



RESIDENTIAL PROJECTS

CALGreen Mandatory, Tier 1, and Tier 2
Standard Conditions of Approval Checklist
2016 Code with Palo Alto Municipal Code
16.14 Ordinance 5393
CITY OF PALO ALTO DEVELOPMENT SERVICE

DO NOT SUBMIT THIS DOCUMENT WITH PERMIT APPLICATION

In an effort to streamline the plan review process, please follow the steps outlined below to ensure that there is no delay in processing your application and reviewing your responses to these plan check comments.

Permit Plans Instructions:

- Review the Green Building Verification Form on the “Compliance” page of the Green Building section of the of the Development Services webpage.
- Include the applicable “GB-1” sheet, and if applicable “GB-2” sheets in the permit plans. For provisions marked as “Y” on the “GB-1” sheet, comply with the CALGreen provision instructions within this document.
- In some cases, the provision includes only construction phase activities and no plan check items are required. For the items that require construction phase requirements only, refer to the *Residential Green Building Inspection Guideline* for compliance requirements.
- SPECIAL INSPECTION: For residential projects subject to Tier 1 or Tier 2 requirements, the project must hire a Green Building Special Inspector from the City’s approved list of Green Building Special Inspectors in accordance with PAMC 16.14.090. The Green Building Special Inspector shall review the permit plans and sign the “GB-1” sheet verifying that the CALGreen measures are included as outlined in the permit plans.
- For particular provisions, the Tier 1 and Tier 2 requirements are more stringent than similar requirements listed in the Mandatory provisions.
- Innovation concepts to be submitted for review and approval as an AMMR, Alternate Materials and Methods Request.

Revision and Resubmittal Instructions:

For projects that receive revision comments:

- Plan check comments will reference item numbers that are identified within these standards conditions.
- Revised plans and calculations shall incorporate or address all comments indicated in the standard conditions. Provide a written response to each comment and show where and how it has been addressed. Identify the sheet number and detail or reference note on the revised plans where the corrections are made. Provide cloud marker indication and delta revision numbers.
- **Incomplete, indefinite or faded drawings or calculations will not be accepted.**

Inspections:


- Projects should reference the *Residential Green Building Inspection Guidelines* for details on Inspection Phase requirements.

INSTRUCTIONS

ENFORCEMENT ICONS


PLAN CHECK REQUIREMENTS



The requirements identified with the icon  are subject to **Plan Check** requirements as listed in this document. Unless otherwise indicated, for each applicable provision selected on the “GB-1” sheet, the design professional shall call out the requirements in the form of sheet note on the applicable discipline portion of the permit plans. Tier 1 and Tier 2 projects are subject to the Green Building Special Inspector requirements identified on the “instructions” of this document and the Green Building section of the Development Services webpage.


FIELD INSPECTION



The requirements identified with the icon  are subject to **field inspection**. See *Residential Green Building Inspection Guideline* for requirements.


LOCALLY AMMENDED



The requirements identified with the icon  include **local amendments** to the 2016 California Green Building Code. Requirements identified with this icon are located within the Palo Alto Municipal Code 16.14.

TIER 1 AND TIER 2 MANDATORY



The requirements identified with the icon  include the **pre-requisite requirements** listed in Division A4.6 and the local Palo Alto Municipal Code 16.14. These items are identified on the “GB-1” sheet as “Tier 1 Mand” or “Tier 2 Mand”.

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CHAPTER 1 ADMINISTRATION

Section 102 Construction Documents and Installation Verification

1. Sec. 102.1. Submittal Documents. Because of special conditions, the City is requiring the construction documents to be prepared by a licensed design professional.
2. Sec 102.2. Information on construction documents. The construction documents shall provide sufficient clarity to indicate the location, nature, and scope of the proposed green building features.
3. Sec 102.3. Verification. Plans shall provide a method to verify compliance with all CALGreen requirements.

CHAPTER 3 GREEN BUILDING

Section 301 Scope

4. When CALGreen Mandatory is required, without triggering Tier 1 or Tier 2, the mandatory provisions of Chapter 4 shall be applied to additions or alterations of existing residential buildings where the addition or alteration increases the building's condition area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration.
 - a. **Tier 1:** All residential building additions or alterations exceeding 1,000 square feet must meet the California Green Building Standards Code plus Tier 1 requirements, as amended in PAMC16.14 and applicable to the scope of work.
 - b. **Tier 2:** All newly constructed residential building must meet the California Green Building Standards Code plus Tier 2 requirements, as amended in PAMC 16.14 and applicable to the scope of work.
5. Section 302 Mixed Occupancy Buildings
In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.
6. Section 303 Phased Projects
Each phase of a project shall comply with those code measures relevant to the building components and systems.

