City of Santa Cruz
Non-Residential (Commercial) Green Building Guidelines

Guidelines for

Non-Residential New Construction Checklist

and

Non-Residential Addition and Tenant Improvement Checklist

January 7, 2013

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Introduction to the City of Santa Cruz Green Building Program

The City of Santa Cruz continues to take a leadership role to ensure development in Santa Cruz is sustainable, practical and achievable. Green building is quality design and construction that:

- Minimizes environmental impact;
- Conservation and effective use of natural resources and energy;
- Provides a healthy living and workspace; and
- Reduces maintenance, utilities, and operating costs.

The City of Santa Cruz Green Building Program Has Been Updated

The California Building Standards Commission adopted the first mandatory statewide Green Building Code (CALGreen), which went into effect on January 1, 2011. The mandatory CALGreen requirements preface the updated City of Santa Cruz's Green Building Program and the City's Building Department is responsible for enforcing them. In addition to mandatory measures required by CALGreen, there are additional City green building measures from which applicants may choose in order to obtain their building permit.

All measures are described in the updated Santa Cruz Green Building Guidelines and associated Green Building Checklists. Some features of the updated program include:

- Highlighted CALGreen mandatory requirements for ease of identification that ensure your project complies with CALGreen.
- Updated user-friendly program guidelines and Checklists.
- Continued use of a flexible point system to achieve building permits (required), prioritized permit processing (optional), Green Building Certificate (optional), or Green Building Plaque for Exceptional Design (optional).

How to Use the Non-Residential Green Building Guidelines and Checklists

These Guidelines are for developers and builders planning to construct a new non-residential project, or addition/tenant improvement for a non-residential project in the City of Santa Cruz. The Guidelines provide step-by-step guidance for compliance with the Green Building program requirements. The Guidelines assist in completion of the Non-Residential New Construction Checklist and the Non-Residential Additions/Tenant Improvements Checklist and provide resources to achieve (or exceed) compliance with the program.

A Microsoft Excel version of each Green Building Checklist can be downloaded at: www.cityofsantacruz.com/greenbuilding

The Non-Residential New Construction Checklist and the Non-Residential Additions/Tenant Improvements Checklist are available in hard copy and electronic format as Microsoft Excel documents. The Excel document calculates the point totals associated with selected green building measures. All program documentation including the Checklists can be downloaded from the City's website: www.cityofsantacruz.com/greenbuilding.

Compliance Requirements for Non-Residential New Construction and Additions/Tenant Improvements

The Green Building Program applies to all non-residential and residential projects within the City of Santa Cruz and includes compliance standards (per the City of Santa Cruz Green Building Regulations, Chapter 24.15) for the following:

- All new non-residential construction.
- Non-residential additions[1] and tenant improvements over 1,000 square feet[2]. Exempt projects are highly encouraged to voluntarily incorporate green measures.
- Residential and Non-Residential (Mixed-use) will be considered separately. For example, a mixed use project with ground level commercial space and residential space above will use the Non-residential Checklist for the non-residential ground level space. The Residential Checklist will be used for the residential space.

The City used the LEED (Leadership in Energy and Environmental Design) framework as a model to develop the Non-Residential Green Building Program requirements and Checklists. The City's Non-Residential Checklists incorporate LEED's six major categories and associated green building measures. Permit applicants choose from the Checklist of green building measures, and each green building measure has an assigned point value. Applicants need to meet a minimum number of points for receipt of a building permit or other optional levels of action such as Prioritized Permit Processing or a Green Building Award Certificate. Compliance is measured by the total points selected by the applicant and points are verified by building inspectors during the inspection process.

The project must meet a minimum number of points for the following levels of actions:

1. **Receipt of a building permit (mandatory)**. *All projects must meet a calculated minimum number of points to receive a building permit.*
2. **Prioritized permit processing (optional)**. Upon review and approval by all required departments, priority is given to building permit issuance by expediting standard processing timelines. Time may be saved during processing of the actual permit; however, inter-departmental review time is not reduced.
3. **Green Building Award Certificate (optional)**. Projects receive a Green Building Award Certificate and prioritized permit processing.
4. **Green Building Plaque for Exceptional Design (optional)**. Projects receive a Green Building Plaque and recognition by the City of Santa Cruz City Council, and prioritized permit processing.

As part of the permit application process, applicants must complete an *Index of Selected Green Building Measures* (Index) summarizing selected measures and include the Index on the cover of the building plans with selected measures identified on the plan set. Projects are required to implement the green measures identified in the Index. The Index serves as the basis of compliance against which measures are verified by building inspectors. Projects must successfully pass the final point verification during the final

> Permit applicants must complete an Index of Selected Green Building Measures to include on the cover of the project's Building Plans.

[1] Addition means a new building or structure expansion that is physically connected to a previously existing building.
[2] Conditions which do not allow for full compliance may request an exemption. Exemptions will be considered for review by the building official.

inspection process. When the project is completed and the required Green Building measures are implemented and verified, occupancy will be granted.

STEP 1: Determine If Your Non-Residential Project Is Subject to the Green Building Program Requirements

The following project types have green building compliance requirements:

- All new non-residential construction. **All new construction projects must comply with the 2010 CALGreen code.**
- Non-residential additions of 2,000 square feet or alterations with an estimated construction cost over $500,000.
- Mixed-use buildings that contain non-residential and residential portions. The non-residential portion of the project must meet the non-residential green building requirements. The residential portion of the project must meet the residential green building requirements.
- All non-residential projects greater than 10,000 square feet require building commissioning per the CALGreen code. It is the determination of the City of Santa Cruz that Fundamental Building Commissioning as defined under LEED version 2009 is equivalent to CALGreen's commissioning requirements.

STEP 2: Determine the Point Requirements for Your Project

Calculating Point Requirements

1. Review the Non-Residential New Construction and Addition/TI Compliance Standards Table (below) to determine the point requirements for the desired level of action (e.g. permit issuance, prioritized permit processing, Green Building Award Certificate, or Green Building Plaque for Exceptional Design). All construction projects must comply with the 2010 CALGreen code.
2. Exceeding the minimum point requirements by 15-20% is recommended to allow for project modifications.

Non-Residential Project Compliance Standards

The following table is from the City of Santa Cruz Green Building Regulations (Chapter 24.15) and explains the required points for non-residential new construction and addition/TI projects.

Non-Residential New Construction & Addition/Tenant Improvement Compliance Standards		
Action Level	**Points Required to Receive Action**	
	New Construction	**Addition/TI**
C-1. Building Permit Issuance	7	5
C-2. Prioritized Building Permit Processing	33	29
C-3. Green Building Award Certificate	40	35
C-4. Green Building Plaque for Exceptional Design[1]	48	42
Total Points Available	**87**	**106**

[1]Exceptional Design is determined by the principal planner, building official or their designee. The project is eligible for a Green Building Plaque that may be displayed on the structure, and is recognized by the City of Santa Cruz.

The Non-Residential Program is performance-based and the threshold for each level of action (described above) is not dependent on the project size. As a performance-based system, the program provides flexibility to accommodate a variety of designs and materials. The City does not require the various levels of LEED compliance (Certified, Silver, Gold, or Platinum); however, with the City's authorization the development team may opt for full LEED certification through the USGBC system and may substitute compliance with the City's program.

The City's Non-Residential Checklists incorporate LEED's six major categories and associated green building measures. The six LEED categories are:

Sustainable Sites
Site selection affects energy consumption, commuting choices, local ecosystems, and infrastructure needs. Considerations include proximity to downtown, urban redevelopment, rehabilitation of adversely affected lands, minimizing building footprint, preserving natural ecosystems and agricultural lands, building orientation, landscaping, stormwater flow, and erosion control.

Materials and Resources
Maximize use of reused/reusable and recycled-content/recyclable materials. Minimize use of scarce resources and materials that create environmental or health problems during mining, production, transportation, building, use, or at the end of their useful life.

Energy and Atmosphere
Maximize use of renewable energy sources, energy efficiency, and passive solar design measures. Minimize fossil fuel and other non-renewable resource use.

Water Conservation and Management
Maximize water conservation and water quality.

Indoor Air Quality
Maximize indoor air quality. Minimize or eliminate toxic emissions generated by chemical off-gassing from synthetic and treated materials or from mold, including chemicals in furniture, rugs, and prefabricated materials.

Innovation and Design
Encourage innovative approaches not specified in the other five categories that enhance LEED objectives and City policies.

