temperature that accurately reflect the design needs of buildings instead of relying on broad based climate information that may not be accurate for a specific area. The ability of design duct systems to be sized in accordance with specified standard.

Chapter 6 - Referenced Organization and Standards. Minor revisions are proposed for 2010.

Chapter 7 – Installer and Third Party Qualifications.

- § 702.1 Installer Training.
This section will require installers of HVAC to be trained or certified. Guidance is provided to provide examples of training that may be acceptable. HCD received comments stating that installation in some instances is problematic and not at an acceptable level.
 - § 702.2 Third Party Verification.
This section will require third party inspectors to be trained in the areas they inspect. Guidance is provided to provide examples of training that may be acceptable. HCD received comments stating that inspection in some instances is problematic and not at an acceptable level.
-

Chapter 8 - Worksheets

- The water use worksheets provide a fill-in-the-blanks calculator to establish baseline water use and a method to verify a 20% reduction in indoor water use should the code user elect to do the performance approach instead of the prescriptive; both are provided for in Chapter 6.
 - The waste management worksheets provide a fill-in-the-blanks approach to waste diversion verification. It is not mandatory that these sample worksheets be used but it is mandatory that waste diversion be verified.
-

Appendix A 4 – Residential Voluntary Measures

- HCD proposes to adopt these new appendices in the 2010 CBGC. The measures contained in these appendices are not mandatory as adopted by HCD. In response to numerous comments from stakeholders during development of the 2007 CGBC, HCD has proposed a tier based voluntary checklist of measures that can be used by enforcing agencies wishing to go beyond the mandatory requirements of this code. Comments received from stakeholders expressed concern about the lack of a consistent and streamlined method local government could use to further enhance their local environment or further reduce the impact of development. State agencies expressed support for this concept and viewed it as a vehicle to increase the use and acceptability of advanced or enhanced technology which ultimately would translate to an elevated level of construction and may serve to raise the mandatory requirements in the future. In addition, HCD has included a method for local government to use the checklist to establish any special verification or inspection requirements. Lastly, as with other parts of Title 24, HCD has included a sample resolution that may be used during the local adoption process.

**Working draft of the Appendix A4 as currently under development for the
2010 California Green Building Standards Code**

Note: This is a working draft and is provided for informational purposes only.

APPENDIX A4

DIVISION A4.6 – TIER I AND TIER 2

A4.6.1.1 Scope. The measures contained in this appendix are not mandatory unless adopted by a city, county, or city and county as specified in Section 101.7. The provisions of this section outline means of achieving enhanced construction or reach levels by incorporating additional green building measures. In order to meet one of the tier levels designers, builders, or property owners are required to incorporate additional green building measures necessary to meet the threshold of each level.

A4.6.1.2 Tier 1. To achieve Tier I, buildings must comply with the following:

1. Meet the minimum mandatory standards of this code contained in Chapter 4 as applicable;
2. Exceed the California Energy Code Code requirements, based on the 2008 Energy Efficiency Standards by 15%; and
3. Select the number of voluntary measures specified in Table A4.6.1.4 and Table A4.6.1.

A4.6.1.3 Tier 2. To achieve Tier 2, buildings must comply with the following:

1. Meet the minimum mandatory standards of this code contained in Chapters 4 as applicable;
2. Exceed the California Energy Code requirements, based on the 2008 Energy Efficiency Standards by 30%; and
3. Comply with the number of voluntary measures specified in Section A4.6.1.4 and Table A4.6.1.

A4.6.1.4 Number of measures. Tier 1 and Tier 2 must incorporate at least the number of voluntary measures contained in Table A4.6.1.4. Additional measures included by the enforcing agency to address specific local environmental conditions as listed in the Innovative Concepts and Local Environmental Conditions portions of the checklist.