CHAPTER 4 RESIDENTIAL MANDATORY MEASURES

Division 4.1 – Planning and Design

Section 4.106 Site Development

7. Sec. A4.105.3 Deconstruction Survey.



All single-family dwelling units required to obtain a demolition permit shall complete a deconstruction survey provided by third party approved by the Chief Building Official. The survey shall include a list of materials that are reusable in the project, as well as the values of such materials.

8. Sec. 4.106.2 Storm Water Drainage and Retention During Construction



Submit storm water drainage plans for projects < 1 ac. Plans shall indicate how to manage storm water drainage during construction utilizing one or more of the following measures: 1. Use of retention basins of sufficient size to retain storm water on-site; 2. By filtering storm water with a barrier system, wattle, or other approved method when storm water is conveyed to a public drainage system, collection point, gutter, or similar disposal method; 3. By complying with a lawfully enacted storm water management Ordinance. (4.106.2)

9. Sec 4.106.3 Grading and Paving



Submit site grading or surface drainage plans to indicate how surface water shall not enter buildings. Examples of methods to manage surface water include:

1. Swales;
2. Water collection and disposal systems;
3. French Drains;
4. Water retention gardens;
5. Other water measures which keep surface water away from buildings and aid in groundwater recharge. (4.106.3)

Exception: Additions or alterations not altering the drainage path.

10. Sec 4.106.4 Electric Vehicle Charging for New Construction



For each dwelling unit in one- and two- family dwellings and townhouses that have an attached private garage, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device. (4.106.4.1)

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- a. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as “EV CAPABLE”. The raceway termination location shall be permanently and visibly marked as “EV CAPABLE”.

11. Sec. 4.106.4.2 New multifamily dwellings



In multi-family dwellings with 17 or more units, 3 percent of the total number of parking spaces provided for all types of parking facilities, but in no case less than one, shall be electric vehicle charging stations (EVCS) capable of supporting future EVSE and shall be identified on construction documents. Calculations for the number of EVCS shall be rounded up to the nearest whole number. (4.106.4.2)

- a. Construction documents shall indicate the raceway termination point and proposed location of future EVCS and EV chargers. Construction documents shall also provide information on amperage of future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EVCS at the full rated amperage of the EVSE. Plan design shall be based upon a 40- ampere minimum branch circuit. Raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.
- b. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as “EV CAPABLE” in accordance with the California Electrical Code. (4.106.4.2.5)
- c. The EVCS shall be designed to comply with the following:
 - I. The minimum length of each EVCS shall be 18 feet
 - II. The minimum width of each EVCS shall be 9 feet.
 - III. One in every 25 EVCS, but not less than one EVCS, shall also have an 8-foot wide minimum aisle. A 5-foot wide minimum aisle shall be permitted provided the minimum width of the EVCS is 12 feet. Surface slope for this EVCS and the aisle shall not exceed 1 unit vertical in 48 unit’s horizontal (2.083 percent slope) in any direction.

In addition to the requirements listed above, the project must comply with local EVSE requirement listed in the PAMC 16.14.420.

16.14.420 Section A4.106.8 Electric Vehicle (EV) Charging.



12. A4.106.8 Electric Vehicle (EV) Charging for Residential Structures.

Newly constructed single family and multifamily residential structures, including residential structures constructed as part of a mixed-use development, shall comply with the following requirements for electric vehicle supply equipment (EVSE). All parking space calculations under this section shall be rounded up to the next full space. The requirements stated in this section are in addition to those contained in Section 4.106.4 of the California Green Building Standards Code. In the event of a conflict between this section and Section 4.106.4 of the California Green Building Standards Code, the more robust EV Charging requirements shall prevail.

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- a. Refer to section A4.106.8.1 Definitions for more information.

Division 4.2 – Energy Efficiency

13. Sec 4.201 Provide documentation to indicate the project meets the requirements of State mandatory energy efficiency standards. (4.201)
 - a. In addition, see the Energy Reach Code requirements within [PAMC 16.17.050](#)

Division 4.3 – Water Efficiency and Conservation

Section 4.303 Indoor Water Use



The plumbing fixture schedule shall indicate the flow and flush fixture performance values in this section. On smaller projects, if no such schedule is included in the permit application, indicate the requirements on the floor plans.