STEP 3: Complete the Pre-Design/ Pre-Planning Checklist

The *Pre-Design/ Pre-Planning Checklist* (See Value and Intent Statements in Attachments) is a list of green building measures that should be considered for integration **as early as feasible in the project; during the planning stage**. The *Pre-Design/ Pre-Planning Checklist* is comprised of measures from the Sustainable Site and the Energy and Atmosphere sections. These measures are listed below and are marked with a star (★) on the Checklists. The measures on the *Pre-Design/ Pre-Planning Checklist* are to be completed and submitted to the Green Building/Environmental Specialist prior to application for a building permit.

The following measures comprise the *Pre-Design/ Pre-Planning Checklist*:

Sustainable Site Measures

- Construction Activity Pollution Prevention
- Storm Water Pollution Prevention Plan (SWPPP) and Best Management Practices (BMP's)-See City's Website
- Site Selection/Roof and Building Orientation
- Development Density and Community Connectivity
- Brownfield Redevelopment

These *Sustainable Site* and *Energy and Atmosphere* measures should be considered for integration as early as feasible, in the project design and planning stage.

- Alternative Transportation
    a. Public Transportation Access
    b. Bicycle Storage and Changing Rooms
    c. Parking for Alternative Fuel Vehicles
    d. Parking Capacity
    e. Electric Vehicle (EV) Pre-wire
- Site Development
    a. Protect or Restore Habitat
    b. Maximize Open Space
- Stormwater Design (note City Minimum Requirements)
    a. Quantity Control (exceed City limits)
    b. Quality Control (exceed City limits)
- Grading and Paving - keep surface water away from buildings
- Heat Island Effect
    a. Non-Roof
    b. Roof
- Light Pollution Reduction

Energy and Atmosphere

- Commissioning
- Prominent Entry Stairway
- Pre-wire for Photovoltaic Installation
- Pre-Plumb for Thermal Solar Installation
- Design and Construct Grid Neutral/ Net Zero Building

STEP 4: Review and Complete the Green Building Checklist

There are separate Checklists for Non-Residential New Construction projects and Non-Residential Additions/Tenant Improvements. Use the appropriate Checklist to design and develop your project.

The Green Building Checklists provide a variety of green measures that can be included in your project. For additional information, be sure to review the Value and Intent Statements associated with the measures (in Attachments). Each Checklist includes mandatory measures (including CALGreen mandatory measures), noted with a "M" and highlighted at the beginning of each category. Exceeding the minimum point requirement by 15-20% is suggested to allow for project modifications.

It is the determination of the City of Santa Cruz that Fundamental Building Commissioning as defined under LEED version 2009 is equivalent to CALGreen's commissioning requirements. Should the applicant elect to implement commissioning for projects less than 10,000 square feet, points may be claimed in the Checklist.

The following table is a list of the mandatory non-residential measures from CALGreen.

#	Code Section	CALGreen Mandatory Non-Residential Measures *Please reference 2010 California Green Building Standards Code for additional explanations, notes, exceptions and charts or tables.*
1	5.106.1	Storm water pollution prevention. Newly constructed projects which disturb less than one acre of land shall prevent the pollution of stormwater runoff from the construction activities through one or more of the following measures (refer to the 2010 CALGreen Code for additional information): a. 5.106.1.1 Local ordinance. Comply with a lawfully enacted stormwater management and/or erosion control ordinance. b. 5.106.1.2 Best management practices (BMP). Prevent the loss of soil through wind or water erosion by implementing an effective combination of erosion and sediment control and good housekeeping BMP.
2	5.106.4	Bicycle parking and changing rooms. Comply with Sections 5.106.4.1 and 5.106.4.2; or meet local ordinance, whichever is stricter. a. 5.106.4.1 Short-Term bicycle parking. If the project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack. b. 5.106.4.2 Long-Term bicycle parking. For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5 percent of motorized vehicle parking capacity, with a minimum of one space.
3	5.106.5.2	Designated parking. Provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles if 10 or more parking spaces are being generated. a. 5.106.5.2.1 Parking stall marking. Paint, in the pain used for stall striping, the following characters such that the lower edge of the last word aligns with the end of the stall striping and is visible beneath a parked vehicle: "CLEAN AIR/ VANPOOL/ EV"
4	5.106.8	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 IESNA TM-15-11; and 3. Allowable BUG ratings not exceeding those shown in Table 5.106.8, or Comply with a local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent. Exceptions: 1. Luminaires that qualify as exceptions in Section 147 of the *California Energy Code* 2. Emergency lighting
5	5.106.10	Grading and paving. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following: 1. Swales 2. Water collection and disposal system 3. French drains 4. Water retention gardens 5. Other water measures which keep surface water away from buildings and aid in groundwater recharge
6	5.303.1	Indoor water use- Meters. Separate submeters or metering devices shall be installed for the uses described in Sections 5.303.1.1 and 5.303.1.2. 5.303.1.1 Buildings in excess of 50,000 square feet (4645 m^2). Separate submeters shall be installed (refer to the 2010 CALGreen Code for additional information). 5.303.1.2 Excess consumption. Any building or space within a building that is projected to consume more than 1,000 gal/day (3800 L/day).

#	Code Section	CALGreen Mandatory Non-Residential Measures *Please reference 2010 California Green Building Standards Code for additional explanations, notes, exceptions and charts or tables.*
7	5.303.2	Indoor water use- Twenty percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 20 percent shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fittings as required by the *California Building Standards Code.* The 20 percent reduction in potable water use shall be demonstrated by one of the following methods: 1. Prescriptive method. Each plumbing fixture and fitting shall not exceed the maximum flow rate at >20 percent reduction as specified in Table 5.303.2.3, or 2. Performance method. A calculation demonstrating a 20% reduction in the building "water use baseline" as established in Table 5.303.2.2 shall be provided. 5.303.2.1 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads controlled by a single valve shall not exceed the maximum flow rate at > 20 percent reduction contained in Table 5.303.2.2 or the shower shall be designed to only allow one showerhead to be in operation at a time.
8	5.303.4	Wastewater reduction. Each building shall reduce by 20 percent wastewater by one of the following methods: 1. [DSA-SS] The installation of water-conserving fixtures (water closets, urinals) meeting the criteria established in Section 5.303.2 or 2. Utilizing nonpotable water systems [captured rainwater, graywater, and municipally treated wastewater (recycled water) complying with the current edition of the California Plumbing Code or other methods described in Section A5.304].
9	5.303.6	Plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall meet the standards referenced in Table 5.303.6.
10	5.304.1	Water budget. A water budget shall be developed for landscape irrigation use that conforms to the local water efficient landscape ordinance or to the California Department of Water Resources Model Water Efficient Landscape Ordinance where no local ordinance is applicable.
11	5.304.2	Outdoor potable water use. For new water service for landscaped areas of at least 1,000 square feet but not more than 5,000 square feet (the level at which *Water Code* 535 applies), separate submeters or metering devices shall be installed for outdoor potable water use.
12	5.304.3	Irrigation design. In new nonresidential construction with at least 1,000 but not more than 2,500 square feet of landscaped area (the level at which the MLO applies), install irrigation controllers and sensors which include the following criteria, and meet manufacturer's recommendations. a. 5.304.3.1 Irrigation controllers. Automatic irrigation system controllers installed at the time of final inspection shall comply with the following: i. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change. ii. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.
13	5.407.1	Weather Protection. Provide a weather-resistant exterior wall and foundation envelope as required by *California Building Code* Section 1403.2 (Weather Protection) and *California Energy Code* Section 150, (Mandatory Features and Devices), manufacturer's installation instructions or local ordinance, whichever is more stringent.
14	5.407.2	Moisture control. Employ moisture control measures by the following methods. – 5.407.2.1 Sprinklers. Design and maintain landscape irrigation systems to prevent spray on structures. – 5.407.2.2 Entries and openings. Design exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings.

#	Code Section	CALGreen Mandatory Non-Residential Measures *Please reference 2010 California Green Building Standards Code for additional explanations, notes, exceptions and charts or tables.*
15	5.408.1	Construction waste management. Recycle and/or salvage for reuse a minimum of 50 percent of the nonhazardous construction waste in accordance with Section 5.408.1.1, 5.408.1.2 or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent. – 5.408.1.1 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance that is more stringent, submit a construction waste management plan. 1. Identify the construction waste materials to be diverted from disposal by efficient usage, recycling, reuse on the project or salvage for future use or sale. 2. Determine if construction waste materials will be sorted on-site (source separated) or bulk mixed (single stream). 3. Identify diversion facilities where construction waste material collected will be taken. 4. Specify that the amount of construction waste materials diverted shall be calculated by weight or volume, but not by both. – 5.408.1.2 Waste management company. Utilize a waste management company that can provide verifiable documentation that the percentage of construction waste material diverted from the landfill complies with this section. – 5.408.1.3 Waste stream reduction alternative. The combined weight of new construction disposal that does not exceed 2 lbs./sq.ft. of building area may be deemed to meet the 50 percent minimum requirement as approved by the enforcing agency. – 5.408.1.4 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Sections 5.408.1.1 through 5.408.1.3. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.
16	5.408.3	Excavated soil and land clearing debris [BSC]. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.
17	5.410.1	Recycling by occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics and metals.
18	5.410.2	Commissioning. For new buildings 10,000 square feet and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements. Commissioning shall be performed in accordance with this section by trained personnel with experience on projects of comparable size and complexity. Commissioning requirements shall include items listed in Section 5.410.2 (refer to the 2010 CALGreen Code for additional information).