TABLE A4.6.1.4

<u>Category</u>	<u>Tier 1</u>	<u>Tier 2</u>
Planning and Design	<u>3</u>	<u>7</u>
Energy Efficiency	<u>4 measures plus 15% above the California Energy Code</u>	<u>8 measures plus 30% above the California Energy Code</u>
Water Efficiency and Conservation	<u>1</u>	<u>3</u>
Material Conservation and Resource Efficiency	<u>3</u>	<u>5</u>
Environmental Quality	<u>1</u>	<u>2</u>

SECTION A4.6.2

**RESIDENTIAL OCCUPANCIES
APPLICATION CHECKLIST**

Feature or Measure	Levels Applicant to select voluntary measures		Verifications Enforcing Agency to specify verification method			
	Mandatory	Voluntary ¹		Enforcing Agency	Installer or Designer	Third party
		Tier 1	Tier 2	<input type="checkbox"/> All	<input type="checkbox"/> All	<input type="checkbox"/> All
PLANNING AND DESIGN						
Site Selection						
A4.1.3.1 A site which complies with at least one of the following characteristics is selected: <u>1. An infill site is selected.</u> <u>2. A greyfield site is selected.</u> <u>3. An EPA-recognized Brownfield site is selected.</u>		<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"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Site Preservation						
4.1.4.1 A site plan and inventory of the site is developed and used to minimize site disturbance in order preserve desirable existing natural resources and minimize future adverse effects on the proposed structure.	<input checked="" type="checkbox"/>					
A4.1.4.1 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deconstruction and Reuse of Existing Structures						
A405.1.1 If feasible, disassemble existing buildings instead of demolishing to allow for reuse or recycling of building materials. A4.1.5.2 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: <u>1. Light fixtures</u> <u>2. Plumbing fixtures</u> <u>3. Doors and trim</u> <u>4. Masonry</u> <u>5. Electrical devices</u> <u>6. Appliances</u> <u>7. Foundations or portions of foundations</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Site Development						

Feature or Measure	Levels Applicant to select voluntary measures		Verifications Enforcing Agency to specify verification method			
	Mandatory	Voluntary ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
406.2 4.1.6.2 A plan is developed and implemented to manage storm water drainage during construction.	<input checked="" type="checkbox"/>					
4.1.6.3 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"/>					
A4.1.6.1 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.1.6.2.1 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.1.6.2.2 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"/>
A4.1.6.2.3 Displaced topsoil is stockpiled and protected.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.1.6.2.4 The construction area shall be identified and delineated by fencing or flagging to limit construction activity to the construction area.		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A406-1.2 A4.1.6.3 Post construction landscape designs accomplish as many one or more of the following as possible: 1. Areas disrupted during construction are restored to be consistent with native vegetation species and patterns.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Feature or Measure	Levels Applicant to select voluntary measures		Verifications Enforcing Agency to specify verification method			
	Mandatory	Voluntary ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
2. Limit turf areas to the greatest extent possible. a. Not more than 50% for Tier 1. b. Not more than 25 % for Tier 2. 3. Utilize plant and tree species appropriate for the climate zone region. 4. Hydrozoning irrigation techniques are incorporated into the landscape design.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.1.6.4 Permeable paving is utilized for the parking, walking, or patio surfaces in compliance with the following. <u>Tier 1. Not less than 20 % of the total parking, walking, or patio surfaces shall be permeable.</u> <u>Tier 2. Not less than 30 % of the total parking, walking, or patio surfaces shall be permeable.</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.1.6.5 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 Table 4.1.6.5(1) for low-sloped roofs and Table 4.1.6.5(2) for high-sloped roofs. <u>Tier 1 roof covering shall meet or exceed the Tier 1 values contained in Tables 4.1.6.5(1) or 4.1.6.5(2) as applicable.</u> <u>Tier 2 roof covering shall meet or exceed the Tier 2 values contained in Tables 4.1.6.5(1) or 4.1.6.5(2) as applicable.</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innovative Concepts and Local Environmental Conditions						
A4.1.7.1 Items in this section are necessary to address innovative concepts or local environmental conditions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Item 1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Item 2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Item 3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ENERGY EFFICIENCY						