14. Sec 4.303.1.1 Water closets; the effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank type water closets shall be U.S. EPA WaterSense certified. Requirements shall be indicated on the plumbing fixture schedule. (4.303.1.1)
15. Sec 4.303.1.2 Urinals; the effective flush volume shall not exceed 0.125 gallons per flush. Requirements shall be indicated on the plumbing fixture schedule. (4.303.1.2)
16. Sec 4.303.1.3.1 Single showerheads; Max flow rate is 2.0 gallons per minute at 80 psi. Showerheads shall be U.S. EPA WaterSense certified. Requirements shall be indicated on the plumbing fixture schedule. (4.303.1.3.1)
17. Sec 4.303.1.3.2 Multiple showerheads serving one shower. Combined flow rate for all showerheads and/or other shower outlets controlled by a single valve shall not exceed 2.0 gallons per minute at 80psi or the shower shall be designed to allow only one shower outlet to be in operation at a time. (4.303.1.3.2)
18. Sec. 4.303.1.4.1 Residential lavatory faucets; maximum flow rate for residential lavatory faucet shall not exceed 1.25 gallons per minute at 60psi. Requirements shall be indicated on the plumbing fixture schedule. (4.303.1.4.1)
Note: flow rate shall not be less than 0.8 gallons per minute at 20 psi.
19. Sec 4.303.1.4.2 Lavatory faucets in common and public use areas; Maximum flow rate for lavatory faucets (outside of dwelling or sleeping units) in residential building shall not exceed 0.5 gallons per minute at 60 psi (4.303.1.4.2)
20. Sec 4.303.1.4.3 Metering faucets; installed metering faucets in residential buildings shall not deliver more than 0.25 gallons per cycle. Requirements shall be indicated on the plumbing fixture schedule. (4.303.1.4.3)

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21. Sec 4.303.1.4.4 Kitchen faucets; maximum flow rate of kitchen faucets shall not exceed 1.8 gallons per minute at 60 psi. Requirements shall be indicated on the plumbing fixture schedule. (4.303.1.4.4)
Note: Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.
22. Sec 4.303.2 Standards for plumbing fixtures and fittings; plumbing fixtures and fittings shall meet the standards referenced in Table 1701.1 of the California Plumbing Code. (4.303.2)
23. **SB407 NOTICE Single-Family Residential Requirement:** Existing single-family residential buildings constructed prior to January 1, 1994 are required to update all non-compliant water fixtures to be compliant with sections Sec 4.303.1.1, Sec 4.303.1.2, 4.303.1.3.1, 4.303.1.4.1, and 4.303.1.4.4.

SB407 NOTICE Multi-Family Residential Requirement: Existing multi-family residential buildings constructed prior to January 1, 1994 with a building alteration value of greater than \$150,000 are required to update non-compliant water fixtures that service the specific area of improvement to be compliant with sections: 4.303.1.1, 4.303.1.2, 4.303.1.3.1, 4.303.1.4.1, 4.303.1.4.2, and 4.303.1.4.4

Section 4.304 Outdoor Water Use
 MWELO – EFFECTIVE FEBRUARY 1ST, 2016

Sec 4.304 Outdoor Potable Water Use in Landscape Areas



24. Sec 4.304.1 Outdoor potable water use in landscape areas; new residential development with an aggregate landscape area equal to or greater than 500 square feet shall comply with one of the following options:
1. The current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO)
 2. Projects with aggregate landscape areas less than 2,500 square feet may comply with the MWELO's Appendix D Prescriptive Compliance Option.

Notes:

- a. A water budget calculator is available at: <http://www.water.ca.gov/wateruseefficiency/landscapeordinance/>

The Model Water Efficient Landscape Ordinance (MWELO) and supporting documents are available at: <http://www.water.ca.gov/wateruseefficiency/landscapeordinance/>

Division 4.4 – Material Conservation and Resource Efficiency

Section 4.406 Enhanced Durability and Reduced Maintenance



25. Sec 4.406.1 Rodent proofing; annular spaces around pipes, electric cables, conduits or other openings in plates at exterior walls shall be protected by closing such openings with cement

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mortar, concrete masonry, or a similar method acceptable to the enforcing agency.
(4.406.1)

Section 4.408 Construction Waste Reduction, Disposal, and Recycling



26. Sec A4.408.1 Enhanced construction waste reduction.

Nonhazardous construction and demolition debris generated at the site is diverted to recycle or salvage in compliance with the following:

Tier 1 and Tier 2. At least an 80-percent reduction. Any mixed recyclables that are sent to mixed waste recycling facilities shall include a qualified third party verified facility average diversion rate. Verification or diversion rates shall meet minimum certification eligibility guidelines, acceptable to the local enforcing agency.

Sec A4.408.1.1 Documentation

Documentation shall be provided to the enforcing agency which demonstrates compliance with all construction and demolition waste reduction requirements.