#	Code Section	CALGreen Mandatory Non-Residential Measures *Please reference 2010 California Green Building Standards Code for additional explanations, notes, exceptions and charts or tables.*
19	5.410.4	Testing and adjusting. Testing and adjusting of systems shall be required for buildings less than 10,000 square feet. a. 5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be included for testing and adjusting shall include, as applicable to the project, the systems listed in Section 5.410.4.2. b. 5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with industry best practices and applicable national standards on each system. i. 5.410.4.3.1 HVAC balancing. Before a new space-conditioning system serving a building or space is operated for normal use, the system should be balanced in accordance with the procedures defined by national standards listed in Section 5.410.3.3.1. c. 5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services. d. 5.410.4.5 Operation and maintenance (O & M) manual. Provide the building owner or representative with detailed operating and maintenance instructions and copies of guaranties/warranties for each system. O & M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations. i. 5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the enforcing agency.
20	5.503.1	General. Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove or pellet stove, and refer to residential requirements in the *California Energy Code,* Title 24, Part 6, Subchapter 7, Section 150. Woodstoves, pellet stoves and fireplaces shall comply with applicable local ordinances. – 5.503.1.1 Woodstoves. Woodstoves and pellet stoves shall comply with U.S. EPA Phase II emission limits.
21	5.504.1.3	Temporary ventilation. The permanent HVAC system shall only be used during construction if necessary to condition the building within the required temperature range for material and equipment installation. If the HVAC system is used during construction, use return air filters with a Minimum Efficiency Reporting Value (MERV) of 8, based on ASHRAE 52.2-1999, or an average efficiency of 30 percent based on ASHRAE 52.1-1992. Replace all filters immediately prior to construction.
22	5.504.3	Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation and during storage on the construction site until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of dust, water and debris which may enter the system.
23	5.504.4	Finish material pollutant control. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.4. a. 5.504.4.1 Adhesives, sealants, and caulks. Adhesives, sealants and caulks used on the project shall meet the requirements of the standards listed in Section 5.504.4 (refer to the 2010 CALGreen Code for additional information). b. 5.504.4.3 Paints and coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 5.504.4.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 5.50.4.3 shall be determined by classifying the coating as a Flat, Nonflat, or Nonflat-High Gloss coating, based on its gloss, as defined in Subsections 4.21, 4.36 and 4.37 of the 2007 California Air Resources Board Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 5.504.4.3 shall apply (refer to the 2010 CALGreen Code for additional information). c. 5.504.4.4 Carpet systems. All carpet installed in the building interior shall meet the testing and product requirements of one of the standards listed in Section 5.504.4.4 (refer to the 2010 CALGreen Code for additional information). d. 5.504.4.5 Composite wood products. Hardwood plywood, particleboard and medium density

#	Code Section	CALGreen Mandatory Non-Residential Measures *Please reference 2010 California Green Building Standards Code for additional explanations, notes, exceptions and charts or tables.*
		fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et sez.), by or before the dates specified in those sections as shown in Table 5.504.4.5 (refer to the 2010 CALGreen Code for additional information).
24	5.504.4.6	Resilient flooring systems. For 50 percent of floor area receiving resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 Collaborative for High Performance Products Database; products compliant with CHPS criteria certified under the Greenguard Children & Schools program; certified under the Resilient Floor Covering Institute (RFCI) FloorScore program; or meet California Department of Public Health 2010 Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1, February 2010 (also known as Specification 01350.) i. 5.504.4.6.1 Verification of compliance. Documentation shall be provided verifying that resilient flooring materials meet the pollutant emissions limits.
25	5.504.5.3	Filters. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air that provides at least a Minimum Efficiency Reporting Value (MERV) of 8. MERV 8 filters shall be installed prior to occupancy, and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual.
26	5.504.7	Environmental tobacco smoke (ETS) control. Where outdoor areas are provided for smoking, prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows and within the building as already prohibited by other laws or regulations; or as enforced by ordinances, regulations or policies of any city, county, city and county, California Community College, campus of the California State University, or campus of the University of California, whichever are more stringent. When ordinances, regulations or policies are not in place, post signage to inform building occupants of the prohibitions.
27	5.505.1	Indoor moisture control. Buildings shall meet or exceed the provisions of *California Building Code*, CCR, Title 24, Part 2, Sections 1203 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures not applicable to low-rise residential occupancies, see Section 5.407.2 of this code.
28	5.506.1	Outside air delivery. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 (Requirements for Ventilation) of the 2010 *California Energy Code*, or the applicable local code, whichever is more stringent, and Division 1, Chapter 4 of CCR, Title 8.
29	5.506.2	Carbon dioxide ($C0_2$) monitoring. For buildings equipped with demand control ventilation, CO_2 sensors and ventilation controls shall be specified and installed in accordance with the requirements of the 2010 *California Energy Code*, Section 121(c).

#	Code Section	CALGreen Mandatory Non-Residential Measures *Please reference 2010 California Green Building Standards Code for additional explanations, notes, exceptions and charts or tables.*
30	5.507.4	Acoustical Control. Employ building assemblies and components with Sound Transmission Class (STC) values determined in accordance with ASTM E 90 and ASTM E 413 or Outdoor-Indoor Sound Transmission Class (OITC) determined in accordance with ASTM E 1332, using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2. - 5.507.4.1 Exterior noise transmission, prescriptive method. Wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the locations listed in 5.507.4.1. i. 5.507.4.1.1 Noise exposure where noise contours are not readily available. Buildings exposed to a noise level of 65 dB L_{eq}-1-hr during any hour of operation shall have exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30). - 5.507.4.2 Performance method. For buildings located as defined in Section A5.507.4.1 or A5.507.4.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall be constructed to provide an interior noise environment attribute to exterior sources that does not exceed an hourly equivalent noise level (L_{eq}-1Hr) of 50 dBA in occupied areas during any hour of operation i. 5.507.4.2.1 Site features. Exterior features such as sound walls or earth berms may be utilized as appropriate to the project to mitigate sound migration to the exterior. ii. 5.507.4.2.2 Documentation of compliance. An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record. iii. 5.507.4.3 Interior sound transmission. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public spaces shall have an STC of at least 40.
31	5.508.1	Ozone depletion and greenhouse gas reductions. Installations of HVAC, refrigeration and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2. - 5.508.1.1 Chlorofluorocarbons (CFCs). Install HVAC, refrigeration and fire suppression equipment that do not contain CFCs. - 5.508.1.2 Halons. Install HVAC, refrigeration and fire suppression equipment that do not contain Halons.
32	5.7	Additions and Alterations to Existing Nonresidential Buildings- Compliance required on or after dates shown in Table 5.701.

Effective Date of Compliance	Square Footage of Addition	Permit Valuation or Estimated Construction Cost of Alteration
July 1, 2012	2,000	$500,000
Effective date of the 2013 *California Building Standards Code*	1,000	$200,000

Notes:

1. The effective date of the 2013 *California Building Standards Code* currently is projected to be January 1, 2014.
2. This division does not apply to additions and alterations of qualified historical buildings.

STEP 5: Complete the "Index of Selected Green Measures"

After completion of the Checklist, include selected measures in an *Index of Selected Green Measures* (Index) on the coversheet of the plans submitted for the permit application. The Index must include the point category, measure, points, and plan page number. See the following table for an example of an *Index of Selected Green Measures*. The Index must be cross-referenced on the plan page with callouts

specific to the green measure location, application, utilization, or installation. The points for the project will be verified and totaled during the plan check process.