Feature or Measure	Levels Applicant to select voluntary measures		Verifications Enforcing Agency to specify verification method			
	Mandatory	Voluntary ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
General						
503.2 4.2.1.1 Minimum requirements. Low-rise residential buildings shall meet or exceed the minimum standard design required by the California Energy Standards.	<input checked="" type="checkbox"/>					
Performance Approach						
A4.2.3.1 Exceed 2008 the California Energy Code requirements, based on the 2008 Energy Efficiency Standards requirements by 15%.		<input checked="" type="checkbox"/> Mandatory				
A4.2.3.1 Exceed 2008 the California Energy Code requirements, based on the 2008 Energy Efficiency Standards requirements by 30%.			<input checked="" type="checkbox"/> Mandatory			
<p>A503.1.1 Incorporate the California Energy Commission, New Solar Homes Partnership (NSHP)^{1,2} specifications for building energy performance requirements.</p> <p>Using an Alternative Calculation Method (ACM) approved by the California Energy Commission, calculate each building's energy and CO₂ emissions, and compare it to the standard or "budget" building to achieve the following:</p> <p>Tier I. Exceed 2007 California Energy Code requirements by 15%.</p> <p>Tier II. Exceed 2007 California Energy Code requirements by 35% and cooling energy requirements by 40%.</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>Document and field verify the measures and calculations used to reach the desired level of efficiency following the requirements specified in the Title 24 Residential Alternative Calculation Manual.</p> <p>¹In addition, for either Tier I or II, each appliance provided by the builder must be Energy Star if an Energy Star designation is applicable for that appliance. Solar water heating may be used to assist in meeting the energy efficiency requirements of either Tier I or Tier II.</p> <p>²Information 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>		<input type="checkbox"/>	<input type="checkbox"/>			<input checked="" type="checkbox"/>