GREEN HALO: Documentation shall be presented to the C&D Planner both prior to permit issuance and prior to final inspection using Green Halo. www.greenhalosystems.com

Section 4.410 Building Maintenance and Operation



27. Sec 4.410.1 Note on the drawings that an Operation and Maintenance Manual with content per 4.410.1 and in a digital or three-ring binder format shall be placed in the building at the time of final inspection. (4.410.1)

Note: Refer to HCD residential guide for manual format and suggested content

Division 4.5 – Environmental Quality

Section 4.503 Fireplaces



28. Sec 4.503.1 General; Gas fireplaces to be direct-vent sealed-combustion type. Woodstoves or pellet stoves shall comply with U.S. EPA New Source Performance Standards (NSPS).(4.503.1)

Section 4.504 Pollutant Control



29. Sec 4.504.1 Covering of duct openings and protection of mechanical equipment during construction; all duct openings and other air distribution component openings shall be protected during storage on the construction site until final start-up with tape, plastic, sheet metal, or other acceptable methods to reduce the amount of dust and debris which may collect in the system. (4.504.1) Method shall be approved by the Special Inspector.

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30. Sec 4.504.2 Finish Material Pollutant Control; finish materials shall comply with this section. Provide applicable VOC limits within a table to be included on the permit plans.
31. Sec 4.504.2.1 Adhesives, Sealants, and Caulks; 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 meet the requirements of SCAQMD Rule 1168 VOC limits and prohibition on the use of certain toxic chemicals, except per subsection 2. (4.504.2.1, subsection 1)
32. Sec 4.504.2.1 Subsection 2; Aerosol adhesives, smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packing, 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 the use of certain toxic compounds, of CCR, Title 17, commencing with Section 94507. (4.504.2.1, subsection 2)
33. Sec 4.504.2.2 Paints and coatings; VOC Content Limits for Architectural Coatings (Architectural Paints) shall comply with Table 4.504.3, unless more stringent local limits apply. (4.504.2.2)
34. Sec 4.504.2.3 Aerosol paints and coatings; Aerosol paints and coatings shall meet the requirements of Sections 94522(a)(2), 94522(e)(1), and (f)(1) of California Code of Regulations, Title 17 commencing with Section 94520. (4.504.2.3)
35. ★ Sec 4.504.2.4 Verification; verification of compliance with this section shall be provided as required by the Green Building Special Inspector during field inspection. Documents may include, but not limited to the following:
 - a. Manufacturer's product specification
 - b. Field verification of on-site product containers
 - c. Other methods approved by the local jurisdiction
36. Sec 4.504.3 Carpet Systems; Carpets shall meet 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. 4. Scientific Certifications Systems Indoor Advantage™ Gold. (4.504.3)
Note: Indicate on plan submittal which standard the carpet system will comply with.
37. Sec 4.504.3.1 Carpet cushion; carpet cushion shall meet the requirements of the Carpet and Rug Institute's Green Label Program. (4.504.3.1)
 - a. Indicate on plan submittal which standard the carpet system will comply with.
 - b. Field documentation for verification shall be approved by the jurisdiction having authority.
38. Sec 4.504.3.2 Carpet adhesive; carpet adhesive shall meet the requirements of Table 4.504.1 (4.504.3.2)
39. Sec 4.504.4 Resilient Flooring; for resilient flooring, at least 80 percent of the floor area shall comply with one or more of the following:

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- a. Products compliant with the California Department of Public Health’s Specification 01350, certified as a CHPS Low-Emitting Material in the Collaborative for High Performance Schools (CHPS) High Performance Product Database.
- b. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children & Schools program).
- c. Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.
- d. Meet the California Department of Public Health’s Specification 01350.
 - i. Indicate on plan submittal which standard the flooring material will comply with.
 - ii. Field documentation for verification shall be approved by the Green Building Special Inspector.

Section 4.504.5 Composite Wood Products



- 40. Sec 4.504.5 Composite Wood Products. Hardwood plywood, particleboard, and medium density fiberboard composite wood products shall meet the requirements for formaldehyde limits in Table 4.504.5.
 - a. Indicate on plan submittal which standard will be used to comply with this section.
 - b. Field documentation for verification shall be approved by the Green Building Special Inspector.

41. Sec 4.504.5.1 Documentation.

Note on the plans that documentation shall be provided to indicate compliance with Section 4.504 and shall include at least one of the following: 1. Product certifications specifications 2. Chain of custody certifications 3. Other methods acceptable to the enforcing agency. (4.504.5.1)

Section 4.505 Interior Moisture Control



- 42. Sec 4.505.2 Concrete slab foundation; Concrete slab foundations required to have a vapor retarder by CBC Chapter 19, or CRR Chapter 5, shall also comply with this section.



- 43. Sec 4.505.2.1 Capillary break; A capillary break shall be installed in compliance with one of the following:
 - a. A 4-inch thick base of ½-inch or larger clean aggregate, with a vapor barrier in direct contact with concrete, and a concrete mix design which will address bleeding, shrinkage, and curling. Reference ACI 302.2R-06
 - b. Other equivalent methods approved by the enforcing agency.
 - c. A slab design specified by a licensed design professional.



- 44. Sec 4.505.3 Moisture content of building materials; add a note that the building materials with visible signs of water damage shall not be installed. (4.505.3)
 Moisture content of Building Materials, and verification, shall meet the requirements of 4.505.3. (4.505.3)

Note: Moisture meter testing shall be executed in the field.

Section 4.506 Indoor Air Quality and Exhaust



45. Sec 4.506.1 Bathroom exhaust fan; each bathroom shall be mechanically ventilated and shall comply with the following:
- a. Fans shall be Energy Star rated and be ducted to terminate outside the building.
 - b. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control.
 - c. Humidity controls shall have range of ≤ 50 percent to 80 percent. The humidity control may utilize manual or automatic means of adjustment.
 - d. A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e. not built in).

Notes:

- i. For the purposes of this section, a bathroom is a room which contains a bathtub, shower, or tub/shower combination.
- ii. Lighting integral to bathroom exhaust fans shall comply with the California Energy Code.

Section 4.507 Environmental Comfort



46. Sec 4.507.2 Heating and air-conditioning system design; shall be sized, designed and have their equipment selected using the following methods:
- a. Heat loss and heat gain is established according to ANSI/ACCA Manual J, ASHRAE handbooks or other equivalent design software or methods.
 - b. Duct systems are sized according to ANSI/ACCA 1 Manual D, ASHRAE handbooks or other equivalent design software or methods
 - c. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S or other equivalent design software or method.

Appendix A4 Residential VOLUNTARY MEASURES

As required for Pre-requisites and Electives for projects subject to Tier 1 and Tier 2
Note: Provisions required for individual projects shall be indicated on the GB-1 sheet.

Division A4.1– Planning and Design



Section A4.103 Site Selection

1. Sec A4.103.1 Selection.



The project is an infill site, a greyfield site, or EPA recognized brownfield site. Indicate in a note on the GB-1 sheet how the requirement is met. (CGBC A4.103.1) Provide supplemental documentation for brownfield sites showing a Phase 1 Environmental Site Assessment or similar.

2. Sec. A4.103.2 Community connectivity.



The project facilitates community connectivity in accordance with A4.103.2. Indicate in the “notes” section on the GB-1 sheet how the requirement is met. (CGBC A4.103.2)

Section A4.104 Site Preservation

3. Sec A4.104.1 Supervision and education.



A green building professional will provide written instruction in accordance with A4.104.1. Indicate in a note on the GB-1 sheet how the requirement will be met. (CGBC A4.104.1) Prior to the beginning of construction, all parties shall receive a written guideline and instruction specifying the green goals of the project.

Section A4.105 Deconstruction and Reuse of Existing Materials

4. Sec A4.105.1 and A4.105.2 Reuse of Materials.



Deconstruction and reuse shall occur on the project in accordance with A4.105. Indicate in a note on the GB-1 sheet how the requirement is met. (CGBC A4.105/PAMC 16.14)

Non-hazardous materials which can be easily reused include but are not limited to the following:

1. Light fixtures
2. Plumbing fixtures
3. Doors and trim
4. Masonry
5. Electrical devices
6. Appliances
7. Foundations or portions of foundations

Note: Reused material must be in compliance with the appropriate Title 24 requirements.

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Section A4.106 Site Development

5. Sec A4.106.2.1 Soil analysis.



Soil analysis is performed by licensed design professional and the findings utilized in the structural design of the building. Indicate in a note on the GB-1 sheet how the requirement will be met. (CGBC A4.106.2.1)

6. Sec A4.106.2.2 Soil protection.



The effort of development on building sites is evaluated and the soil is protected by one or more of the following:

3. Natural drainage patterns are evaluated and erosion controls are implemented to minimize erosion during construction and after occupancy.
4. Site access is accomplished minimizing the amount of cut a fill needed to install access roads and driveways
5. As allowed by other parts of the code, 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.

Indicate in a note on the GB-1 sheet how the requirement will be met. (CGBC A4.106.2.2)

7. Sec A4.106.2.3 Topsoil protection.



Tier 1 Mandatory

These items are subject to field inspection: Topsoil must be stockpiled for reuse in a designated area and covered for protected from erosion. Protection from erosion includes covering with tarps, straw, mulch, chipped wood, vegetative cover, or other means necessary. (CGBC A4.106.2.3)

Tier 2 Mandatory

The construction area shall be identified and delineated by fencing 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. (CGBC A4.106.2.3)

8. Sec A4.106.3 Landscape design.



Post-construction landscape design shall accomplish one or more of the following:

1. Areas disrupted during construction are restored to be consistent with native vegetation species and patterns.
2. Utilize at least 75 percent native California or drought tolerant plant and tree species appropriate for the climate zone region

9. Sec A4.106.4 Water permeable surfaces.



Tier 1 and Tier 2 Mandatory

The site plan shall show a breakdown matrix of the square footage entitled “Water Permeable Surface Area” of all site paving elements and individually show if the paving material is permeable or not (paving for parking, walking or patio surfaces apply). The matrix must show calculations reflecting a minimum of 20% permeable surfaces for Tier 1 projects and 30% for Tier 2 projects. (CGBC A4.106.4)

Exceptions:

1. The primary driveway, primary entry walkway and entry porch or landing shall not be included when calculating the area required to be a permeable surface.
2. Required accessible routes for persons with disabilities are required by *California Code of Regulations*, Title 24, Part 2, Chapter 11A and/or 11B as applicable.

10. A4.106.5 Cool Roof for Reduction of heat island effect.



Tier 2 Mandatory

Projects shall comply with sections A4.106.5.1 through A4.106.5.4.

11. Sec A4.106.6 Vegetated roof



The roof plan shall indicate the design of a vegetated roof. (CGBC A4.106.6)

12. Sec A4.106.7 Reduction of heat island effect for nonroof areas



The site plan shall include an analysis table listing paved surface material, the associated square footage, and one of the compliance methodologies including:

1. Shade within 15 years, or
2. high albedo materials with an initial solar reflectance of 0.3 in accordance with ASTM Standard E1918 or C154, or
3. open-grid pavement or pervious or permeable pavement. The result shall indicate that at least 50% of the paved areas shall comply with one or more of compliance options. (CGBC A4.106.6)

13. A4.106.8.3 Multifamily



Residential Structures. The following standards apply to newly constructed residences in a multifamily residential structure, except as provided in section A4.106.8.4.

d. Refer to section A4.106.8.1 Definitions for more information.

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14. A4.106.9 Bicycle parking



(Multifamily Projects Only)

This section is not adopted as a Tier 1 and Tier 2 Elective measure. Projects must comply with the bike parking requirements in the [PAMC 18.54.060](#) for more detail.

15. Sec A4.106.10 Light pollution reduction.



Outdoor lighting systems shall be designed and installed to comply with the following:

1. The minimum requirements in the California Energy Code for Lighting Zones 1-4 as defined in Chapter 10 of the California Administrative Code; and
2. Backlight, Uplight and Glare (BUG) ratings as defined in IES TM 15-11; and
3. Allowable BUG ratings not exceeding those shown in Table A4.106.10.
4. Comply with a local ordinance lawfully enacted pursuant to section 101.7 of this code, whichever is more stringent.

16. Sec. A4.108.1 Innovative Concepts and local environmental conditions.

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. This code does not limit the authority of city, county, or city and county government to make necessary changes to the provisions contained in this code pursuant to Section 101.7.1.

Division A4.2 – Energy Efficiency

- 17. Sec A4.203 and A4.204 Energy Performance are not adopted. Projects must comply with the Energy Reach Code requirements in the PAMC 16.17.**

Division A4.3 – Water Efficiency and Conservation

Section A4.303 Indoor Water Use

- 18. Sec A4.303.1 Kitchen faucets**



Kitchen faucets installed in residential buildings shall not Exceed 1.5 gallons per minute at 60 psi. Requirements shall be indicated on the plumbing fixture schedule.

Kitchen faucets may temporarily increase the flow above the maximum flow rate of 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.5 gallons per minute at 60 psi.

Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

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19. Sec A4.303.2 Alternate water sources for nonpotable applications.



Alternate water sources will be used on the project. Include the design of such systems on the permit plans.

Note: All non-potable water applications must meet the requirements within the California Plumbing Code and the local health department requirements.

20. Sec A4.303.3 Appliances

Water saving dishwasher or clothes washer appliances will be used on the project. Install a minimum of one qualified ENERGY STAR appliance with maximum water use as follows:

1. Standard Dishwashers – 4.25 gallons per cycle.
2. Compact dishwasher – 3.5 gallons per cycle.
3. Clothes washers shall have a maximum Water Factor (WF) that will reduce the use of water by 10 percent below the California Energy Commissions' WF standards for commercial clothes washers located in Title 20 of the *California Code of Regulations*.

21. Sec A4.303.4 Nonwater supplied urinals and waterless toilets.



Nonwater supplied urinals or composting toilets will be used on the project.

22. Sec A4.303.5 Hot water circulation systems.



One- and two-family dwellings shall be equipped with a demand hot water recirculation system, as defined in Chapter 2. The demand hot water recirculation system shall be installed in accordance with the *California Plumbing Code*, *California Energy Code*, and the manufacturer's installation instructions.

Section A4.304 Outdoor Water Use

23. Sec A4.304.1 Rainwater catchment systems



A rainwater catchment system is designed and installed to use rainwater generated by at least 65 percent of the available roof area. Rainwater catchment systems shall be designed and installed in accordance with the *California Plumbing Code*.

24. Sec A4.304.2 Potable water elimination



When landscaping is provided by the builder, 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 California Building Standards Code and shall include but not limited to the following:

- a. Use of captured rainwater.
- b. Use of recycled water (only in CPAU Recycled Water Areas).
- c. Use of graywater.

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25. Sec A4.304.2.1 Irrigation metering device



Tier 1 and Tier 2 Mandatory

Dedicated irrigation meters are to be installed in all new construction and rehabilitated landscapes when the landscape is greater than 1,000 square feet

Section A4.305 Water Reuse Systems

26. Sec A4.305.1 Graywater



Alternative plumbing piping is installed to permit the discharge from clothes washer all other fixtures except toilets and kitchen sinks to be used for an irrigation system in compliance with the *California Plumbing Code*.

27. Sec A4.305.2 Recycled water piping.



Dual water piping is installed for future use of recycled water at the following locations:

1. Interior piping for the use of recycled water is installed to serve all water closets, urinals and floor drains.
2. Exterior piping is installed to transport recycled water from the point of connection to the structure. Recycled water systems shall be designed and installed in accordance with the California Plumbing Code.

28. Sec A4.305.3 Recycled water for landscape irrigation.



Only recycled water is used for landscape irrigation. (Only available in CPAU Recycled Water Areas).

29. Sec A4.305.4 Recycled water infrastructure on Multi-family additions and alterations



(Tier 1 and Tier 2 Prerequisite)

All multi-family residential additions and alterations must install recycled water infrastructure for irrigation when the landscaped area exceeds 1,000 square feet.

30. Sec A4.305.5 Laundry to Landscape Infrastructure.



(Tier 2 Prerequisite)

Newly constructed Residential Buildings with a landscape area of any size shall install an independent plumbing drainage system including a trap and vent that shall begin near the interior laundry fixtures and will terminate at the exterior of the home. This piping system will be capped at all outlets and will assist in the future installation of a "Laundry-to-Landscape" irrigation system. A complete irrigation system installation shall meet the requirements of the California Plumbing Code 1502.1.1, Clothes Washer System.

Exception: Laundry fixtures located below grade.

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Sec. A4.305.5.1 Identification. Independent laundry to landscape capable system shall be labeled as "LAUNDRY-TO LANDSCAPE CAPABLE" and be readily visible to the user.

31. Sec. A4. 306.1 Innovative Concepts and local environmental conditions.

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. This code does not limit the authority of city, county, or city and county government to make necessary changes to the provisions contained in this code pursuant to Section 101.7.1.

Division A4.4 - Material Conservation and Resource Efficiency

Section A4.403. Foundation Systems

32. Sec A4.403.2 Reduction in cement use.



This measure is not adopted as a Tier 1 and Tier 2 prerequisite. This measure is adopted as Tier 1 and Tier 2 elective.

- a. As approved by the structural engineer, cement used in foundation mixed design shall be reduced as follows:

Tier 1: Not less than a 20 percent reduction in cement use.

Tier 2: Not less than a 25 percent 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

Section A4.404 Efficient Framing Techniques

33. Sec A4.404.1 Lumber size.



Beams, headers and trimmers are sized and installed as specified in Chapter 23 of the CBC or Chapter 6 of CRC. The applicant may propose other calculations for consideration.

Note: Only available for single-family and two-family dwellings.

34. Sec A4.404.2 Dimensions and layouts



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 dimension in 2-foot increments are used.
2. Windows and doors are located at regular 16" or 24" stud positions

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35. Sec A4.404.3 Building systems



Use pre-manufactured building systems to eliminate solid sawn lumber. One or more of the following systems is used:

1. Composite floor joists or pre-manufactured floor framing system.
2. Composite roof rafters or premanufactured roof framing system.
3. Panelized framing system (SIPS, ICF, or similar)

36. Sec A4.404.4 Pre-cut materials and details



Material lists included in the plans which specify the material quantity and provide direction for on-site cuts to be made from the material provided. Material lists and direction shall be provided for the following systems:

1. Floor framing
2. Wall framing
3. Ceiling and roof framing
4. Structural panels and roof sheathing

Section A4.405 Material Sources

37. Sec A4.405.1 Prefinished building materials.



Utilize prefinished building materials which do not require additional painting or staining. One or more of the following building materials that do not require additional resources for finishing are used:

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.

38. Sec A4.405.2 Concrete floors



Floors that do require additional coverings are used including but not limited to stained, natural, or stamped concrete floors.

39. Sec A4.405.3 Recycled content



(Tier 1 and Tier 2 Mandatory)

Comply with the requirements for recycled content in Section A4.405.3.1.

40. Sec A4.405.3.1 Recycled content.



(Tier 1 and Tier 2 Mandatory)

Use materials, equivalent in performance to virgin materials with a total (combined) recycled content value (RCV) of:

Tier 1. The RCV shall not be less than 10 percent of the total material cost of the project.
Required total RCV (dollars)= Total Material Cost (dollars) x 10 percent (equation A4. 4-1)

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Tier 2. The RCV shall not be less than 15 percent of the total material cost of the project.
Required total RCV (dollars)= Total Material Cost (dollars) x 15 percent (equation A4. 4-2)

41. Sec A4.405.4 Use of building materials from rapidly renewable materials



One or more of the following materials manufactured from rapidly renewable materials or an agricultural by-product is used in:

1. Insulation
2. Bamboo or cork
3. Engineered products
4. Agricultural based 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, such as bamboo or cork.

Section A4.407 Water Resistance and Moisture Management

42. Sec A4.407.1 Drainage around foundations.



Install foundation and landscape drains which discharge to a dry well, sump, bioswale, or other approved on-site location.

43. Sec A4.407.2 Roof drainage



Install gutter and downspout systems to route water at least 5 feet away from the foundation or connect to landscape drains which discharge to a dry well, sump bioswale, rainwater capture system.

44. Sec A4.407.3 Flashing details



Provide flashing details on the building plans which comply with accepted industry standards or manufacturer's instructions. Details are shown on house plans at all the following locations.

1. Around windows and doors.
2. Roof valleys.
3. Deck connections to the structure.
4. Roof-to-wall intersections.
5. Chimneys to roof intersections.
6. Drip caps above windows and doors with architectural projections.

Note: Reference details may be found in the Residential Sheet Metal Guidelines published by the Sheet Metal and Air Conditioning Contractors' National Association Inc.

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45. Sec A4.407.4 Material protection.



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

46. Sec A4.407.6 Door protection.



Exterior doors to the dwelling are covered to prevent water intrusion by one or more of the following:

1. An 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.
4. Other methods which provide equivalent protection.

47. Sec A4.407.6 Roof overhangs.



A permanent overhang or awning at least two feet in depth is provided at all exterior walls.

48. Sec. A4. 411.1 Innovative Concepts and local environmental conditions.

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. This code does not limit the authority of city, county, or city and county government to make necessary changes to the provisions contained in this code pursuant to Section 101.7.1.

Division A4.5 – Environmental Quality

Section A4.504 Pollutant Control

49. Sec A4,504.1 Compliance with formaldehyde limits.



Use composite wood products made with either California Air Resources Board approved no-added formaldehyde (NAF) resins or ultra-low emitting formaldehyde (ULEF) resins.

50. Sec A4,504.2 Resilient flooring systems



Resilient flooring systems installed in the building shall meet the percentages specified in this section and comply with the VOC emission limits defined in at least one of the following:

1. Products compliant with California Department of Public Health Specification 01350 and certified as a CHPS Low-Emitting Material in the Collaborative for High Performance Products Database.

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2. Products certified as UL GREENGAURD Gold.
3. Certification under the Resilient Floor Covering Institute FloorScore Program.
4. Meet the California Department of Public Health Section 01350.

Tier 1: At least 90 percent of the total area of resilient flooring installed shall comply.

Tier 2: 100 percent of the total area of resilient flooring installed shall comply.

Exception for Tier 2: An allowance of up to 5% for specialty purpose flooring may be permitted.

51. Sec A4.504.3 Thermal insulation



This measure is not adopted as a Tier 1 and Tier 2 prerequisite. This measure is adopted as Tier 1 and Tier 2 elective.

Thermal insulation installed in the building shall meet the following requirements.

Tier 1: Install thermal insulation in compliance with one of the following:

- a. Specification section 1350 and certified as a CHPS Low Emitting Material in the Collaborative for High Performance Schools (CHPS) High Performance Products Database.
- b. UL Greengaurd Gold; or
- c. Meet Specification Section 1350.

Tier 2: Install insulation which complies with Tier 1 plus does not contain any added formaldehyde.

Section A4.506 Indoor Air Quality and Exhaust

52. Sec A4.506.1 Filters



Return air filters with a value greater than MERV 6 shall be installed on HVAC systems. Pressure drop across the filter shall not exceed 0.1-inch water column.

53. Sec A4.506.2 Construction filter



Provide filters on return air openings rated at MERV 6 or higher during construction. [HR]

54. Sec A4.506.3 Direct-vent appliances



Direct-vent heating and cooling equipment shall be utilized if the equipment will be located in the conditioned space or install the space heating and water heating equipment in an isolated mechanical room.

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58. Sec. A4. 509.1 Innovative Concepts and local environmental conditions.

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. This code does not limit the authority of city, county, or city and county government to make necessary changes to the provisions contained in this code pursuant to Section 101.7.1.