Plans and applications will be reviewed relative to the level of action sought (e.g. permit issuance, green building award certificate, etc.) Plans that do not comply with the requirements will not be considered for further processing. Processing will proceed when plans are re-submitted to reflect the level of action desired. *Please note the following is an abbreviated example of an Index and does not contain all required mandatory measures.*

EXAMPLE

Index of Non-Residential Selected Green Measures

Category and Measure	Plan Page	Points
A. Green Design for Planning Stage/Sustainable Site/Energy & Atmosphere		
M1. Construction Activity Pollution Prevention	A-2	M
M2b. Alternative Transportation: Parking for Alternative Fuel Vehicles	A-1	M
11b. Heat Island Effect: Roof	S-6	3
B. Water Efficiency		
M4. Develop Landscape Irrigation Budget	L-1	M
M5. Water Use Reduction: 20%	L-1	M
M6. Irrigation Design: Weather/Soil Moisture Based Controllers	L-1	M
8. Outdoor Potable Water Use: Exceed Mandatory Minimums	L-1	1
11. Water Efficient Landscaping: No Potable Water for Irrigation	L-1	1
C. Energy and Atmosphere		
M1. Fundamental Commissioning of Energy Systems	S-1	M
M2. Minimum Energy Performance (Title 24)	S-1	M
3. Optimize Energy Performance: 1 to 10 points based on Energy Sim. Calcs.	S-1	10
4c. On-Site Renewable Energy: Supply 5%	S-1	3
D. Materials and Resources		
M1. Weather Protection	S-2	M
M5. Construction Waste Management Plan: Divert 50%	S-2	M
8b. Recycled Content: Specify 20%	S-2	1
11. Certified Wood	S-2	1
E. Indoor Environmental Quality		
M1. Indoor Moisture Control	A-3	M
10. Increased Ventilation	A-4	1
16b. Daylight & Views: 90% of Spaces	A-4	1
F. Innovation in Design		
1. Green Building Accredited Professional	A-1	1
	Total Points Achieved	**23**

An index similar to this example must be included in the plan set and must correspond to the reference measures within the construction documents.

STEP 6: Implement Selected Green Measures and Pass Inspections

Implement the green measures selected on the *Index of Selected Green Building Measures.* Minor green measure substitutions are allowed provided they are at least equal in merit to the original green measures indicated on the plans. Major changes require re-submittal in writing for approval/verification by the Building Department.

The Index is the basis of compliance and measures are verified by building inspectors during the inspection process. The inspectors will verify compliance with CALGreen and the City of Santa Cruz mandatory requirements. The following are examples of measures that would be inspected during the grading/site inspection, foundation inspection, underfloor/underslab inspection, GB Frame (close in) inspection and the final inspection. The measures in **bold** are those mandatory by CALGreen. Inspections must be successfully passed prior to concealing work or proceeding to the next phase of the project.

Grading/Site — Verify Grading and Site Development:

- (A. Site) **Verify SWPPP and BMP measures in place and functional**
- (D. Materials) Verify base materials for road or parking lot contain recycled concrete by the percentage specified, prior to placing pavement
- (D. Materials) **Verify construction waste management plan and diversion, for 75%**

Foundation/Under-floor/Under-slab — Prior to placing foundation concrete, covering under slab or under-floor work:

- (B. Water) **Verify under-slab piping to use reclaimed condensate water for landscape irrigation**
- (A. Site) Verify under-slab conduit runs to E.V. recharging station and parking space

Structural Frame/Building Erection — Prior to concealing work in walls, chases or ceilings:

- (E. Interior Environment) **Verify ducts and mechanical systems are protected and covered during construction**
- (C. Energy) Verify piping or wiring for future Solar P.V. or Thermal systems

GB15 Final Inspection — Prior to occupancy or C of O:

- (C. Energy) **Verify commissioning process and O&M manual**
- (B. Water) **Verify installation of soil moisture or weather based landscape irrigation controllers**
- (C. Energy) Verify the percentage of building energy supplied by solar or other renewable energy source

Projects must successfully pass the final measure and point verification during the final inspection process. If the project does not pass final inspection, the permit holder must remedy the deficiencies or occupancy will be denied until inspection is successful.

City of Santa Cruz Green Building Program

ATTACHMENTS

The following pages include these important Non-Residential Green Building Program materials:

1. Measure Verification Form
2. Pre-Construction Conference Form
3. Construction and Demolition Debris Recycling Form
4. Value and Intent Statements

The *Non-Residential New Construction Green Building Checklist* and the *Non-Residential Addition/Tenant Improvement Green Building Checklist* are available in hard copy at the City of Santa Cruz offices. The Checklists may also be downloaded as Microsoft Excel spreadsheets from www.cityofsantacruz.com/greenbuilding.

City of Santa Cruz Green Building Program

Attachment 1

Measure Verification Form

I, _____ from _____
verify that the information provided below is accurate, to the best of my knowledge.

The following measures have been implemented to the fullest extent of the City of Santa Cruz Green Building program guidelines, per the Guidelines and Checklist. A brief narrative of each measure is attached. If necessary during any audit process, I can provide backup documentation for the measure(s) claimed below.

Category, Number & Letter	Feature or Material	Description of Implementation, Installation, Application or Utilization

Signed: _____ Date: _____

Title: _____ Permit #:_____

Email: _____ Phone: _____

City of Santa Cruz Green Building Program

Attachment 2

Pre-Construction Conference Form

Job Location: _____ Permit #: _____

Owner: _____ Phone #: _____

Builder: _____ Phone #: _____

Trade	Name	Green Measure Responsibility
Site & Grading		
Concrete		
Landscaping		
Framing		
Plumbing		
Electrical		
Mechanical		
Exterior Finish		
Interior Finishes		
Roof		
Insulation		
Other		

Signed: _____ Date: _____
City of Santa Cruz Building Department Staff

Signed: _____ Date: _____
Authorized Project Representative

City of Santa Cruz Green Building Program

Attachment 3

Construction Waste Management Plan (CWM)

Project Address	
Job #	
Project Manager	
Waste Hauling Company (see notice below)	
Contact Name	
Contact Phone Number	
Contact E-mail	

- All Subcontractors shall comply with the project's Construction Waste Management Plan.
- All Subcontractor crew leaders shall sign the CWM Plan Acknowledgment Sheet.
- Subcontractors who fail to comply with the Waste Management Plan will be subject to back charges or withholding of payment, as deemed appropriate. For instance, Subcontractors who contaminate debris boxes that have been designated for a single material type will be subject to back charge or withheld payment, as deemed appropriate.
- All debris from jobsite offices, meeting rooms, and other on site activities is subject to waste management regulations.
- Waste stream reduction refers to efforts taken by the builder to reduce the amount of waste generated by the project to below four (4) pounds per square foot of building area.
- When using waste stream reduction measures, the gross weight of the product is subtracted from a base weight of four (4) pounds per square foot of building area. This reduction is considered additional diversion and can be used in the waste reduction percentage calculations.

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1. The project's overall rate of waste diversion will be _____ %.
2. This project shall generate the least amount of waste possible by planning and ordering carefully, following all proper storage and handling procedures to reduce broken and damaged materials and reusing materials whenever possible. The majority of the waste that is generated on this jobsite will be diverted from the landfill and recycled for other use.
3. Spreadsheet 1, enclosed, identifies the waste materials that will be generated on this project, the diversion strategy for each waste type and the anticipated diversion rate.
4. Waste prevention and recycling activities will be discussed at the beginning of weekly subcontractor meetings. As each new subcontractor comes on-site, the CWM Coordinator will present him/her with a copy of the CWM Plan and provide a tour of the jobsite to identify materials to be salvaged and the procedures for handling jobsite debris. All Subcontractor foremen will acknowledge in writing that they have read and will abide by the CWM Plan. Subcontractor Acknowledgment Sheet enclosed. The CWM Plan will be posted at the jobsite trailer.
5. Salvage: Excess materials that cannot be used in the project, nor returned to the vendor, will be offered to site workers, the owner, or donated to charity if feasible.

6. Where necessary, The City of Santa Cruz will provide a commingled drop box at the jobsite for most of the construction waste. In cases where the City of Santa Cruz is not providing commingled drop boxes, all commingled materials will be taken to [Sorting Facility Name and Location] _____. The average diversion rate for commingled waste will be _____%. As site conditions permit, separate drop boxes will be used for particular phases of construction (e.g., concrete and wood waste) to ensure the highest waste diversion rate possible. For assistance in staging delivery and pick-up of drop-boxes for different materials, contact Lupe Sanchez, Resource Recovery Supervisor, 831-212-6581. Contractor will make weight tags available to the City of Santa Cruz, for inspection, if requested.
7. In the event that the waste diversion rate achievable via the strategy described in (6) above, is projected to be lower than what is required, then a strategy of source-separated waste diversion and/or waste stream reduction will be implemented. Source separated waste refers to jobsite waste that is not commingled but is instead allocated to a debris box designated for a single material type, such as clean wood or metal.
8. [Project Manager] _____ will track and calculate the quantity (in tons) of all waste leaving the project and calculate the waste diversion rate for the project. [Project Manager] _____ will provide City of Santa Cruz with an updated monthly report on gross weight hauled and the waste diversion rate being achieved on the project. [Project Manager's] _____ monthly report will track separately the gross weights and diversion rates for commingled debris and for each source-separated waste stream leaving the project. In the event that The City of Santa Cruz does not service any or all of the debris boxes on the project, the [Project Manager] _____ will work with the responsible parties to track the material type and weight (in tons) in such debris boxes in order to determine waste diversion rates for these materials. Contractor will make weight tags available to the City of Santa Cruz, for inspection, if requested.
9. In the event that the Contractor, or their Subcontractors haul their own material (see note below) as part of their scope of work, such Subcontractors shall not be excluded from complying with the CWM Plan and will provide The City of Santa Cruz with all required documentation of weight and waste diversion data for the materials hauled.
10. In the event that site use constraints (such as limited space) restrict the number of debris boxes* that can be used for collection of designated waste the Project Manager will, as deemed appropriate, allocate specific areas onsite where individual material types are to be consolidated. These collection points are not to be contaminated with non-designated waste types.

NOTICE TO CONTRACTORS REGARDING REFUSE AND DEBRIS HAULING

If you need roll-off box services to haul construction debris or refuse from your project, you are required by the City of Santa Cruz Municipal Code, Chapter 6.12, to use the City's Resource Recovery Collection Program.

Private companies are not allowed to operate refuse/debris box services within the City limits, except under certain limited circumstances (see Santa Cruz Municipal Code section 6.12.160). Any questions regarding this provision may be directed to Bob Nelson, Superintendent of Solid Waste, 831-420-5548.

For City collection services and rates, call 831-420-5220 or contact Utility Customer Services, 212 Locust Street, Santa Cruz.

For assistance in staging roll-off boxes for different materials, contact Lupe Sanchez, Resource Recovery Supervisor, 831-212-6581.

Construction Waste Management (CWM) Worksheet

Project Address	
Job #	
Project Manager	
Waste Hauling Company (see notice on debris hauling)	
Contact Name	
Contact Phone Number	
Contact E-mail	

Material Type	Diversion Method	Material Status			Projected Diversion Rate
	Reuse	Recycle	Comingled and sorted on site	Source Separated on Site	
Asphalt					
Concrete					
Brick/Block/Shotcrete					
Metal					
Plastic					
Roofing					
Wood					
Rigid insulation					
Fiberglass insulation					
Acoustic ceiling tile					
Gypsum drywall					
Carpet/carpet pad					
Plastic pipe					
Plastic buckets					
Hardiplank siding and boards					
Glass					
Cardboard					
Pallets					
Job office trash, paper, glass & plastic bottles, cans, plastic					
Alkaline & rechargeable batteries, toner cartridges, and electronic devices					

CWM Plan Acknowledgment

The Foreman for each new Subcontractor that comes on site is to receive a copy of the Construction Waste Management Plan and complete this Acknowledgment Form.

I have read the Waste Management Plan for the project; I understand the goals of this plan and agree to follow the procedures described in this plan.

Date	Subcontractor Company	Crew leader Name	Signature

City of Santa Cruz Green Building Program

Attachment 4

Value and Intent Statements

The following information provides the value and intent statements for the non-residential green building measures, and includes specific information regarding fulfilling the requirements for each measure. The Pre-Design/ Pre- Planning stage is comprised of Sustainable Site and Energy and Atmosphere measures. These measures are notated with a star (★) on the Checklists.

Non-Residential Green Building Checklist:

A. Sustainable Sites

Construction Activity Pollution Prevention Plan

All projects must have SWPPP plan that meets State National Pollution Prevention Discharge Elimination System (NPDES).

Intent: Careful planning can help prevent the discharge of water pollutants and sediment from the project site into receiving waters. Planning and management of storm water drainage can minimize negative effects on the site and adjacent areas and minimize erosion.

Indicate how construction activity pollution compliance will be accomplished. Show on the plans location of and types of measures to be implemented on the B.M.P.S Erosion control plan (Example: schedule grading so that disturbed slopes are stabilized and re-vegetated during the non-rainy season). http://www.cityofsantacruz.com/index.aspx?page=138

Alternative Transportation: Bicycle Storage and Changing Rooms

Short-term bicycle parking: If project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 ft. of the visitor's entrance, for 5% of visitor-motorized vehicle parking capacity.

Long-term bicycle parking: For buildings with over 10 tenants/occupants, provide secure bicycle parking for 5% of tenant-motorized vehicle parking capacity.

Changing rooms: For buildings with over 10 tenants/occupants, provide changing/shower facilities in accordance with Table A5.106.4.3.

Intent: Providing bicycle storage and changing rooms can encourage residents and or employees to use bicycles and reduce greenhouse gas emissions through use of alternative transportation.

Alternative Transportation: Parking for Alternative Fuel Vehicles

Provide designated parking for any combination of low emitting, fuel-efficient and carpool/van pool vehicles per Table 5.106.5.2 on page 26 of CALGreen code. Reduce pollution and land development impacts from automobile use. Provide alternative fuel refueling stations. Consider sharing costs and benefits with neighboring buildings.

Intent: Designated parking for low emitting and fuel efficient vehicles helps promote the use of these vehicles and reduces emissions from single occupancy cars, the single largest source of emissions in the Bay Area.

Grading and Paving

Construction plans are to indicate how site grading or a drainage system will manage surface water flows to keep surface water away from buildings. Some examples may include pervious surfaces or porous concrete/ asphalt. http://www.cityofsantacruz.com/Modules/ShowDocument.aspx?documentid=4424

Intent: Correct grading and paving keeps water away from entering structure and extends the longevity of the exterior building walls and can reduce future problems with water intrusion and related human health issues from mold and mildew growth.

Light Pollution Reduction

Comply with lighting power requirements in Energy Code and design interior / exterior lighting that zero direct-beam illumination leaves the building site, using the following strategies:

- Shield all exterior luminaires or use cutoff luminaires.
- Contain interior lighting within each source.
- Allow no more than .01 horizontal foot candle 15 ft. beyond site.
- Contain all exterior lighting within property boundaries.

Intent: Reducing light and glare from exterior and interior light sources can help to maintain our dark skies.

Site Selection/Roof and Building Orientation

Please note on plot map and plans the orientation of the roof to verify maximum solar access.

Intent: Orient buildings on an east-west access to facilitate passive solar design, reduce heating and cooling energy use, and facilitate placement of rooftop solar electric and solar thermal systems. Use alleyways, greenbelts, and other methods to provide good solar access to the building.

Development Density and Community Connectivity

During the site selection process, give preference to urban sites with pedestrian access to a variety of services.

Intent: Channel development to urban areas with existing infrastructure, protect greenfields and preserve habitat and natural resources. Increasing density and community connectivity conserves resources, and where there is access to public transit, dense development offers the advantage of shorter commutes, less dependence on cars, and more walkable communities.

Brownfield Redevelopment

Intent: During the site selection process, give preference to brownfield sites. Coordinate site development plans with remediation activity as appropriate. Rehabilitate damaged sites where development is complicated by environmental contamination, reducing pressure on undeveloped land.

Alternative Transportation: Public Transportation Access

Intent: Perform a transportation survey of future building occupants to identify transportation needs to reduce pollution and land development impacts from automobile use. Site building near transit.

Alternative Transportation: Parking Capacity

Consider alternatives that limit the use of single occupancy vehicles.

Intent: Reduce pollution and land development impacts from automobile use and single occupancy vehicles. Minimize parking lot/garage size.

Alternative Transportation: Electric Vehicle (EV) Charging Pre-Wire

Provide EV charging prewire that meet Section 406.7 (EV) of the CBC and, for each space provide one 120 VAC 20 amp and one 208/240 V 40 amp grounded AC outlets or provide adequate panel capacity

and sized and install conduit for future outlets. Consider sharing costs and benefits with neighboring buildings.

Intent: Providing EV charging stations helps promote the use of EVs and reduces emissions from single occupancy cars, the single largest source of emissions in the region.

Reduce Site Disturbance: Protect or Restore Habitat

Carefully site the building to minimize disruption to existing ecosystems and design the building to minimize its footprint. Use native plants and prohibit plant materials listed as invasive. Native plants provide habitat value and promote biodiversity through avoidance of monoculture plantings.

Intent: Conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.

Reduce Site Disturbance: Maximize Open Space

Provide a high ration of open space to development footprint to promote biodiversity.

Intent: Maximize open space and limit the size of the development footprint and channel development to urban areas with existing infrastructure.

Reduce Site Disturbance: Development Footprint, Exceed City Ordinance by 25%

Intent: Exceed City Ordinance by 25% by limiting the size of the development footprint and increasing landscape.

Stormwater Management: Quantity Control

Refer to City's Storm Water Management Plan. All projects must have SWPPP plan that meets State National Pollution Prevention Discharge Elimination System (NPDES) as well as Regional Water Quality Control Board Requirements. http://www.cityofsantacruz.com/index.aspx?page=138

Intent: Careful planning can help prevent the discharge of water pollutants and sediment from the project site into receiving waters. Planning and management of storm water drainage can minimize negative effects on the site and adjacent areas and minimize erosion.

Indicate how stormwater management and compliance will be accomplished. Show on the plans location of and types of measures to be implemented on the B.M.P.S Erosion control plan (Example: schedule grading so that disturbed slopes are stabilized and re-vegetated during the non-rainy season).

Stormwater Management: Quality Control/Treatment

Indicate how stormwater management and compliance will be accomplished. Show on the plans location of and types of measures to be implemented on the B.M.P.S Erosion control plan (Example: schedule grading so that disturbed slopes are stabilized and re-vegetated during the non-rainy season). All projects must have SWPPP plan that meets State National Pollution Prevention Discharge Elimination System (NPDES). http://www.cityofsantacruz.com/index.aspx?page=138

Intent: Careful planning can help prevent the discharge of water pollutants and sediment from the project site into receiving waters. Planning and management of storm water drainage can minimize negative effects on the site and adjacent areas and minimize erosion.

Refer to City's Storm Water Management Plan.

Heat Island Effect: Non-Roof

Consider replacing constructed surfaces (e.g. sidewalks) with vegetated surfaces, or specify high-albedo materials to reduce the heat absorption and transmission.

Intent: Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impacts on microclimate and human and wildlife habitat. Shade constructed surfaces on the site with landscape features and use high reflectance material for hardscape. Implementation of measures to reduce heat island effect reduces the need for energy to cool/air condition, reduces

greenhouse gas emissions and assists the City in meeting the Climate Action Plan emission reduction targets.

Heat Island Effect — Roof

Consider adding rooftop with vegetated surfaces, or specify high-albedo materials to reduce the heat absorption and transmission. Information is available at Cool Roof Rating Council, www.coolroofs.org.

Intent: Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impacts on microclimate and human and wildlife habitat. Shade constructed surfaces on the site with landscape features and use high reflectance material for hardscape. Implementation of measures to reduce heat island effect reduces the need for energy to cool/air condition, reduces greenhouse gas emissions and assists the City in meeting the Climate Action Plan emission reduction targets.

B. Water Efficiency

Install Separate Meters for buildings greater than 50,000 sf or expected use of greater than 134 CF/ Day (1000 Gallons/Day).

Intent: Install separate submeters or metering devices for each space consuming more than 1000 gal/day (equivalent measure is 7.48 gallons per cubic ft.)

Any building or portion of a building which is expected to use >1000 gallons/day to install separate submeter 5.303.1, 5.303.2 Installing separate submeters enables owners and/or each tenant and facility personnel to be aware of their water consumption and can encourage water conservation.

Outdoor Potable Water Use: Separate Meters/Submeters for New Water Service

Intent: For new water service, separate meters or submeters shall be installed for indoor and outdoor potable water use for landscaped areas between 1,000 sf and 5,000 sf 5.304.2 (equivalent measure is 7.48 gallons per cubic ft.) Installing separate submeters enables a potential reduction in outdoor water use by making building owners and/or tenants aware of their daily outdoor potable water consumption for landscaping. Additionally, it allows the consumer to monitor water use to identify water use spikes that may occur due to irrigation water leaks.

Watering landscapes is the largest use of all urban water in California and there is a significant amount of wasted water due to overwatering.

Plumbing Fixtures and Fittings

Intent: Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall meet the standards referenced in Table 5.503.6 of CALGREEN.

Develop Landscape Irrigation Budget

Intent: A water budget is to be developed for landscape irrigation use that conforms to the local water efficient landscape ordinance or to the California Dept of Natural Resources Model Water Efficient Landscape Ordinance. The use of a water budget can reduce the overall outdoor potable water use and potentially reduce overwatering and other water wasting conditions. Watering landscapes is the largest use of all urban water in California -and there are significant amounts of wasted water due to overwatering. Prescriptive measures to assist in compliance with water budgets are listed in sections 492.5 and 492.8 at www.owue.water.ca.gov/landscape/ord.

The City has a Water Efficient Landscape Ordinance (Santa Cruz Municipal Code 16.16).

Water Use Reduction: 20%

Intent: A schedule of plumbing fixtures and fixture settings that will reduce overall use of potable water by 20% is to be provided. Reduction is to be based on maximum allowable water use and demonstrated by one of the following methods:

1. Each plumbing fixture and fitting to meet 20% reduction in building "water use baseline" as in Table 5.303.2.3
2. Calculation demonstrating 20% reduction in building water use baseline as in Table 5.303.2.2

Irrigation Design/Weather/Soil Based Controllers

Intent: All new non-residential construction with between 1,000 and 2,500 sf of landscaped area need to install irrigation controllers and sensors that are weather- or soil moisture-based controllers (5.304.3.1) that automatically adjust irrigation in response to plant needs as weather conditions change. Alternatively, weather based controllers shall have a separate wired or wireless rain sensor which connects or communicates with the controller. These measures can reduce the overall outdoor potable water use by designing and effectively using weather- or soil moisture-based controllers. Final inspection will ensure automatic irrigation systems controllers are weather-based.

Please note the City of Santa Cruz requires Irrigation Design and is more stringent than CALGreen.

The City has a Water Efficient Landscape Ordinance (Santa Cruz Municipal Code 16.16).

Irrigation Design/Weather/Soil Controllers without Integral Rain Sensors

Intent: All new non-residential construction with between 1,000 and 2,500 sf of landscaped area need to install irrigation controllers and sensors that are weather- or soil moisture-based controllers (5.304.3.1) that automatically adjust irrigation in response to plant needs as weather conditions change. ***Alternatively, weather based controllers shall have a separate wired or wireless rain sensor which connects or communicates with the controller. These measures can reduce the overall outdoor potable water use by designing and effectively using weather- or soil moisture-based controllers.*** Final inspection will ensure automatic irrigation systems controllers are weather-based. Please note the City of Santa Cruz requires Irrigation Design and is more stringent than CALGreen.

The City has a Water Efficient Landscape Ordinance (Santa Cruz Municipal Code 16.16).

Wastewater Reduction: Reduce Minimum by 20%

Intent: Each building is to reduce wastewater by 20% using one of the following methods:

1. Install water-conserving fixtures with established criteria in 5.303.2 or 5.303.3.
2. Use non-potable water systems (captured rainwater, graywater or recycled water complying with current edition of Cal Plumbing Code or other methods in Section A5.304.

Outdoor Potable Water Use: Exceed Mandatory Minimums

Please note the City of Santa Cruz requires Irrigation Design and is more stringent than CALGreen

The City has a Water Efficient Landscape Ordinance (Santa Cruz Municipal Code 16.16).

Plumbing Fixtures and Fittings: Exceed the Mandatory Minimums

Intent: Exceed the mandatory requirement by 50% where plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) meet the standards referenced in Table 5.503.6 of CALGREEN.

Develop Landscape Irrigation Budget: Exceed the Mandatory by 50%

Intent: Exceed the mandatory water budget for landscape irrigation use that conforms to the local water efficient landscape ordinance or to the California Dept of Natural Resources Model Water Efficient Landscape Ordinance by 50%. The use of a water budget can reduce the overall outdoor potable water use and potentially reduce overwatering and other water wasting conditions. Watering landscapes is the largest use of all urban water in California -and there are significant amounts of wasted water due to

overwatering. Prescriptive measures to assist in compliance with water budgets are listed in sections 492.5 and 492.8 at www.owue.water.ca.gov/landscape/ord.

Please note the City of Santa Cruz requires Irrigation Design and is more stringent than CALGreen.

The City has a Water Efficient Landscape Ordinance (Santa Cruz Municipal Code 16.16).

Water Efficient Landscaping: No Potable Use for Irrigation

An approved Landscape Plan, required under the Water Efficient Landscape Ordinance (Santa Cruz Municipal Code 16.16 is to show planting and irrigation for new/modified water service. A grading plan is also required on all properties with a slope greater that 10%. Use only non-potable water for outdoor irrigation. Get info from the City of Santa Cruz on acceptable methods.

Intent:. Watering landscapes is the largest use of all urban water in California -and there are significant amounts of wasted water due to overwatering.

Innovative Wastewater Technologies: Exceed Minimums

Intent: Use innovation technologies for wastewater management**.** Get info from the City of Santa Cruz on acceptable methods.

Water Use Reduction: 40%

Intent: A schedule of plumbing fixtures and fixture settings that will reduce overall use of potable water by 40% is to be provided. Reduction is to be based on maximum allowable water use and demonstrated by one of the following methods:

1. Each plumbing fixture and fitting to meet 30% reduction in building "water use baseline" as in Table 5.303.2.3
2. Calculation demonstrating 40% reduction in building water use baseline as in Table 5.303.2.2

C. Energy and Atmosphere

Fundamental Commissioning of building energy systems (required for new buildings greater than 10,000sf 5.410.2 & 5.410.4

Intent: Begin the commissioning process early during the design process and execute additional activities after systems performance verification is completed. Commissioning can improve public health and safety by enhancing the design, construction and maintenance of buildings by ensuring the systems are used optimally.

For buildings over 10,000 sq. ft. building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements.

Commissioning shall be performed by trained personnel with experience on projects of comparable size and complexity. Commissioning requirements include:

1. Owner's/Owner's representative's project requirements (OPR)
2. Basis of Design (BOD)
3. Commissioning measures shown in the construction documents
4. Commissioning Plan
5. Functional performance testing
6. Documentation and training
7. Commissioning report

See 5.410.2 for additional commissioning information.

Minimum Energy Performance (Title 24)

Meet minimum energy standards of the California Energy Code (Title 24, part 6)

Intent: Title 24, Part 6, California's State Energy Code is the most advanced energy code in the nation. Energy generation is a major contributor to global climate change; meeting Title 24 energy requirements ensures homes are energy efficient, have good indoor air quality, and are comfortable. The California Energy Commission believes a green building should achieve at least a 15% reduction in energy usage when compared to the State's mandatory energy efficiency requirements.

Optimize Energy Performance

Exceed minimum energy standards of the California Energy Code (Title 24, part 6) by 15%.

Intent: Energy consumption in homes accounts for 31% of the electricity consumed in California. Homes that exceed Title 24, Part 6 provide long-term energy efficiency, conservation and reduced utility costs.

The California Energy Commission believes a green building should achieve at least a 15% reduction in energy usage when compared to the State's mandatory energy efficiency requirements. Documents need to show exceeding Title 24, part 6 by 15%.

On-Site Renewable Energy 1-13% (Note: Points Are Cumulative)

Intent: Renewable energy such as solar power, wind, and geothermal energy provides a clean, non-GHG emitting energy source that is naturally renewing or replenished. Growth in renewable energy sources can also reduce reliance on foreign oil sources. Renewable energy points are cumulative on the Checklist.

Enhanced Commissioning

Commissioning of building energy systems (required for new buildings greater than 10,000sf **-** 5.410.2 & 5.410.4).

Intent: Begin the commissioning process early during the design process and execute additional activities after systems performance verification is completed. Commissioning can improve public health and safety by enhancing the design, construction and maintenance of buildings by ensuring the systems are used optimally.

For buildings over 10,000 sq. ft. building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements.

Commissioning shall be performed by trained personnel with experience on projects of comparable size and complexity. Commissioning requirements include:

1. Owner's/Owner's representative's project requirements (OPR)
2. Basis of Design (BOD)
3. Commissioning measures shown in the construction documents
4. Commissioning Plan
5. Functional performance testing
6. Documentation and training
7. Commissioning report

See 5.410.2 for additional commissioning information.

Enhanced Refrigerant Management

Intent: Implement enhanced refrigerant management during HVAC, refrigeration and fire suppression equipment installation to reduce ozone depletion. Installation of HVAC, refrigeration and fire suppression equipment to comply with Sections 5.508.1.1 and 5.508.1.2 Eliminates CFC-based refrigerants and reduces ozone depletion.

Measure Verification

Intent: Provide for the ongoing accountability of building energy consumption over time by signing an agreement with the City to coordinate possible studies in the future. Strategies include developing a M&V Plan to evaluate building and/ or energy system performance. Characterize the building through energy

simulation or engineering analysis. Install the necessary metering equipment to measure energy use. Track performance by comparing predicted energy use to actual energy usage and performance.

Green Power

Intent: Encourage the development and use of grid-source, renewable energy technologies on a net zero pollution basis. Provide at least 35% of the building's electricity from renewable energy sources by engaging in at least a 2-year renewable energy contract. Renewable sources are as defined by the Center for Resource Solutions (CRS) Green-e products certification requirements. Visit green-e.org for more information.

Locate Prominent Stairway in Lobby

Intent: Placement of a prominent stairway can increase use of stairs instead of use of elevators to reduce energy usage.

Prewire/Plumb for PV Solar or Thermal Solar

Intent: Pre-wire or pre-plumb for a Solar PV or Thermal Solar greatly increases the chances that a system will be installed in the future.

Please provide piping diagram showing size, routing, and type of piping to be used. In addition, show proposed location of solar collectors. Please show schematic on the plan indicating the routing for, types, sizes of conductors and raceways for conductors and service size and location on plans.

Design and Construct Grid Neutral/ Net Zero Building

Intent: Homes that annually produce an equivalent of what they consume are maximizing their conservation of energy.

Please provide documentation showing the annual energy consumption versus the annual energy production of the building to verify that the structure has a net zero energy ratio of +/- <9.9%.

D. Materials and Resources

Weather protection

Intent: Provides a weather resistant exterior wall and foundation envelope as required by CBC Code Section 1403.2 and California Energy Code Section 150.

Moisture Control: Sprinklers

Intent: Employ moisture control by designing and maintain landscape irrigation systems to prevent spray on structures. Design exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings.

Moisture Control: Entries and Openings

Intent: Employ moisture control by designing exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings.

Storage and Collection of Recyclables

Intent: Provide readily accessible recycling areas that serve the entire building and clearly identify the materials that can be recycled and include, at a minimum recycling for paper, cardboard, glass, metals and plastics.

Construction Waste Management Plan

Intent: Please complete the City's Construction Waste Management Plan prior to permit issuance. Please designate how and what materials will be recycled on the Construction Waste Management Plan, provide

materials to be recycled by types and volumes and their final disposition of the materials. Show a location on the site plan where material will be stored and classified during the course of construction.

Complete the required Construction Waste Management Plan.

See City of Santa Cruz Waste Management Plan.

Construction Waste Management: Divert 50%

Intent: Complete the required Construction Waste Management Plan and show compliance of 50% diversion. Please designate how and what materials will be recycled on the Construction Waste Management Plan, provide materials to be recycled by types and volumes and their final disposition of the materials. Show a location on the site plan where material will be stored and classified during the course of construction. (5.408.3)

See City of Santa Cruz Waste Management Plan.

Construction Waste Management: Divert 75% or Above

Intent: Complete the required Construction Waste Management Plan and show compliance of 75% diversion. Please designate how and what materials will be recycled on the Construction Waste Management Plan, provide materials to be recycled by types and volumes and their final disposition of the materials. Show a location on the site plan where material will be stored and classified during the course of construction. (5.408.3)

See City of Santa Cruz Waste Management Plan.

Building Reuse: Maintain 75%, 100% Existing Walls, Floors, Roof

Intent: Maintain at least 75%, 100% (based on surface area) of exiting building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained.

Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.

Building Reuse: Maintain 100% Existing Walls, Floors, Roof and 50% of Non-Structural Elements

Use existing interior non-structural elements (interior walls, doors, floor coverings and ceiling systems) in at least 50% (by area) of the completed building (including additions). If the project includes an addition to an existing building, this credit is not applicable if the square footage of the addition is more than 2 times the square footage of the existing building.

Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.

Implement Materials Reuse: Specify 5%

Intent: Use salvaged, refurbished or reused materials such that the sum of these materials constitutes at least 5% based on cost, of the total value of materials on the project. Reuse building materials and products in order to reduce demand for virgin materials and reduce waste and associated impacts with the extraction and processing of virgin materials.

Implement Materials Reuse: Specify 10%

Intent: Use salvaged, refurbished or reused materials such that the sum of these materials constitutes at least 10% based on cost, of the total value of materials on the project. Reuse building materials and

products in order to reduce demand for virgin materials and reduce waste and associated impacts with the extraction and processing of virgin materials.

Use Recycled Content: 10%

Intent: Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content equals at least 10% (based on cost) of the total value of the materials in the project.

Use Recycled Content: 20%

Intent: Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content equals at least 20% (based on cost) of the total value of the materials in the project.

Use Regional Materials: 10%

Intent: Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% (based on costs) of the total materials value.

Use Regional Materials: 20%

Intent: Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 20% (based on costs) of the total materials value.

Use Rapidly Renewable Materials

Intent: Use rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle or shorter for 2.5% of the total value of all building materials and products used in the project, based on cost.)

Use Certified Wood

Intent: Use FSC Certified Wood and provide FSC Certification and supply provider/ lumberyard information to inspector for verification at time of framing inspection. The Forest Stewardship Council (FSC) guarantees that the lumber that they certify comes from a sustainable harvested forest.

Advanced Wood Framing Techniques

Intent: Please note and show location of advanced framing techniques on plans. (Example: framing on 24 inch centers instead of 16 inch centers) Cross-reference the Checklist and note on the plan page specific to the installation location. Reduce framing material consumption and related costs. Increase the comfort and performance of the building by decreasing thermal bridging.

E. Indoor Environmental Quality

Indoor Moisture Control

Intent: Meet or exceed Ventilation and Exterior Wall requirements in CBC CCR Title 24, Part 2 Sections 1203 and Chapter 14.

Cover Duct Openings During Construction

Intent: Covering of duct openings and protection of mechanical equipment during construction, see 5.504.3. At the time of rough installation, during storage on site and until final startup of heating and cooling equipment, all duct coverings and mechanical equipment during construction shall be covered to reduce amount of dust and debris that may collect in the system.

Resilient Flooring Systems 50%

Intent: For 50% of the floor area receiving resilient flooring, install resilient flooring compliant with the VOC-emission limits defined in the 2009 CHPS criteria or certified under the RFCI FloorScore program.

Resources available at www.chps.net/dev and www.rfci.com.

Filters for Mechanically Ventilated Buildings/Outdoor Air Delivery Monitoring

Intent: For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 (Requirements for Ventilation) of the California Energy Code, CCR Title 24, Part 6, and Chapter 4 of the CCR, Title 8.

Carbon Monoxide Monitoring

For buildings equipped with demand control ventilation, carbon dioxide sensors and ventilation controls should be installed in accordance with the California Energy Coide, CCR Title 24, Part 6 Section 121c**.**

Intent: Maintain safe carbon monoxide (CO) levels which are within safe range for human occupation.

Low VOC-Emitting Materials (adhesives, sealants, caulks, paints and coatings, aerosol paints and coatings, carpet systems, carpet adhesives, flooring systems and composite wood products)

Intent: Ensure finish materials meet VOC compliance limits for adhesives, sealants, caulks, paints and coatings, aerosol paints and coatings, carpet systems, carpet adhesives, flooring systems and composite wood products and ensure compliance with VOC limits in SCAQMD Rule 1168 VOC limits.

All paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure.

All aerosol paints and coatings shall comply with VOC limits of RWMIR for ROC in Section 94522a3 and other requirements including prohibited use of toxic compounds and ozone depleting compounds in Section 94522c2.elp.

All carpet systems installed in the building interior shall meet the testing and product requirements of one of the following:

1. Carpet and Rug Institute's Green Label Plus Program
2. California Dept of Public Health Standard Practice for the testing of VOCs
3. NSF/ANSI 140 at the Gold level
4. Scientific Certifications Systems Sustainable Choices

All composite wood products used on the interior and exterior of the building shall meet the requirements in Table 5.504.4.5.

Documentation is to include:

A. Product certifications and specifications
B. Chain of custody

Other methods acceptable to the City.

Acoustical Control

Exterior noise transmission: Wall and roof-ceiling assemblies making up the building envelope shall have an STC of at least 50. See CALGreen page 75 for additional requirements. Examples of assemblies and their STC ratings can be found at**:** www.toolbase.org/PDF/CaseStudies/.

Minimum Indoor IAQ Performance

Meet the minimum requirements of Section 4-7 of the ASHRAE 62.1 Ventilation for Acceptable Indoor Air Quality. Mechanical ventilation systems to be designed using the Ventilation Rate Procedure.

Intent: Meeting minimum indoor air quality performance to enhance indoor air quality in buildings contributes to the comfort and well-being of the occupants.

Increased Ventilation/Outdoor Air Delivery Monitoring

Provide additional outdoor air ventilation to improve indoor air quality for improved occupant comfort, well-being and productivity. *Install permanent monitoring systems that provide feedback on ventilations system performance to ensure that ventilation systems maintain design minimum ventilation requirements.*

Intent: Providing additional outdoor ventilation helps contribute to the comfort and well-being of the occupants.

Resilient Flooring Systems: Exceed Mandatory Minimums

For 80% of floor area receiving resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the Collaborative for High Performance Schools (CHPS) criteria and listed on its Low-emitting Materials List, or certified under the FloorScore program of the Resilient Floor Covering Institute. Low-emitting Materials List may be found at www.chpsregistry.com/live.

Intent: Low VOC products improve health and indoor air quality for occupants.

Construction Indoor Air Quality Management Plan: During Construction

Complete plan to provide temporary ventilation during construction in accordance with Section 121 of the California Energy Code, CCR, Title 24, Part 6 and Chapter 4 of the CCR, Title 8.

Intent: Maintains healthy air quality of the building during construction to increase work health and environmental quality after construction.

Construction Indoor Air Quality Management Plan: Before Occupancy

Develop and implement an Indoor Air Quality Management Plan for the pre-occupancy that includes the options of a flush-out or air quality testing**.** Complete plan that ensures the use of additional practices for the use of materials on the project to make sure they are aired or dried, installed to prevent cross contamination and cleaned prior to certification of occupancy.

Intent: Maintains healthy air quality of the building during construction to increase work health and environmental quality after construction.

Indoor Chemical & Pollutant Source Control

Minimize chemical and pollutants entry into buildings and cross contamination by installing a permanent entryway system at least six feet in the primary direction of travel to capture dirt and particulates at entryways directly connected to the outdoors.

Intent: Reduces the amount of pollutants brought into a building at points of entry from people's shoes and improves air quality.

Controllability of Systems: Lighting

Provide individual task lighting/and or daylighting controls for at least 80% of building occupants. Provide lighting controls for shared multi-occupant space such as conference rooms.

Intent: Allows building occupants a measure of control within their workspaces as to lighting levels.

Controllability of Systems: Thermal Comfort

Provide individual thermal comfort controls for at least 50% of building occupants. Occupants within 10 feet of an operable window can substitute windows to control thermal comfort. Windows must meet Section 121 requirements of the California Energy Code.

Intent: Allows building occupants a measure of control within their workspaces as to thermal comfort levels.

Thermal Comfort: Design

Provide design in accordance with Sections A5.507 and A5.507.1.2.

Intent: Allows building occupants a measure of control within their workspaces as to thermal comfort levels.

Thermal Comfort: Verification

Provide verification on requirements of Sections A5.507 and A5.507.1.2.

Intent: Allows building occupants a measure of control within their workspaces as to thermal comfort levels.

Daylight & Views: 75% of Spaces

Design building to maximize interior daylighting and provide daylight and views into 75% of the regularly occupied areas of building using daylight simulation modeling or daylight measurement.

Daylight & Views: 90% of Spaces

Design building to maximize interior daylighting and provide daylight and views into 90% of the regularly occupied areas of building using daylight simulation modeling or daylight measurement.

Acoustical Control: Exceed Minimums

Exceed minimum requirements for exterior noise transmission: Wall and roof-ceiling assemblies making up the building envelope shall have an STC of at least 50. See CALGreen page 75 for additional requirements. Examples of assemblies and their STC ratings can be found at: www.toolbase.org/PDF/CaseStudies/.

F. Innovation in Design

Green Building Accredited Professional

Use a Certified/Accredited Green Building Project Staff:

1. Designer
2. Builder
3. Management

Please provide verification of accreditation, and note on green features index.

Intent: Having experienced, accredited professionals on staff helps ensure that the designated green features for the project are understood and implemented properly**.**

Innovation Points

The City recognizes the value of the participation in the program by the construction and design community and encourages use of new green building materials, practices or techniques that may not be included on the checklists. These approaches must meet the environmental goals identified in the Green Building Regulations, (refer 24.15.010 purpose and findings) Proposals for innovations measures will be reviewed by staff on a case by case basis and points assigned by merit. Please provide support documents or information at the time of submittal or plan check including completed verification form(s).