Feature or Measure	Levels Applicant to select voluntary measures		Verifications Enforcing Agency to specify verification method			
	Mandatory	Voluntary ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
Prescriptive Approach						
Building Envelope						
A4.2.5.1 Radiant roof barrier is installed in Climate Zones 2, 4, and 8 through 15.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.2.5.2 Exterior shading at least 18 inches in depth is provided on south and west windows.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air Sealing Package						
A.4.2.6.1 Third party blower door test is conducted and passed to verify building envelope tightness.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HVAC Design, Equipment and Installation						
A507.1.2 A4.2.7.1 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A507.1.3 A4.2.7.2.1 An HVAC systems 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 manufacturers 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 10% of the initial design air flow. 6. Static pressure within the duct system is within the manufacturers' acceptable range.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
A4.2.7.2.3 Results of the commissioning inspection shall be included in the Operation and Maintenance Manual required in Section 4.4.10.1.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A507.1.5 A4.2.7.3 When possible, use Install gas-fired (natural or propane) space heating equipment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Feature or Measure	Levels Applicant to select voluntary measures		Verifications Enforcing Agency to specify verification method			
	Mandatory	Voluntary ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
with an Annual Fuel Utilization Ratio (AFUE) of .92 <u>.90</u> or higher.						
A507.1.6 A4.2.7.4 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A507.1.7 A4.2.7.5 When climatic conditions necessitate the installation of cooling equipment, select cooling equipment with a Seasonal Energy Efficiency Ratio (SEER) higher than 13.0 <u>and an Energy Efficiency Ratio (EER) of at least 11.5.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A507.1.8 A4.2.7.6 If possible, install <u>Install</u> ductwork to comply with as many at least one <u>at least one</u> of the following as possible: 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. <u>Install ductwork which is buried in the ceiling insulation.</u>		<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"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
A507.1.9 A4.2.7.7 Perform duct leakage testing to verify a total leakage rate of less than 6% of the total fan flow.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A507.1.10 A4.2.7.8 In cooling climate zones 2,4, <u>and 8 through 15</u> install a whole-house fan with insulated louvers or an insulated cover.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.2.7.9 ENERGY STAR ceiling fans are installed in <u>all bedrooms and living areas.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water Heating Design, Equipment and Installation						
A508.1.1 A4.2.8.1 The Energy Factor (EF) for a gas fired storage water heater is .62 or higher <u>than .60.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A508.1.2 A4.2.8.2 The Energy Factor (EF) for a gas fired tankless water heater is .80 or higher.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.2.8.3 Where the hot water source is more than		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<u>Feature or Measure</u>	<u>Levels</u> <u>Applicant to select voluntary</u> <u>measures</u>		<u>Verifications</u> <u>Enforcing Agency to specify</u> <u>verification method</u>			
	<u>Mandatory</u>	<u>Voluntary</u> ¹		<u>Enforcing Agency</u> <input type="checkbox"/> All	<u>Installer or Designer</u> <input type="checkbox"/> All	<u>Third party</u> <input type="checkbox"/> All
		<u>Tier 1</u>	<u>Tier 2</u>			
<u>10 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.</u>						
Lighting						
A4.2.9.1 <u>Building lighting consists of at least 90% ENERGY STAR qualified hard-wired fixtures.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appliances						
A510.1.4 A4.2.10.1 Each appliance provided by the builder meets ENERGY STAR if an ENERGY STAR designation is applicable for that appliance.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Renewable Energy						
A406.1.1 <u>Orient buildings to optimize the use of solar energy with the long side of the house oriented within 30° of south.</u>		<input type="checkbox"/>	<input type="checkbox"/>			
<p>A511.1.4 A4.2.11.1 Install a solar photovoltaic (PV) system in compliance with the California Energy Commission New Solar Homes Partnership (NSHP).^{1,2} Install energy efficiency measures meeting either Tier I or Tier II below.</p> <p>Tier I. Exceed 2007 the California Energy Code requirements, based on the 2008 Energy Efficiency Standards requirements by 15%.</p> <p>Tier II. Exceed 2007 the California Energy Code requirements, based on the 2008 Energy Efficiency Standards requirements by 35% 30% and cooling energy requirements by 40%.</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>¹ In addition, for either Tier I or II, each appliance provided by the builder must be Energy Star if an Energy Star designation is applicable for that appliance. Solar water heating may be used to assist in meeting the energy efficiency requirements of either Tier I or Tier II.</p> <p>² 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>		<input type="checkbox"/>	<input type="checkbox"/>			<input checked="" type="checkbox"/>
A4.2.11.2 <u>A solar water heating system is installed.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<u>Feature or Measure</u>	<u>Levels</u> <u>Applicant to select voluntary</u> <u>measures</u>			<u>Verifications</u> <u>Enforcing Agency to specify</u> <u>verification method</u>		
	<u>Mandatory</u>	<u>Voluntary</u> ¹		<u>Enforcing Agency</u> <input type="checkbox"/> All	<u>Installer or Designer</u> <input type="checkbox"/> All	<u>Third party</u> <input type="checkbox"/> All
		<u>Tier 1</u>	<u>Tier 2</u>			
<u>A4.2.11.3</u> Space on the roof surface and penetrations through the roof surface are provided for future solar installation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A4.2.11.4</u> Conduit is provided from the electrical service equipment for the future installation of a photovoltaic (PV) system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Elevators, Escalators and Other Equipment						
Innovative Concepts and Local Environmental Conditions						
<u>A4.2.13.1</u> Items in this section are necessary to address innovative concepts or local environmental conditions.						
<u>Item 1.</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Item 2.</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Item 3.</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WATER EFFICIENCY AND CONSERVATION						
Indoor Water Use						
603.2.4.3.3.1 <u>4.3.3.1</u> Indoor water use shall be reduced by at least 20% using one of the follow methods. 1. Water saving fixtures or flow restrictors shall be used. 2. A 20% reduction in baseline water use shall be demonstrated.	<input checked="" type="checkbox"/> 7/01/2011			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
603.2.4.4.3.2 <u>4.4.3.2</u> Multiple showerheads shall not exceed maximum flow rates.	<input checked="" type="checkbox"/> 7/01/2011			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>4.3.3.3</u> Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with specified performance requirements.	<input checked="" type="checkbox"/> 7/01/2011			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A4.3.3.1</u> Non-water supplied urinals or waterless toilets are installed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<u>Feature or Measure</u>	<u>Levels</u> <u>Applicant to select voluntary</u> <u>measures</u>			<u>Verifications</u> <u>Enforcing Agency to specify</u> <u>verification method</u>		
	<u>Mandatory</u>	<u>Voluntary</u>¹		<u>Enforcing Agency</u> <input type="checkbox"/> All	<u>Installer or Designer</u> <input type="checkbox"/> All	<u>Third party</u> <input type="checkbox"/> All
		<u>Tier 1</u>	<u>Tier 2</u>			
Outdoor Water Use						
<u>4.3.4.1</u> If automatic irrigation systems are installed at the time of final inspection, weather-based irrigation controllers are provided.	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A604.1.1 A4.3.4.1</u> Install a low-water consumption irrigation system which does not rely on <u>minimizes the use of spray type heads.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A4.3.4.2</u> A rainwater capture, storage and re-use system is designed and installed.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A4.3.4.3</u> A water budget shall be developed for landscape irrigation.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A4.3.4.4</u> Provide water efficient landscape irrigation design that reduces by 50 percent the use of potable water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A4.3.4.5</u> A landscape design is installed which does not utilize potable water.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recycled, Reclaimed and Graywater Systems						
<u>A4.3.5.1</u> 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A4.3.5.2</u> Recycled water piping is installed.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A4.3.5.3</u> Recycled water is used for landscape irrigation.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Innovative Concepts and Local Environmental Conditions</u>						
<u>A4.3.6.1</u> Items in this section are necessary to address innovative concepts or local environmental conditions.						

Feature or Measure	Levels Applicant to select voluntary measures			Verifications Enforcing Agency to specify verification method		
	Mandatory	Voluntary ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
Item 1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Item 2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Item 3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MATERIAL CONSERVATION AND RESOURCE EFFICIENCY						
Foundation Systems						
<u>A4.4.3.1 A frost-Protected Shallow Foundation (FPSF) is designed and constructed.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A4.4.3.2 Cement use in foundation mix design is reduced.</u>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Tier 1. Not less than a 20% reduction in cement use.</u>		<input checked="" type="checkbox"/>				
<u>Tier 2. Not less than a 25% reduction in cement use.</u>			<input checked="" type="checkbox"/>			
Efficient Framing Techniques						
<u>A4.4.4.1 Beams and headers and trimmers are the minimum size to adequately support the load.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A4.4.4.2 Building dimensions and layouts are designed to minimize waste.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A4.4.4.3 Use pre-manufactured floor and roof building systems to eliminate solid sawn lumber whenever possible.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>A4.4.4.4 Material lists are included in the plans which specify material quantity and provide direction for on-site cuts.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material Sources						
<u>A4.4.5.1 One or more of the following building materials, that do not require additional resources for finishing are used:</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<u>Feature or Measure</u>	<u>Levels</u> <u>Applicant to select voluntary</u> <u>measures</u>		<u>Verifications</u> <u>Enforcing Agency to specify</u> <u>verification method</u>			
	<u>Mandatory</u>	<u>Voluntary</u> ¹		<u>Enforcing Agency</u> <input type="checkbox"/> All	<u>Installer or Designer</u> <input type="checkbox"/> All	<u>Third party</u> <input type="checkbox"/> All
		<u>Tier 1</u>	<u>Tier 2</u>			
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.						
A4.4.5.2 Floors that do not require additional coverings are used including but not limited to stained, natural, or stamped concrete floors.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.4.5.3 Reclaimed or salvaged materials and components are used with the total material and labor cost of the reclaimed or salvaged materials equal to at least 1% of total construction costs.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.4.5.4 Renewable source building products are used.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enhanced Durability and Reduced Maintenance						
506.4 4.4.6.1 Joints and openings. 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 enforcing agency.	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water Resistance and Moisture Management						
A707.1.4 A4.4.7.1 Install foundation and landscape drains.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A707.1.2 A4.4.7.2 Install gutter and downspout systems to route water at least 5 feet away from the foundation or connect to landscape drains.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A707.1.3 A4.4.7.3 Provide flashing details on the building plans and comply with accepted industry standards or manufacturers instructions.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A707.1.4 A4.4.7.4 Protect building materials delivered to the construction site from rain and other sources of moisture.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Feature or Measure	Levels Applicant to select voluntary measures			Verifications Enforcing Agency to specify verification method		
	Mandatory	Voluntary¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
A4.4.7.5 <u>In Climate Zone 16 an ice/water barrier is installed at roof valleys, eaves and wall to roof intersections.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.4.7.6 <u>Exterior doors to the dwelling are protected to prevent water intrusion.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.4.7.7 <u>A permanent overhang or awning at least 2 feet in depth is provided.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Construction Waste Reduction, Disposal and Recycling						
708.3 4.4.8.1 <u>A minimum of 50% of the construction waste generated at the site is diverted to recycle or salvage.</u>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.4.8.2 <u>Where a local jurisdiction does not have a construction and demolition waste management ordinance, a construction waste management plan shall be submitted for approval to the enforcing agency.</u>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.4.8.1 <u>Construction waste generated at the site is diverted to recycle or salvage in compliance with one of the following:</u> 1. Tier 1 at least a 65% reduction 2. Tier 2 at least a 80% reduction <u>Exception: Equivalent waste reduction methods are developed by working with local agencies.</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
Building Maintenance and Operation						
710.2 4.4.10.1 <u>An operation and maintenance manual shall be provided to the building occupant or owner.</u>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innovative Concepts and Local Environmental Conditions						
A4.4.11.1 <u>Items in this section are necessary to address innovative concepts or local environmental conditions.</u>						
<u>Item 1.</u>	<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 voluntary measures			Verifications Enforcing Agency to specify verification method		
	Mandatory	Voluntary ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
Item 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Item 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ENVIRONMENTAL QUALITY						
Fireplaces						
Pollutant Control						
804.3 4.5.4.1 Duct openings and other related air distribution component openings shall be covered during construction.	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
804.4.1 4.5.4.2.1 Adhesives, sealants and caulks shall be No- or Low-VOC compliant with VOC limits.	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
804.4.2 4.5.4.2.2 Paints, stains and other coatings shall be No- or Low-VOC compliant with VOC limits.	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.5.4.3 Documentation shall be provided to verify that compliant VOC limit finish materials have been used.	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
804.4.3 4.5.4.4 Carpet and carpet systems shall be Low-VOC compliant with VOC limits.	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
804.4.4 4.5.4.5 Particleboard, medium density fiberboard (MDF), and plywood used in interior finish systems shall comply with low formaldehyde emission standards.	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.5.4.1 Meet the formaldehyde limits contained in Table 4.5.4.4 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.5.4.2 Install VOC compliant resilient flooring systems. Tier 1. At least 65% of the resilient flooring installed shall comply. Tier 2. At least 80% of the resilient flooring installed		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Feature or Measure	Levels Applicant to select voluntary measures		Verifications Enforcing Agency to specify verification method			
	Mandatory	Voluntary ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
<u>shall comply.</u>						
A4.5.4.3 <u>Install VOC compliant thermal insulation products.</u>		<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.5.4.3.1 <u>Install VOC compliant thermal insulation products which contains No-Added Formaldehyde (NAF).</u>			<input checked="" type="checkbox"/>			
Interior Moisture Control						
805.2 4.5.5.2 <u>Vapor retarder and capillary break is installed at slab on grade foundations.</u>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
805.3 4.5.5.3 <u>Moisture content of wood building materials used in wall and floor framing is checked before enclosure.</u>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Indoor Air Quality and Exhaust						
806.3 4.5.6.1 <u>Exhaust fans which terminate outside the building are provided in every bathroom.</u>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
806.4 <u>MERV 6, or higher filters are installed on central air and heating systems.</u>	<input checked="" type="checkbox"/>					
A4.5.6.1 <u>Higher than MERV 6 filters are installed on central air or ventilation systems.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A803.1.4 A4.5.6.2 <u>Direct vent appliances are used or isolated from the conditioned space.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental Comfort						
506.1.4 4.5.7.1 <u>Other openings</u> Openings. 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"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A507.1.4 4.5.7.2 <u>Duct system design.</u> <u>Duct systems are sized, designed, and equipment is</u>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Feature or Measure	Levels Applicant to select voluntary measures		Verifications Enforcing Agency to specify verification method			
	Mandatory	Voluntary ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
Tier 1		Tier 2				
<u>selected using the following methods:</u> 1. <u>Size duct systems according to ACCA 29-D (Manual D) or equivalent.</u> 2. <u>Select heating and cooling equipment according to ACCA 36-S (Manual S) or equivalent.</u> 3. <u>Establish heat loss and heat gain values according to ACCA Manual J or equivalent.</u>						
Outdoor Air Quality						
Innovative Concepts and Local Environmental Conditions						
A4.5.9.1 <u>Items in this section are necessary to address innovative concepts or local environmental conditions.</u>						
<u>Item 1.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Item 2.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Item 3.</u>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INSTALLER AND THIRD PARTY QUALIFICATIONS						
Qualifications						
702.1 <u>HVAC system installers are trained and certified in the proper installation of HVAC systems.</u>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
702.2 <u>Third party inspectors employed by the enforcing agency must be qualified and able to demonstrate competence in the discipline they are inspecting.</u>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verifications						
703.1 Documentation. <u>Verification of compliance with this code may include construction documents, plans, specifications builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which show substantial conformance.</u>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

¹Green building measures listed as voluntary in this table may be required if adopted by a city, county, or city and county as specified in Section 101.7.

APPENDIX A4

DIVISION A4.7– RESIDENTIAL MODEL ORDINANCE

A4.8.1 General. The voluntary measures of this code are designed and promulgated to be adopted by reference and made mandatory by local ordinance. Jurisdictions wishing to adopt the voluntary provisions of this code as an enforceable regulation governing structures and premises should ensure that certain factual information is included in the adopting ordinance at the time adoption is being considered by the appropriate governmental body. The following sample adoption ordinance addresses several key elements of a code adoption ordinance, including the information required for insertion into the code text.

**SAMPLE RESOLUTION FOR ADOPTION OF
THE TIER 1 OR TIER 2 PROVISIONS OF THE CALIFORNIA GREEN BUILDING STANDARDS CODE WITH OR
WITHOUT ADDITIONAL ITEMS NECESSARY TO ADDRESS INNOVATIVE CONCEPTS OR LOCAL
ENVIRONMENTAL CONDITIONS.**

ATTACHMENT

**SAMPLE RESOLUTION ADOPTING THE CALIFORNIA GREEN BUILDING STANDARDS CODE APPENDICES AS
A MANDATORY REFERENCE STANDARD**

CITY OF _____

RESOLUTION # _____

Resolution Adopting Enhanced Green Building Measures For New Home Construction.

WHEREAS, the City/County of _____'s (City or County) General Plan sets forth goals for preserving and improving the natural and built environment of the City/County, protecting the health of its residents and visitors, and fostering its economy; and

WHEREAS, green building is a holistic approach to design, construction, and demolition that minimizes the building's impact on the environment, the occupants, and the community; and

WHEREAS, green buildings benefit building industry professionals, residents, and communities by improving construction quality; increasing building durability; reducing utility, maintenance, water and energy costs; creating healthier homes; and enhancing comfort and livability; and

WHEREAS, The *California Green Building Standards Code* appendices have included voluntary tiers to provide a city, county, or city and county, building professionals, and the general public with a range of voluntary green building measures for builders to choose from when constructing homes in California; and

WHEREAS, the *California Green Building Standards Code* appendices benefited from extensive input from a city, county, or city and county, building professionals, State agencies, and recognized green building professionals and the practices contained in these guidelines were selected for their viability in today's market and their ability to promote sustainable buildings and communities; and

WHEREAS, adoption of the *California Green Building Standards Code* appendices promotes statewide consistency and predictability for building professionals; and

WHEREAS, the adoption of the *California Green Building Standards Code* appendices as a reference document would not constitute a "project" within the meaning of the California Environmental Quality Act ("CEQA");

NOW THEREFORE, BE IT RESOLVED, that the City/County hereby finds that green building design, construction and operation furthers the goals set forth in the City's General Plan, including land use, conservation, open space and _____ (include others, if applicable);

NOW THEREFORE, BE IT RESOLVED, that newly constructed residential buildings shall meet the _____ (Tier 1 or Tier 2) measures contained in the *California Green Building Standards Code* appendices and the green building design, construction, and operation innovative concepts or additions or amendment thereto contained in Attachment _____ to address local environmental conditions; and;

NOW THEREFORE, BE IT FURTHER RESOLVED, that the City Council or County Board of Supervisors of the City/County of _____ adopts the *California Green Building Standards Code* appendices, as they may be amended from time to time, as a City/County mandatory reference document and directs City staff to enforce these green building measures as mandatory standards within the City/County.

ADOPTED BY THE FOLLOWING VOTE:

AYES:

NOES:

ABSENT: