CITY OF ALBANY
PLANNING AND ZONING AGENDA
STAFF REPORT

Agenda date: 6/9/09
Prepared by: AC
Reviewed by: JB

ITEM/ 6a

SUBJECT: **Revisions to Green Building Standards of Compliance and Checklists**

STAFF RECOMMENDATION

Provide recommendations to the City Council on adoption of revision to Green Building Standards of Compliance and Checklists.

BACKGROUND

This item was continued from the May 26, 2009 hearing date due.

In December 2006, following a Planning and Zoning Commission recommendation, the City Council adopted three new ordinances related to sustainable development in the City, including: "Green Building and Bay Friendly Landscaping," "Construction and Demolition Debris," and "Water Reuse" Ordinances. Implementation of the program began July 2007.

One of the key elements to the program is that all projects that require design review are required to meet a green points threshold as a part of the approval. The details of the program are contained in the Standards of Compliance. Attached are the current standards approved in 2007 (Attachment 1).

DISCUSSION

In general, staff has observed that applicants have embraced the City's green building standards and new construction has been more sustainable as a result of the program. Pre-application submittal meetings coupled with information about the green points checklist from stopwaste.org have enabled applicants to easily achieve the required 50 points for residential additions, and construction of new single-family homes. Staff believes that one of the crucial elements to the success of the City's program has been linking our program to the design review process, both because the City has greater authority to impose local standards than in the building permit stage, and because it encourages applicants to incorporate green building principles relatively early in the design process. This also allows the Commission to review a project's green building initiatives at the time of project approval.

In a review of the 17 projects approved in 2009, the average number of points achieved by these projects is "70 points." There are 3 projects that attained the minimum 50 points and the remaining 14 achieved over the minimum threshold. See Attachment 2 for a partial list of the approved project in 2009 calendar year, along with the number of green points achieved.

As sustainable building materials and techniques become more available, staff believes that it is appropriate to consider raising that bar and improving the sustainable performance of the program. In addition, organizations that support green building programs have updated their checklists. Thus, the principal changes proposed by staff is to update the Standards of Compliance to reflect Commission direction from the November 25, 2008 meeting and incorporate new checklists. Proposed changes to the standards are detailed in Attachment 3.

The Planning and Zoning Commission reviewed the Green Building program on November 25, 2008. At that time, the Commission voted to require that the checklist be required as printed on the plans that are submitted as part of the building permit submittal package. In addition, seismic upgrade points were recommended to be reduced to 15pts, and an increase of 20% over title 24 is mandatory for the project area (See Attachment 4 for an excerpt from the minutes of the November 25 meeting).

Update of Checklists

The City's single-family and multi-family residential checklists are modeled off the green points checklists created by Build It Green. Build It Green has two single-family checklists, one for remodels and one for new construction. The City's checklists are essentially the Build It Green's with additional local incentives added at the end. Staff recommends that the City use the remodel checklist for all residential projects to avoid confusion and to streamline the review process. Therefore, the only proposed changes are in the "City of Albany Incentives" (Section O.)

No changes have been made to Build It Green's multi-family checklist. The Bay Friendly landscaping program has recently distributed a new detailed checklist, and staff recommends that it be used as applicable for all future design review applications.

The City's uses US Green Building Council's LEED checklists for commercial projects. There are two checklists, "new construction" and "commercial interiors" that are used, depending on the scope of the project. The new and revised LEED checklists are included in Attachment 3.

For educational facilities, such as St. Mary's, the Collaborative for High Performance Schools has created a green building program checklist. Although primarily oriented to public schools, staff believes that is a useful reference for private education facilities as well, and recommends that it be incorporated into the Standards of Compliance.

The Built It Green "Single Family" Checklist and the Existing Home" Checklist, which are not recommended to be included in the revised Standards of Compliance, are provided as Attachment 5 for Commission reference.

California Green Building Standards Code

In January 2009, the California Building Standards Commission released amendments of the California Building Code that will become effective August 2009. Initially, nearly all of the elements of the code are voluntary until the 2010 California Building Code is effective (January 2011). Staff is monitoring how municipalities intend to implement the new Code. To simplify implementation applicants, staff will recommend that the City use procedures that are typical for East Bay communities. Features of the code include calling for a 15% improvement over California Energy Code requirements, 20% saving on water usage, and establishing VOC limits on adhesives and coatings.

Water Efficient Landscape Ordinance

The Water Conservation in Landscaping Act of 2006 (AB 1881) imposes regulations on January 1, 2010 intended to improve the efficiency of water use in new and existing urban irrigated landscapes in California. The ordinance will generally be applicable to both private projects and public projects with a landscape area greater than 2,500 square feet. The applicant will be required to complete a water-use worksheet, which in turn the City will be required to plan check and inspect. The City also will be required to audit 20% of the previously installed landscaping. This applies to.

Attachments

1. Current Standards of Compliance and Checklists
2. 2009 Design Review projects and Associated Green Building Points
3. Proposed Revisions to Standards of Compliance and Checklists
4. November 25, 2008 Minutes
5. Built It Green "Single Family" Checklist and the Existing Home" Checklist
6. California Green Building Standards Code
7. Water Efficient Landscape Ordinance

City of Albany

GREEN BUILDING

STANDARDS OF COMPLIANCE

&

CHECKLISTS

ATTACHMENT 1

Prepared for City Council Review, July 2, 2007

City of Albany Green Building Standards of Compliance

Proposed Standards: Effective July 3, 2007

Project Description		Building Improvements		
		Checklist Required	**Minimum Threshold**	**Third-party Verification**
City Sponsored Projects	New construction **less** than 5,000 sq ft	LEED-NC Checklist (Version 2.2)	Maximum points practicable	At plan check only
	New construction **more** than 5,000 sq ft		Gold (39 points)	US Green Bldg Council
	Renovation **less** than 5,000 sq ft	LEED-CI Checklist (Version 2.0)	Maximum points practicable	At plan check only
	Renovation **more** than 5,000 sq ft		Gold (32 points)	US Green Bldg Council
Commercial Construction & Renovation Projects	New construction **less** than 5,000 sq ft	LEED-NC Checklist (Version 2.2)	Maximum points practicable	At plan check only
	New construction **more** than 5,000 sq ft		Gold (39 points)	US Green Bldg Council
	Renovation **less** than 5,000 sq ft	LEED-CI Checklist (Version 2.0)	Maximum points practicable	At plan check only
	Renovation **more** than 5,000 sq ft		Gold (32 points)	US Green Bldg Council
Single Family Residential	New construction	Single-Family Greenpoint Checklist (2006 Edition)	50 Points	At plan check only
	Renovation subject to Design Review	Green Points Rating System for Remodeling projects (2004 version + City Point Incentives)	50 Points	
Multi-family Residential	New construction or renovation of **less** than 5 units	Multifamily Greenpoint Checklist (2005 Edition version v.2)	Maximum points practicable	City Staff and/or certified 3rd party inspection
	New construction or renovation of **more** than 5 units		Minimum Points Standard	
Mixed Use	Consult with Planning Divison staff			

Prepared for City Council Review: July 2, 2007

City of Albany Green Building Standards of Compliance

Proposed Standards: Effective July 3, 2007

Project Description	Landscaping Improvements		
	Checklist Required	Minimum Threshold	Third-party Verification (Field Verification required of all projects)
City Sponsored Projects	Bay-Friendly Landscaping Checklist	Minimum Points Standard	At plan check only
Commercial Construction & Renovation Projects			
Single Family Residential	Not Required	Not Required	Not Required
Multi-family Residential	Bay-Friendly Landscaping Checklist	Minimum Points Standard	At plan check only
Mixed Use			

Prepared for City Council Review: June 18, 2007

City of Albany

Green Building Program Rating System for Remodeling Projects
Supplemental Application Form

Project Address: _____

Checklist Prepared By: _____

Date Prepared: _____

		INPUT	Resources	Energy	IAQ/Health
A. Site					
1. Recycle Job Site Construction & Demolition Waste 65% = 1 point; 75% = 2 points; 80% = 4 points	up to 4 Resource pts				
2. Salvage Reusable Building Materials	4 Resource pts y=yes				
3. Remodel for Mixed Use, Adaptive Reuse, and Historic Preservation	4 Resource pts y=yes				
4. Protect Native Soil	2 Resource pts y=yes				
5. Minimize Disruption of Existing Plants & Trees	1 Resource pt y=yes				
6. Implement Construction Site Stormwater Practices	2 Resource pts y=yes				
7. Protect Water Quality with Landscape Design	2 Resource pts y=yes				
8. Design Resource-Efficient Landscapes and Gardens	4 Resource pts y=yes				
9. Reuse Materials/Use Recycled Content Materials for Landscape Areas	2 Resource pts y=yes				
10. Install High-Efficiency Irrigation Systems	2 Resource pts y=yes				
11. Provide for On-Site Water Catchment / Retention	2 Resource pts y=yes				
B. Foundation					
1. Incorporate Recycled Flyash in Concrete 25% Recycled Flyash = 2 points; Add 1 point for every 10% increase of flyash, up to 5 points	up to 5 Resource pts				
2. Use Recycled Content Aggregate	2 Resource pts y=yes				
3. Insulate Foundation/Slab before backfill	3 Energy pts y=yes				
C. Structural Frame					
1. Substitute Solid Sawn Lumber with Engineered Lumber	3 Resource pts y=yes				
2. Use FSC Certified Wood for framing (For every 10% of FSC lumber used = 2 points, up to 10)	up to 10 Resource pts.				
3. Use Wood I-Joists for Floors and Ceilings	2 Resource pts y=yes				
4. Use Web Floor Trusses	2 Resource pts y=yes				
5. Design Energy Heels on Trusses 6" or more	2 Energy pts y=yes				
6. Use Finger-Jointed Studs for Vertical Applications	2 Resource pts y=yes				
7. Use Engineered Studs for Vertical Applications	2 Resource pts y=yes				
8. Use Recycled Content Steel Studs for Interior Framing	2 Resource pts y=yes				
9. Use Structural Insulated Panels (SIPs)					
a. Floors	3 Energy pts y=yes				
b. Wall	3 Energy pts y=yes				
c. Roof	3 Energy pts y=yes				
10. Apply Advanced Framing Techniques	4 Resource pts y=yes				

		INPUT	Resources	Energy	IAQ/Health
11. Use Reclaimed Lumber for Non Structural Applications	3 Resource pts y=yes				
12. Use OSB					
a. Subfloors	1 Resource pt y=yes				
b. Sheathing	1 Resource pt y=yes				
D. Exterior Finish					
1. Use Sustainable Decking Materials					
a. Recycled content	3 Resource pts y=yes				
b. FSC Certified Wood	3 Resource pts y=yes				
2. Use Treated Wood That Does Not Contain Chromium/Arsenic	1 IAQ/Health pt y=yes				
3. Install House Wrap under Siding	1 IAQ/Health pt y=yes				
4. Use Fiber-Cement Siding Materials	1 Resource pt y=yes				
E. Plumbing					
1. Install Water Heater Jacket	1 Energy pt y=yes				
2. Insulate Hot and Cold Water Pipes	2 Energy pts y=yes				
3. Retrofit all Faucets and Showerheads with Flow Reducers					
a. Faucets (1 point each, up to 2 points)	Up to 2 Resource pts.				
b. Showerheads (1 point each, up to 2 points)	Up to 2 Resource pts.				
4. Replace Toilest with Ultra-Low Flush Toilets (1 point each, up to 3 points)	Up to 3 Resource pts.				
5. Install Chlorine Filter on Showerhead	1 IAQ/Health pt y=yes				
6. Convert Gas to Tankless Water Heater	4 Energy pts y=yes				
7. Install Water Filtration Units at Faucets (2 points each, up to 4 points)	Up to 4 IAQ/Health pts.				
8. Install On-Demand Hot Water Circulation Pump	4 Resource pts y=yes				
F. Electrical					
1. Install Compact Fluorescent Light Bulbs (CFLs) (6 bulbs=2 points, 10 bulbs =3 points, 12 bulbs = 4 points)	Up to 4 Energy pts.				
2. Install IC-AT Recessed Fixtures with CFLs (1 point each, up to 5 points)	Up to 5 Energy pts.				
3. Install Lighting Controls (1 point per fixture, up to 4 points)	Up to 4 Energy pts.				
4. Install High Efficiency Ceiling Fans with CFLs (1 point each, up to 4 points)	Up to 4 Energy pts.				
G. Appliances					
1. Install Energy Star Dishwasher	1 Energy pt y=yes				
2. Install Washing Machine with Water and Energy Conservation Features	1 Energy pt y=yes				
3.Install Energy Star Refrigerator	1 Energy pt y=yes				
4. Install Built-In Recycling Center	3 Resource pts y=yes				
H. Insulation					
1. Upgrade Insulation to Exceed Title 24 Requirements					
a. Walls	2 Energy pts y=yes				
b. Ceilings	2 Energy pts y=yes				
2. Install Floor Insulation over Crawl Space	4 Energy pts y=yes				
3. Install Recycled-Content, Fiberglass Insulation with No Added Formaldehyde	3 IAQ/Health pts y=yes				

			INPUT	Resources	Energy	IAQ/Health
4. Use Advanced Infiltration Reduction Practices	2 Energy pts	y=yes				
5. Use Cellulose Insulation						
a. Walls	4 Resource pts	y=yes				
b. Ceilings	4 Resource pts	y=yes				
6. Alternative Insulation Products (Cotton, spray-foam)						
a. Walls	4 Resource pts	y=yes				
b. Ceilings	4 Resource pts	y=yes				
I. Windows						
1. Install Energy-Efficient Windows						
a. Double-Paned	1 Energy pt	y=yes				
b. Low-Emissivity (Low-E)	2 Energy pts	y=yes				
c. Low. Conductivity Frames	2 Energy pts	y=yes				
2. Install Low Heat Transmission Glazing	1 Energy pt	y=yes				
J. Heating Ventilation and Air Conditioning						
1. Use Duct Mastic on All Duct Joints	2 Energy pts	y=yes				
2. Install Ductwork within Conditioned Space	3 Energy pts	y=yes				
3. Vent Range Hood to the Outside	1 IAQ/Health pt	y=yes				
4. Clean all Ducts Before Occupancy	2 IAQ/Health pts	y=yes				
5. Install Solar Attic Fan	2 Energy pts	y=yes				
6. Install Attic Ventilation Systems	1 Energy pt	y=yes				
7. Install Whole House Fan	4 Energy pts	y=yes				
8. Install Sealed Combustion Units						
a. Furnaces	3 IAQ/Health pts	y=yes				
b. Water Heaters	3 IAQ/Health pts	y=yes				
9. Replace Wall-Mounted Electric and Gas Heaters with Through-the-Wall Heat Pumps	3 Energy pts	y=yes				
10. Install 13 SEER/11 EER or higher AC with a TXV	3 Energy pts	y=yes				
11. Install AC with Non-HCFC Refrigerants	2 Resource pts	y=yes				
12. Install 90% Annual Fuel Utilization Efficiency (AFUE) Furnace	2 Energy pts	y=yes				
13. Retrofit Wood Burning Fireplaces						
a. Install EPA certified wood stoves/inserts	1 IAQ/Health pt	y=yes				
b. Install/Replace Dampers	1 Energy pt	y=yes				
c. Install Airtight Doors	1 Energy pt	y=yes				
14. Install Zoned, Hydronic Radiant Heating	3 Energy pts	y=yes				
15. Install High Efficiency Filter	4 IAQ/Health pts	y=yes				
16. Install Heat Recovery Ventilation Unit (HRV)	5 IAQ/Health pts	y=yes				
17. Install Separate Garage Exhaust Fan	3 IAQ/Health pts	y=yes				
K. Renewable Energy and Roofing						
1. Pre-Plumb for Solar Water Heating	4 Energy pts	y=yes				
2. Install Solar Water Heating System	10 Energy pts	y=yes				
3. Pre-Wire for Future Photovoltaic (PV) Installation	4 Energy pts	y=yes				
4. Install Photovoltaic (PV) System (1.2 kw = 6 points, 2.4 kw = 12 points, 3.6 kw = 18 points)	Up to 18 Energy pts					
6. Select Safe and Durable Roofing Materials	1 Resource pt	y=yes				
7. Install Radiant Barrier	3 Energy pts	y=yes				

			INPUT	Resources	Energy	IAQ/Health
L. Natural Heating and Cooling						
1. Incorporate Passive Solar Heating	5 Energy pts	y=yes				
2. Install Overhangs or Awnings over South Facing Windows	3 Energy pts	y=yes				
3. Plant Deciduous Trees on the West and South Sides	3 Energy pts	y=yes				
M. Indoor Air Quality and Finishes						
1. Use Low/No-VOC Paint	1 IAQ/Health pts	y=yes				
2. Use Low VOC, Water-Based Wood Finishes	2 IAQ/Health pts	y=yes				
3. Use Low/No VOC Adhesives	3 IAQ/Health pts	y=yes				
4. Use Salvaged Materials for Interior Finishes	3 Resource pts	y=yes				
5. Use Engineered Sheet Goods with no added Urea Formaldehyde	6 IAQ/Health pts	y=yes				
6. Use Exterior Grade Plywood for Interior Uses	1 IAQ/Health pts	y=yes				
7. Seal all Exposed Particleboard or MDF	4 IAQ/Health pts	y=yes				
8. Use FSC Certified Materials for Interior Finish	4 Resource pts	y=yes				
9. Use Finger-Jointed or Recycled-Content Trim	1 Resource pts	y=yes				
10. Install Whole House Vacuum System	3 IAQ/Health pts	y=yes				
N. Flooring						
1. Select FSC Certified Wood Flooring	8 Resource pts	y=yes				
2. Use Rapidly Renewable Flooring Materials	4 Resource pts	y=yes				
3. Use Recycled Content Ceramic Tiles	4 Resource pts	y=yes				
4. Install Natural Linoleum in Place of Vinyl	5 IAQ/Health pts	y=yes				
5. Use Exposed Concrete as Finished Floor	4 Resource pts	y=yes				
6. Install Recycled Content Carpet with Low VOCs	4 Resource pts	y=yes				
O. City of Albany Incentives						
1. Additions less than 50% increase in floor area	20 Resource pts	y=yes				
2. Additions les than 200sq.ft. or resulting in less than 1,500sq.ft.	10 Resource pts	y=yes				
3. Seismic upgrade of existing building	25 Resource pts	y=yes				
4.For having a hybrid or zero emissions vehicle	2 IAQ/Health pts	y=yes				
5. For having no automobile	5 Resource pts	y=yes				
6. Plant more than one street tree when feasible	2 IAQ/Health pts	y=yes				
7. Earhquake kit	2 IAQ/Health pts	y=yes				

City of Albany

New Home Green Points Checklist
Supplemental Application Form

Project Address: _____

Checklist Prepared By: _____

Date Prepared: _____

ENTER PROJECT NAME	Community	Energy	IAQ/Health	Resources	Water
A. SITE	Possible Points				
1. Protect Native Soil and Minimize Disruption of Existing Plants & Trees					
☐ a. Protect Native Topsoil from Erosion and Reuse after Construction	1				1
☐ b. Limit and Delineate Construction Footprint for Maximum Protection					1
☐ **2. Deconstruct Instead of Demolishing Existing Buildings On Site**				3	
3. Recycle Job Site Construction Waste (Including Green Waste)					
☐ *a. Minimum 50% Waste Diversion by Weight (Recycling or Reuse) - Required*				R	
b. Minimum 65% Diversion by Weight (Recycling or Reuse)				2	
☐ c. Minimum 80% Diversion by Weight (Recycling or Reuse)				2	
4. Use Recycled Content Aggregate (Minimum 25%)					
☐ a. Walkway and Driveway				1	
☐ b. Roadway Base				1	

B. LANDSCAPING	Community	Energy	IAQ/Health	Resources	Water
	Possible Points				
1. Construct Resource-Efficient Landscapes					
☐ a. No Invasive Species Listed by Cal-IPC Are Planted					1
☐ b. No Plant Species Will Require Hedging				1	
☐ c. 75% of Plants Are California Natives or Mediterranean Species					1
☐ **2. Use Fire-Safe Landscaping Techniques**	1				
3. Minimize Turf Areas in Landscape Installed by Builder					
☐ a. All Turf Will Have a Water Requirement Less than or Equal to Tall Fescue					2
☐ b. Turf Shall Not Be Installed on Slopes Exceeding 10% or in Areas Less than 8 Feet Wide					2
☐ c. Turf is <33% of Landscaped Area					2
☐ d. Turf is <10% of Landscaped Area					2
☐ **4. Plant Shade Trees**		1			1
☐ **5. Implement Hydrozoning: Group Plants by Water Needs**					1
6. Install High-Efficiency Irrigation Systems					
☐ a. System Uses Only Low-Flow Drip, Bubblers, or Low-flow Sprinklers					1
☐ b. System Has Smart (Weather-Based) Controllers					2
☐ **7. Apply Two Inches of Compost in the Top 6 to 12 Inches of Soil**					2
☐ **8. Mulch All Planting Beds to the Greater of 2 Inches or Local Water Ordinance Requirement**					1
☐ **9. Use 50% Salvaged or Recycled-Content Materials for 50% of Non-Plant Landscape Elements**				1	
☐ **10. Reduce Light Pollution by Shielding Fixtures and/or Directing Light Downward**	1				

C. FOUNDATION	Possible Points				
1. Incorporate Recycled Flyash in Concrete					
☐ a. Minimum 20% Flyash				1	
☐ b. Minimum 25% Flyash (1 pt)				1	
☐ **2. Use Frost-Protected Shallow Foundation in Cold Areas (C.E.C. Climate Zone 16)**				3	
☐ **3. Use Radon Resistant Construction (In At-Risk Locations Only)**			1		

D. STRUCTURAL FRAME & BUILDING ENVELOPE	Possible Points				
1. Apply Optimal Value Engineering					
☐ a. 2x4 Studs at 24-Inch On Center Framing				1	
☐ b. Door and Window Headers Sized for Load				1	
☐ c. Use Only Jack and Cripple Studs Required for Load				1	
2. Use Engineered Lumber					
☐ a. Beams and Headers				1	
☐ b. Insulated Engineered Headers		1			
☐ c. Wood I-Joists or Web Trusses for Floors				1	
☐ d. Wood I-Joists for Ceilings				1	
☐ e. Engineered or Finger-Jointed Studs for Vertical Applications				1	
3. Use FSC-Certified Wood					
☐ a. Dimensional Studs: Minimum 40%				2	
☐ b. Dimensional Studs: Minimum 75%				2	
☐ c. Panel Products: Minimum 40%				1	
☐ d. Panel Products: Minimum 70%				1	
☐ ☐ **4. Design Energy Heels on Trusses (75% of Attic Insulation Height at Outside Edge of Exterior Wall)**		1			
5. Design Trusses to Accommodate Ductwork		1			
6. Use Oriented Strand Board (OSB)					
☐ a. Subfloor				1	
☐ b. Sheathing				1	
☐ **7. Use Recycled-Content Steel Studs for 90% of Interior Wall Framing**				1	
8. Use Solid Wall Systems (Includes SIPs, ICFs, & Any Non-Stick Frame Assembly)					
☐ a. Floors		2		2	
☐ b. Walls		2		2	
☐ c. Roofs		2		2	
☐ **9. Thermal Mass Walls: 5/8-Inch Drywall on All Interior Walls or Walls Weigh more than 40 lb/cu.ft.**		1			
10. Design and Build Structural Pest Controls					
☐ a. Install Termite Shields & Separate All Exterior Wood-to-Concrete Connections by Metal or Plastic Fasteners/Dividers				1	
☐ b. All New Plants Have Trunk, Base, or Stem Located At Least 36 Inches from Foundation				1	
11. Reduce Pollution Entering the Home from the Garage					
☐ a. Tightly Seal the Air Barrier between Garage and Living Area			1		
☐ b. Install Separate Garage Exhaust Fan			1		
12. Install Overhangs and Gutters					
☐ a. Minimum 16-Inch Overhangs and Gutters				1	
☐ b. Minimum 24-Inch Overhangs and Gutters		1			

E. EXTERIOR FINISH	Possible Points				
☐ **1. Use Recycled-Content (No Virgin Plastic) or FSC-Certified Wood Decking**				2	
☐ **2. Install a Drainage Plane (Rain Screen Wall System)**				2	
☐ **3. Use Durable and Non-Combustible Siding Materials**				1	
☐ **4. Select Durable and Non-Combustible Roofing Materials**				2	

F. PLUMBING	Possible Points				
1. Distribute Domestic Hot Water Efficiently					
☐ a. Insulate Hot Water Pipes from Water Heater to Kitchen					1
☐ b. Insulate All Hot Water Pipes OR Install On-Demand Hot Water Circulation System in conjunction with F.1.a Insulate Hot Water Pipes from Water Heater to Kitchen		1			1
☐ c. Locate the Water Heater within 25 feet of All Hot Water Fixtures and Appliances					1
☐ d. Use Engineered Parallel Piping		1			
☐ **2. Install Only High Efficiency Toilets (Dual-Flush or <=1.3 gpf)**					3

G. APPLIANCES	Possible Points				
1. Install ENERGY STAR Dishwasher					
☐ a. ENERGY STAR		1			
☐ b. Dishwasher Uses No More than 6.5 Gallons/Cycle		1			1
☐ **2. Install ENERGY STAR Clothes Washing Machine with Water Factor of 6 or Less**		1			3
3. Install ENERGY STAR Refrigerator					
☐ a. ENERGY STAR: 15% above Federal Minimum		1			
☐ b. Super-Efficient Home Appliance Tier 2: 25% above Federal Minimum		1			
☐ **4. Install Built-In Recycling Center**				2	

H. INSULATION	Possible Points				
1. Install Insulation with 75% Recycled Content					
☐ a. Walls and/or Floors				1	
☐ b. Ceilings				1	
2. Install Insulation that is Low-Emitting (Certified Section 01350)					
☐ a. Walls and/or Floors			1		
☐ b. Ceilings			1		
☐ **3. Pre-Drywall Inspection Shows Quality Installation of Insulation**		1			

I. HEATING, VENTILATION & AIR CONDITIONING	Possible Points				
☐ **1. Design and Install HVAC System to ACCA Manual J, D, and S Recommendations**		4			
2. Install Sealed Combustion (Direct Vent) Units in Conditioned Space					
☐ a. Furnaces			2		
☐ b. Water Heaters			2		
☐ **3. No Fireplace or Sealed Gas Fireplace with Efficiency Rating Not Less Than 60%**			1		
☐ **4. Install ENERGY STAR Ceiling Fans with CFLs in Living Areas and Bedrooms**		1			
5. Install Ventilation System for Nighttime Cooling					
☐ a. Whole House Fan		1			
☐ b. Automatically Controlled Integrated System		2			
☐ c. Integrated System with Variable Speed Control		3			
☐ **6. Install Air Conditioning with Non-HCFC Refrigerants**	1				
7. Design and Install Effective Ductwork					
☐ a. Install HVAC Unit and Ductwork within Conditioned Space		3			
☐ b. Use Duct Mastic on All Duct Joints and Seams		1			
☐ c. Install Ductwork under Attic Insulation (Buried Ducts)		1			
☐ d. Pressure Balance the Ductwork System for Master Bedroom		1			
☐ e. Protect Ducts during Construction and Clean All Ducts before Occupancy			1		
☐ **8. Install High Efficiency HVAC Filter (MERV 6+)**			1		
☐ **9. Install Zoned, Hydronic Radiant Heating with Slab Edge Insulation**		1	1		

	10. Install Mechanical Ventilation System					
☐	a. Any Whole House Ventilation System That Meets ASHRAE 62.2		1	2		
☐	b. Install ENERGY STAR Bathroom Fan			1		
☐	c. All Bathroom Fans Are on Timer or Humidistat			1		
☐	**11. Use Low-Sone Range Hood Vented to the Outside**			1		
☐	**12. Install Carbon Monoxide Alarm(s)**			1		

J. BUILDING PERFORMANCE		Possible Points				
☐ 0%	**1. Design and Build High Performance Homes (2 points for each 1% above T-24, up to 30 pts)** *Enter the percent above Title 24 in the cell at left. Any value over 15% will automatically earn 30 points.*		30			
	2. House Obtains ENERGY STAR with Indoor Air Package Certification			5	2	
	3. Inspection and Diagnostic Evaluations					
☐	a. Third Party Energy and Green Building Review of Home Plans		1	1	1	
☐	b. Blower Door Test Performed		1			
☐	c. House Passes Combustion Safety Backdraft Test			1		

K. RENEWABLE ENERGY		Possible Points				
☐	**1. Pre-Plumb for Solar Hot Water Heating**		4			
☐	**2. Install Solar Water Heating System**		10			
☐	**3. Install Wiring Conduit for Future Photovoltaic Installation & Provide 200 ft² of South-Facing Roof**		2			
	4. Install Photovoltaic (PV) Panels					
☐	a. 1.2 kW System		6			
☐	b. 2.4 kW System		6			
☐	c. 3.6 kW or more		6			

L. FINISHES		Possible Points				
☐	**1. Provide Permanent Walk-Off Mats and Shoe Storage at Home Entrances**			1		
	2. Use Low/No-VOC Paint					
☐	a. Low-VOC Interior Wall/Ceiling Paints (<50 gpl VOCs (Flat) and <150 gpl VOCs (Non-Flat))			1		
☐	b. Zero-VOC: Interior Wall/Ceiling Paints (<5 gpl VOCs (Flat))			3		
☐	**3. Use Low VOC, Water-Based Wood Finishes (<150 gpl VOCs)**			2		
☐	**4. Use Low-VOC Construction Adhesives (<70 gpl VOCs) for All Adhesives**			2		
☐	**5. Use Recycled-Content Paint**				1	
	6. Use Environmentally Preferable Materials for Interior Finish: A) FSC-Certified Wood, B) Reclaimed Lumber, C) Rapidly Renewable D) Recycled-Content or E) Finger-Jointed					
	At Least 50% of Each Material (1 pt each):					
☐	a. Cabinets				1	
☐	b. Interior Trim				1	
☐	c. Shelving				1	
☐	d. Doors				1	
☐	e. Countertops				1	
☐	**7. Reduce Formaldehyde in Interior Finish (Section 01350) for At Least 50% of Each Material Below:**					
	a. Cabinets			1		
☐	b. Interior Trim			1		
☐	c. Shelving			1		
☐	d. Subfloor			1		

☐	8. After Installation of Finishes, Test of Indoor Air Shows Formaldehyde Level <27ppb			3		

M. FLOORING	Possible Points				
	1. Use Environmentally Preferable Flooring: A) FSC-Certified or Reclaimed Wood, B) Rapidly Renewable Flooring Materials, C) Recycled-Content Ceramic Tiles, D) Exposed Concrete as Finished Floor or E) Recycled-Content Carpet. *Note: Flooring Adhesives Must Have <50 gpl VOCs.*					
☐	a. Minimum 15% of Floor Area			1		
☐	b. Minimum 30% of Floor Area			1		
☐	c. Minimum 50% of Floor Area			1		
☐	d. Minimum 75% of Floor Area			1		
☐	2. Thermal Mass Floors: Floor Covering Other than Carpet on 50% or More of Concrete Floors	1				
☐	3. Flooring Meets Section 01350 or CRI Green Label Plus Requirements (50% Minimum)			2		

N. OTHER	Possible Points				
☐	*1. Incorporate Green Points Checklist in Blueprints* - *Required*					
☐	2. Develop Homeowner Manual of Green Features/Benefits					
	3. Community Design Measures & Local Priorities: See the Community Planning & Design section in Chapter 4 of the New Home Guidelines for measures. Maximum of 20 points for suggested measures. Local requirements may also be listed here.					
	4.For having a hybrid or zero emissions vehicle					
	5. For having no automobile					
	6. Planting more than one street tree when feasible					
	7. Earthquake kit					

Summary

Points Achieved from Specific Categories	0	0	0	0	0	
Total Points Achieved	**0**					

City of Albany

Multifamily GreenPoint Checklist
Supplemental Application Form

Project Address: _____

Checklist Prepared By: _____

Date Prepared: _____

ENTER PROJECT NAME	Community	Energy	IAQ/Health	Resources	Water
A. PLANNING & DESIGN	Possible Points				
1. Infill Sites					
☐ a. Project is Located Within an Urban Growth Boundary & Avoids Environmentally Sensitive Sites	1				
☐ b. Project Includes the Redevelopment of At Least One Existing Building				1	
0 c. Housing Density of 15 Units Per Acre or More (1 pt for every 5 u/a) *Enter Project Density Number (In Units Per Acre)*	10				
☐ d. Locate Within Existing Community that has Sewer Line & Utilities in Place	1				
☐ e. Project Redevelops a Brownfield Site or is Designated a Redevelopment Area by a City	1				
f. Site has Pedestrian Access Within ½ Mile to Neighborhood Services (1 Pt for 5 Or More, 2 Pts for 10 Or More):					
☐ 1) Bank ☐ 2) Place of Worship ☐ 3) Full Scale Grocery/Supermarl	2				
☐ 4) Day Care ☐ 5) Cleaners ☐ 6) Fire Station					
☐ 7) Hair Care ☐ 8) Hardware ☐ 9) Laundry					
☐ 10) Library ☐ 11) Medical/Dental ☐ 12) Senior Care Facility					
☐ 13) Public Park ☐ 14) Pharmacy ☐ 15) Post Office					
☐ 16) Restaurant ☐ 17) School ☐ 18) After School Programs					
☐ 19) Commercial Office ☐ 20) Community Center ☐ 21) Theater/Entertainment					
☐ 22) Convenience Store Where Meat & Produce are Sold.					
g. Proximity to Public Transit					
Development is Located Within:					
☐ 1/4 Mile of One Planned or Current Bus Line Stop	1				
☐ 1/4 Mile of Two or More Planned or Current Bus Line Stops	1				
☐ 1/2 Mile of a Commuter Train/Light Rail Transit System	1				
h. Reduced Parking Capacity:					
☐ Less than 1.5 Parking Spaces Per Unit	1				
☐ Less than 1.0 Parking Spaces Per Unit	1				
2. Mixed-Use Developments					
☐ a. At least 2% of Development Floorspace Supports Mixed Use (Non-Residential Tenants)	1				
☐ b. Half of Above Non-Residential Floorspace is Dedicated to Neighborhood Services	1				
3. Building Placement & Orientation					
☐ a. Protect Soil & Existing Plants & Trees	1				
4. Design for Walking & Bicycling					
☐ a. Sidewalks Are Physically Separated from Roadways & Are 5 Feet Wide	1				
☐ b. Traffic Calming Strategies Are Installed by the Developer	1				
☐ c. Provide Dedicated, Covered & Secure Bicycle Storage for 15% of Residents	1				
☐ d. Provide Secure Bicycle Storage for 5% of Non-Residential Tenant Employees & Visitors	1				

	5. Social Gathering Places						
☐	a. Outdoor Gathering Places for Residents (Average of 50 sf Per Unit Or More)	1					
☐	b. Outdoor Gathering Places Provide Natural Elements *(For compact sites only; this point not availabe if A.5a is checked)*	1					
	6. Design for Safety and Natural Surveillance						
☐	a. All Main Entrances to the Building and Site are Prominent and Visible from the Street	1					
☐	b. Residence Entries Have Views to Callers (Windows or Double Peep Holes) & Can Be Seen By Neighbors	1					
	7. Landscaping						
☐	*Check here if the landscape area is <10% of the total site area.* *Projects with <10% landscape area can only check up to 3 boxes in this section.*						
☐	a. No Plant Species will Require Shearing				1		
☐	b. No plantings are Listed on the Invasive Plant Inventory by the California Invasive Plant Council				1		
☐	c. Specify California Native or Mediterranean Species that Require Occasional, Little or No Summer Watering					1	
	d. Create Drought Resistant Soils:						
☐	i. Mulch All Planting Beds to a Depth of 2 Inches or Greater as Per Local Ordinance					1	
☐	ii. Amend with 1 Inch of Compost or as per Soil Analysis to Reach 3.5% Soil Organic Matter					1	
	e. Design & Install High-Efficiency Irrigation System						
☐	i. Specify Smart (Weather-Based) Irrigation Controllers					1	
☐	ii. Specify Drip, Bubblers or Low-Flow Sprinklers for All Non Turf Landscape Areas					1	
☐	f. Group Plants by Water Needs (Hydrozones) in Planting Plans & Identify Hydrozones on Irrigation Plans					1	
	g. Minimize Turf in Landscape Installed by Builder						
☐	i. Do Not Specify Turf on Slopes Exceeding 10% or in Areas Less Than 8 Feet Wide					1	
☐	ii. Less Than 33% of All Landscaped Area is Specified as Turf AND All Turf has Water Requirement <= To Tall Fescue					1	
	8. Building Performance Exceeds Title 24						
	Enter the Percent Above the 2005 Version of Title 24 for Residential and Non-Residential Portions of the Project.						
0%	a. Residences: 2 Points for Every 1% Above 2005 T24 (Weighted Average Up To 30 Total Points for Measure 8 a & b)		30				
0%	b. Non-Residential Spaces: 2 Points for Every 1% Above 2005 T24 (Up To 30 Total Points for Measure 8 a & b)						
☐	*Check here if using 2001 version of Title 24. 1 Point for Every 1% Above 2001 Title 24.*						
	9. Cool Site						
☐	a. At least 30% of the Site Includes Cool Site Techniques	1					
	10. Adaptable Buildings						
	a. Include Universal Design Principles in Units						
☐	50% of Units	1					
☐	80% of Units	1					
☐	b. Live/Work Units Include A Dedicated Commercial Entrance	1					
	11. Affordability						
	a. A Percentage of Units are Dedicated to Households Making 80% or Less of AMI						
☐	10% of All Units	1					
☐	20%	1					
☐	30%	1					
☐	50% or More	1					
☐	b. Development Includes Multiple Bedroom Units (At least 1 Unit with 3BR or More at or Less Than 80% AMI)	2					

B. SITEWORK		Possible Points					
	1. Construction & Demolition Waste Management						
	Divert a Portion of all Construction & Demolition Waste:						
☐	a. *Required*: Divert 50%				R		
☐	b. Divert 65%				2		
☐	c. Divert 80% or more				2		

	2. Construction Material Efficiencies	
☐	a. Lumber is Delivered Pre-Cut from Supplier (80% or More of Total Board Feet)	1
	b. Components of the Project Are Pre-Assembled Off-Site & Delivered to the Project	
☐	25% of Total Square Footage	2
☐	50% of Total Square Footage	2
☐	75% of Total Square Footage or More	2
	3. Construction Indoor Air Quality (IAQ) Management Plan	
☐	a. An IAQ Management Plan is Written & Followed for the Project	2

C. STRUCTURE	Possible Points
1. Recycled Aggregate	
☐ a. Minimum 25% Recycled Aggregate (Crushed Concrete) for Fill, Backfill & Other Uses	1
2. Recycled Flyash in Concrete	
a. Flyash or Slag is Used to Displace a Portion of Portland Cement in Concrete	
☐ 20%	1
☐ 30% or More	1
3. FSC-Certified Wood for Framing Lumber	
a. FSC-Certified Wood for a Percentage of All Dimensional Studs:	
☐ 40%	2
☐ 70%	2
b. FSC-Certified Panel Products for a Percentage of All Sheathing (OSB & Plywood):	
☐ 40%	1
☐ 70%	1
4. Engineered Lumber or Steel Studs, Joists, Headers & Beams	
☐ a. 90% or More of All Floor & Ceiling Joists	1
☐ b. 90% or More of All Studs	2
☐ c. 90% or More of All Headers & Beams	2
5. Optimal Value Engineering Framing	
☐ a. Studs at 24" Centers on Top Floor Exterior Walls &/or All Interior Walls	1
☐ b. Door & Window Headers Sized for Load	1
☐ c. Use Only Jack & Cripple Studs Required for Load	1
6. Steel Framing	
☐ a. Mitigate Thermal Bridging by Installing Exterior Insulation (At Least 1-Inch of Rigid Foam)	2
7. Structural Insulated Panels (SIPs) Or Other Solid Wall Systems	
a. SIPs Or Other Solid Wall Systems are Used for 80% of All:	
☐ Floors	2 2
☐ Walls	2 2
☐ Roofs	2 2
8. Raised Heel Roof Trusses	
☐ a. 75% of All Roof Trusses Have Raised Heels	1
9. Insulation	
☐ a. All Ceiling, Wall & Floor Insulation is 01350 Certified OR Contains No Added Formaldehyde	1
☐ b. All Ceiling, Wall & Floor Insulation Has a Recycled Content of 50% or More	1
10. Durable Roofing Options	
☐ a. *Required:* No Shingle Roofing OR All Shingle Roofing Has 3-Yr Subcontractor Guarantee & 20-Yr Manufacturer Warranty	R
b. All Sloped Roofing Materials Carry a 40-Year Manufacturer Warranty	1
11. Moisture Shedding & Mold Avoidance	
☐ a. Building(s) Include a Definitive Drainage Plane Under Siding	4
☐ b. Bathroom Fans are Supplied in All Bathrooms, Are Exhausted to the Outdoors & Are Equipped with Controls	1
☐ c. A Minimum of 80% of Kitchen Range Hoods Are Vented to the Exterior	1

	12. Green Roofs					
	a. A Portion of the Low-Slope Roof Area is Covered By A Vegetated or "Green" Roof					
☐	25%	2				2
☐	50% or More	2				2

D. SYSTEMS		Possible Points				
	1. Passive Solar Heating					
☐	a. Orientation: At Least 40% of the Units Face Directly South		2			
☐	b. Shading On All South-Facing Windows Allow Sunlight to Penetrate in Winter, Not in Summer		1			
☐	c. Thermal Mass: At Least 50% of the Floor Area Directly Behind South-Facing Windows is Massive		2			
	2. Radiant Hydronic Space Heating					
☐	a. Install Radiant Hydronic Space Heating for IAQ purposes (No Forced Air) in All Residences			2		
	3. Solar Water Heating					
☐	a. Pre-Plumb for Solar Hot Water		1			
☐	b. Install Solar Hot Water System for Preheating DHW		4			
	4. Air Conditioning with Advanced Refrigerants					
☐	a. Install Air Conditioning with Non-HCFC Refrigerants	1				
	5. Advanced Ventilation Practices					
	Perform the Following Practices in Residences:					
☐	a. Infiltration Testing by a C-HERS Rater for Envelope Sealing & Reduced Infiltration		2			
☐	b. Operable Windows or Skylights Are Placed To Induce Cross Ventilation (At Least One Room In 80% of Units)		1	1		
☐	c. Ceiling Fans in Every Bedroom & Living Room OR Whole House Fan is Used		1			
	6. Garage Ventilation					
☐	a. Garage Ventilation Fans Are Controlled by Carbon Monoxide Sensors (Passive Ventilation Does Not Count)			1		
	7. Low-Mercury Lamps					
☐	a. Low-Mercury Products Are Installed Wherever Linear Fluorescent Lamps Are Used				1	
☐	b. Low-Mercury Products Are Installed Wherever Compact Fluorescent Lamps Are Used				2	
	8. Light Pollution Reduction					
☐	a. Exterior Luminaires Emit No Light Above Horizontal OR Are Dark Sky Certified	1				
☐	b. Control light Trespass Onto Neighboring Areas Through Appropriate Fixture Selection & Placement	1				
	9. Onsite Electricity Generation					
☐	a. Pre-Wire for Photovoltaics & Plan for Space (Clear Areas on Roof & in Mechanical Room)				1	
	b. Install Photovoltaics to Offset a Percent of the Project's Total Estimated Electricity Demand					
☐	10%	2	2			
☐	20%	2	2			
☐	30% or more	2	2			
☐	c. Educational Display is Provided in a Viewable Public Area	1				
	10. Elevators					
☐	a. Gearless Elevators Are Installed		1			
	11. ENERGY STAR® Appliances					
	a. Install ENERGY STAR Refrigerators in All Locations					
☐	ENERGY STAR-Qualified		1			
☐	ACEEE-Listed Refrigerators		1			
	b. Install ENERGY STAR Dishwashers in All Locations					
☐	All Dishwashers Are ENERGY STAR-qualified		1			
☐	Residential-grade Dishwashers Use No More than 6.5 Gallons Per Cycle		1			1
☐	c. Install ENERGY STAR Clothes Washers In All Locations		1			2
☐	d. Install Ventless Natural Gas Clothes Dryers in Residences			1		
	12. Central Laundry					
☐	a. Central Laundry Facilities Are Provided for All Occupants				1	

	13. Water-Efficient Fixtures					
☐	a. All Showerheads Use 2.0 Gallons Per Minute (gpm) or Less		1			1
	b. High-Efficiency Toilets Use 1.28 gpf or Less or Are Dual Flush					
☐	In All Residences					3
☐	In All Non-Residential Areas					3
	c. Install High Efficiency Urinals (0.5 gpf or less) or No-Water Urinals Wherever Urinals Are Specified:					
☐	Average flush rate is 0.5 gallons per flush or less					1
☐	Average flush rate is 0.1 gallons per flush or less					1
	d. Flow Limiters Or Flow Control Valves Are Installed on All Faucets					
☐	Residences: Kitchen - 2.0 gpm or less		1			1
☐	Non-Residential Areas: Kitchen - 2.0 gpm or less		0			0
☐	Residences: Bathroom Faucets- 1.5 gpm or less		1			1
☐	Non-Residential Areas: Bathroom Faucets - 1.5 gpm or less		0			0
☐	e. Non-Residential Areas: Install Pre-Rinse Spray Valves in Commercial Kitchens - 1.6 gpm or less					1
	14. Source Water Efficiency					
☐	a. Use Recycled Water for Landscape Irrigation or to Flush Toilets/Urinals					2
☐	b. Use Captured Rainwater for Landscape Irrigation or to Flush 5% of Toilets &/or Urinals					4
☐	c. Water is Submetered for Each Residential Unit & Non-Residential Tenant					4

E. FINISHES AND FURNISHINGS						Possible Points
	1. Construction Indoor Air Quality Management					
☐	a. Perform a 2-Week Whole Building Flush-Out Prior to Occupancy			1		
	2. Entryways					
☐	a. Provide Permanent Walk-Off Mats and Shoe Storage at All Home Entrances			1		
☐	b. Permanent Walk-Off Systems Are Provided at All Main Building Entrances & In Common Areas			1		
	3. Recycling & Waste Collection					
☐	a. Residences: Provide Built-In Recycling Center In Each Unit				2	
	4. Use Low/No-VOC Paints & Coatings					
	a. Low-VOC Interior Paints (<50 gpl VOCs (Flat) and <150 gpl VOCs (Non-Flat))					
☐	In All Residences			1		
☐	In All Non-Residential Areas:			0		
	b. Zero-VOC: InteriorPaints (<5 gpl VOCs (Flat))					
☐	In All Residences			1		
☐	In All Non-Residential Areas:			0		
	c. Wood Coatings Meet the Green Seal Standards for Low-VOCs					
☐	In All Residences			2		
☐	In All Non-Residential Areas:			0		
	d. Wood Stains Meet the Green Seal Standards for Low-VOCs					
☐	In All Residences			2		
☐	In All Non-Residential Areas:			0		
	5. Use Recycled Content Exterior Paint					
☐	a. Use Recycled Content Paint on 50% of All Exteriors				1	
	6. Low-VOC Construction Adhesives					
☐	a. Use Low-VOC Construction Adhesives (<70 gpl VOCs) for All Adhesives			1		

7. Environmentally Preferable Materials for Interior Finish

Use Environmentally Preferable Materials for Interior Finish: A) FSC-Certified Wood, B) Reclaimed Lumber, C) Rapidly Renewable D) Recycled-Content or E) Finger-Jointed

	a. Residences: At Least 50% of Each Material:	
☐	i. Cabinets	1
☐	ii. Interior Trim	1
☐	iii. Shelving	1
☐	iv. Doors	1
☐	v. Countertops	1
	b. Non-Residential Areas: At Least 50% of Each Material:	
☐	i. Cabinets	0
☐	ii. Interior Trim	0
☐	iii. Shelving	0
☐	iv. Doors	0
☐	v. Countertops	0

8. Reduce Formaldehyde in Interior Finish Materials

Reduce Formaldehyde in Interior Finish Materials (Section 01350) for At Least 50% of Each Material Below:

	a. Residences:	
☐	i. Cabinets	1
☐	ii. Interior Trim	1
☐	iii. Shelving	1
☐	iv. Subfloor	1
	b. Non-Residential Areas:	
☐	i. Cabinets	0
☐	ii. Interior Trim	0
☐	iii. Shelving	0
☐	iv. Subfloor	0

9. Environmentally Preferable Flooring

Use Environmentally Preferable Flooring: A) FSC-Certified or Reclaimed Wood, B) Rapidly Renewable Flooring Materials, C) Recycled-Content Ceramic Tiles, D) Exposed Concrete as Finished Floor or E) Recycled-Content Carpet. Note: Flooring Adhesives Must Have <50 gpl VOCs.

	a. Residences:	
☐	i. Minimum 15% of Floor Area	1
☐	ii. Minimum 30% of Floor Area	1
☐	iii. Minimum 50% of Floor Area	1
☐	iv. Minimum 75% of Floor Area	1
	b. Non-Residential Areas:	
☐	i. Minimum 15% of Floor Area	0
☐	ii. Minimum 30% of Floor Area	0
☐	iii. Minimum 50% of Floor Area	0
☐	iv. Minimum 75% of Floor Area	0

10. Low-Emitting Flooring

☐	a. Residences: Flooring Meets Section 01350 or CRI Green Label Plus Requirements (50% Minimum)	1
☐	b. Non-Residential Areas: Flooring Meets Section 01350 or CRI Green Label Plus Requirements (50% Minimum)	0

11. Durable Cabinets

Install Durable Cabinets in All:

☐	a. Residences	1
☐	b. Non-Residential Areas	0

	12. Furniture & Outdoor Play Structures						
☐	a. Play Structures & Surfaces Have an Overall Average Recycled Content Greater Than 20%				1		
☐	b. Environmentally Preferable Exterior Site Furnishings				1		
☐	c. At Least 25% of All newly Supplied Interior Furniture has Environmentally Preferable Attributes			1			
	13. Vandalism Deterrence						
☐	a. Project Includes Vandalism Resistant Finishes and Strategies	1					

F. OTHER		Possible Points					
	1. Incorporate GreenPoint Checklist in Blueprints						
☐	a. *Required:* Incorporate GreenPoint Checklist in Blueprints	R					
	2. Operations & Maintenance Manuals						
☐	a. Provide O&M Manual to Building Maintenance Staff		1				
☐	b. Provide O&M Manual to Occupants		1				1
	3. Transit Options						
☐	a. Residents Are Offered Free or Discounted Transit Passes	2					
	4. Educational Signage						
☐	a. Educational Signage Highlighting & Explaining the Project's Green Features is Included	1					
	5. Vandalism Management Plan						
☐	a. Project Includes a Vandalism Management Plan for Dealing with Disturbances Post-Occupancy	1					
	6. Innovation: List innovative measures that meet the green building objectives of the Multifamily Guidelines. Enter up to a 4 Points in each category. Points will be evaluated by local jurisdiction or GreenPoint rater.						
0	Innovation in **Community**: Enter up to 4 Points at left. Enter description here						
0	Innovation in **Energy:** Enter up to 4 Points at left. Enter description here						
0	Innovation in **IAQ/Health**: Enter up to 4 Points at left. Enter description here						
0	Innovation in **Resources:** Enter up to 4 Points at left. Enter description here						
0	Innovation in **Water:** Enter up to 4 Points at left. Enter description here						

Summary

Points Achieved from Specific Categories	0	0	0	0	0	
Current Point Total	0					

City of Albany

Supplemental Application Form
LEED-CI Version 2.0 Registered Project Checklist

Project Name:

Project Address:

Yes	?	No			
			Sustainable Sites	**Possible Points**	**7**
			Credit 1	**Site Selection - Select a LEED Certified Building - OR -**	3
				Locate the tenant space in a building with following characteristics (up to 3 points):	
			Option 1A	**Brownfield Redevelopment**	1/2
			Option 1B	**Stormwater Management: Rate and Quantity**	1/2
			Option 1C	**Stormwater Management: Treatment**	1/2
			Option 1D	**Heat Island Reduction, Non-Roof**	1/2
			Option 1E	**Heat-Island Reduction, Roof**	1/2
			Option 1F	**Light Pollution Reduction**	1/2
			Option 1G	**Water Efficient Irrigation: Reduce by 50%**	1/2
			Option 1H	**Water Efficient Irrigation: No Potable Use or No Irrigation**	1/2
			Option 1I	**Innovative Wastewater Technologies**	1/2
			Option 1J	**Water Use Reduction: 20% Reduction**	1/2
			Option 1K	**Onsite Renewable Energy**	1/2 to 1
			Option 1L	**Other Quantifiable Environmental Performance**	1/2 to 3
			Credit 2	**Development Density and Community Connectivity**	1
			Credit 3.1	**Alternative Transportation, Public Transportation Access**	1
			Credit 3.2	**Alternative Transportation, Bicycle Storage & Changing Rooms**	1
			Credit 3.3	**Alternative Transportation, Parking Availability**	1

Yes	?	No			
			Water Efficiency	**Possible Points**	**2**
			Credit 1.1	**Water Use Reduction** - 20% Reduction	1
			Credit 1.2	**Water Use Reduction** - 30% Reduction	1

Yes	?	No			
			Energy & Atmosphere	**Possible Points**	**12**
			Prereq 1	**Fundamental Commissioning**	Required
			Prereq 2	**Minimum Energy Performance**	Required
			Prereq 3	**CFC Reduction in HVAC&R Equipment**	Required
			Credit 1.1	**Optimize Energy Performance** - Lighting Power	3
			Credit 1.2	**Optimize Energy Performance** - Lighting Controls	1
			Credit 1.3	**Optimize Energy Performance** - HVAC	2
			Credit 1.4	**Optimize Energy Performance** - Equipment and Appliances	2
			Credit 2	**Enhanced Commissioning**	1
			Credit 3	**Energy Use, Measurement & Payment Accountability**	2
			Credit 4	**Green Power**	1

Yes	?	No			
			Materials & Resources	**Possible Points**	**14**
			Prereq 1	**Storage and Collection of Recyclables**	Required
			Credit 1.1	**Tenant Space, Long Term Commitment**	1
			Credit 1.2	**Building Reuse, Maintain 40% of Interior Non-Structural Components**	1
			Credit 1.3	**Building Reuse, Maintain 60% of Interior Non-Structural Components**	1
			Credit 2.1	**Construction Waste Management, Divert 50% From Landfill**	1
			Credit 2.2	**Construction Waste Management, Divert 75% From Landfill**	1
			Credit 3.1	**Resource Reuse, 5%**	1
			Credit 3.2	**Resource Reuse, 10%**	1
			Credit 3.3	**Resource Reuse, 30% Furniture and Furnishings**	1
			Credit 4.1	**Recycled Content, 10% (post-consumer + 1/2 pre-consumer)**	1
			Credit 4.2	**Recycled Content, 20% (post-consumer + 1/2 pre-consumer)**	1
			Credit 5.1	**Regional Materials, 20% Manufactured Regionally**	1
			Credit 5.2	**Regional Materials, 10% Extracted and Manufactured Regionally**	1
			Credit 6	**Rapidly Renewable Materials**	1
			Credit 7	**Certified Wood**	1

Yes ? No

Indoor Environmental Quality — Possible Points: 17

	Prereq 1	**Minimum IAQ Performance**	Required
	Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	Required
	Credit 1	**Outside Air Delivery Monitoring**	1
	Credit 2	**Increased Ventilation**	1
	Credit 3.1	**Construction IAQ Management Plan, During Construction**	1
	Credit 3.2	**Construction IAQ Management Plan, Before Occupancy**	1
	Credit 4.1	**Low-Emitting Materials, Adhesives and Sealants**	1
	Credit 4.2	**Low-Emitting Materials, Paints and Coatings**	1
	Credit 4.3	**Low-Emitting Materials, Carpet Systems**	1
	Credit 4.4	**Low-Emitting Materials, Composite Wood and Laminate Adhesives**	1
	Credit 4.5	**Low-Emitting Materials, Systems Furniture and Seating**	1
	Credit 5	**Indoor Chemical and Pollutant Source Control**	1
	Credit 6.1	**Controllability of Systems, Lighting**	1
	Credit 6.2	**Controllability of Systems, Temperature and Ventilation**	1
	Credit 7.1	**Thermal Comfort** - Compliance	1
	Credit 7.2	**Thermal Comfort** - Monitoring	1
	Credit 8.1	**Daylight & Views** - Daylight 75% of Spaces	1
	Credit 8.2	**Daylight & Views** - Daylight 90% of Spaces	1
	Credit 8.3	**Daylight & Views** - Views for 90% of Seated Spaces	1

Yes ? No

Innovation & Design Process — Possible Points: 5

	Credit 1.1	**Innovation in Design**	1
	Credit 1.2	**Innovation in Design**	1
	Credit 1.3	**Innovation in Design**	1
	Credit 1.4	**Innovation in Design**	1
	Credit 2	**LEED™ Accredited Professional**	1

Yes ? No

Totals (pre-certification estimates) — Possible Points: 57

Certified 21 to 26 points **Silver** 27 to 31 points **Gold** 32 to 41 points **Platinum** 42 to 57 points

City of Albany

Supplemental Application Form

LEED-NC Version 2.2 Registered Project Checklist

Project Name:
Prepared by:

Yes	?	No			
			Sustainable Sites		14 Points
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
			Credit 1	**Site Selection**	1
			Credit 2	**Development Density & Community Connectivity**	1
			Credit 3	**Brownfield Redevelopment**	1
			Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
			Credit 4.3	**Alternative Transportation**, Low-Emitting and Fuel-Efficient Vehicles	1
			Credit 4.4	**Alternative Transportation**, Parking Capacity	1
			Credit 5.1	**Site Development,** Protect of Restore Habitat	1
			Credit 5.2	**Site Development,** Maximize Open Space	1
			Credit 6.1	**Stormwater Design,** Quantity Control	1
			Credit 6.2	**Stormwater Design,** Quality Control	1
			Credit 7.1	**Heat Island Effect,** Non-Roof	1
			Credit 7.2	**Heat Island Effect,** Roof	1
			Credit 8	**Light Pollution Reduction**	1

Yes	?	No			
			Water Efficiency		5 Points
			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
			Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
			Credit 2	**Innovative Wastewater Technologies**	1
			Credit 3.1	**Water Use Reduction**, 20% Reduction	1
			Credit 3.2	**Water Use Reduction**, 30% Reduction	1

Yes	?	No			
			Energy & Atmosphere		17 Points
Y			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Required
Y			Prereq 2	**Minimum Energy Performance**	Required
Y			Prereq 3	**Fundamental Refrigerant Management**	Required
			Credit 1	**Optimize Energy Performance**	1 to 10
			Credit 2	**On-Site Renewable Energy**	1 to 3
			Credit 3	**Enhanced Commissioning**	1
			Credit 4	**Enhanced Refrigerant Management**	1
			Credit 5	**Measurement & Verification**	1
			Credit 6	**Green Power**	1

Yes	?	No		
			Materials & Resources	13 Points
Y			Prereq 1 **Storage & Collection of Recyclables**	Required
			Credit 1.1 **Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1
			Credit 1.2 **Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof	1
			Credit 1.3 **Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1
			Credit 2.1 **Construction Waste Management**, Divert 50% from Disposal	1
			Credit 2.2 **Construction Waste Management**, Divert 75% from Disposal	1
			Credit 3.1 **Materials Reuse**, 5%	1
			Credit 3.2 **Materials Reuse**,10%	1
			Credit 4.1 **Recycled Content**, 10% (post-consumer + ½ pre-consumer)	1
			Credit 4.2 **Recycled Content**, 20% (post-consumer + ½ pre-consumer)	1
			Credit 5.1 **Regional Materials**, 10% Extracted, Processed & Manufactured Regiona	1
			Credit 5.2 **Regional Materials**, 20% Extracted, Processed & Manufactured Regiona	1
			Credit 6 **Rapidly Renewable Materials**	1
			Credit 7 **Certified Wood**	1

Yes	?	No		
			Indoor Environmental Quality	15 Points
Y			Prereq 1 **Minimum IAQ Performance**	Required
Y			Prereq 2 **Environmental Tobacco Smoke** (ETS) **Control**	Required
			Credit 1 **Outdoor Air Delivery Monitoring**	1
			Credit 2 **Increased Ventilation**	1
			Credit 3.1 **Construction IAQ Management Plan**, During Construction	1
			Credit 3.2 **Construction IAQ Management Plan**, Before Occupancy	1
			Credit 4.1 **Low-Emitting Materials**, Adhesives & Sealants	1
			Credit 4.2 **Low-Emitting Materials**, Paints & Coatings	1
			Credit 4.3 **Low-Emitting Materials**, Carpet Systems	1
			Credit 4.4 **Low-Emitting Materials**, Composite Wood & Agrifiber Products	1
			Credit 5 **Indoor Chemical & Pollutant Source Control**	1
			Credit 6.1 **Controllability of Systems**, Lighting	1
			Credit 6.2 **Controllability of Systems**, Thermal Comfort	1
			Credit 7.1 **Thermal Comfort**, Design	1
			Credit 7.2 **Thermal Comfort**, Verification	1
			Credit 8.1 **Daylight & Views**, Daylight 75% of Spaces	1
			Credit 8.2 **Daylight & Views**, Views for 90% of Spaces	1

Yes	?	No		
			Innovation & Design Process	5 Points
			Credit 1.1 **Innovation in Design**: Provide Specific Title	1
			Credit 1.2 **Innovation in Design**: Provide Specific Title	1
			Credit 1.3 **Innovation in Design**: Provide Specific Title	1
			Credit 1.4 **Innovation in Design**: Provide Specific Title	1
			Credit 2 **LEED® Accredited Professional**	1

			Project Totals (pre-certification estimates)	69 Points

Certified 26-32 points **Silver** 33-38 points **Gold** 39-51 points **Platinum** 52-69 points

Bay-Friendly Landscaping Checklist

1 Landscape Locally

- ❑ 1. Evaluate climate, exposure and topography
- ❑ 2. Assess the soil and test drainage
- ❑ 3. Survey and protect flora & fauna
- ❑ 4. Consider the potential for fire
- ❑ 5. Use local, natural plant communities as models

2 Landscape for Less to the Landfill

1. Select appropriate plants:
   - ❑ A. Choose plants to match the microclimate & soil conditions
   - ❑ B. Choose plants that can grow to their natural size in the space allotted them
   - ❑ C. Replace sheared hedges with plants that can grow to their natural shape & size
   - ❑ D. Do not plant invasive species
2. Keep plant debris on site:
   - ❑ A. Grasscycle
   - ❑ B. Produce mulch from plant debris
   - ❑ C. Compost plant debris

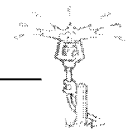
- ❑ 3. Prune selectively and properly
- ❑ 4. Water and fertilize judiciously
- ❑ 5. Use goats for controlling weeds and creating firebreaks
- ❑ 6. Use salvaged items & recycled content materials
- ❑ 7. Reduce and recycle construction waste
- ❑ 8. Separate plant debris for clean green discounts

3 Nurture the Soil

- ❑ 1. Remove and store topsoil during construction
- ❑ 2. Protect soil from compaction
- ❑ 3. Defend against erosion
- ❑ 4. Amend the soil with compost before planting
- ❑ 5. Grasscycle
- ❑ 6. Mulch regularly
- ❑ 7. Aerate compacted soils
- ❑ 8. Feed soils naturally
- ❑ 9. Avoid synthetic, quick release fertilizers
- ❑ 10. Minimize the use of chemical pesticides

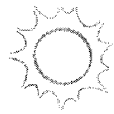
• See chapter 4, Summary of Bay-Friendly Landscaping Benefits to view list of practices categorized by Design, Construction and Maintenance.

4 Conserve Water



- ❑ 1. Create drought resistant soils with compost & mulch
- ❑ 2. Grow California natives or Mediterranean plants
- ❑ 3. Minimize the lawn
- ❑ 4. Implement hydrozoning - group plants by water needs
- ❑ 5. Design for on-site rainwater collection, recycled water and/or graywater use
- ❑ 6. Design and install high efficiency irrigation systems
- ❑ 7. Install a dedicated meter to monitor landscape water use
- ❑ 8. Manage irrigation according to need
- ❑ 9. Maintain the irrigation system so every drop counts
- ❑ 10. Request an irrigation audit

5 Conserve Energy



- ❑ 1. Plant and protect trees to moderate building temperatures
- ❑ 2. Reduce the heat island effect: shade paved areas
- ❑ 3. Shade air conditioners
- ❑ 4. Design lighting carefully
- ❑ 5. Choose and maintain equipment for fuel conservation
- ❑ 6. Specify local products & suppliers

6 Protect Water & Air Quality

1. Use Integrated Pest Management:
   - ❑ A. Prevent pest problems
   - ❑ B. Train your staff to identify and monitor pest & beneficial populations
   - ❑ C. Educate your clients
   - ❑ D. Control pest problems with physical & mechanical methods
   - ❑ E. Control pest problems with biological controls
   - ❑ F. Control pest problems with the least toxic pesticide as a last resort
- ❑ 2. Eliminate high input decorative lawns
- ❑ 3. Keep soil covered
- ❑ 4. Choose and maintain your materials, equipment & vehicles carefully
- ❑ 5. Keep organic matter where it belongs
- ❑ 6. Minimize impervious surfaces
- ❑ 7. Plant trees
- ❑ 8. Maintain and manage the irrigation system carefully
- ❑ 9. Design a system to capture and treat water

7 Create & Protect Wildlife Habitat

- ❑ 1. Diversify
- ❑ 2. Choose California natives first
- ❑ 3. Provide water & shelter
- ❑ 4. Eliminate the use of pesticides
- ❑ 5. Conserve or restore natural areas & wildlife corridors

Address	Type of Project	Number of Greenpoints
1112 Ordway	Residential Addition	62
1516 Beverly Place	Residential Addition	162
808 Key Route	Residential Addition	53
959 Ordway	Residential Addition	57
835 Santa Fe	Residential Addition	56
937 Polk	Residential Addition	50
932 Cornell	Residential Addition	113
752 Pierce	Residential Addition	50
1055 Ordway	Residential Addition	50
1301 Solano	Commercial	LEED certified
725 Key Route	Residential Addition	55
804 Curtis	Residential Addition	75
1013 Ordway	Residential Addition	65
1060 Peralta	Residential Addition	94
957 Madison	Residential Addition	96
664 Key Route	Residential Addition	68
1045 Key Route	Residential Addition	73

ATTACHMENT 2

City of Albany

2009 GREEN BUILDING

STANDARDS OF COMPLIANCE &

CHECKLISTS

City of Albany Community Development Department
510-528-5760 / www.albanyca.org

Prepared for Planning and Zoning Commission Review, June 9, 2009

Proposed Changes in Checklists

	Project Description	2007 Checklist Required	Proposed Checklist Required
City Sponsored Projects	New construction **less** than 5,000 sq ft	LEED-NC Checklist (Version 2.2)	LEED-NC Checklist (Version 2.2)
	New construction **more** than 5,000 sq ft		
	Renovation **less** than 5,000 sq ft	LEED-CI Checklist (Version 2.0)	LEED-CI Checklist (Version 2.0)
	Renovation **more** than 5,000 sq ft		
Commercial Construction & Renovation Projects	New construction **less** than 5,000 sq ft	LEED-NC Checklist (Version 2.2)	Small Commercial Green Building Checklist
	New construction **more** than 5,000 sq ft		LEED-NC Checklist (Version 2.2)
	Renovation **less** than 5,000 sq ft	LEED-CI Checklist (Version 2.0)	Small Commercial Green Building Checklist
	Renovation **more** than 5,000 sq ft		
Single Family Residential	New construction	Single-Family Greenpoint Checklist (2006 Edition)	Green Points Rating System for Remodeling projects (2004 version + City Point Incentives)
	Renovation subject to Design Review	Green Points Rating System for Remodeling projects (2004 version + City Point Incentives)	
Multi-family Residential	New construction or renovation of **less** than 5 units	Multifamily Greenpoint Checklist (2005 Edition version v.2)	Multifamily Greenpoint Checklist (2005 Edition version v.2)
	New construction or renovation of **more** than 5 units		
Education Facilities		Not Included	Collaberative for High Performance Schools
Mixed Use		Consult with Planning Divison staff	Consult with Planning Divison staff

Approved by City Council: _____

City of Albany Green Building Standards of Compliance

Draft Standards: June 9, 2009

Project Description		Building Improvements		
		Checklist Required	**Minimum Threshold**	**Third-party Verification**
City Sponsored Projects	New construction **less** than 5,000 sq ft	LEED-NC Checklist (Version 2.2)	Maximum points practicable	At plan check only
	New construction **more** than 5,000 sq ft		Gold (39 points)	US Green Bldg Council
	Renovation **less** than 5,000 sq ft	LEED-CI Checklist (Version 2.0)	Maximum points practicable	At plan check only
	Renovation **more** than 5,000 sq ft		Gold (32 points)	US Green Bldg Council
Commercial Construction & Renovation Projects	New construction **less** than 5,000 sq ft	Small Commercial Green Building Checklist	Maximum points practicable	At plan check only
	New construction **more** than 5,000 sq ft	LEED-CI Checklist (Version 2.0)	Gold (39 points)	US Green Bldg Council
	Renovation **less** than 5,000 sq ft	Small Commercial Green Building Checklist	Maximum points practicable	At plan check only
	Renovation **more** than 5,000 sq ft			
Single Family Residential	New construction	Green Points Rating System for Remodeling projects (2004 version + City Point Incentives)	50 Points	At plan check only.
	Renovation subject to Design Review			
Multi-family Residential	New construction or renovation of **less** than 5 units	Multifamily Greenpoint Checklist (2005 Edition version v.2)	Maximum points practicable	City Staff and/or certified 3rd party inspection
	New construction or renovation of **more** than 5 units		Minimum Points Standard	
Education Facilities	New Construction or Renovation more than 5,000 sq ft	Collaberative for High Performance Schools	Maximum points practicable	City Staff and/or certified 3rd party inspection
Mixed Use	Consult with Planning Divison staff			

Approved by City Council: _____

City of Albany Green Building Standards of Compliance

Draft Standards: June 9, 2009

Project Description	Landscaping Improvements		
	Checklist Required	Minimum Threshold	Third-party Verification (Field Verification required of all projects)
City Sponsored Projects	Bay-Friendly Scorecard for Commercial & Civic Landscapes (2008 Edition)	60 Points	At plan check only
Commercial Construction & Renovation Projects			
Single Family Residential			Not Required
Multi-family Residential			At plan check only
Mixed Use			

Approved by City Council: _____

LE...

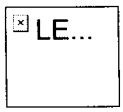
LEED 2009 for New Construction and Major Renovation
Project Scorecard

Project Name:
Project Address:

Yes	?	No			
			SUSTAINABLE SITES		**26 Points**
Y			Prereq 1	**Construction Activity Pollution Prevention**	**Required**
			Credit 1	**Site Selection**	**1**
			Credit 2	**Development Density and Community Connectivity**	**5**
			Credit 3	**Brownfield Redevelopment**	**1**
			Credit 4.1	**Alternative Transportation** - Public Transportation Access	**6**
			Credit 4.2	**Alternative Transportation** - Bicycle Storage and Changing Rooms	**1**
			Credit 4.3	**Alternative Transportation** - Low-Emitting and Fuel-Efficient Vehicles	**3**
			Credit 4.4	**Alternative Transportation** - Parking Capacity	**2**
			Credit 5.1	**Site Development** - Protect or Restore Habitat	**1**
			Credit 5.2	**Site Development** - Maximize Open Space	**1**
			Credit 6.1	**Stormwater Design** - Quantity Control	**1**
			Credit 6.2	**Stormwater Design** - Quality Control	**1**
			Credit 7.1	**Heat Island Effect** - Nonroof	**1**
			Credit 7.2	**Heat Island Effect** - Roof	**1**
			Credit 8	**Light Pollution Reduction**	**1**

Yes	?	No			
			WATER EFFICIENCY		**10 Points**
					4
Y			Prereq 1	**Water Use Reduction**	**Required**
			Credit 1	**Water Efficient Landscaping**	**2 to 4**
				☐ Reduce by 50%	2
				☐ No Potable Water Use or Irrigation	4
			Credit 2	**Innovative Wastewater Technologies**	2
			Credit 3	**Water Use Reduction**	**2 to 4**
				☐ Reduce by 30%	2
				☐ Reduce by 35%	3
				☐ Reduce by 40%	4

			ENERGY & ATMOSPHERE		**35 Points**
Y			Prereq 1	**Fundamental Commissioning of Building Energy Systems**	**Required**
Y			Prereq 2	**Minimum Energy Performance**	**Required**
Y			Prereq 3	**Fundamental Refrigerant Management**	**Required**
			Credit 1	**Optimize Energy Performance**	**1 to 19**
				☐ Improve by 12% for New Buildings or 8% for Existing Building Renovations	1
				☐ Improve by 14% for New Buildings or 10% for Existing Building Renovations	2
				☐ Improve by 16% for New Buildings or 12% for Existing Building Renovations	3
				☐ Improve by 18% for New Buildings or 14% for Existing Building Renovations	4
				☐ Improve by 20% for New Buildings or 16% for Existing Building Renovations	5
				☐ Improve by 22% for New Buildings or 18% for Existing Building Renovations	6
				☐ Improve by 24% for New Buildings or 20% for Existing Building Renovations	7
				☐ Improve by 26% for New Buildings or 22% for Existing Building Renovations	8
				☐ Improve by 28% for New Buildings or 24% for Existing Building Renovations	9
				☐ Improve by 30% for New Buildings or 26% for Existing Building Renovations	10
				☐ Improve by 32% for New Buildings or 28% for Existing Building Renovations	11
				☐ Improve by 34% for New Buildings or 30% for Existing Building Renovations	12
				☐ Improve by 36% for New Buildings or 32% for Existing Building Renovations	13
				☐ Improve by 38% for New Buildings or 34% for Existing Building Renovations	14
				☐ Improve by 40% for New Buildings or 36% for Existing Building Renovations	15
				☐ Improve by 42% for New Buildings or 38% for Existing Building Renovations	16
				☐ Improve by 44% for New Buildings or 40% for Existing Building Renovations	17
				☐ Improve by 46% for New Buildings or 42% for Existing Building Renovations	18
				☐ Improve by 48%+ for New Buildings or 44%+ for Existing Building Renovations	19
			Credit 2	**On-Site Renewable Energy**	**1 to 7**
				☐ 1% Renewable Energy	1
				☐ 3% Renewable Energy	2
				☐ 5% Renewable Energy	3
				☐ 7% Renewable Energy	4
				☐ 9% Renewable Energy	5
				☐ 11% Renewable Energy	6
				☐ 13% Renewable Energy	7
			Credit 3	**Enhanced Commissioning**	**2**
			Credit 4	**Enhanced Refrigerant Management**	**2**
			Credit 5	**Measurement and Verification**	**3**
			Credit 6	**Green Power**	**2**



LEED 2009 for New Construction and Major Renovation
Project Scorecard

Project Name:
Project Address:

Yes	?	No		
	2		**MATERIALS & RESOURCES**	**14 Points**
Y			Prereq 1 **Storage and Collection of Recyclables**	**Required**
			Credit 1.1 **Building Reuse** - Maintain Existing Walls, Floors and Roof	**1 to 3**
			☐ Reuse 55%	1
			☐ Reuse 75%	2
			☐ Reuse 95%	3
			Credit 1.2 **Building Reuse** - Maintain Interior Nonstructural Elements	**1**
	?		Credit 2 **Construction Waste Management**	**1 to 2**
			☐ 50% Recycled or Salvaged	1
			☐ 75% Recycled or Salvaged	2
			Credit 3 **Materials Reuse**	**1 to 2**
			☐ Reuse 5%	1
			☐ Reuse 10%	2
			Credit 4 **Recycled Content**	**1 to 2**
			☐ 10% of Content	1
			☐ 20% of Content	2
			Credit 5 **Regional Materials**	**1 to 2**
			☐ 10% of Materials	1
			☐ 20% of Materials	2
			Credit 6 **Rapidly Renewable Materials**	**1**
			Credit 7 **Certified Wood**	**1**

Yes	?	No		
			INDOOR ENVIRONMENTAL QUALITY	**15 Points**
Y			Prereq 1 **Minimum Indoor Air Quality Performance**	**Required**
Y			Prereq 2 **Environmental Tobacco Smoke (ETS) Control**	**Required**
			Credit 1 **Outdoor Air Delivery Monitoring**	**1**
			Credit 2 **Increased Ventilation**	**1**
			Credit 3.1 **Construction Indoor Air Quality Management Plan** - During Construction	**1**
			Credit 3.2 **Construction Indoor Air Quality Management Plan** - Before Occupancy	**1**
			Credit 4.1 **Low-Emitting Materials** - Adhesives and Sealants	**1**
			Credit 4.2 **Low-Emitting Materials** - Paints and Coatings	**1**
			Credit 4.3 **Low-Emitting Materials** - Flooring Systems	**1**
			Credit 4.4 **Low-Emitting Materials** - Composite Wood and Agrifiber Products	**1**
			Credit 5 **Indoor Chemical and Pollutant Source Control**	**1**
			Credit 6.1 **Controllability of Systems** - Lighting	**1**
			Credit 6.2 **Controllability of Systems** - Thermal Comfort	**1**
			Credit 7.1 **Thermal Comfort** - Design	**1**
			Credit 7.2 **Thermal Comfort** - Verification	**1**
			Credit 8.1 **Daylight and Views** - Daylight	**1**
			Credit 8.2 **Daylight and Views** - Views	**1**

Yes	?	No		
			INNOVATION IN DESIGN	**6 Points**
			Credit 1 **Innovation in Design**	**1 to 5**
			☐ Innovation or Exemplary Performance	1
			☐ Innovation or Exemplary Performance	1
			☐ Innovation or Exemplary Performance	1
			☐ Innovation	1
			☐ Innovation	1
			Credit 2 **LEED® Accredited Professional**	**1**

Yes	?	No		
			REGIONAL PRIORITY	**4 Points**
			Credit 1 **Regional Priority**	**1 to 4**
			☐ Regionally Defined Credit Achieved	1
			☐ Regionally Defined Credit Achieved	1
			☐ Regionally Defined Credit Achieved	1
			☐ Regionally Defined Credit Achieved	1

Yes	?	No		
	2		**PROJECT TOTALS (Certification Estimates)**	**110 Points**

Certified: 40-49 points Silver: 50-59 points Gold: 60-79 points Platinum: 80+ points

City of Albany

Supplemental Application Form

LEED-NC Version 2.2 Registered Project Checklist

Project Name:
Prepared by:

Yes	?	No			
			Sustainable Sites		14 Points
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
			Credit 1	**Site Selection**	1
			Credit 2	**Development Density & Community Connectivity**	1
			Credit 3	**Brownfield Redevelopment**	1
			Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
			Credit 4.3	**Alternative Transportation**, Low-Emitting and Fuel-Efficient Vehicles	1
			Credit 4.4	**Alternative Transportation**, Parking Capacity	1
			Credit 5.1	**Site Development,** Protect of Restore Habitat	1
			Credit 5.2	**Site Development,** Maximize Open Space	1
			Credit 6.1	**Stormwater Design,** Quantity Control	1
			Credit 6.2	**Stormwater Design,** Quality Control	1
			Credit 7.1	**Heat Island Effect,** Non-Roof	1
			Credit 7.2	**Heat Island Effect,** Roof	1
			Credit 8	**Light Pollution Reduction**	1

Yes	?	No			
			Water Efficiency		5 Points
			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
			Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
			Credit 2	**Innovative Wastewater Technologies**	1
			Credit 3.1	**Water Use Reduction**, 20% Reduction	1
			Credit 3.2	**Water Use Reduction**, 30% Reduction	1

Yes	?	No			
			Energy & Atmosphere		17 Points
Y			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Required
Y			Prereq 2	**Minimum Energy Performance**	Required
Y			Prereq 3	**Fundamental Refrigerant Management**	Required
			Credit 1	**Optimize Energy Performance**	1 to 10
			Credit 2	**On-Site Renewable Energy**	1 to 3
			Credit 3	**Enhanced Commissioning**	1
			Credit 4	**Enhanced Refrigerant Management**	1
			Credit 5	**Measurement & Verification**	1
			Credit 6	**Green Power**	1

Yes	?	No			
			Materials & Resources		**13** Points
Y			Prereq 1	**Storage & Collection of Recyclables**	Required
			Credit 1.1	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1
			Credit 1.2	**Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof	1
			Credit 1.3	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1
			Credit 2.1	**Construction Waste Management**, Divert 50% from Disposal	1
			Credit 2.2	**Construction Waste Management**, Divert 75% from Disposal	1
			Credit 3.1	**Materials Reuse**, 5%	1
			Credit 3.2	**Materials Reuse**,10%	1
			Credit 4.1	**Recycled Content**, 10% (post-consumer + ½ pre-consumer)	1
			Credit 4.2	**Recycled Content**, 20% (post-consumer + ½ pre-consumer)	1
			Credit 5.1	**Regional Materials**, 10% Extracted, Processed & Manufactured Regiona	1
			Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Regiona	1
			Credit 6	**Rapidly Renewable Materials**	1
			Credit 7	**Certified Wood**	1

Yes	?	No			
			Indoor Environmental Quality		**15** Points
Y			Prereq 1	**Minimum IAQ Performance**	Required
Y			Prereq 2	**Environmental Tobacco Smoke** (ETS) **Control**	Required
			Credit 1	**Outdoor Air Delivery Monitoring**	1
			Credit 2	**Increased Ventilation**	1
			Credit 3.1	**Construction IAQ Management Plan**, During Construction	1
			Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1
			Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1
			Credit 4.2	**Low-Emitting Materials**, Paints & Coatings	1
			Credit 4.3	**Low-Emitting Materials**, Carpet Systems	1
			Credit 4.4	**Low-Emitting Materials**, Composite Wood & Agrifiber Products	1
			Credit 5	**Indoor Chemical & Pollutant Source Control**	1
			Credit 6.1	**Controllability of Systems**, Lighting	1
			Credit 6.2	**Controllability of Systems**, Thermal Comfort	1
			Credit 7.1	**Thermal Comfort**, Design	1
			Credit 7.2	**Thermal Comfort**, Verification	1
			Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1
			Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1

Yes	?	No			
			Innovation & Design Process		**5** Points
			Credit 1.1	**Innovation in Design**: Provide Specific Title	1
			Credit 1.2	**Innovation in Design**: Provide Specific Title	1
			Credit 1.3	**Innovation in Design**: Provide Specific Title	1
			Credit 1.4	**Innovation in Design**: Provide Specific Title	1
			Credit 2	**LEED® Accredited Professional**	1

			Project Totals (pre-certification estimates)	**69** Points

Certified 26-32 points **Silver** 33-38 points **Gold** 39-51 points **Platinum** 52-69 points

LEE...

LEED 2009 for Commercial Interiors
Project Scorecard

Project Name:
Project Address:

Yes	?	No			
0	0	0	**SUSTAINABLE SITES**		**21 Points**
			Credit 1	**Site Selection**	**1 to 5**
				☐ **Option 1: Select a LEED Certified Building**	5
				OR **Option 2: Locate in a Building That Meets:**	Up to 5
				☐ Path 1: Brownfield Redevelopment	1
				☐ Path 2: Stormwater Design - Quantity Control	1
				☐ Path 3: Stormwater Design - Quality Control	1
				☐ Path 4: Heat Island Effect - Nonroof	1
				☐ Path 5: Heat-Island Effect - Roof	1
				☐ Path 6: Light Pollution Reduction	1
				☐ Path 7: Water Efficient Landscaping -Reduce by 50%	2
				☐ Path 8: Water Efficient Landscaping - No Potable Water Use or Irrigation	2
				☐ Path 9: Innovative Wastewater Technologies	2
				☐ Path 10: Water Use Reduction: 30% reduction	1
				☐ Path 11: On-site Renewable Energy	2
				☐ Path 12: Other Quantifiable Environmental Performance	1
			Credit 2	**Development Density and Community Connectivity**	**6**
			Credit 3.1	**Alternative Transportation - Public Transportation Access**	**6**
			Credit 3.2	**Alternative Transportation - Bicycle Storage and Changing Rooms**	**2**
			Credit 3.3	**Alternative Transportation - Parking Availability**	**2**

Yes	?	No			
0	0	0	**WATER EFFICIENCY**		**11 Points**
Y			Prereq 1	**Water Use Reduction**	**Required**
			Credit 1	**Water Use Reduction**	**6 to 11**
				☐ 30% Reduction	6
				☐ 35% Reduction	8
				☐ 40% Reduction	11

0	0	0	**ENERGY & ATMOSPHERE**		**37 Points**
Y			Prereq 1	**Fundamental Commissioning of Building Energy Systems**	**Required**
Y			Prereq 2	**Minimum Energy Performance**	**Required**
Y			Prereq 3	**Fundamental Refrigerant Management**	**Required**
			Credit 1.1	**Optimize Energy Performance - Lighting Power**	**1 to 5**
				☐ 15% Reduction	1
				☐ 20% Reduction	2
				☐ 25% Reduction	3
				☐ 30% Reduction	4
				☐ 35% Reduction	5
			Credit 1.2	**Optimize Energy Performance - Lighting Controls**	**1 to 3**
				☐ Daylight Controls for Daylit Areas	1
				☐ Daylight Controls for 50% of the Lighting Load	1
				☐ Occupancy Sensors for 75% of the Connected Lighting Load	1
			Credit 1.3	**Optimize Energy Performance - HVAC**	**5 to 10**
				☐ Equipment Efficiency	5
				☐ Zoning Controls	5
				OR	
				☐ Reduce Design Energy Cost and 15% Improvement	5
				☐ Reduce Design Energy Cost and 30% Improvement	10
			Credit 1.4	**Optimize Energy Performance - Equipment and Appliances**	**1 to 4**
				☐ 70% ENERGY STAR	1
				☐ 77% ENERGY STAR	2
				☐ 84% ENERGY STAR	3
				☐ 90% ENERGY STAR	4
			Credit 2	**Enhanced Commissioning**	**5**
			Credit 3	**Measurement and Verification**	**2 to 5**
				☐ Install Sub-Metering Equipment	2
				☐ Tenant Pays for Energy	3
				OR	
				☐ Metering, Measurement and Payment Accountability	5
			Credit 4	**Green Power**	**5**

Yes	?	No			
0	0	0	**MATERIALS & RESOURCES**		**14 Points**
Y			Prereq 1	**Storage and Collection of Recyclables**	**Required**
			Credit 1.1	**Tenant Space - Long-Term Commitment**	**1**
			Credit 1.2	**Building Reuse - Maintain Interior Nonstructural Components**	**1 to 2**
				☐ 40% Reuse	1
				☐ 60% Reuse	2
			Credit 2	**Construction Waste Management**	**1 to 2**
				☐ Divert 50% from Disposal	1
				☐ Divert 75% from Disposal	2
			Credit 3.1	**Materials Reuse**	**1 to 2**
				☐ 5% Reuse	1
				☐ 10% Reuse	2
			Credit 3.2	**Materials Reuse - Furniture and Furnishings**	**1**
			Credit 4	**Recycled Content**	**1 to 2**
				☐ 10% of Content	1
				☐ 20% of Content	2
			Credit 5	**Regional Materials**	**1 to 2**
				☐ 20% of Materials Manufactured	1
				☐ 20% of Materials Manufactured and 10% Extracted	2
			Credit 6	**Rapidly Renewable Materials**	**1**
			Credit 7	**Certified Wood**	**1**

Yes	?	No			
0	0	0	**INDOOR ENVIRONMENTAL QUALITY**		**17 Points**
Y			Prereq 1	**Minimum Indoor Air Quality Performance**	**Required**
Y			Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	**Required**
			Credit 1	**Outdoor Air Delivery Monitoring**	**1**
			Credit 2	**Increased Ventilation**	**1**
			Credit 3.1	**Construction Indoor Air Quality Management Plan - During Construction**	**1**
			Credit 3.2	**Construction Indoor Air Quality Management Plan - Before Occupancy**	**1**
			Credit 4.1	**Low-Emitting Materials - Adhesives and Sealants**	**1**
			Credit 4.2	**Low-Emitting Materials - Paints and Coatings**	**1**
			Credit 4.3	**Low-Emitting Materials - Flooring Systems**	**1**
			Credit 4.4	**Low-Emitting Materials - Composite Wood and Agrifiber Products**	**1**
			Credit 4.5	**Low-Emitting Materials - Systems Furniture and Seating**	**1**
			Credit 5	**Indoor Chemical and Pollutant Source Control**	**1**
			Credit 6.1	**Controllability of Systems - Lighting**	**1**
			Credit 6.2	**Controllability of Systems - Thermal Comfort**	**1**
			Credit 7.1	**Thermal Comfort - Design**	**1**
			Credit 7.2	**Thermal Comfort - Verification**	**1**
			Credit 8.1	**Daylight and Views - Daylight**	**1 to 2**
				☐ 75% of Spaces	1
				☐ 90% of Spaces	2
			Credit 8.2	**Daylight and Views - Views for Seated Spaces**	**1**

Yes	?	No			
0	0	0	**INNOVATION IN DESIGN**		**6 Points**
			Credit 1	**Innovation in Design**	**1 to 5**
				☐ Innovation or Exemplary Performance	1
				☐ Innovation or Exemplary Performance	1
				☐ Innovation or Exemplary Performance	1
				☐ Innovation	1
				☐ Innovation	1
			Credit 2	**LEED® Accredited Professional**	**1**

Yes	?	No			
0	0	0	**REGIONAL PRIORITY**		**4 Points**
			Credit 1	**Regional Priority**	**1 to 4**
				☐ Regionally Defined Credit Achieved	1
				☐ Regionally Defined Credit Achieved	1
				☐ Regionally Defined Credit Achieved	1
				☐ Regionally Defined Credit Achieved	1

Yes	?	No		
0	0	0	PROJECT TOTALS (Certification Estimates)	110 Points

Certified: 40-49 points Silver: 50-59 points Gold: 60-79 points Platinum: 80+ points

City of Albany

Supplemental Application Form
LEED-CI Version 2.0 Registered Project Checklist

Project Name:

Project Address:

Yes	?	No			
			Sustainable Sites	**Possible Points**	**7**
			Credit 1	**Site Selection - Select a LEED Certified Building - OR -**	3
				Locate the tenant space in a building with following characteristics (up to 3 points):	
			Option 1A	**Brownfield Redevelopment**	1/2
			Option 1B	**Stormwater Management: Rate and Quantity**	1/2
			Option 1C	**Stormwater Management: Treatment**	1/2
			Option 1D	**Heat Island Reduction, Non-Roof**	1/2
			Option 1E	**Heat-Island Reduction, Roof**	1/2
			Option 1F	**Light Pollution Reduction**	1/2
			Option 1G	**Water Efficient Irrigation: Reduce by 50%**	1/2
			Option 1H	**Water Efficient Irrigation: No Potable Use or No Irrigation**	1/2
			Option 1I	**Innovative Wastewater Technologies**	1/2
			Option 1J	**Water Use Reduction: 20% Reduction**	1/2
			Option 1K	**Onsite Renewable Energy**	1/2 to 1
			Option 1L	**Other Quantifiable Environmental Performance**	1/2 to 3
			Credit 2	**Development Density and Community Connectivity**	1
			Credit 3.1	**Alternative Transportation, Public Transportation Access**	1
			Credit 3.2	**Alternative Transportation, Bicycle Storage & Changing Rooms**	1
			Credit 3.3	**Alternative Transportation, Parking Availability**	1

Yes	?	No			
			Water Efficiency	**Possible Points**	**2**
			Credit 1.1	**Water Use Reduction** - 20% Reduction	1
			Credit 1.2	**Water Use Reduction** - 30% Reduction	1

Yes	?	No			
			Energy & Atmosphere	**Possible Points**	**12**
			Prereq 1	**Fundamental Commissioning**	Required
			Prereq 2	**Minimum Energy Performance**	Required
			Prereq 3	**CFC Reduction in HVAC&R Equipment**	Required
			Credit 1.1	**Optimize Energy Performance** - Lighting Power	3
			Credit 1.2	**Optimize Energy Performance** - Lighting Controls	1
			Credit 1.3	**Optimize Energy Performance** - HVAC	2
			Credit 1.4	**Optimize Energy Performance** - Equipment and Appliances	2
			Credit 2	**Enhanced Commissioning**	1
			Credit 3	**Energy Use, Measurement & Payment Accountability**	2
			Credit 4	**Green Power**	1

Yes	?	No			
			Materials & Resources	**Possible Points**	**14**
			Prereq 1	**Storage and Collection of Recyclables**	Required
			Credit 1.1	**Tenant Space, Long Term Commitment**	1
			Credit 1.2	**Building Reuse, Maintain 40% of Interior Non-Structural Components**	1
			Credit 1.3	**Building Reuse, Maintain 60% of Interior Non-Structural Components**	1
			Credit 2.1	**Construction Waste Management, Divert 50% From Landfill**	1
			Credit 2.2	**Construction Waste Management, Divert 75% From Landfill**	1
			Credit 3.1	**Resource Reuse, 5%**	1
			Credit 3.2	**Resource Reuse, 10%**	1
			Credit 3.3	**Resource Reuse, 30% Furniture and Furnishings**	1
			Credit 4.1	**Recycled Content, 10% (post-consumer + 1/2 pre-consumer)**	1
			Credit 4.2	**Recycled Content, 20% (post-consumer + 1/2 pre-consumer)**	1
			Credit 5.1	**Regional Materials, 20% Manufactured Regionally**	1
			Credit 5.2	**Regional Materials, 10% Extracted and Manufactured Regionally**	1
			Credit 6	**Rapidly Renewable Materials**	1
			Credit 7	**Certified Wood**	1

Yes ? No

Yes	?	No	Indoor Environmental Quality	Possible Points: 17
			Prereq 1 **Minimum IAQ Performance**	Required
			Prereq 2 **Environmental Tobacco Smoke (ETS) Control**	Required
			Credit 1 **Outside Air Delivery Monitoring**	1
			Credit 2 **Increased Ventilation**	1
			Credit 3.1 **Construction IAQ Management Plan, During Construction**	1
			Credit 3.2 **Construction IAQ Management Plan, Before Occupancy**	1
			Credit 4.1 **Low-Emitting Materials, Adhesives and Sealants**	1
			Credit 4.2 **Low-Emitting Materials, Paints and Coatings**	1
			Credit 4.3 **Low-Emitting Materials, Carpet Systems**	1
			Credit 4.4 **Low-Emitting Materials, Composite Wood and Laminate Adhesives**	1
			Credit 4.5 **Low-Emitting Materials, Systems Furniture and Seating**	1
			Credit 5 **Indoor Chemical and Pollutant Source Control**	1
			Credit 6.1 **Controllability of Systems, Lighting**	1
			Credit 6.2 **Controllability of Systems, Temperature and Ventilation**	1
			Credit 7.1 **Thermal Comfort** - Compliance	1
			Credit 7.2 **Thermal Comfort** - Monitoring	1
			Credit 8.1 **Daylight & Views** - Daylight 75% of Spaces	1
			Credit 8.2 **Daylight & Views** - Daylight 90% of Spaces	1
			Credit 8.3 **Daylight & Views** - Views for 90% of Seated Spaces	1

Yes	?	No	Innovation & Design Process	Possible Points: 5
			Credit 1.1 **Innovation in Design**	1
			Credit 1.2 **Innovation in Design**	1
			Credit 1.3 **Innovation in Design**	1
			Credit 1.4 **Innovation in Design**	1
			Credit 2 **LEED™ Accredited Professional**	1

Yes	?	No	Totals (pre-certification estimates)	Possible Points: 57

Certified 21 to 26 points Silver 27 to 31 points Gold 32 to 41 points Platinum 42 to 57 points

Small Commercial Green Building Checklist

GREEN BUILDING in Alameda County

This Commercial Checklist is intended to address new construction and renovations/expansions up to 10,000 square feet or $3 million. Projects are recommended to meet all applicable measures on the checklist. For measures that are not applicable or are not in the project's scope of work, select "N/A" and make a note of why the measure does not apply to the project. For appendices, electronic copies of this checklist, and other green building resources, visit www.buildgreennow.org.

Project: _____

Address: _____ **Date:** _____

Site

Access to alternative transportation sources reduces the number of single passenger vehicle trips, reduces traffic congestion, and saves fuel and associated greenhouse gas emissions. Allowing space for bike parking increases participation in alternative transportation services. Cool sites and roofs reduce the amount of heat stored and re-radiated during summer days in urban environments that contribute to higher energy use and pollution.

Yes	No	N/A	Measure & Requirement	Documentation	Notes
☐	☐	☐	**1. Alternative Transportation Access**		
			Project is located within 1/4 mile of two or more bus lines AND/OR within 1/2 mile of a light rail or commuter rail transit stop (BART, Amtrak, etc.). Project also includes bicycle racks or storage areas for use by building occupants (workers) in a secure and covered area. If the project is in a high use public area, provide bicycle racks and/or storage options for visitors to the building as well. Provide bike racks or storage area capable of securing at least 1 bike for every 2,000 sf of building space.	1. Provide a simple map showing distances to public transit stops from the main entry of the buildings. Use the "Nearby Routes & Services" calculator on the www.511.org website or other transit agency website to calculate distances from the project address. 2. Provide a site plan that shows bike rack/storage locations. Highlight or circle the bike racks/storage areas and provide a total number of bikes able to be parked at the site. Bike racks dedicated to building occupants (workers) should be in a covered and secure location.	
☐	☐	☐	**2. Reduced Parking**		
			Project does not exceed minimum local parking requirements OR the project does not provide any new parking.	1. Provide proof of the minimum local parking requirements for the site OR provide proof that no parking will be added. Minimum parking requirements usually come from the City. 2. If parking is added, provide a site plan with parking areas highlighted. Total and highlight the number of existing and new parking spaces.	
☐	☐	☐	**3. Reduced Heat Island Effect**		
			Combine cool roof and/or cool site techniques for 75% of site area being impacted by construction (including roof and all landscaping/hardscapes on site). Cool roofs are reflective surfaces applied to the roof. To find cool roof products, go to www.coolroofs.org and use the "Rated Products Directory". Cool site techniques include pervious surfaces (including open grid pavement and vegetation) and light colored concrete.	1. Site plan with the following areas calculated and clearly visible (if applicable): total site area, building/roof area, photovoltaic array area, landscape area, area of hardscapes under shade (from trees or awnings, etc.), and hardscape area. 2. Calculate the percent of the total site area that includes cool roof and/or cool site techniques. Photovoltaic panels can be exempt from the calculation if mounted on the roof or if they shade hard surfaces (subtract the photovoltaic array area from the total site area). For low-sloped roofs (<2:12), eligible cool roof materials must have a Solar Reflective Index (SRI) of 78 or higher. If SRI is not available for the cool roof product, then products with an initial solar reflectance of 0.70 or higher AND an initial thermal emittance of 0.75 or higher are acceptable. Steep sloped roofs (>2:12) do not need to comply and should have their square footage removed from calculation. 3. Provide manufacturer literature stating the cool roof SRI.	

Yes	No	N/A	Measure & Requirement	Documentation	Notes

Water

Water-efficient fixtures reduce water use and sewer costs and reduce demand on water supplies and treatment facilities. For sites that have landscapes, see the Bay-Friendly for Permitted Landscapes checklist at www.buildgreennow.org.

Yes No N/A

4. Water Efficient Plumbing Fixtures

	The following performance thresholds are required for all new fixtures: 1. Toilets: High Efficiency Toilets (HETs) with flush rate ≤1.28 gallons per flush (gpf). 2. Urinals: Waterless or low-flow with flush rate ≤ 0.5 gpf. 3. Faucets: flow rates ≤ 1.5 gallons per minute (gpm) for all faucets except kitchen sinks. 4. Pre-rinse Spray Valves: flow rates ≤ 2.0 gpm.	1. Floor plan(s) with fixture schedule(s) showing location of all new toilets, urinals, faucets and kitchen pre-rinse spray valves in the project. Include flow rates in the fixture schedule. 2. Specification sections showing that low-flow fixtures are specified for all new fixtures (if specifications are created for the project). 3. Manufacturer literature (cut sheets) showing flush rate of toilets and urinals to be installed, and flow rates for faucets and spray valves.	

Energy

Exceeding energy efficiency minimums results in reduced greenhouse gas emissions, lower utility costs and increased comfort. Another benefit is higher quality construction, thanks to better air sealing, increased insulation, and high efficiency equipment.

5. Improved Energy Efficiency

There are 2 paths for achieving this measure:
Path 1. Performance: For buildings that require Title 24 energy modeling, complete Path 1. Check "N/A" in the Path 2 box.
Path 2. Prescriptive: For projects that do not require energy modeling, complete Path 2. Check "N/A" in the Path 1 box.

Yes No N/A

Path 1: Building Energy Modeling

	Beat California minimum energy efficiency standards (Title 24, Part 6) by 10% or more.	1. Submit Title 24 report for whole building or by component. Percent better than code is determined by energy cost from ECON-1 report.	

Path 2: For projects that DO NOT require building energy modeling: Complete A&B below.

A. Select at least 2 of the following prescriptive energy efficiency measures

☐	i. Reduce Lighting Power Density (LPD) in the facility to 90% of code.	1. Provide lighting design plans and/or specifications. 2. Calculate the total LPD and include on plans or in other format. The LPD can be calculated from lighting design plans or from Title 24 submissions. Must be a maximum of 90% of Title 24 LPD. Do not include occupancy sensor or other switches/control strategies in this calculation.	
☐	ii. Verify outside air economizer operation.	1. Evaluate economizer operation upon startup. Confirm operation of actuator from minimum position to 100% open. 2. Verify economizer operates per control sequence (outside air, room set point) to meet space requirements.	
☐	iii. High performance windows - for all windows replaced.	1. Provide plans and/or specifications with window schedule. All new windows must be NFRC rated and have a U-factor no higher than 0.40. Solar Heat Gain Coefficient (SHGC) is dependent on glazing percentage, for buildings with less than 20% glazing, SHGC should be no higher than 0.45. For buildings with more than 20% glazing, SHGC should be no higher than 0.35. 2. Provide manufacturer cut sheets or other documentation of NFRC label for windows chosen.	
☐	iv. All new or replaced windows have low-conductivity frames. Metal frames do not qualify, except those with thermal breaks.	1. Provide window schedule or specifications showing all new or replaced windows frames are vinyl, fiberglass, thermally-broken metal, or other non-metal. 2. Provide manufacturer cut sheet illustrating frame type.	

Yes	No	N/A	Measure & Requirement	Documentation	Notes
☐			v. High Efficiency HVAC Equipment. All new HVAC equipment must comply with the Consortium for Energy Efficiency (CEE) Tier 1 commercial HVAC standards. See www.buildgreennow.org for a link to the CEE standards or download them at www.cee1.org/com/com-main.php3.	1. Provide plans and specifications showing equipment schedule and performance specifications. 2. Provide manufacturer literature confirming compliance with CEE Tier 1 standards.	
☐			vi. Provide on-site renewable energy generation (solar, wind, etc) system capable of producing at least 5% of the building's total electrical load OR at least 10% of the building's hot water demand.	1. Provide estimated output and percent of building load to be offset with renewable energy system. Calculations to be provided by a licensed solar installer, electrical contractor, or from the CEC rebate application. 2. Provide manufacturer cut sheets for solar panels. If photovoltaics are installed, provide cut sheet for inverter(s).	

B. Select at least 3 of the following prescriptive energy efficiency measures

☐			i. Automatic daylight sensors are installed in at least 75% of spaces with exterior non-north facing windows. Automatic sensors must turn lights on, off, or dim depending on amount of daylight. (B.i and B.iii cannot both be attained on the same project).	1. Highlight areas to be daylit on plans (those areas or rooms within 15 feet of skylights or exterior, non-north windows). 2. Highlight locations of daylight sensors. 3. Provide calculation showing that 75% or more of the space in daylit areas (by square feet or rooms) are under daylighting control.	
☐			ii. Locate occupancy sensors in 40% of intermittent or non regularly occupied spaces (hallways, bathrooms, closets, private offices). Exclude areas containing mechanical equipment or electrical panels which require light for maintenance activities.	1. Provide lighting plans with intermittent/non-regularly occupied spaces highlighted. 2. Highlight occupancy sensors on plans that serve these spaces. 3. Provide calculation showing that 40% or more of the spaces are controlled by occupancy sensors.	
☐			iii. Multi-level switching in all "daylit" areas (B.i and B.iii cannot both be attained on the same project).	1. Provide lighting plans with daylit areas highlighted (those areas within 15 feet of skylights or exterior, non-north windows). 2. Confirm electrical design allows for multi-level switching.	
☐			iv. All new exit signs in the project are to be LED or nuclear. Recommend replacing all existing exit signs as well, even if not in project scope.	1. Provide lighting plans specifying correct signage product.	
☐			v. Install ENERGY STAR rated office equipment and appliances. For eligible equipment, at least 75% of all new office equipment and 90% of all new appliances must be ENERGY STAR rated. See www.energystar.gov for product lists.	1. Submit list of all planned new office equipment and appliances. 2. Calculate the percent of planned office equipment and appliances that are to be ENERGY STAR. If ENERGY STAR products are not available for a particular appliance or piece of equipment, note that on the list and do not include those in the percentage calculation.	
☐			vi. High efficiency heating: If new furnaces are specified, they will have a minimum energy efficiency of 92 AFUE.	1. Submit plans or specifications highlighting efficiency of forced air furnace(s). 2. Submit manufacturer cut sheet for furnace(s) and highlight efficiency.	
☐			vii. High efficiency water heating: Specify gas water heaters above 0.65 EF or preferably a condensing hot water heater at 0.86. Avoid electric hot water heaters. Specify boilers with efficiency of 90% or more. (This excludes all tankless water heaters and any small kitchen or bathroom water heaters under 5 gallons.)	1. Submit plans or specifications highlighting efficiency of water heater(s) or boiler(s). 2. Submit manufacturer cut sheet for water heaters/boilers and highlight efficiency.	

Yes	No	N/A	Measure & Requirement	Documentation	Notes
☐			viii. Tight ducts: Duct testing and sealing for all ductwork.	1. Submit evidence that duct sealing and testing will be performed. This could be in the specifications; be a HERS duct testing contract or report; or other documentation that ducts will been sealed and tested. 2. Provide final duct testing report.	
☐			ix. Develop and implement an Operations & Maintenance (O&M) Plan for the building. Download a guide to green O&M at www.StopWaste.Org/EPP.	1. Develop an O&M plan for the project. The plan should address all that apply: building lighting, heating, cooling, plumbing, solar, rainwater catchment, irrigation/landscaping practices and other systems as well as more general building policies (such as green cleaning, environmental purchasing, etc). The plan should describe accessibility of units, proper maintenance techniques, descriptions of proper use, model numbers & cut sheets, manufacturer contact information for replacement/repair/questions. The plan should include switching/controls diagrams, lighting plans, heating, cooling, plumbing, solar, rainwater, irrigation/landscaping practices. 2. Submit signed O&M plan from the owner saying that the O&M plan will be followed once occupied.	

Materials

Construction materials constitute about 22% of the disposed waste stream statewide. Many of these materials can be reduced, reused or recycled. Recycling reduces the amount of material entering landfills and can save money for building owners through reduced disposal and operating fees. Buying environmentally preferable new products can reduce the impact on raw materials extraction and disposal at end of life.

Yes	No	N/A			
☐	☐	☐	**6. Construction Waste Management**		
			During construction, divert 100% of concrete and asphalt concrete and divert at least 65% of remaining job site construction waste from landfill via recycling or reuse.	1. Prior to construction, complete a construction waste management plan. The City should provide a sample template, or one can be downloaded at www.buildgreennow.org. 2. After construction, provide final waste management plan and verification (service provider weight tags and/or receipts) that 100% of concrete and asphalt concrete were diverted and at least 65% of remaining job site construction waste diverted from landfill via recycling or reuse. If material was taken to a transfer station, a facility average recycling rate must be applied to the amount of material sent to that facility.	
☐	☐	☐	**7. Environmentally Preferable Materials** Achieve at least 5 Environmentally Preferable Materials from i-xiv below. Materials or finishes listed below meet at least one of the following environmentally preferable criteria: Plywood/MDF/wood is FSC certified; salvaged/reclaimed materials (including onsite materials); flyash in concrete; rapidly renewable materials (bamboo, etc); recycled content materials (at least 40% combined pre and post consumer); exposed concrete (for flooring only); or low-emitting (Volatile Organic Compounds (VOCs) and other chemicals. See www.buildgreennow.org for links and resources on Environmentally Preferable Materials.		
☐			i. Cabinets & Shelving (includes boxes, face frames and doors). *At least 50% of cabinets and shelving (by volume or linear feet) meet environmentally preferable criteria.*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature to support environmental claims of material (recycled content %, FSC certification, etc.). 3. Provide calculation of applicable material percentage.	
☐			ii. Interior Trim (includes all trim for floors, doors, walls, ceilings, windows, wainscot). *At least 50% of all interior trim (by volume or linear feet) meet environmentally preferable criteria.*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature to support environmental claims of material. 3. Provide calculation of applicable material percentage.	

Yes	No	N/A	Measure & Requirement	Documentation	Notes
	☐		iii. Doors and Door Cores *At least 50% of all doors (by count) meet environmentally preferable criteria.*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature to support environmental claims of material. 3. Provide calculation of applicable material percentage.	
	☐		iv. Countertops and Substrates. *At least 50% of all countertops and substrates (by volume or linear feet) meet environmentally preferable criteria.*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature to support environmental claims of material. 3. Provide calculation of applicable material percentage.	
	☐		v. Furniture (Includes systems and stand-alone furniture). *At least 75% of all furniture (by number of pieces or by cost) meet environmentally preferable criteria.*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature to support environmental claims of furniture. 3. Provide calculation of applicable material percentage.	
	☐		vi. Ceiling Tiles. *At least 75% of all ceiling tile (by square feet) meet environmentally preferable criteria.*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature to support environmental claims of material. 3. Provide calculation of applicable material percentage.	
	☐		vii. Insulation. *At least 75% of all insulation (by volume, square feet, or cost) meet environmentally preferable criteria.*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature to support environmental claims of material. 3. Provide calculation of applicable material percentage.	
	☐		viii. Flooring. *At least 50% (by square feet) of all flooring (exposed or stained concrete) or floor coverings (carpet, resilient flooring, tile, hardwood, etc.) meet environmentally preferable criteria.*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature to support environmental claims of material. 3. Provide calculation of applicable material percentage.	
	☐		ix. Flyash in Concrete *Achieve 15% flyash as percentage of portland cement for all new concrete poured.*	1. Provide proposed mix designs showing flyash as percentage of portland cement. 2. Provide calculation showing planned 15% flyash for total new poured concrete (ensure that flyash is percentage of portland cement).	
	☐		x. Exterior Paint. *At least 50% of all exterior paint (by square footage or volume) is recycled content (40%+).*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature showing recycled content. 3. Provide calculation of applicable material percentage.	
	☐		xi. Low-Emitting Interior Paint. *All interior paints are low emitting: ≤ 50 grams/liter for flat paints, ≤ 150 g/L for non-flat paints and other coatings.*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature to support environmental claims of material. 3. Provide documentation that all paints and coatings are low-emitting. Provide MSDS sheets.	
	☐		xii. Low-Emitting Adhesives & Sealants. *All adhesives and sealants are low-emitting according to the South Coast Air Quality Management District Rule 1168 (see www.aqmd.gov/rules/reg/reg11/r1168.pdf for VOC limits).*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature to support environmental claims of material. 3. Provide documentation that all adhesives and sealants are low-emitting. Provide MSDS sheets.	

Yes	No	N/A	Measure & Requirement	Documentation	Notes
☐			xiii. Low-Emitting Carpeting. *All carpeting, carpet pads, and adhesives are certified Green Label Plus per the Carpet and Rug Institute (CRI). See www.carpet-rug.org for label requirements and product lists.*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature to support environmental claims of material. 3. Provide CRI Green Label Plus documentation.	
☐			xiv. Low-Emitting Composite Wood. *All interior composite wood (MDF, plywood, particleboard, etc.) contain no added urea formaldehyde.*	1. Provide finish schedule or specifications with applicable material(s) highlighted. 2. Provide manufacturer literature to support environmental claims of material. 3. Provide MSDS sheets of composite wood.	

8. Collection of Recyclables

Encourage ongoing recycling by providing at least as much bin volume for recycling as for waste. Additionally, recycle at least 5 of the following material streams: glass, plastic, cardboard, aluminum, food scraps, hazardous waste (fluorescent lamps, batteries, oil, etc.), and e-waste (computer equipment).	1. Provide plans showing recycling receptacles are provided in all applicable areas: offices, private rooms, meeting rooms, kitchens, etc. 2. Provide calculation of adequate recycling volume. 3. Provide evidence of recycling for at least 5 of the material streams. Submit recycling hauler information for recyclables and food scraps. Provide a short narrative on how the facility will collect and recycle hazardous and e-waste.	

Indoor Environment & Air

Effective daylighting and natural ventilation may improve indoor environmental quality. Natural ventilation can reduce heating and cooling requirements and may justify smaller, simpler HVAC systems, which can reduce the project's first costs. Ventilation (natural or mechanical) improves indoor air quality. Daylighting can offset some of the electric lighting load.

Yes No N/A

9. Daylight, Views & Natural Ventilation

Provide access to views to the outdoors (any window or skylight can provide a view) from 80% of regularly occupied areas. Operable windows are recommended for all projects; required if 2 or more walls have windows or access to outdoor air and there is not a security compromise by having operable windows.	1. Provide site plans with view areas highlighted (those areas within sightline of skylights or exterior windows). 2. Calculate percent of regularly occupied areas with/without access to views. 3. Provide window schedule showing operable and non-operable windows.	

10. Fresh Air Monitors for Densely Occupied Spaces

For systems with moveable outside air dampers: For all densely occupied spaces, such as multi-purpose rooms or conference rooms, provide CO2 monitors with alarms (example: small visual indicator such as a light to alert building occupants or building operator), and the ability to manually adjust air flow.	1. Provide mechanical plans with CO2 monitors highlighted. 2. Confirm alarm function (user adjustable) of Building Automation System. Verify control sequence resulting from "alarm" in Sequence of Operations. 3. Provide Title 24 "Acceptance" forms. 4. Written confirmation that testing, adjusting and balancing (TAB) contractor will adjust and balance the moveable outside air damper to provide cooling as required for air conditioning the space. When CO2 monitor located within referenced AC unit's conditioned space sends an alarm signal the economizer damper actuator shall open outside air damper to provide 30% more air than the minimum damper setting.	

City of Albany

Green Building Program Rating System for Remodeling Projects
Supplemental Application Form

Project Address: _____

Checklist Prepared By: _____

Date Prepared: _____

		INPUT	Resources	Energy	IAQ/Health
A. Site					
1. Recycle Job Site Construction & Demolition Waste 65% = 1 point; 75% = 2 points; 80% = 4 points	up to 4 Resource pts				
2. Salvage Reusable Building Materials	4 Resource pts y=yes				
3. Remodel for Mixed Use, Adaptive Reuse, and Historic Preservation	4 Resource pts y=yes				
4. Protect Native Soil	2 Resource pts y=yes				
5. Minimize Disruption of Existing Plants & Trees	1 Resource pt y=yes				
6. Implement Construction Site Stormwater Practices	2 Resource pts y=yes				
7. Protect Water Quality with Landscape Design	2 Resource pts y=yes				
8. Design Resource-Efficient Landscapes and Gardens	4 Resource pts y=yes				
9. Reuse Materials/Use Recycled Content Materials for Landscape Areas	2 Resource pts y=yes				
10. Install High-Efficiency Irrigation Systems	2 Resource pts y=yes				
11. Provide for On-Site Water Catchment / Retention	2 Resource pts y=yes				
B. Foundation					
1. Incorporate Recycled Flyash in Concrete 25% Recycled Flyash = 2 points; Add 1 point for every 10% increase of flyash, up to 5 points	up to 5 Resource pts				
2. Use Recycled Content Aggregate	2 Resource pts y=yes				
3. Insulate Foundation/Slab before backfill	3 Energy pts y=yes				
C. Structural Frame					
1. Substitute Solid Sawn Lumber with Engineered Lumber	3 Resource pts y=yes				
2. Use FSC Certified Wood for framing (For every 10% of FSC lumber used = 2 points, up to 10)	up to 10 Resource pts.				
3. Use Wood I-Joists for Floors and Ceilings	2 Resource pts y=yes				
4. Use Web Floor Trusses	2 Resource pts y=yes				
5. Design Energy Heels on Trusses 6" or more	2 Energy pts y=yes				
6. Use Finger-Jointed Studs for Vertical Applications	2 Resource pts y=yes				
7. Use Engineered Studs for Vertical Applications	2 Resource pts y=yes				
8. Use Recycled Content Steel Studs for Interior Framing	2 Resource pts y=yes				
9. Use Structural Insulated Panels (SIPs)					
a. Floors	3 Energy pts y=yes				
b. Wall	3 Energy pts y=yes				
c. Roof	3 Energy pts y=yes				
10. Apply Advanced Framing Techniques	4 Resource pts y=yes				

		INPUT	Resources	Energy	IAQ/Health
11. Use Reclaimed Lumber for Non Structural Applications	3 Resource pts y=yes				
12. Use OSB					
a. Subfloors	1 Resource pt y=yes				
b. Sheathing	1 Resource pt y=yes				
D. Exterior Finish					
1. Use Sustainable Decking Materials					
a. Recycled content	3 Resource pts y=yes				
b. FSC Certified Wood	3 Resource pts y=yes				
2. Use Treated Wood That Does Not Contain Chromium/Arsenic	1 IAQ/Health pt y=yes				
3. Install House Wrap under Siding	1 IAQ/Health pt y=yes				
4. Use Fiber-Cement Siding Materials	1 Resource pt y=yes				
E. Plumbing					
1. Install Water Heater Jacket	1 Energy pt y=yes				
2. Insulate Hot and Cold Water Pipes	2 Energy pts y=yes				
3. Retrofit all Faucets and Showerheads with Flow Reducers					
a. Faucets (1 point each, up to 2 points)	Up to 2 Resource pts.				
b. Showerheads (1 point each, up to 2 points)	Up to 2 Resource pts.				
4. Replace Toilest with Ultra-Low Flush Toilets (1 point each, up to 3 points)	Up to 3 Resource pts.				
5. Install Chlorine Filter on Showerhead	1 IAQ/Health pt y=yes				
6. Convert Gas to Tankless Water Heater	4 Energy pts y=yes				
7. Install Water Filtration Units at Faucets (2 points each, up to 4 points)	Up to 4 IAQ/Health pts.				
8. Install On-Demand Hot Water Circulation Pump	4 Resource pts y=yes				
F. Electrical					
1. Install Compact Fluorescent Light Bulbs (CFLs) (6 bulbs=2 points, 10 bulbs =3 points, 12 bulbs = 4 points)	Up to 4 Energy pts.				
2. Install IC-AT Recessed Fixtures with CFLs (1 point each, up to 5 points)	Up to 5 Energy pts.				
3. Install Lighting Controls (1 point per fixture, up to 4 points)	Up to 4 Energy pts.				
4. Install High Efficiency Ceiling Fans with CFLs (1 point each, up to 4 points)	Up to 4 Energy pts.				
G. Appliances					
1. Install Energy Star Dishwasher	1 Energy pt y=yes				
2. Install Washing Machine with Water and Energy Conservation Features	1 Energy pt y=yes				
3.Install Energy Star Refrigerator	1 Energy pt y=yes				
4. Install Built-In Recycling Center	3 Resource pts y=yes				
H. Insulation					
1. Upgrade Insulation to Exceed Title 24 Requirements					
a. Walls	2 Energy pts y=yes				
b. Ceilings	2 Energy pts y=yes				
2. Install Floor Insulation over Crawl Space	4 Energy pts y=yes				
3. Install Recycled-Content, Fiberglass Insulation with No Added Formaldehyde	3 IAQ/Health pts y=yes				

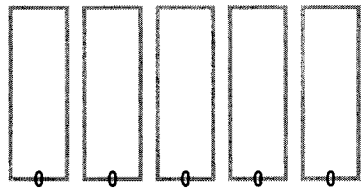
			INPUT	Resources	Energy	IAQ/Health
4. Use Advanced Infiltration Reduction Practices	2 Energy pts	y=yes				
5. Use Cellulose Insulation						
a. Walls	4 Resource pts	y=yes				
b. Ceilings	4 Resource pts	y=yes				
6. Alternative Insulation Products (Cotton, spray-foam)						
a. Walls	4 Resource pts	y=yes				
b. Ceilings	4 Resource pts	y=yes				
I. Windows						
1. Install Energy-Efficient Windows						
a. Double-Paned	1 Energy pt	y=yes				
b. Low-Emissivity (Low-E)	2 Energy pts	y=yes				
c. Low. Conductivity Frames	2 Energy pts	y=yes				
2. Install Low Heat Transmission Glazing	1 Energy pt	y=yes				
J. Heating Ventilation and Air Conditioning						
1. Use Duct Mastic on All Duct Joints	2 Energy pts	y=yes				
2. Install Ductwork within Conditioned Space	3 Energy pts	y=yes				
3. Vent Range Hood to the Outside	1 IAQ/Health pt	y=yes				
4. Clean all Ducts Before Occupancy	2 IAQ/Health pts	y=yes				
5. Install Solar Attic Fan	2 Energy pts	y=yes				
6. Install Attic Ventilation Systems	1 Energy pt	y=yes				
7. Install Whole House Fan	4 Energy pts	y=yes				
8. Install Sealed Combustion Units						
a. Furnaces	3 IAQ/Health pts	y=yes				
b. Water Heaters	3 IAQ/Health pts	y=yes				
9. Replace Wall-Mounted Electric and Gas Heaters with Through-the-Wall Heat Pumps	3 Energy pts	y=yes				
10. Install 13 SEER/11 EER or higher AC with a TXV	3 Energy pts	y=yes				
11. Install AC with Non-HCFC Refrigerants	2 Resource pts	y=yes				
12. Install 90% Annual Fuel Utilization Efficiency (AFUE) Furnace	2 Energy pts	y=yes				
13. Retrofit Wood Burning Fireplaces						
a. Install EPA certified wood stoves/inserts	1 IAQ/Health pt	y=yes				
b. Install/Replace Dampers	1 Energy pt	y=yes				
c. Install Airtight Doors	1 Energy pt	y=yes				
14. Install Zoned, Hydronic Radiant Heating	3 Energy pts	y=yes				
15. Install High Efficiency Filter	4 IAQ/Health pts	y=yes				
16. Install Heat Recovery Ventilation Unit (HRV)	5 IAQ/Health pts	y=yes				
17. Install Separate Garage Exhaust Fan	3 IAQ/Health pts	y=yes				
K. Renewable Energy and Roofing						
1. Pre-Plumb for Solar Water Heating	4 Energy pts	y=yes				
2. Install Solar Water Heating System	10 Energy pts	y=yes				
3. Pre-Wire for Future Photovoltaic (PV) Installation	4 Energy pts	y=yes				
4. Install Photovoltaic (PV) System (1.2 kw = 6 points, 2.4 kw = 12 points, 3.6 kw = 18 points)	Up to 18 Energy pts					
6. Select Safe and Durable Roofing Materials	1 Resource pt	y=yes				
7. Install Radiant Barrier	3 Energy pts	y=yes				

		INPUT	Resources	Energy	IAQ/Health
L. Natural Heating and Cooling					
1. Incorporate Passive Solar Heating	5 Energy pts y=yes				
2. Install Overhangs or Awnings over South Facing Windows	3 Energy pts y=yes				
3. Plant Deciduous Trees on the West and South Sides	3 Energy pts y=yes				
M. Indoor Air Quality and Finishes					
1. Use Low/No-VOC Paint	1 IAQ/Health pts y=yes				
2. Use Low VOC, Water-Based Wood Finishes	2 IAQ/Health pts y=yes				
3. Use Low/No VOC Adhesives	3 IAQ/Health pts y=yes				
4. Use Salvaged Materials for Interior Finishes	3 Resource pts y=yes				
5. Use Engineered Sheet Goods with no added Urea Formaldehyde	6 IAQ/Health pts y=yes				
6. Use Exterior Grade Plywood for Interior Uses	1 IAQ/Health pts y=yes				
7. Seal all Exposed Particleboard or MDF	4 IAQ/Health pts y=yes				
8. Use FSC Certified Materials for Interior Finish	4 Resource pts y=yes				
9. Use Finger-Jointed or Recycled-Content Trim	1 Resource pts y=yes				
10. Install Whole House Vacuum System	3 IAQ/Health pts y=yes				
N. Flooring					
1. Select FSC Certified Wood Flooring	8 Resource pts y=yes				
2. Use Rapidly Renewable Flooring Materials	4 Resource pts y=yes				
3. Use Recycled Content Ceramic Tiles	4 Resource pts y=yes				
4. Install Natural Linoleum in Place of Vinyl	5 IAQ/Health pts y=yes				
5. Use Exposed Concrete as Finished Floor	4 Resource pts y=yes				
6. Install Recycled Content Carpet with Low VOCs	4 Resource pts y=yes				
O. City of Albany Incentives					
1. Additions less than 50% increase in floor area	20 Resource pts y=yes				
2. Additions les than 200sq.ft. or resulting in less than 1,500sq.ft.	10 Resource pts y=yes				
3. Seismic upgrade of existing building	15 Resource pts y=yes				
4.For having a hybrid or zero emissions vehicle	2 IAQ/Health pts y=yes				
5. For having no automobile	5 Resource pts y=yes				
6. Plant more than one street tree when feasible	2 IAQ/Health pts y=yes				
7. Earhquake kit	2 IAQ/Health pts y=yes				

Multifamily GreenPoint Checklist

Build It Green
Smart Solutions From The Ground Up

Current Point Total	0



The GreenPoint Rated checklist tracks green features incorporated into the home. The recommended minimum requirements for a green home are: Earn a total of 50 points or more; obtain the following minimum points per category: Community (6), Energy (30), Indoor Air Quality/Health (5), Resources (6), and Water (3); and meet the prerequisites B.1.a (50% construction waste diversion), A.8 (exceed Title 24 requirements by 15%), C.10.a (3-year subcontractor guarantee and 20-year manufacturer warranty for shingle roofing), and F.1 (incorporate Green Points checklist in blueprints).

Build It Green is a non-profit organization providing the GreenPoint Rated program as a public service. Build It Green encourages local governments to leverage program resources to support voluntary, market-based programs and strategies.

The green building practices listed below are described in greater detail in the Multifamily Green Building Guidelines, available at www.builditgreen.org/greenpoint-rated/guidelines

Enter Total Conditioned Floor Area of the Project:	**10,000**
Enter Total Non-Residential Floor Area of Project:	
Percent of Project Dedicated to Residential Use	**100%**

ENTER PROJECT NAME	Community	Energy	IAQ/Health	Resources	Water
A. PLANNING & DESIGN	Possible Points				
1. Infill Sites					
☐ a. Project is Located Within an Urban Growth Boundary & Avoids Environmentally Sensitive Sites	1				
☐ b. Project Includes the Redevelopment of At Least One Existing Building				1	
0 c. Housing Density of 15 Units Per Acre or More (1 pt for every 5 u/a) *Enter Project Density Number (In Units Per Acre)*	10				
☐ d. Locate Within Existing Community that has Sewer Line & Utilities in Place	1				
☐ e. Project Redevelops a Brownfield Site or is Designated a Redevelopment Area by a City	1				
f. Site has Pedestrian Access Within ½ Mile to Neighborhood Services (1 Pt for 5 Or More, 2 Pts for 10 Or More):					
☐ 1) Bank ☑ 2) Place of Worship ☐ 3) Full Scale Grocery/Supermarket	2				
☐ 4) Day Care ☑ 5) Cleaners ☐ 6) Fire Station					
☐ 7) Hair Care ☑ 8) Hardware ☐ 9) Laundry					
☐ 10) Library ☐ 11) Medical/Dental ☐ 12) Senior Care Facility					
☐ 13) Public Park ☐ 14) Pharmacy ☐ 15) Post Office					
☐ 16) Restaurant ☐ 17) School ☐ 18) After School Programs					
☐ 19) Commercial Office ☐ 20) Community Center ☐ 21) Theater/Entertainment					
☐ 22) Convenience Store Where Meat & Produce are Sold.					
g. Proximity to Public Transit					
Development is Located Within:					
☐ 1/4 Mile of One Planned or Current Bus Line Stop	1				
☐ 1/4 Mile of Two or More Planned or Current Bus Line Stops	1				
☐ 1/2 Mile of a Commuter Train/Light Rail Transit System	1				
h. Reduced Parking Capacity:					
☐ Less than 1.5 Parking Spaces Per Unit	1				
☐ Less than 1.0 Parking Spaces Per Unit	1				
2. Mixed-Use Developments					
☐ a. At least 2% of Development Floorspace Supports Mixed Use (Non-Residential Tenants)	1				
☐ b. Half of Above Non-Residential Floorspace is Dedicated to Neighborhood Services	1				
3. Building Placement & Orientation					
☐ a. Protect Soil & Existing Plants & Trees	1				
4. Design for Walking & Bicycling					
☐ a. Sidewalks Are Physically Separated from Roadways & Are 5 Feet Wide	1				
☐ b. Traffic Calming Strategies Are Installed by the Developer	1				
☐ c. Provide Dedicated, Covered & Secure Bicycle Storage for 15% of Residents	1				
☐ d. Provide Secure Bicycle Storage for 5% of Non-Residential Tenant Employees & Visitors	1				
5. Social Gathering Places					
☐ a. Outdoor Gathering Places for Residents (Average of 50 sf Per Unit Or More)	1				
☐ b. Outdoor Gathering Places Provide Natural Elements *(For compact sites only)*	1				
6. Design for Safety and Natural Surveillance					
☐ a. All Main Entrances to the Building and Site are Prominent and Visible from the Street	1				
☐ b. Residence Entries Have Views to Callers (Windows or Double Peep Holes) & Can Be Seen By Neighbors	1				

ENTER PROJECT NAME	Community	Energy	IAQ/Health	Resources	Water
7. Landscaping					
☐ *Check here if the landscape area is <10% of the total site area. Projects with <10% landscape area can only check up to 3 boxes in this section.*					
☐ a. No Plant Species will Require Shearing				1	
☐ b. No plantings are Listed on the Invasive Plant Inventory by the California Invasive Plant Council				1	
☐ c. Specify Drought-tolerant California Natives, Mediterranean or Other Appropriate Species					1
d. Create Drought Resistant Soils:					
☐ i. Mulch All Planting Beds to a Depth of 2 Inches or Greater as Per Local Ordinance					1
☐ ii. Amend with 1 Inch of Compost or as per Soil Analysis to Reach 3.5% Soil Organic Matter					1
e. Design & Install High-Efficiency Irrigation System					
☐ i. Specify Smart (Weather-Based) Irrigation Controllers					1
☐ ii. Specify Drip, Bubblers or Low-Flow Sprinklers for All Non Turf Landscape Areas					1
☐ f. Group Plants by Water Needs (Hydrozones) in Planting Plans & Identify Hydrozones on Irrigation Plans					1
g. Minimize Turf in Landscape Installed by Builder					
☐ i. Do Not Specify Turf on Slopes Exceeding 10% or in Areas Less Than 8 Feet Wide					1
☐ ii. Less Than 33% of All Landscaped Area is Specified as Turf AND All Turf has Water Requirement <= To Tall Fescue					1
8. Building Performance Exceeds Title 24 by at least 15%-*Required*					
Enter the Percent Above the 2005 Version of Title 24 for Residential and Non-Residential Portions of the Project.					
0% a. Residences: 2 Points for Every 1% Above 2005 T24		0			
0% b. Non-Residential Spaces: 2 Points for Every 1% Above 2005 T24					
9. Cool Site					
☐ a. At least 30% of the Site Includes Cool Site Techniques	1				
10. Adaptable Buildings					
a. Include Universal Design Principles in Units					
☐ 50% of Units	1				
☐ 80% of Units	1				
☐ b. Live/Work Units Include A Dedicated Commercial Entrance	1				
11. Affordability					
a. A Percentage of Units are Dedicated to Households Making 80% or Less of AMI					
☐ 10% of All Units	1				
☐ 20%	1				
☐ 30%	1				
☐ 50% or More	1				
☐ b. Development Includes Multiple Bedroom Units (At least 1 Unit with 3BR or More at or Less Than 80% AMI)	2				

B. SITEWORK	Possible Points				
1. Construction & Demolition Waste Management					
Divert a Portion of all Construction & Demolition Waste:					
☐ a. *Required*: Divert 50%				R	
☐ b. Divert 65%				2	
☐ c. Divert 80% or more				2	
2. Construction Material Efficiencies					
☐ a. Lumber is Delivered Pre-Cut from Supplier (80% or More of Total Board Feet)				1	
b. Components of the Project Are Pre-Assembled Off-Site & Delivered to the Project					
☐ 25% of Total Square Footage				2	
☐ 50% of Total Square Footage				2	
☐ 75% of Total Square Footage or More				2	
3. Construction Indoor Air Quality (IAQ) Management Plan					
☐ a. An IAQ Management Plan is Written & Followed for the Project			2		

C. STRUCTURE	Possible Points				
1. Recycled Aggregate					
☐ a. Minimum 25% Recycled Aggregate (Crushed Concrete) for Fill, Backfill & Other Uses				1	
2. Recycled Flyash in Concrete					
a. Flyash or Slag is Used to Displace a Portion of Portland Cement in Concrete					
☐ 20%				1	
☐ 30% or More				1	

ENTER PROJECT NAME	Community	Energy	IAQ/Health	Resources	Water
3. FSC-Certified Wood for Framing Lumber					
a. FSC-Certified Wood for a Percentage of All Dimensional Studs:					
☐ 40%				2	
☐ 70%				2	
b. FSC-Certified Panel Products for a Percentage of All Sheathing (OSB & Plywood):					
☐ 40%				1	
☐ 70%				1	
4. Engineered Lumber or Steel Studs, Joists, Headers & Beams					
☐ a. 90% or More of All Floor & Ceiling Joists				1	
☐ b. 90% or More of All Studs				2	
☐ c. 90% or More of All Headers & Beams				2	
5. Optimal Value Engineering Framing					
☐ a. Studs at 24" Centers on Top Floor Exterior Walls &/or All Interior Walls				1	
☐ b. Door & Window Headers Sized for Load				1	
☐ c. Use Only Jack & Cripple Studs Required for Load				1	
6. Steel Framing					
☐ a. Mitigate Thermal Bridging by Installing Exterior Insulation (At Least 1-Inch of Rigid Foam)		2			
7. Structural Insulated Panels (SIPs) Or Other Solid Wall Systems					
a. SIPs Or Other Solid Wall Systems are Used for 80% of All:					
☐ Floors		2		2	
☐ Walls		2		2	
☐ Roofs		2		2	
8. Raised Heel Roof Trusses					
☐ a. 75% of All Roof Trusses Have Raised Heels		1			
9. Insulation					
☐ a. All Ceiling, Wall & Floor Insulation is 01350 Certified OR Contains No Added Formaldehyde			1		
☐ b. All Ceiling, Wall & Floor Insulation Has a Recycled Content of 50% or More				1	
10. Durable Roofing Options					
☐ a. *Required:* No Shingle Roofing OR All Shingle Roofing Has 3-Yr Subcontractor Guarantee & 20-Yr Manufacturer Warranty				R	
☐ b. All Sloped Roofing Materials Carry a 40-Year Manufacturer Warranty				1	
11. Moisture Shedding & Mold Avoidance					
☐ a. Building(s) Include a Definitive Drainage Plane Under Siding				4	
☐ b. ENERGY STAR Bathroom Fans are Supplied in All Bathrooms, Are Exhausted to the Outdoors & Are Equipped with Control				1	
☐ c. A Minimum of 80% of Kitchen Range Hoods Are Vented to the Exterior			1		
12. Green Roofs					
a. A Portion of the Low-Slope Roof Area is Covered By A Vegetated or "Green" Roof					
☐ 25%	2				2
☐ 50% or More	2				2

D. SYSTEMS	Possible Points				
1. Passive Solar Heating					
☐ a. Orientation: At Least 40% of the Units Face Directly South		2			
☐ b. Shading On All South-Facing Windows Allow Sunlight to Penetrate in Winter, Not in Summer		1			
☐ c. Thermal Mass: At Least 50% of the Floor Area Directly Behind South-Facing Windows is Massive		2			
2. Radiant Hydronic Space Heating					
☐ a. Install Radiant Hydronic Space Heating for IAQ purposes (No Forced Air) in All Residences			2		
3. Solar Water Heating					
☐ a. Pre-Plumb for Solar Hot Water		1			
☐ b. Install Solar Hot Water System for Preheating DHW		4			
4. Air Conditioning with Advanced Refrigerants					
☐ a. Install Air Conditioning with Non-HCFC Refrigerants	1				
5. Advanced Ventilation Practices					
Perform the Following Practices in Residences:					
☐ a. Infiltration Testing by a C-HERS Rater for Envelope Sealing & Reduced Infiltration		2			
☐ b. Operable Windows or Skylights Are Placed To Induce Cross Ventilation (At Least One Room In 80% of Units)		1	1		
☐ c. Ceiling Fans in Every Bedroom & Living Room OR Whole House Fan is Used		1			
6. Garage Ventilation					
☐ a. Garage Ventilation Fans Are Controlled by Carbon Monoxide Sensors (Passive Ventilation Does Not Count)			1		

ENTER PROJECT NAME	Community	Energy	IAQ/Health	Resources	Water
7. Low-Mercury Lamps					
☐ a. Low-Mercury Products Are Installed Wherever Linear Fluorescent Lamps Are Used				1	
☐ b. Low-Mercury Products Are Installed Wherever Compact Fluorescent Lamps Are Used				2	
8. Light Pollution Reduction					
☐ a. Exterior Luminaires Emit No Light Above Horizontal OR Are Dark Sky Certified	1				
☐ b. Control light Trespass Onto Neighboring Areas Through Appropriate Fixture Selection & Placement	1				
9. Onsite Electricity Generation					
☐ a. Pre-Wire for Photovoltaics & Plan for Space (Clear Areas on Roof & in Mechanical Room)				1	
b. Install Photovoltaics to Offset a Percent of the Project's Total Estimated Electricity Demand					
☐ 10%	2	2			
☐ 20%	2	2			
☐ 30% or more	2	2			
☐ c. Educational Display is Provided in a Viewable Public Area	1				
10. Elevators					
☐ a. Gearless Elevators Are Installed		1			
11. ENERGY STAR® Appliances					
a. Install ENERGY STAR Refrigerators in All Locations					
☐ ENERGY STAR-Qualified		1			
☐ ACEEE-Listed Refrigerators		1			
b. Install ENERGY STAR Dishwashers in All Locations					
☐ All Dishwashers Are ENERGY STAR-qualified		1			
☐ Residential-grade Dishwashers Use No More than 6.5 Gallons Per Cycle		1			1
☐ c. Install ENERGY STAR Clothes Washers In All Locations		1			2
☐ d. Install Ventless Natural Gas Clothes Dryers in Residences			1		
12. Central Laundry					
☐ a. Central Laundry Facilities Are Provided for All Occupants				1	
13. Water-Efficient Fixtures					
☐ a. All Showerheads Use 2.0 Gallons Per Minute (gpm) or Less		1			1
b. High-Efficiency Toilets Use 1.28 gpf or Less or Are Dual Flush					
☐ In All Residences					3
☐ In All Non-Residential Areas					3
c. Install High Efficiency Urinals (0.5 gpf or less) or No-Water Urinals Wherever Urinals Are Specified:					
☐ Average flush rate is 0.5 gallons per flush or less					1
☐ Average flush rate is 0.1 gallons per flush or less					1
d. Flow Limiters Or Flow Control Valves Are Installed on All Faucets					
☐ Residences: Kitchen - 2.0 gpm or less		1			1
☐ Non-Residential Areas: Kitchen - 2.0 gpm or less		0			0
☐ Residences: Bathroom Faucets- 1.5 gpm or less		1			1
☐ Non-Residential Areas: Bathroom Faucets - 1.5 gpm or less		0			0
☐ e. Non-Residential Areas: Install Pre-Rinse Spray Valves in Commercial Kitchens - 1.6 gpm or less					1
14. Source Water Efficiency					
☐ a. Use Recycled Water for Landscape Irrigation or to Flush Toilets/Urinals					2
☐ b. Use Captured Rainwater for Landscape Irrigation or to Flush 5% of Toilets &/or Urinals					4
☐ c. Water is Submetered for Each Residential Unit & Non-Residential Tenant					4

E. FINISHES AND FURNISHINGS	Possible Points
1. Construction Indoor Air Quality Management	
☐ a. Perform a 2-Week Whole Building Flush-Out Prior to Occupancy	1
2. Entryways	
☐ a. Provide Permanent Walk-Off Mats and Shoe Storage at All Home Entrances	1
☐ b. Permanent Walk-Off Systems Are Provided at All Main Building Entrances & In Common Areas	1
3. Recycling & Waste Collection	
☐ a. Residences: Provide Built-In Recycling Center In Each Unit	2

ENTER PROJECT NAME	Community	Energy	IAQ/Health	Resources	Water
4. Use Low/No-VOC Paints & Coatings					
a. Low-VOC Interior Paints (<50 gpl VOCs (Flat) and <150 gpl VOCs (Non-Flat))					
☐ In All Residences			1		
☐ In All Non-Residential Areas:			0		
b. Zero-VOC: InteriorPaints (<5 gpl VOCs (Flat))					
☐ In All Residences			1		
☐ In All Non-Residential Areas:			0		
c. Wood Coatings Meet the Green Seal Standards for Low-VOCs					
☐ In All Residences			2		
☐ In All Non-Residential Areas:			0		
d. Wood Stains Meet the Green Seal Standards for Low-VOCs					
☐ In All Residences			2		
☐ In All Non-Residential Areas:			0		
5. Use Recycled Content Exterior Paint					
☐ a. Use Recycled Content Paint on 50% of All Exteriors				1	
6. Low-VOC Construction Adhesives					
☐ a. Use Low-VOC Construction Adhesives (<70 gpl VOCs) for All Adhesives			1		
7. Environmentally Preferable Materials for Interior Finish					
Use Environmentally Preferable Materials for Interior Finish: A) FSC-Certified Wood, B) Reclaimed Lumber, C) Rapidly Renewable D) Recycled-Content or E) Finger-Jointed					
a. Residences: At Least 50% of Each Material:					
☐ i. Cabinets				1	
☐ ii. Interior Trim				1	
☐ iii. Shelving				1	
☐ iv. Doors				1	
☐ v. Countertops				1	
b. Non-Residential Areas: At Least 50% of Each Material:					
☐ i. Cabinets				0	
☐ ii. Interior Trim				0	
☐ iii. Shelving				0	
☐ iv. Doors				0	
☐ v. Countertops				0	
8. Reduce Formaldehyde in Interior Finish Materials					
Reduce Formaldehyde in Interior Finish Materials (Section 01350) for At Least 50% of Each Material Below:					
a. Residences:					
☐ i. Cabinets			1		
☐ ii. Interior Trim			1		
☐ iii. Shelving			1		
☐ iv. Subfloor			1		
b. Non-Residential Areas:					
☐ i. Cabinets			0		
☐ ii. Interior Trim			0		
☐ iii. Shelving			0		
☐ iv. Subfloor			0		
9. Environmentally Preferable Flooring					
Use Environmentally Preferable Flooring: A) FSC-Certified or Reclaimed Wood, B) Rapidly Renewable Flooring Materials, C) Recycled-Content Ceramic Tiles, D) Exposed Concrete as Finished Floor or E) Recycled-Content Carpet. Note: Flooring Adhesives Must Have <50 gpl VOCs.					
a. Residences:					
☐ i. Minimum 15% of Floor Area				1	
☐ ii. Minimum 30% of Floor Area				1	
☐ iii. Minimum 50% of Floor Area				1	
☐ iv. Minimum 75% of Floor Area				1	
b. Non-Residential Areas:					
☐ i. Minimum 15% of Floor Area				0	
☐ ii. Minimum 30% of Floor Area				0	
☐ iii. Minimum 50% of Floor Area				0	
☐ iv. Minimum 75% of Floor Area				0	
10. Low-Emitting Flooring					
☐ a. Residences: Flooring Meets Section 01350 or CRI Green Label Plus Requirements (50% Minimum)			1		
☐ b. Non-Residential Areas: Flooring Meets Section 01350 or CRI Green Label Plus Requirements (50% Minimum)			0		

ENTER PROJECT NAME	Community	Energy	IAQ/Health	Resources	Water
11. Durable Cabinets					
Install Durable Cabinets in All:					
☐ a. Residences				1	
☐ b. Non-Residential Areas				0	
12. Furniture & Outdoor Play Structures					
☐ a. Play Structures & Surfaces Have an Overall Average Recycled Content Greater Than 20%				1	
☐ b. Environmentally Preferable Exterior Site Furnishings				1	
☐ c. At Least 25% of All newly Supplied Interior Furniture has Environmentally Preferable Attributes			1		
13. Vandalism Deterrence					
☐ a. Project Includes Vandalism Resistant Finishes and Strategies	1				

F. OTHER	Possible Points				
1. Incorporate GreenPoint Checklist in Blueprints					
☑ a. *Required:* Incorporate GreenPoint Checklist in Blueprints	Y				
2. Operations & Maintenance Manuals					
☐ a. Provide O&M Manual to Building Maintenance Staff		1			
☐ b. Provide O&M Manual to Occupants		1			1
3. Transit Options					
☐ a. Residents Are Offered Free or Discounted Transit Passes	2				
4. Educational Signage					
☐ a. Educational Signage Highlighting & Explaining the Project's Green Features is Included	1				
5. Vandalism Management Plan					
☐ a. Project Includes a Vandalism Management Plan for Dealing with Disturbances Post-Occupancy	1				

6. Innovation: List innovative measures that meet the green building objectives of the Multifamily Guidelines. Enter up to a 4 Points in each category. Points will be evaluated by local jurisdiction or GreenPoint rater.

0	Innovation in **Community**: Enter up to 4 Points at left. Enter description here
0	Innovation in **Energy:** Enter up to 4 Points at left. Enter description here
0	Innovation in **IAQ/Health**: Enter up to 4 Points at left. Enter description here
0	Innovation in **Resources:** Enter up to 4 Points at left. Enter description here
0	Innovation in **Water:** Enter up to 4 Points at left. Enter description here

Summary

	Community	Energy	IAQ/Health	Resources	Water
Points Achieved from Specific Categories	0	0	0	0	0
Current Point Total	0				

Project has not yet met the recommended minimum requirements

- *Total Project Score of At Least 50 Points*
- *Minimum points in specific categories: Community (6), Energy (30), IAQ/Health (5), Resources (6), Water (3)*
- *Required measures B.1a, C.10a, and/or F.1a*

Collaborative for High Performance Schools (CHPS) Scorecard

Based on the 2006 Edition For Major Modernizations or a New Building on an Existing Campus

School Name:

If New Building, list building type (e.g, classrooms, gym):

If Major Modernization, list the projects scope; the major systems being substantially improved (e.g., lighting/electrical, HVAC, envelope, interior surfaces/finishes, site work, plumbing):

Expected Completion:

Current Design / Construction Phase:

School District:

Website:

School Address:

City: **State:** **Zip:**

School Contact/Principal:

Phone/E-mail:

Student Capacity:

Approximate Square Feet:

Is this project seeking self certification or official certification under CHPS? (official certification will be offered early 2007)

Verification

Is this the final CHPS scorecard? YES or NO

Registered Principal Architect (Signature)

Project Manager (Signature)

Name, Title, Date (Please print)

Name, Title, Date (Please print)

CHPS SECTION	CREDIT NUMBER	TITLE	POSSIBLE POINTS	SUMMARY**	TARGET	POINTS EARNED	TEAM MEMBER(S) RESPONSIBLE	FOR SELF CERTIFICATION, PROVIDE NARRATIVE, CALCULATIONS, DOCUMENT/ PLAN REFERENCE HERE. (Use Separate Sheet as Necessary).
SUSTAINABLE SITES (3 prerequisites; 15 possible points)								
1. Site Selection (6)	SS1.0	Code Compliance	Req	Comply with all requirements of Title 5 and CA Education Code and Public Resource Code sections specified.				Add Narrative
	SS1.1	Environmentally Sensitive Land	1	No development on sites that are: prime agricultural land, in flood zone, habitat for endangered species, near a wetland or considered parkland.				
	SS1.2	Greenfields	1	Do not develop on greenfields.				
	SS1.3	Central Location	1	Create centrally located sites within which 50% of students are located within minimum distances of the school.				
	SS1.4	Joint-Use of Facilities	1	Design at least one space for "joint-use" and provide specified security measures.				
	SS1.5	Joint-Use of Parks	1	Share park or recreation space.				
	SS1.6	Reduced Footprint	1	Reduce the building footprint.				
2. Transportation (3)	SS2.1	Public Transportation	1	Locate near public transportation.				
	SS2.2	Bicycles	1	Provide bike racks & bike lanes for a percentage of the school population.				
	SS2.3	Minimize Parking	1	Minimize parking lot & create preferred parking for carpools.				
3. Stormwater Management (2)	SS3.0	Construction Site Runoff Control	Req	Control erosion & sedimentation to reduce negative impacts on water & air quality.				
	SS3.1	Limit Stormwater Runoff	1	Minimize runoff.				
	SS3.2	Treat Stormwater Runoff	1	Treat runoff.				
4. Outdoor Surfaces (2)	SS4.1	Reduce Heat Islands - Landscaping	1	Shade or lighten impervious areas, or reduce impervious parking.				
	SS4.2	Reduce Heat Islands - Cool Roofs	1	Install cool roof.				
5 Outdoor Lighting (1)	SS5.1	Light Pollution Reduction	1	Minimize outdoor illumination.				
6. Schools as Learning Tools (1)	SS6.0	Educational Display	Req	Provide a permanent educational display.	X	X		
	SS6.1	Demonstration Areas	1	Create demonstration areas for three out of the five major high performance categories.				

WATER (1 prerequisite; 5 possible points)								
1. Outdoor Systems (2)	WE1.0	Create Water Use Budget	Req	Establish water use budget & conform to the local water efficient landscape ordinance.				
	WE1.1	Reduce Potable Water for Landscaping	1-2	Create an irrigation commissioning plan and reduce potable water by 50% or 100%, or do not install permanent irrigation systems.				
2. Indoor Systems (3)	WE2.1	Reduce Sewage Conveyance from Toilets and Urinals	1	35% reduction in potable water use for sewage conveyance.				
	WE2.2	Reduce Indoor Potable Water Use	1-2	Decrease water use by and additional 20% or 40% after meeting Energy Policy Act of 1992.				
ENERGY (2 prerequisites; 20 possible points; minimum 2 points required)								
1. Energy Efficiency (15)	EE1.0	Minimum Energy Performance	Req	Design building to exceed Title 24-2005 by 10%.				
	EE1.1	Superior Energy Performance	1-13	12% to 36% reduction in total net energy use from Title 24-2005 baseline.				
	EE1.2	Natural Ventilation	1	HVAC interconnect controls with operable windows & doors.				
	EE1.3	Energy Management Systems	1	Install Energy Management System and provide training and manuals for maintenance personnel.				
2. Alternate Energy Sources (3)	EE2.1	Renewable Energy	1-3	5 to 15% of net energy use supplied by on-site renewable energy systems.				
3. Commissioning & Training (2)	EE3.0	Fundamental Building Systems Testing and Training	Req	Third party or district verification of building systems & training.				
	EE3.1	Enhanced Commissioning	1-2	Implement commissioning best practices.				
MATERIALS (2 prerequisite; 12 possible points)								
1. Recycling (0)	ME1.0	Storage and Collection of Recyclables	Req	Meet local standards for recycling space & have spaces dedicated to recycling.				
2. Construction Waste Management (2)	ME2.0	Construction Waste Management	Req	Recycle, compost and/or salvage at least 50% of non-hazardous construction and demolition debris.				
	ME2.1	Construction Site Waste Management	1-2	Recycle, compost and/or salvage at least 70% or 90% of non-hazardous construction and demolition debris.				
3. Building Reuse (3)	ME3.1	Reuse of Structure and Shell	1-2	Reuse 75% or 95% of existing structure and shell.				
	ME3.2	Reuse of Interior Partitions	1	Use existing on-site non-shell elements in at least 50% of completed building.				
4. Sustainable Materials (7)	ME4.1	Recycled Content	1-2	Follow prescriptive or performance approach.				
	ME4.2	Rapidly Renewable Materials	1	2.5% of materials are rapidly renewable or specify rapidly renewables for 50% of one of the listed major interior finishes or structural materials.				
	ME4.3	Organically Grown Materials	1	For at least 50% of rapidly renewable materials use organic materials.				
	ME4.4	Certified Wood	1	50% of wood must be certified				
	ME4.5	Salvaged Materials	1-2	Follow prescriptive or performance approach.				
	ME4.6	Alternative: Environmentally Preferable Products	1/2-7	Use this credit instead of 4.1-4.5. Interior finishes must meet EQ2.2. Earn a one-half point for each certified EPP Product.				

INDOOR ENVIRONMENTAL QUALITY (3 prerequisites; 20 possible points)							
1. Lighting and Daylighting (6)	EQ1.1 Daylighting	1-4	Meet minimum requirements and choose one of three options.				
	EQ1.2 View Windows	1	Direct line of site glazing for 90% of classrooms, libraries and administration areas and provide view glazing equal to or greater than 7% of the floor area.				
	EQ1.3 Electric Lighting	1	Provide high quality and flexible classroom lighting.				
2. Indoor Air Quality (9)	EQ2.0 Minimum Requirements	Req	Establish minimum standards for indoor air quality that requires moisture control, building flush-out, outside air ventilation and HVAC basic requirements among other things.				
	EQ2.1 Increased Ventilation Effectiveness	2	Use thermal displacement ventilation in at least 90% of the classrooms.				
	EQ2.2 Low-Emitting Materials	1/2-4	Earn one-half point for each category of low-emitting products used in all classrooms and staff work areas.				
	EQ2.3 Chemical and Pollutant Source Control	1	Control dust, segregate pollutant sources, and local exhaust in kitchens.				
	EQ2.4 Ducted Returns	1	Install ducted HVAC returns.				
	EQ2.5 Filtration	1	Use HVAC with MERV 11 or greater rated filters through the HVAC system.				
3. Acoustics (3)	EQ3.0 Minimum Acoustical Performance	Req	Classrooms must have a maximum (unoccupied) noise level of 45dbA, with maximum (unoccupied) reverberation times of 0.6 sec.				
	EQ3.1 Improved Acoustical Performance	1 or 3	Classrooms must have a maximum (unoccupied) noise level of 40dbA or 35 dbA, with maximum (unoccupied) reverberation times of 0.6 sec.				
4. Thermal Comfort (2)	EQ4.0 ASHRAE 55 Code Compliance	Req	Comply with Title 24 required ASHRAE 55-2004 thermal comfort standard				
	EQ4.1 Controllability of Systems	1-2	Provide operable windows and/or separate controls for each classroom.				
DISTRICT RESOLUTIONS (13 possible points)							
1. District Level Credits (6)	PO1.1 CHPS Resolution	1	District must pass a board-level resolution that mandates compliance with CHPS.				
	PO1.2 Environmental Education Resolution	1-2	District must pass a board-level resolution stating its commitment to integrate environmental based education & an establish implementation plan. Two point if school incorporates high performance educational display into curriculum.				
	PO1.3 Periodic Assessment of Environmental Conditions	1	District must pass a board-level resolution committing to implementing US EPA's Healthy Seat Program or an equivalent program.				
	PO1.4 Equipment Performance	1-2	Require Energy Star equipment & prohibit wasteful technologies, or new equipment to be within 20% of EPA Energy Star "best available" for the category.				
2. Transportation (2)	PO2.1 Buses	1	Provide busing service.				
	PO2.2 Low Emission School Buses	1	20% of bus & maintenance vehicle fleet serving the school must use alternative fuels and/or be retrofitted to reduce emissions.				
3. Project Level Credits (5)	PO3.1 Maintenance Plan	1-3	Create a maintenance plan that includes an inventory of all equipment in the school & their preventative maintenance needs. District allocates budget to fund plan at 100%. For three points, in addition school district uses computerized maintenance management software.				
	PO3.2 Green Power	2	Engage in a two-year power contract to purchase 50% of expected power use from renewable sources.				
	TOTAL (Minimum points required for CHPS school is 25 of possible 85)			**0**	**0**		

** The summary should not be used to determine requirements for a specific credit or prerequisite. Refer to the CHPS Best Practices Manual, Volume III, Criteria available at www.CHPS.net for credit and prerequisite specific requirements.

Collaborative for High Performance Schools (CHPS) Scorecard

Based on the 2006 Edition For New School Construction

School Name:

Expected Completion: | **Current Design / Construction Phase:**

School District: | **Website:**

School Address: | **City:** | **State:** | **Zip:**

School Contact/Principal: | **Phone/E-mail:**

Student Capacity: | **Is this project seeking self certification or official certification under CHPS? (official certification will be offered early 2007)**

Approximate Square Feet:

Verification

Is this the final CHPS scorecard? YES or NO

Registered Principal Architect (Signature) | **Project Manager** (Signature)

Name, Title, Date (Please print) | **Name, Title, Date** (Please print)

CHPS SECTION	CREDIT NUMBER	TITLE	POSSIBLE POINTS	SUMMARY**	TARGET	POINTS EARNED	TEAM MEMBER(S) RESPONSIBLE	FOR SELF CERTIFICATION, PROVIDE NARRATIVE, CALCULATIONS, DOCUMENT/ PLAN REFERENCE HERE. (Use Separate Sheet as Necessary)
SUSTAINABLE SITES (3 prerequisites; 15 possible points)								
1. Site Selection (6)	SS1.0	Code Compliance	Req	Comply with all requirements of Title 5 and CA Education Code and Public Resource Code sections specified.	X	X		Add Narrative
	SS1.1	Environmentally Sensitive Land	1	No development on sites that are: prime agricultural land, in flood zone, habitat for endangered species, near a wetland or considered parkland.				
	SS1.2	Greenfields	1	Do not develop on greenfields.				
	SS1.3	Central Location	1	Create centrally located sites within which 50% of students are located within minimum distances of the school.				
	SS1.4	Joint-Use of Facilities	1	Design at least one space for "joint-use" and provide specified security measures.				
	SS1.5	Joint-Use of Parks	1	Share park or recreation space.				
	SS1.6	Reduced Footprint	1	Reduce the building footprint.				
2. Transportation (3)	SS2.1	Public Transportation	1	Locate near public transportation.				
	SS2.2	Bicycles	1	Provide bike racks & bike lanes for a percentage of the school population.				
	SS2.3	Minimize Parking	1	Minimize parking lot & create preferred parking for carpools.				
3. Stormwater Management (2)	SS3.0	Construction Site Runoff Control	Req	Control erosion & sedimentation to reduce negative impacts on water & air quality.	X	X		
	SS3.1	Limit Stormwater Runoff	1	Minimize runoff.				
	SS3.2	Treat Stormwater Runoff	1	Treat runoff.				
4. Outdoor Surfaces (2)	SS4.1	Reduce Heat Islands - Landscaping	1	Shade or lighten impervious areas, or reduce impervious parking.				
	SS4.2	Reduce Heat Islands - Cool Roofs	1	Install cool roof.				
5 Outdoor Lighting (1)	SS5.1	Light Pollution Reduction	1	Minimize outdoor illumination.				
6. Schools as Learning Tools (1)	SS6.0	Educational Display	Req	Provide a permanent educational display.	X	X		
	SS6.1	Demonstration Areas	1	Create demonstration areas for three out of the five major high performance categories.				

WATER (1 prerequisite; 5 possible points)								
1. Outdoor Systems (2)	WE1.0	Create Water Use Budget	Req	Establish water use budget & conform to the local water efficient landscape ordinance.	X	X		
	WE1.1	Reduce Potable Water for Landscaping	1-2	Create an irrigation commissioning plan and reduce potable water by 50% or 100%, or do not install permanent irrigation systems.				
2. Indoor Systems (3)	WE2.1	Reduce Sewage Conveyance from Toilets and Urinals	1	35% reduction in potable water use for sewage conveyance.				
	WE2.2	Reduce Indoor Potable Water Use	1-2	Decrease water use by and additional 20% or 40% after meeting Energy Policy Act of 1992.				
ENERGY (2 prerequisites; 20 possible points; minimum 2 points required)								
1. Energy Efficiency (15)	EE1.0	Minimum Energy Performance	Req	Design building to exceed Title 24-2005 by 10%.	X	X		
	EE1.1	Superior Energy Performance	1-13	12% to 36% reduction in total net energy use from Title 24-2005 baseline.				
	EE1.2	Natural Ventilation	1	HVAC interconnect controls with operable windows & doors.				
	EE1.3	Energy Management Systems	1	Install Energy Management System and provide training and manuals for maintenance personnel.				
2. Alternate Energy Sources (3)	EE2.1	Renewable Energy	1-3	5 to 15% of net energy use supplied by on-site renewable energy systems.				
3. Commissioning & Training (2)	EE3.0	Fundamental Building Systems Testing and Training	Req	Third party or district verification of building systems & training.	X	X		
	EE3.1	Enhanced Commissioning	1-2	Implement commissioning best practices.				
MATERIALS (2 prerequisite; 12 possible points)								
1. Recycling (0)	ME1.0	Storage and Collection of Recyclables	Req	Meet local standards for recycling space & have spaces dedicated to recycling.	X	X		
2. Construction Waste Management (2)	ME2.0	Construction Waste Management	Req	Recycle, compost and/or salvage at least 50% of non-hazardous construction and demolition debris.	X	X		
	ME2.1	Construction Site Waste Management	1-2	Recycle, compost and/or salvage at least 70% or 90% of non-hazardous construction and demolition debris.				
3. Building Reuse (3)	ME3.1	Reuse of Structure and Shell	1-2	Reuse 75% or 95% of existing structure and shell.				
	ME3.2	Reuse of Interior Partitions	1	Use existing on-site non-shell elements in at least 50% of completed building.				
4. Sustainable Materials (7)	ME4.1	Recycled Content	1-2	Follow prescriptive or performance approach.				
	ME4.2	Rapidly Renewable Materials	1	2.5% of materials are rapidly renewable or specify rapidly renewables for 50% of one of the listed major interior finishes or structural materials.				
	ME4.3	Organically Grown Materials	1	For at least 50% of rapidly renewable materials use organic materials.				
	ME4.4	Certified Wood	1	50% of wood must be certified				
	ME4.5	Salvaged Materials	1-2	Follow prescriptive or performance approach.				
	ME4.6	Alternative: Environmentally Preferable Products	1/2-7	Use this credit instead of 4.1-4.5. Interior finishes must meet EQ2.2. Earn a one-half point for each certified EPP Product.				

INDOOR ENVIRONMENTAL QUALITY (3 prerequisites; 20 possible points)							
1. Lighting and Daylighting (6)	EQ1.1 Daylighting	1-4	Meet minimum requirements and choose one of three options.				
	EQ1.2 View Windows	1	Direct line of site glazing for 90% of classrooms, libraries and administration areas and provide view glazing equal to or greater than 7% of the floor area.				
	EQ1.3 Electric Lighting	1	Provide high quality and flexible classroom lighting.				
2. Indoor Air Quality (9)	EQ2.0 Minimum Requirements	Req	Establish minimum standards for indoor air quality that requires moisture control, building flush-out, outside air ventilation and HVAC basic requirements among other things.	X	X		
	EQ2.1 Increased Ventilation Effectiveness	2	Use thermal displacement ventilation in at least 90% of the classrooms.				
	EQ2.2 Low-Emitting Materials	1/2-4	Earn one-half point for each category of low-emitting products used in all classrooms and staff work areas.				
	EQ2.3 Chemical and Pollutant Source Control	1	Control dust, segregate pollutant sources, and local exhaust in kitchens.				
	EQ2.4 Ducted Returns	1	Install ducted HVAC returns.				
	EQ2.5 Filtration	1	Use HVAC with MERV 11 or greater rated filters through the HVAC system.				
3. Acoustics (3)	EQ3.0 Minimum Acoustical Performance	Req	Classrooms must have a maximum (unoccupied) noise level of 45dbA, with maximum (unoccupied) reverberation times of 0.6 sec.	X	X		
	EQ3.1 Improved Acoustical Performance	1 or 3	Classrooms must have a maximum (unoccupied) noise level of 40dbA or 35 dbA, with maximum (unoccupied) reverberation times of 0.6 sec.				
4. Thermal Comfort (2)	EQ4.0 ASHRAE 55 Code Compliance	Req	Comply with Title 24 required ASHRAE 55-2004 thermal comfort standard	X	X		
	EQ4.1 Controllability of Systems	1-2	Provide operable windows and/or separate controls for each classroom.				
DISTRICT RESOLUTIONS (13 possible points)							
1. District Level Credits (6)	PO1.1 CHPS Resolution	1	District must pass a board-level resolution that mandates compliance with CHPS.				
	PO1.2 Environmental Education Resolution	1-2	District must pass a board-level resolution stating its commitment to integrate environmental based education & an establish implementation plan. Two point if school incorporates high performance educational display into curriculum.				
	PO1.3 Periodic Assessment of Environmental Conditions	1	District must pass a board-level resolution committing to implementing US EPA's Healthy Seat Program or an equivalent program.				
	PO1.4 Equipment Performance	1-2	Require Energy Star equipment & prohibit wasteful technologies, or new equipment to be within 20% of EPA Energy Star "best available" for the category.				
2. Transportation (2)	PO2.1 Buses	1	Provide busing service.				
	PO2.2 Low Emission School Buses	1	20% of bus & maintenance vehicle fleet serving the school must use alternative fuels and/or be retrofitted to reduce emissions.				
3. Project Level Credits (5)	PO3.1 Maintenance Plan	1-3	Create a maintenance plan that includes an inventory of all equipment in the school & their preventative maintenance needs. District allocates budget to fund plan at 100%. For three points, in addition school district uses computerized maintenance management software.				
	PO3.2 Green Power	2	Engage in a two-year power contract to purchase 50% of expected power use from renewable sources.				
TOTAL (Minimum points required for CHPS school is 32 of possible 85)				0	0		

** The summary should not be used to determine requirements for a specific credit or prerequisite. Refer to the CHPS Best Practices Manual, Volume III, Criteria available at www.CHPS.net for credit and prerequisite specific requirements.

Bay-Friendly Scorecard for Commercial & Civic Landscapes

This scorecard tracks Bay-Friendly features incorporated into the design and constructon of new landscapes. The recommended minimum requirements for a Bay-Friendly Landscape are: earn a total of 60 points or more and complete the 9 required practices indicated by the red "R" in the columns labeled "Possible Points".

Date:

Current Point 0

Print With Comments

Print Without Comments

Enter Project Name Here	Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Qualit	Create Wildlife Habit	Comments
A. SITE PLANNING		Possible Points							
1. Select and evaluate the site carefully									
☐ a. Submit the completed Bay-Friendly Site Analysis form before 100% design development documents	0	5							
☐ b. The site is located within an urban growth boundary and avoids environmentally sensitive sites	0	3							
☐ c. The site development results in the clean up of a contaminated site (i.e. Brownfield) or is in a designated redevelopment area	0						3		
2. Consider the potential for fire									
☐ a. For sites adjacent to fire sensitive open space or wild lands only: Submit a Fire Mitigation Plan	0	5							
3. Keep plant debris on site									
a. Produce mulch from plant debris									
☐ i. Design documents specify areas under tree & shrub canopies and at least 10 feet away from hard surfaces and storm drains, to be used as a leaf repository for mulch	0		1						
☐ ii. Construction documents specify that of the trees identified for removal, some are chipped for use as mulch onsite	0		1						
b. Produce compost from plant debris									
☐ i. A site for composting is included in landscape plans. Systems for composting up to and including 3 cubic yards at one time	0		1						
☐ ii. Systems for composting more than 3 and up to 10 yards at one time (total 2 points)	0		1						
☐ iii. Systems 10 cubic yards or larger (total 3 points)	0		1						
4. Reduce and recycle waste									
☐ a. An easily accessible area is dedicated to the collection and storage of materials for recycling	0		2						
5. Minimize site disturbance									
☐ a. On Greenfield sites, limit site disturbance to protect topography, vegetation and hydrology (total 3 points)	0	1					1	1	
☐ b. On previously developed sites, restore vegetation and hydrology (total 3 points)	0	1					1	1	
☐ **6. Provide water and/or shelter for wildlife such as birdhouse, bathhouses, boulders, logs, wood piles, large native shrubs or trees**	0							1	
7. Conserve or restore natural areas & wildlife corridors									
☐ a. The landscape is designed to preserve 80% of existing mature healthy trees and penalties for destruction of protected trees are included in construction contract	0							2	

☐

Enter Project Name Here	Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Qualit	Create Wildlife Habit	Comments
☐ b. The landscape is designed to increase open space compared to its previous use and/or to connect it to other open space or wildlife corridors	0							2	
☐ c. Create or protect a diverse plant buffer of low maintenance vegetation along creeks, shorelines or monocultured landscaped areas	0							2	
Site Planning Subtotal, out of possible 33 points:	0								
B. STORMWATER AND SITE DRAINAGE		Possible Points							
1. Minimize impervious surfaces									
a. Permeable paving, gravel or other porous surfaces are installed for									
☐ i. 25% OR	0						1		
☐ ii. 33% (total 3 points) OR	0						2		
☐ iii. 50% of the paved area (total 5 points)	0						2		
☐ b. No impervious surfaces directly connect to the storm drain	0						2		
2. Design a system to capture and filter storm water									
☐ a. Capture and filter runoff from parking lots into landscape beds, vegetated swales or other landscape stormwater BMPs	0						2		
b. Incorporate landscape measures, including vegetated swales, infiltration planters, detention basins and/or stormwater wetlands, that are designed to capture and filter:									
☐ i. 85% of average annual stormwater runoff **OR**	0						2		
☐ ii. 100% of average annual runoff (total 4 points)	0						2		
☐ c. Bioswales specify flat bottoms of at least 18 inches across and/or rock cobble at points of concentrated flow	0						1		
☐ d. Turf is not specified in bioswales	0						1		
☐ e. Direct rain water from all down spouts to planters, swales or landscaped areas	0						1		
Stormwater and Site Drainage Subtotal, out of possible 16 points:	0								
C. EARTHWORK AND SOIL HEALTH		Possible Points							
1. Assess the soil and test drainage									
☐ a. Submit laboratory soil analysis results and recommendations for compost and natural fertilizers (total 3 points)	0	2		1					
2. Remove and store topsoil before grading									
☐ a. The removal, temporary storage, and re-spreading of topsoil is specified in the landscape design documents AND specifications include a maximum topsoil pile height of 6 feet, as well as measures to protect the stored topsoil from erosion	0			2					
3. Protect soil from compaction									
☐ a. Grading specifications and construction plans call for the installation and maintenance of fencing to prohibit parking or materials staging in areas identified for protection	0			2					
☐ b. Design documents specify that soil is not worked when wet	0			1					
4. Aerate compacted soils									
☐ a. Design documents include specification to alleviate compacted soils to a depth of at least 8 inches, before planting, for all landscaped areas that can not be protected during construction	0			1					

☐

Enter Project Name Here	Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Qualit	Create Wildlife Habi	Comments
☐ b. Design documents include specification to alleviate compacted soils to a depth of at least 12 inches, before planting, for all landscaped areas that can not be protected during construction (total 2 points)	0			1					
5. Feed soils naturally & avoid synthetic fertilizers									
☐ a. Fertilizers or soil amendment materials prohibited by Organic Materials Research Institute (OMRI) in its generic materials list are not allowed in the construction of the project	0			1					
6. Mulch									
☐ a. Required: Planting specifications and plans indicate that after construction, all soil on site is protected with a minimum of 3 inches of mulch				R					
7. Amend the soil with compost before planting									
a. Quality compost is specified as the soil amendment, at the rates indicated by a soil analysis, to bring the soil organic matter content to a minimum of:									
☐ i. Required: 3.5% by dry weight OR 1 inch of quality compost OR					R				
☐ ii. 5% by dry weight OR (total 2 points)	0				1	1			
☐ iii. Specify the use of compost from processors that participate in the US Composting Council's Standard Testing Assurance program	0				1				
8. Use IPM design and construction practices to prevent pest problems									
☐ a. Sheet mulch is specified for weed control (total 3 points)	0			1			2		
☐ b. Synthetic chemical pre-emergents are prohibited	0						2		
9. Keep soil & organic matter where it belongs									
☐ a. Compost berms or blankets or socks are specified for controlling erosion (total 2 points)	0			1			1		
Earthwork and Soil Health Subtotal, out of possible 21 points:	0								
D. MATERIALS		Possible Points							
1. Use salvaged items & recycled content materials									
a.Non-plant landscape materials are salvaged or made from recycled content materials or FSC certified wood:									
☐ i. Decking (100% of non structural materials)	0		1						
☐ ii. Fencing (100% of non structural materials)	0		2						
☐ iii. Outdoor furniture such as bike racks, benches, tables and chairs (50% minimum)	0		2						
☐ iv. Planters or retaining walls (100% of either or both)	0		1						
☐ v. Parking stops or lighting/sign posts (100% of either or both)	0		1						
☐ vi. Play structures or surfaces (100% of either or both)	0		2						
☐ vii. Edging or decorative glass mulch (100% of either or both)	0		1						
☐ b. A minimum 25% of recycled aggregate (crushed concrete) is specified for walkway, driveway, roadway base and other uses	0		2						
c. Replace Portland cement in concrete with flyash or slag									
☐ i. 20%	0		1						
☐ ii. 25% (total 2 points)	0		1						
d. Purchased compost and/or mulch is recycled from local, organic materials such as plant or wood waste									
☐ i. 100% of compost OR 100% of mulch	0		1						
☐									

Enter Project Name Here	Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Qualit	Create Wildlife Habi	Comments
☐ ii. 100% of both (total 2 points)	0		1						
2. Reduce and recycle landscape construction waste									
☐ a. Required: Divert 50% of landscape construction and demolition waste.			R						
☐ b. Divert 100% of asphalt and concrete and 65% of remaining materials OR	0		2						
☐ c. Divert 100% of asphalt and concrete and 80% of remaining materials (total 4 points)	0		2						
☐ d. Donate unused materials	0		1						
3. Reduce the heat island effect with cool site techniques									
☐ a. at least 50% of the paved site area includes cool site techniques	0					2			
4. Design lighting carefully									
☐ a. Low energy fixtures are specified for all site lighting	0					2			
b. Photovoltaic is specified for site lighting									
☐ i. all path lighting is solar powered	0					1			
☐ ii. 50% of all other site lighting is solar powered	0					2			
☐ iii. 100% of all other site lighting is solar powered (total 4 points)	0					2			
☐ c. Reduce light pollution and trespass: exterior luminaries emit no light above horizontal or are Dark Sky certified	0					1			
☐ d. The site and exterior building lighting does not cast direct beam illumination onto adjacent properties or right of ways	0					1			
5. Choose and maintain equipment for fuel conservation									
☐ a. Specify solar powered pump(s) for water features	0					1			
6. Specify low embodied energy products									
☐ a. 100% of any stone and non-concrete hardscapes materials are produced within 500 miles of the project site	0					2			
7. Use integrated pest management									
☐ a. Design documents include construction specifications that require integrated pest management	0						2		
8. Use organic pest management									
☐ a. Design documents include construction specifications that prohibit the use of pesticides that are prohibited by Organic Materials Research Institute in its generic materials list (total 4 points)	0							2	
Materials Subtotal, out of possible 39 points:	**0**								
E. PLANTING			Possible Points						
1. Select appropriate plants: choose & locate plants to grow to natural size and avoid shearing									
☐ a. Required: No species will require shearing			R						
☐ b. Plants specified can grow to mature size within space allotted them	0		1						
2. Select appropriate plants: do not plant invasive species									
☐ a. Required: None of the species listed by Cal-IPC as invasive in the San Francisco Bay Area are included in the planting plan			R						
3. Grow drought tolerant CA native, Mediterranean or climate adapted plants									

Enter Project Name Here	Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Qualit	Create Wildlife Habi	Comments
a. Specify California native, Mediterranean or other climate adapted plants that require occasional, little or no summer water for:									
☐ i. Required: 75% of all non-turf plants					R				
☐ ii. 100% of all non-turf plants	0				2				
☐ b. 100% of the non-turf plant palette needs no irrigation once established (total 5 points)	0				3				
4. Minimize the lawn									
☐ a. Turf is not specified in areas less than 8 feet wide or in medians, unless irrigated with subsurface or low volume irrigation	0				2				
☐ b. Turf shall not be installed on slopes exceeding 10%	0				2				
c. Total irrigated area specified as turf is limited to:									
☐ i. Required: A maximum of 25%, with sports or multiple use fields exempted.					R				
☐ ii. A maximum of 15%, with sports or multiple use fields exempted	0				2				
☐ iii. No turf is specified (total 5 points)	0				3				
5. Implement hydrozoning									
☐ a. Group plants by water requirements and sun exposure and select plant species that are appropriate for the water use within each zone and identify hydrozones on the irrigation plan (with separate irrigation valves for differing water needs, if irrigation is required)	0				2				
6. Provide shade to moderate building temperatures									
☐ a. Protect existing trees and/or specify new trees such that 50% or more of west facing glazing and walls will be shaded (at 4 pm in September) by the trees at their mature size AND trees must be deciduous	0					2			
7. Plant trees									
☐ a. At least 50% of the paved site area is shaded by trees or other vegetation	0					2			
☐ b. At least one tree species is a large stature species (total 2 points)	0					1		1	
8. Diversify									
a. Landscapes less than 20,000 square feet shall have a minimum of:									
☐ i. 20 distinct species OR	0							1	
☐ ii. 30 distinct plant species (total 3 points)	0							2	
b. Landscapes with 20,000 to 43,560 square feet (1 acre) shall include a minimum of:									
☐ i. 30 distinct plant species OR	0							1	
☐ ii. 40 distinct species OR (total 2 points)	0							1	
☐ iii. 50 distinct plant species (total 4 points)	0							2	
c. Landscapes of greater than 1 acre shall include a minimum of 40 distinct plant species AND									
☐ i. one additional species per acre over 1 acre OR	0							2	
☐ ii. two additional species per acre over 1 acre (total 4 points)	0							2	
9. Choose California natives first									
☐ a. CA natives are specified for 50% of non-turf plants	0							2	
Planting Subtotal, out of possible 36 points:	0								
F. IRRIGATION		Possible Points							

Enter Project Name Here	Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Qualit	Create Wildlife Habit	Comments
1. Design for on-site rainwater collection, recycled water and/or graywater use									
☐ a. Irrigation systems and/or all ornamental uses of water (ponds, fountains, etc) are plumbed for recycled water where it is available from a municipal source	0				3				
☐ b. Design a system that can store and use rainwater and/or graywater to satisfy a percentage of the landscape irrigation requirements:									
☐ i. 10% OR	0				3				
☐ ii. 50% OR (total 4 points)	0				1				
☐ iii. 100% of dry season landscape water requirements satisfied with harvested rainwater (total 5 points)	0				1				
2. Design and install high efficiency irrigation systems									
☐ a. Required: Specify weather based (automatic, self adjusting) irrigation controller(s) that includes a moisture and/or rain sensor shutoff					R				
☐ b. Required: Sprinkler and spray heads are not specified for areas less than 8 feet wide					R				
c. Specify and install irrigation equipment with an operational distribution uniformity of 80% of greater, such as drip or bubblers for:									
☐ i. 75% of non-turf irrigated areas	0				2				
☐ ii.100% of non-turf irrigated areas (total 5 points)	0				3				
☐ d. For all turf areas: Specify and install equipment with a precipitation rate of 1 inch or less per hour and an operational distribution uniformity of 70% or greater	0				2				
☐ e. Design and install irrigation system that will be operated at 70% of reference ET	0				3				
3. Install a dedicated meter for landscape water use or install a submeter									
☐ a. A dedicated irrigation meter or submeter is specified to track irrigation water	0				2				
Irrigation Subtotal, out of possible 20 points:	**0**								
G. MAINTENANCE		Possible Points							
1. Keep plant debris on site									
a. Grasscycle									
☐ i. Ongoing maintenance includes grasscycling (grass clippings left on the lawn after mowing) for all lawns from April through October, or longer. Sports turf may be excluded "in season" when clippings will interfere with play	0		2						
b. Produce mulch from plant debris									
☐ i. Ongoing maintenance requires that leaves and/or plant debris less than 4 inches (including cut or chipped woody prunings) be re-incorporated into the mulch layer of landscaped areas away from storm	0		2						
c. Produce compost from plant debris									
☐ i. Ongoing maintenance includes composting plant debris on site	0		3						
2. Separate plant debris for clean green discounts									
☐ a. Ongoing maintenance requires all exported plant debris be separated from other refuse and taken to a facility where it will be used to produce compost or mulch	0		3						
3. Protect soil from compaction									
☐ a. Ongoing maintenance requires that soil is not worked when wet, generally between October and April	0			1					

Enter Project Name Here	Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Qualit	Create Wildlife Habit	Comments
4. Feed soils naturally & avoid synthetic fertilizers									
☐ a. Ongoing maintenance includes topdressing turf with finely screened quality compost after aeration 1-4 times per year	0			1					
☐ b. Ongoing maintenance uses compost, compost tea or other naturally occurring, non-synthetic fertilizers as the plant and soil amendment for all landscape areas	0			1					
☐ c. Ongoing maintenance prohibits fertilizers that are prohibited by Organic Materials Research Institute	0			1					
5. Mulch Regularly									
☐ a. Ongoing maintenance requires regular reapplication of organic mulch, to a minimum depth of 3 inches (total 2 points)	0			1	1				
6. Manage and maintain irrigation system so every drop counts									
☐ a. Ongoing maintenance includes a schedule for reading the dedicated meter or submeter and reporting water	0				1				
☐ b. At completion of the installation, the contractor shall provide the property owner with 1. precipitation rate for each valve zone, 2. area calculations for each irrigation zone and the irrigation plans which include the location of irrigation supply shut off, 3. internet address for watering index information	0				2				
☐ c. Ongoing maintenance includes regular checking of irrigation equipment, and/or checking soil moisture content before watering AND/OR immediate replacement of broken equipment with equal or superior materials	0				1				
7. Use IPM as part of maintenance practices									
☐ a. Ongoing maintenance includes integrated pest management specifications	0						2		
☐ b. At least one landscaping staff member or contractor is trained in the use of IPM or is a Bay-Friendly Qualified Professional	0						2		
8. Choose and maintain your materials, equipment & vehicles carefully									
☐ a. Ongoing maintenance requires that all oil leaks are repaired immediately and that repairs are not done at the landscape site	0						1		
☐ b. Landscape maintenance equipment uses bio-based lubricants and/or alternative fuels.	0						2		
9. Use organic pest management									
☐ a. Ongoing maintenance does not allow the use of pesticides that are prohibited by Organic Materials Research Institute in its generic materials list	0							2	
Maintenance Subtotal, out of possible 29 points:	0								
H. INNOVATION		Possible Points							
☐ **1. Bay-Friendly Landscape Guidelines and Principles are defined and referenced in the construction bid documents**	0	3							
2. Design & install educational signage									
☐ a. Provide instructional signs and other educational materials to describe the Bay-Friendly design, construction and maintenance practices	0	4							
3. Create a Bay-Friendly Maintenance task list									
☐ a. Provide a detailed Bay-Friendly maintenance task list and/or use the BF Model Maintenance Specifications as an official reference document in the landscape maintenance contract and/or with on site landscape staff (total 7 points)	0	1	1	1	1	1	1	1	

Enter Project Name Here	Points Achieved	Landscape Locally	Less to Landfill	Nurture the Soil	Conserve Water	Conserve Energy	Water and Air Qualit	Create Wildlife Habit	Comments
4. Employ a holistic approach									
☐ a. Site analysis is submitted AND 65% of landscape construction waste is diverted AND planting plan includes a diverse palette AND 50% of non-turf plants are California native species AND none of the landscape area is in turf AND compost is specified for amending the soil during installation AND natural fertilizers are specified as the exclusive source of nutrients AND integrated OR organic pest management is specified (total 7 points)	0	1	1	1	1	1	1	1	
5. Innovation: Design your own Bay-Friendly Innovation									
a .Enter description of innovation below, and enter up to 4 points at the right. Points will be evaluated by a Bay-Friendly rater.									
☐ i. Innovation description:	0	0	2	2	0	0	0	0	
Innovation Subtotal, out of possible 25 points:	0								
Summary									
Total Possible Points:	219	25	43	20	45	22	36	28	
Total Points Achieved:	0	0	0	0	0	0	0	0	

Project has not yet met the following recommended minimum requirements:

- *Total Project Score of At Least 60 Points*
- *Required Measures:*
  - *-C6a: Mulch*
  - *-C7ai: Amend the soil with compost before planting*
  - *-D2a: Reduce and recycle landscape construction waste*
  - *-E1a: No Species Will Require Shearing*
  - *-E2a: Do Not Plant Invasive Species*
  - *-E3a: Grow Drought Tolerant, CA Native, Mediterranean or Climate Adapted Plants*
  - *-E4c: Minimize the Lawn*
  - *-F2a&b: Specify Weather-Based Irrigation Controllers*
  - *-F2b: Spray Heads Are Not Specified For Areas Less Than 8 Feet Wide*

d. Green Building Program Update of Standards of Compliance.
Staff recommendation: Provide direction to staff on appropriate changes and revisions

Commissioner Arkin liked the idea of putting the green points checklist on building permit plans. He feels that the seismic upgrade points are helping smaller projects and suggested that 20% better than title 24 be considered. He also stated that Palo required 70pts as compared to 50.

Commissioner Gardner stated that requiring more points or lessening some areas could be beneficial. Considering how it would affect smaller projects needs to be considered. Commissioner Moss believes there should be a hierarchy for renewable materials, or only get a portion of points if it's not a substantial upgrade.

Commissioner Maass suggested a stick and carrot approach, i.e. extra points or reward for a high green point. Commissioner Gardner stated that the Sustainability Committee could issue a certificate of acknowledgement. Commissioner Moss suggested that additional discretionary items could require a higher number of points.

Ed Fields is concerned that points may be attained but not implemented. Perhaps cutting fees could be an incentive. Commissioner Moss did not want to cut fees. He believes the list to be an educational tool and too much focus on green points deters from that.

Commissioner Arkin added that Marin County has an expedited review process for high scoring points. Commissioner Gardner said that document building permit plans was a positive next step. Commissioner Arkin echoed the idea that the focus on reduction in energy is important.

Vote to require the checklist be required as part of the building permit submittal package, seismic upgrade points will be reduced to 15pts, and an increase of 20% over title 24 is mandatory for the project area. All new implementation measures shall be on a trial basis until July 2009:

Ayes: Arkin, Gardner, Maass, Moss
Nays: None
Motion passed, 4-0.

e. Comments Draft Environmental Impact/Report Statement (DEIR/S) for the proposed Berkeley/Albany Ferry Terminal, released by the San Francisco Bay Area Water Emergency Transportation Authority (WETA).
Staff recommendation: Provide direction to staff on any comments deemed appropriate to be expressed in a comment letter on the draft Environmental Impact Report.

Associate Planner Curl provided the staff report. Commissioner Arkin stated that the question of whether Albany is missing out on an opportunity cannot be answered at the beginning of the waterfront process. Commissioner Maass stated that all of the locations has its problems. Commissioner Moss agreed that the question of if Albany is missing out on an opportunity is

Single Family GreenPoint Checklist

date: _____

Build It Green
Smart Solutions From The Ground Up

The GreenPoint checklist tracks green features incorporated into the home. The recommended minimum requirements for a green home are: Earn a total of 50 points or more; obtain the following minimum points per category: Energy (11), Indoor Air Quality/Health (5), Resources (6), and Water (3); and meet the prerequisites A.3.a (50% construction waste diversion) and N.1 (Incorporate Green Points checklist in blueprints).

The green building practices listed below are described in the New Home Construction Green Building Guidelines, available at www.builditgreen.org.

ENTER PROJECT NAME	Community	Energy	IAQ/Health	Resources	Water
A. SITE	Possible Points				
1. Protect Native Soil and Minimize Disruption of Existing Plants & Trees					
☐ a. Protect Native Topsoil from Erosion and Reuse after Construction	1				1
☐ b. Limit and Delineate Construction Footprint for Maximum Protection					1
☐ **2. Deconstruct Instead of Demolishing Existing Buildings On Site**				3	
3. Recycle Job Site Construction Waste (Including Green Waste)					
☐ *a. Minimum 50% Waste Diversion by Weight (Recycling or Reuse) - Required*				R	
☐ b. Minimum 65% Diversion by Weight (Recycling or Reuse)				2	
☐ c. Minimum 80% Diversion by Weight (Recycling or Reuse)				2	
4. Use Recycled Content Aggregate (Minimum 25%)					
☐ a. Walkway and Driveway				1	
☐ b. Roadway Base				1	
B. LANDSCAPING	Possible Points				
1. Construct Resource-Efficient Landscapes					
☐ a. No Invasive Species Listed by Cal-IPC Are Planted					1
☐ b. No Plant Species Will Require Hedging				1	
☐ c. 75% of Plants Are California Natives or Mediterranean Species					1
☐ **2. Use Fire-Safe Landscaping Techniques**	1				
3. Minimize Turf Areas in Landscape Installed by Builder					
☐ a. All Turf Will Have a Water Requirement Less than or Equal to Tall Fescue					2
☐ b. Turf Shall Not Be Installed on Slopes Exceeding 10% or in Areas Less than 8 Feet Wide					2
☐ c. Turf is <33% of Landscaped Area					2
☐ d. Turf is <10% of Landscaped Area					2
☐ **4. Plant Shade Trees**		1			1
☐ **5. Implement Hydrozoning: Group Plants by Water Needs**					1
6. Install High-Efficiency Irrigation Systems					
☐ a. System Uses Only Low-Flow Drip, Bubblers, or Low-flow Sprinklers					1
☐ b. System Has Smart (Weather-Based) Controllers					2
☐ **7. Apply Two Inches of Compost in the Top 6 to 12 Inches of Soil**					2
☐ **8. Mulch All Planting Beds to the Greater of 2 Inches or Local Water Ordinance Requirement**					1
☐ **9. Use 50% Salvaged or Recycled-Content Materials for 50% of Non-Plant Landscape Elements**				1	
☐ **10. Reduce Light Pollution by Shielding Fixtures and/or Directing Light Downward**	1				
C. FOUNDATION	Possible Points				
1. Incorporate Recycled Flyash in Concrete					
☐ a. Minimum 20% Flyash				1	
☐ b. Minimum 25% Flyash				1	
☐ **2. Use Frost-Protected Shallow Foundation in Cold Areas (C.E.C. Climate Zone 16)**				3	
☐ **3. Use Radon Resistant Construction (In At-Risk Locations Only)**			1		
D. STRUCTURAL FRAME & BUILDING ENVELOPE	Possible Points				
1. Apply Optimal Value Engineering					
☐ a. 2x4 Studs at 24-Inch On Center Framing				1	
☐ b. Door and Window Headers Sized for Load				1	
☐ c. Use Only Jack and Cripple Studs Required for Load				1	

ATTACHMENT 5

ENTER PROJECT NAME	Community	Energy	IAQ/Health	Resources	Water
2. Use Engineered Lumber					
☐ a. Beams and Headers				1	
☐ b. Insulated Engineered Headers		1			
☐ c. Wood I-Joists or Web Trusses for Floors				1	
☐ d. Wood I-Joists or Rafters				1	
☐ e. Engineered or Finger-Jointed Studs for Vertical Applications				1	
3. Use FSC-Certified Wood					
☐ a. Dimensional Studs: Minimum 40%				2	
☐ b. Dimensional Studs: Minimum 70%				2	
☐ c. Panel Products: Minimum 40%				1	
☐ d. Panel Products: Minimum 70%				1	
☐ **4. Design Energy Heels on Trusses (75% of Attic Insulation Height at Outside Edge of Exterior Wall)**		1			
☐ **5. Design Trusses to Accommodate Ductwork**		1			
6. Use Oriented Strand Board (OSB)					
☐ a. Subfloor				1	
☐ b. Sheathing				1	
☐ **7. Use Recycled-Content Steel Studs for 90% of Interior Wall Framing**				1	
8. Use Solid Wall Systems (Includes SIPs, ICFs, & Any Non-Stick Frame Assembly)					
☐ a. Floors		2		2	
☐ b. Walls		2		2	
☐ c. Roofs		2		2	
☐ **9. Thermal Mass Walls: 5/8-Inch Drywall on All Interior Walls or Walls Weigh more than 40 lb/cu.ft.**		1			
10. Design and Build Structural Pest Controls					
☐ a. Install Termite Shields & Separate All Exterior Wood-to-Concrete Connections by Metal or Plastic Fasteners/Dividers				1	
☐ b. All New Plants Have Trunk, Base, or Stem Located At Least 36 Inches from Foundation				1	
11. Reduce Pollution Entering the Home from the Garage					
☐ a. Tightly Seal the Air Barrier between Garage and Living Area			1		
☐ b. Install Separate Garage Exhaust Fan			1		
12. Install Overhangs and Gutters					
☐ a. Minimum 16-Inch Overhangs and Gutters				1	
☐ b. Minimum 24-Inch Overhangs and Gutters		1			

E. EXTERIOR FINISH	Possible Points				
☐ **1. Use Recycled-Content (No Virgin Plastic) or FSC-Certified Wood Decking**				2	
☐ **2. Install a Drainage Plane (Rain Screen Wall System)**				2	
☐ **3. Use Durable and Non-Combustible Siding Materials**				1	
☐ **4. Select Durable and Non-Combustible Roofing Materials**				2	

F. PLUMBING	Possible Points				
1. Distribute Domestic Hot Water Efficiently					
☐ a. Insulate Hot Water Pipes from Water Heater to Kitchen					1
☐ b. Insulate All Hot Water Pipes OR Install On-Demand Hot Water Circulation System in conjunction with F.1.a Insulate Hot Water Pipes from Water Heater to Kitchen		1			1
☐ c. Locate the Water Heater within 25 feet of All Hot Water Fixtures and Appliances					1
☐ d. Use Engineered Parallel Piping					1
☐ **2. Install Only High Efficiency Toilets (Dual-Flush or <=1.3 gpf)**					3

G. APPLIANCES	Possible Points				
1. Install ENERGY STAR Dishwasher					
☐ a. ENERGY STAR		1			
☐ b. Dishwasher Uses No More than 6.5 Gallons/Cycle		1			1
☐ **2. Install ENERGY STAR Clothes Washing Machine with Water Factor of 6 or Less**		1			3
3. Install ENERGY STAR Refrigerator					
☐ a. ENERGY STAR: 15% above Federal Minimum		1			
☐ b. Super-Efficient Home Appliance Tier 2: 25% above Federal Minimum		1			
☐ **4. Install Built-In Recycling Center**				2	

ENTER PROJECT NAME	Community	Energy	IAQ/Health	Resources	Water
H. INSULATION	Possible Points				
1. Install Insulation with 75% Recycled Content					
☐ a. Walls and/or Floors				1	
☐ b. Ceilings				1	
2. Install Insulation that is Low-Emitting (Certified Section 01350)					
☐ a. Walls and/or Floors			1		
☐ b. Ceilings			1		
☐ **3. Pre-Drywall Inspection Shows Quality Installation of Insulation**		1			

I. HEATING, VENTILATION & AIR CONDITIONING	Possible Points				
☐ **1. Design and Install HVAC System to ACCA Manual J, D, and S Recommendations**		4			
2. Install Sealed Combustion Units					
☐ a. Furnaces			2		
☐ b. Water Heaters			2		
☐ **3. No Fireplace or Sealed Gas Fireplace with Efficiency Rating Not Less Than 60%**			1		
☐ **4. Install ENERGY STAR Ceiling Fans with CFLs in Living Areas and Bedrooms**		1			
5. Install Mechanical Ventilation System for Nighttime Cooling (Points are Cumulative up to 3)					
☐ a. Whole House Fan		1			
☐ b. Automatically Controlled Integrated System		2			
☐ c. Integrated System with Variable Speed Control		3			
☐ **6. Install Air Conditioning with Non-HCFC Refrigerants**	1				
7. Design and Install Effective Ductwork					
☐ a. Install HVAC Unit and Ductwork within Conditioned Space		3			
☐ b. Use Duct Mastic on All Duct Joints and Seams		1			
☐ c. Install Ductwork under Attic Insulation (Buried Ducts)		1			
☐ d. Pressure Balance the Ductwork System for Master Bedroom		1			
☐ e. Protect Ducts during Construction and Clean All Ducts before Occupancy			1		
☐ **8. Install High Efficiency HVAC Filter (MERV 6+)**			1		
☐ **9. Install Zoned, Hydronic Radiant Heating with Slab Edge Insulation**		1	1		
10. Install Mechanical Ventilation System					
☐ a. Any Whole House Ventilation System That Meets ASHRAE 62.2		1	2		
☐ b. Install ENERGY STAR Bathroom Fan			1		
☐ c. All Bathroom Fans Are on Timer or Humidistat			1		
☐ **11. Use Low-Sone Range Hood Vented to the Outside**			1		
☐ **12. Install Carbon Monoxide Alarm(s)**			1		

J. BUILDING PERFORMANCE	Possible Points				
0% **1. Design and Build High Performance Homes (2 points for each 1% above T-24, up to 30 pts)** *Enter the percent above Title 24 in the cell at left. Any value over 15% will automatically earn 30 points.*		30			
☐ **2. House Obtains ENERGY STAR with Indoor Air Package Certification**			5	2	
3. Inspection and Diagnostic Evaluations					
☐ a. Third Party Energy and Green Building Review of Home Plans		1	1	1	
☐ b. Blower Door Test Performed		1			
☐ c. House Passes Combustion Safety Backdraft Test			1		

K. RENEWABLE ENERGY	Possible Points				
☐ **1. Pre-Plumb for Solar Hot Water Heating**		4			
☐ **2. Install Solar Water Heating System**		10			
☐ **3. Install Wiring Conduit for Future Photovoltaic Installation & Provide 200 ft² of South-Facing Roof**		2			
4. Install Photovoltaic (PV) Panels					
☐ a. 1.2 kW System		6			
☐ b. 2.4 kW System		6			
☐ c. 3.6 kW or more		6			

ENTER PROJECT NAME	Community	Energy	IAQ/Health	Resources	Water
L. FINISHES	Possible Points				
☐ **1. Provide Permanent Walk-Off Mats and Shoe Storage at Home Entrances**			1		
2. Use Low/No-VOC Paint					
☐ a. Low-VOC Interior Wall/Ceiling Paints (<50 gpl VOCs (Flat) and <150 gpl VOCs (Non-Flat))			1		
☐ b. Zero-VOC: Interior Wall/Ceiling Paints (<5 gpl VOCs (Flat))			3		
☐ **3. Use Low VOC, Water-Based Wood Finishes (<150 gpl VOCs)**			2		
☐ **4. Use Low-VOC Construction Adhesives (<70 gpl VOCs) for All Adhesives**			2		
☐ **5. Use Recycled-Content Paint**				1	
6. Use Environmentally Preferable Materials for Interior Finish: A) FSC-Certified Wood, B) Reclaimed Lumber, C) Rapidly Renewable D) Recycled-Content or E) Finger-Jointed					
At Least 50% of Each Material (1 pt each):					
☐ a. Cabinets				1	
☐ b. Interior Trim				1	
☐ c. Shelving				1	
☐ d. Doors				1	
☐ e. Countertops				1	
7. Reduce Formaldehyde in Interior Finish (Section 01350) for At Least 50% of Each Material Below:					
☐ a. Cabinets			1		
☐ b. Interior Trim			1		
☐ c. Shelving			1		
☐ d. Subfloor			1		
☐ **8. After Installation of Finishes, Test of Indoor Air Shows Formaldehyde Level <27ppb**			3		

M. FLOORING	Possible Points				
1. Use Environmentally Preferable Flooring: A) FSC-Certified or Reclaimed Wood, B) Rapidly Renewable Flooring Materials, C) Recycled-Content Ceramic Tiles, D) Exposed Concrete as Finished Floor or E) Recycled-Content Carpet. ***Note: Flooring Adhesives Must Have <50 gpl VOCs.***					
☐ a. Minimum 15% of Floor Area				1	
☐ b. Minimum 30% of Floor Area				1	
☐ c. Minimum 50% of Floor Area				1	
☐ d. Minimum 75% of Floor Area				1	
☐ **2. Thermal Mass Floors: Floor Covering Other than Carpet on 50% or More of Concrete Floors**		1			
☐ **3. Flooring Meets Section 01350 or CRI Green Label Plus Requirements (50% Minimum)**			2		

N. OTHER	Possible Points				
☐ ***1. Incorporate Green Points Checklist in Blueprints - Required***				R	
☐ **2. Develop Homeowner Manual of Green Features/Benefits**		1	1		1
3. Community Design Measures & Local Priorities: See the Community Planning & Design section in Chapter 4 of the New Home Guidelines for measures. Maximum of 20 points for suggested measures. Local requirements may also be listed here.					
0 Enter description here					
0 Enter description here					
0 Enter description here					
0 Enter description here					
4. Innovation: List innovative measures that meet the green building objectives of the Guidelines. Enter up to a maximum combined total of 20 pts. See Innovation Checklist for suggested measures.					
0 Innovation in **Community**: Enter description here					
0 Innovation in **Energy:** Enter description here					
0 Innovation in **IAQ/Health**: Enter description here					
0 Innovation in **Resources:** Enter description here					
0 Innovation in **Water:** Enter description here					

Summary

Points Achieved from Specific Categories	0	0	0	0	0
Total Points Achieved			**0**		

Project has not yet met the recommended minimum requirements

- *Total Project Score of At Least 50 Points*
- *Minimum points in specific categories: Energy (11), IAQ/Health (5), Resources (6), Water (3)*
- *Required measures A.3.a and/or N.1*

GreenPoint Rated Existing Home Checklist

Build It Green
Smart Solutions From The Ground Up

The GreenPoint Rated checklist tracks green features incorporated into the home. **A home is only GreenPoint Rated if all features are verified by a Certified GreenPoint Rater through Build It Green.** GreenPoint Rated is provided as a public service by Build It Green, a professional non-profit whose mission is to promote healthy, energy and resource efficient buildings in California. This checklist is used to track projects seeking a Whole House or Elements Rating using the GreenPoint Rated Existing Home Rating System. The minimum requirements for a green home seeking the Elements and Whole House Rating are listed in the project summary at the end of this checklist. Selected measures can be awarded points allocated by the percentage of presence of the measure in the home. Not all measures are available for allocation. The measure or practice must be found in at least 10% of the home to earn points.
The criteria for the green building practices listed below are described in the GreenPoint Rated Existing Home Rating Manual. For more information please visit www.builditgreen.org/greenpointrated

Enter Label: **Elements**

Points Achieved:

0	0	8	0	2	0	2	0	4	0

Column A is a dropdown menu with the options of "Yes", "No", or "TBD" or a range of percentages to allocate points. Select the appropriate dropdown and the apropriate points will appear in the yellow "points acheived" column.

GreenPoint Rated Existing Home Checklist version 1.2

Project Name		Points Achieved	Community	Energy	IAQ/Health	Resources	Water
AA. COMMUNITY			Possible Points				
	1. Infill Site						
No	a. Home is Located in a Built Urban Setting with Utilities in Place		1			1	
No	b. Home is Located within 1/2 Mile of a Major Transit Stop		2				
	2. Compact Development & House Size						
	a. Density of 10 Units per Acre or Greater **(Enter units/acre)**		2			2	
No	b. Home Size Efficiency **(5 points is average, points awarded based on home size)**					1--10	
	3. Pedestrian and Bicycle Access/ Alternative Transportation						
	a. Site has Pedestrian Access Within ½ Mile of neighborhood services: TIER 1: 1) Day Care 2) Community Center 3) Public Park 4) Drug Store 5) Restaurant 6) School 7) Library 8) Farmer's Market 9) After School Programs 10) Convenience Store Where Meat & Produce are Sold TIER 2: 1) Bank 2) Place of Worship 3) Laundry/Cleaners 4) Hardware 5) Theater/Entertainment 6) Fitness/Gym 7) Post Office 8) Senior Care Facility 9) Medical/Dental 10) Hair Care 11) Commercial Office of Major Employer 12) Full Supermarket						
No	5 Services Listed Above (Tier 2 Services count as 1/2 Service Value)		1				
No	10 Services Listed Above (Tier 2 Services count as 1/2 Service Value)		1				
No	b. Access to A Dedicated Pedestrian Pathway to Places of Recreational Interest within 1/2 Mile		1				
No	c. At Least Two of the Following Traffic-Calming Strategies Installed within 1/4 mile: Designated Bicycle Lanes are Present on Roadways; Ten-Foot Vehicle Travel Lanes; Street Crossings Closest to Site are Located Less Than 300 Feet Apart; Streets Have Rumble Strips, Bulbouts, Raised Crosswalks or Refuge Islands		1				
	4. Safety & Social Gathering						
No	a. Front Entrance Has Views from the Inside to Outside Callers		1				
No	b. Front Entrance Can be Seen from the Street and/or from Other Front Doors		1				
No	c. Porch (min. 100sf) Oriented to Streets and Public Spaces		1				
	5. Diverse Households						
No	a. Home Has at Least One Zero-Step Entrance		1				
No	b. All Main Floor Interior Doors & Passageways Have a Min. 32-Inch Clear Passage Space		1				

Project Name		Points Achieved	Community	Energy	IAQ/Health	Resources	Water
No	c. Home includes at Least a Half-Bath on the Ground Floor with Blocking for Grab Bars		1				
No	d. Lot Includes Full-Function Independent Rental Unit		1				
	Total Points Available in Community = 29						

Project Name		Points Achieved	Community	Energy	IAQ/Health	Resources	Water
A. SITE			Possible Points				
No	**1. Protect Existing Topsoil from Erosion and Reuse after Construction**		1				1
	2. Divert Construction and Demolition Waste						
	a. Divert All Cardboard, Concrete, Asphalt and Metals **(Required for both Whole House and Elements, if Applicable)**					R	
	b. Deconstruct for Reuse **(Enter Number of Points, up to 2 points)** 1) Appliances, 2) Brick, tile, masonry, 3) Cabinetry, 4) Countertops, 5) Doors, 6) Fixtures (plumbing, lighting, etc), 7) Sinks/Tubs, 8) Toilets (1.6 only), 9) Windows, 10) Wood - (2x4, flooring, form boards)					2	
No	c. Divert 25% C&D Waste Excluding All Cardboard, Concrete, Asphalt and Metals					2	
No	**3. Construction IAQ Management Plan**				2		
	Total Points Available in Site = 8						
B. FOUNDATION			**Possible Points**				
	1. Replace Portland Cement in Concrete with Recycled Flyash or Slag						
	a. Minimum 20% Flyash and/or Slag Content					1	
	b. Minimum 30% Flyash and/or Slag Content					1	
No	**2. Moisture Source Verification and Correction (Required for Whole House)**				R	R	
	3. Retrofit Crawl Space to Control Moisture						
No	a. Control Ground Moisture with Vapor Barrier				2		
No	b. Foundation Drainage System					2	
No	**4. Pest Inspection and Correction**					1	
	5. Design and Build Structural Pest Controls						
No	a. Install Termite Shields & Separate All Exterior Wood-to-Concrete Connections by Metal or Plastic Fasteners/Dividers					1	
No	b. All New Plants Have Trunk, Base, or Stem Located At Least 36 Inches from Foundation					1	
No	**6. Radon Testing and Correction or Radon Resistant Construction**				1		
	Total Points Available in Foundation = 10						
C. LANDSCAPE			**Possible Points**				
	Is the landscape area is <15% of the total site area? (only 3 points available in this section for projects with <15% landscape area)						
	1. Resource-Efficient Landscapes						
No	a. No Invasive Species Listed by Cal-IPC Are Planted						1
No	b. No Plant Species Require Shearing					1	
No	c. 50% of Plants Are California Natives or Mediterranean Cimate Species						3
No	**2. Fire-Safe Landscaping Techniques**		1				
	3. Minimal Turf Areas						
No	a. Turf Not Installed on Slopes Exceeding 10% or in Areas Less than 8 Feet Wide						2
No	b. Turf is <33% of Landscaped Area						2
No	c. Turf is <10% of Landscaped Area or eliminated						2
No	**4. Shade Trees Planted**		1	1			1
No	**5. Plants Grouped by Water Needs (Hydrozoning)**						2
	6. High-Efficiency Irrigation Systems Installed						
No	a. System Uses Only Low-Flow Drip, Bubblers, or Low-flow Sprinklers						2
No	b. System Has Smart Controllers						3
No	**7. Compost and Recycle Garden Trimmings on Site**						1
	8. Mulch in All Planting Beds to the Greater of 2 Inches or Local Water Ordinance Requirement						2
	9. Use Environmentally Preferable Materials for Non-Plant Landscape Elements					1	
No	**10. Light Pollution Reduced by Shielding Fixtures and Directing Light Downward**		1				
	11. Rain Water Harvesting System (1 point for ≤ 350 gallons, 2 points for > 350 gallons)						
	a. ≤ 350 gallons						1
No	b. > 350 gallons						1
No	**12. Soil Amended with Compost**					1	1
	Total Points Available in Landscape = 31						

Project Name	Points Achieved	Community	Energy	IAQ/Health	Resources	Water
D. STRUCTURAL FRAME & BUILDING ENVELOPE		**Possible Points**				
	1. Optimal Value Engineering					
	a. Place Rafters & Studs at 24-Inch On Center Framing				1	
	b. Size Door & Window Headers for Load				1	
	c. Use Only Jack & Cripple Studs Required for Load				1	
	2. Use Engineered Lumber					
	a. Engineered Beams & Headers				1	
	b. Insulated Headers		1			
	c. Wood I-Joists or Web Trusses for Floors				1	
	d. Wood I-Joists for Roof Rafters				1	
	e. Engineered or Finger-Jointed Studs for Vertical Applications				1	
	f. Oriented Strand Board for Subfloor				1	
	g. Oriented Strand Board Wall and Roof Sheathing				1	
	3. FSC Certified Wood					
	a. Dimensional Lumber, Studs, and Timber				4	
	b. Panel Products				2	
	4. Solid Wall Systems (includes SIPs, ICFs, & Any Non-Stick Frame Assembly)					
	a. Floors		2		2	
	b. Walls		2		2	
	c. Roofs		2		2	
	5. Reduce Pollution Entering the Home from the Garage					
No	a Tightly Seal the Air Barrier between Garage and Living Area			1		
No	b. Install Garage Exhaust Fan OR Have a Detached Garage			1		
	6. Energy Heels on Roof Trusses (75% of Attic Insulation Height at Outside Edge of Exterior Wall)		1			
	7. Overhangs and Gutters					
	a. Minimum 16-Inch Overhangs and Gutters				1	
	b. Minimum 24-Inch Overhangs and Gutters		1			
	8. Retrofit/ Upgrade Structure for Lateral Load Reinforcement for Wind or Seismic					
No	a. Partial Lateral Load Reinforcement Upgrades/ Retrofits				1	
No	b. Lateral Load Reinforcement Upgrades/ Retrofits for Entire home				2	
No	**9. Sound Exterior Assemblies (Required for Whole House)**				R	
	Total Points Available in Structural Frame & Building Envelope = 36					
E. EXTERIOR FINISH		**Possible Points**				
	1. Recycled-Content (No Virgin Plastic) or FSC-Certified Wood Decking				2	
	2. Rain Screen Wall System Installed				2	
	3. Durable & Noncombustible Siding Materials				1	
	4. Durable & Fire-Resistant Roofing Materials				2	
	Total Points Available in Exterior Finish = 7					
F. INSULATION		**Possible Points**				
	1. Insulation with 75% Recycled Content					
	a. Walls and Floors				1	
	b. Ceilings				1	
	2. Low-Emitting Insulation (Certified CA Section 01350)					
	a. Walls and Floors			1		
	b. Ceilings			1		
	3. Inspect Quality of Insulation Installation before Applying Drywall		1			
	Total Points Available in Insulation = 5					

Project Name	Points Achieved	Community	Energy	IAQ/Health	Resources	Water
G. PLUMBING		**Possible Points**				
	1. Distribute Domestic Hot Water Efficiently					
	a. Insulate All Accessible Hot Water Pipes		1			1
No	b. Locate Water Heater Within 12' Of All Water Fixtures, as measured in plan		1			1
No	c. Install On-Demand Circulation Control Pump		1			1
	2. High-Efficiency Toilets (Dual-Flush or ≤ 1.28 gpf)				1	2
	3. Water Efficient Fixtures					
No	a. All Fixtures Meet Federal Energy Policy Act (Toilets: 1.6 gpf, Sinks: 2.2 gpm, Showers: 2.5 gpm) **(Required For Whole House)**					**R**
	b. High-Efficiency Showerheads Use ≤ 2.0 gpm at 80 psi		1			1
	c. Bathrooms Faucets Use ≤ 1.5 gpm		1			1
No	**4. Plumbing System Integrity and No Plumbing Leaks (Required for Whole House and Elements)**					**R**
	Total Points Available in Plumbing = 13					
H. HEATING, VENTILATION & AIR CONDITIONING		**Possible Points**				
	1. General HVAC Equipment Verification and Correction					
No	a. Visual Survey of Installation of HVAC Equipment **(Required for Whole House and Elements)**		**R**			
No	b. Conduct Diagnostic Testing to Evaluate System		2			
No	c. Conduct Flow Hood Test and Assess Delivery of Air		1			
No	d. Air Conditioning Compressor Operates Properly and Refrigerant Charge is Optimal		1			
No	**2. Design and Install HVAC System to ACCA Manuals J, D and S**		4			
	3. Sealed Combustion Units					
No	a. Furnaces			2		
No	b.Water heaters			2		
	4. Zoned, Hydronic Radiant Heating		1	1		
No	**5. High Efficiency Air Conditioning Air conditioning with Environmentally Responsible Refrigerants**	1				
	6. Effective Ductwork Installation					
No	a. New Ductwork and HVAC unit Installed Within Conditioned Space		1			
No	b. Duct Mastic Used on All Ducts, Joints and Seams		1			
No	c. Ductwork Installed under Attic Insulation (Buried Ducts)		1			
No	d. Ductwork System is Pressure Relieved		1			
No	**7. High Efficiency HVAC Filter (MERV 6+)**			1		
No	**8. No Fireplace OR Sealed Gas Fireplaces with Efficiency Rating ≥60% using CSA**			1		
	9. Effective Exhaust Systems Installed in Bathrooms and Kitchens					
	a. ENERGY STAR Bathroom Fans Vented to the Outside			1		
	b. All Bathroom Fans are on Timer or Humidistat			1		
No	c. Kitchen Range Hood Vented to the Outside			1		
	10. Mechanical Ventilation System for Cooling Installed					
No	a. ENERGY STAR Ceiling Fans & Light Kits in Living Areas & Bedrooms		1			
No	b. Whole House Fan		1			
	11. Mechanical Ventilation for Fresh Air Installed					
No	a. Any Whole House Ventilation System (that meets ASHRAE 62.2)			2		
No	b. Install Air-to-Air Heat Exchanger (that meets ASHRAE 62.2)		1	2		
	12. Carbon Monoxide					
No	a. Carbon Monoxide Testing and Correction **(Required for Whole House)**			R		
No	b. Carbon Monoxide Alarm(s) Installed			1		
No	**13. Combustion Safety Backdraft Test (Required for Whole House and Elements)**			R		
	Total Points Available in Heating, Ventilation and Air Conditioning = 33					
I. RENEWABLE ENERGY		**Possible Points**				
No	**1. Solar Water Heating System**		4			
	2. Photovoltaic (PV) System that offsets electric energy use by:					
No	a. 30% of electric needs OR 1.2 kW		6			
No	b. 60% of electric needs OR 2.4kW		6			
No	c. 90% of electric needs OR 3.6 kW		6			
	Total Points Available in Renewable Energy = 22					

Project Name		Points Achieved	Community	Energy	IAQ/Health	Resources	Water
J. BUILDING PERFORMANCE				**Possible Points**			
No	**1. Energy Survey and Education (includes blower door test) (Required for Elements or Meet J3a)**			R			
	2. Energy Upgrades (Available for Elements Rating Only, Mutually Exclusive with J3) 2 point minimum and 6 point maximum credit required.						
	TIER 1: Practices in Tier 1 Are Worth Full Value (1 point)						
No	a) Attic Insulation up to or Exceeding Current Code			1			
No	b) Crawl Space Insulation up to or Exceeding Current Code			1			
No	c) Wall Insulation up to or Exceeding Current Code			1			
No	d) High Efficiency Furnace (90% AFUE Minimum)			1			
No	e) Seal Ducts and Duct Leakage is <15%			1			
No	f) 14 SEER, 11.5 EER Air Conditioning Unit (in climate zones 2,4,8-15)			1			
No	g) House Passes Blower Door Test With ≤0.5 ACH or a 50% Improvement			1			
	TIER 2: Practices in Tier 2 Are Worth Half Value (0.5 points)						
No	h) High Efficiency Water Heater ≥.62EF			0.5			
No	i) Radiant Barrier in Attic			0.5			
No	j) Windows Upgraded to Current Code Requirements, Which are Typically Dual Pane			0.5			
No	k) Duct insulation to Code			0.5			
No	l) Programmable Thermostat			0.5			
No	m) 14 SEER, 11.5 EER Air Conditioning unit (in climate zones 1,3,5,6,7,16)			0.5			
	3. Energy Budget for Home Based on Year						
No	a. Meet Energy Budget for Home Based on Year (Includes Blower Door Test) **(Required for Whole House, Available for Elements)**			10			
	b. Energy Budget Compared to Current Code **(Enter Number of Points)**			1+			
No	**4. Comprehensive Utility Bill Analysis**			1			
	Total Points Available in Building Performance = 31+						
K. FINISHES				**Possible Points**			
No	**1. Entryways Designed to Reduce Tracked in Contaminants**				1		
	2. Low/No-VOC Paint						
	a. Low-VOC Interior Wall/Ceiling Paints (<50 gpl VOCs regardless of sheen)				1		
	b. Zero-VOC: Interior Wall/Ceiling Paints (<5 gpl VOCs (flat))				2		
	3. Coatings Meet SCAQMD Rule 1113 for Low VOCs				2		
	4. Low-VOC Caulks & Construction Adhesives (Meet SCAQMD Rule 1168)				2		
	5. Recycled-Content Paint					1	
	6. Environmentally Preferable Materials for Interior Finish: A) FSC Certified Wood B) Reclaimed Materials C) Rapidly Renewable D) Recycled-Content E) Finger-Jointed or F) Local						
	a. Cabinets					1	
	b. Interior Trim					1	
	c. Shelving					1	
	d. Doors					1	
	e. Countertops					1	
	7. Formaldehyde Redcued in Interior Finish (CA Section 01350)						
	a. Subfloor & Stair Treads				1		
	b. Cabinets & Countertops				1		
	c. Interior Trim				1		
	d. Shelving				1		
No	**8. After Installation of Finishes, Test of Indoor Air Shows Formaldehyde Level <27ppb**				3		
	Total Points Available in Finishes = 22						
L. FLOORING				**Possible Points**			
	1. Environmentally Preferable Flooring: A) FSC-Certified Wood B) Reclaimed or Refinished C) Rapidly Renewable D) Recycled-Content, E) Exposed Concrete F) Local *Flooring Adhesives Must Have <70 gpl VOCs and sealer must meet SCAQMD Rule 1113.*					4	
	2. Thermal Mass Floors			1			
	3. Flooring Meets CA Section 01350 or CRI Green Label Plus Requirements				2		

Project Name	Points Achieved	Community	Energy	IAQ/Health	Resources	Water
Total Points Available in Flooring = 7						

Project Name		Points Achieved	Community	Energy	IAQ/Health	Resources	Water
M. APPLIANCES AND LIGHTING			**Possible Points**				
	1. Water and Energy Efficient Dishwasher Installed						
No	a. ENERGY STAR **(Mutually Exclusive with J3)**			1			
No	b. Dishwasher Uses No More Than 6.5 Gallons/Cycle						1
	2. ENERGY STAR Clothes Washing Machine with Water Factor of 6 or Less						
No	a. Meets CEE Tier 2 Requirements (Modified Energy Factor 2.0, Water Factor 6.0)			1			2
No	b. Meets CEE Tier 3 Requirements (Modified Energy Factor 2.2, Water Factor 4.5)						2
	3. ENERGY STAR Refrigerator Installed						
No	a. ENERGY STAR Qualified & < 25 cu.ft.Capacity **(Mutually Exclusive with J3)**			1			
No	b. ENERGY STAR Qualified & < 20 cu.ft Capacity **(Mutually Exclusive with J3)**			1			
	4. Built-In Recycling & Composting Center						
No	a. Built-In Recycling Center					2	
No	b. Built-In Composting Center					1	
No	**5. Electrical Survey (Required for Whole House)**					**R**	
No	**6. Verification of Entire Electrical System**					2	
	7. Energy Efficient Lighting			1			
	8 Low-Mercury Fluorescent Lighting Installed (lamps, bulbs)						
No	a. Low- Mercury Products Are Installed Whenever Linear Flourescent Lamps Are Used or Replaced					1	
No	b. Low- Mercury Products Are Installed Whenever Compact Fluorescent Lamps Are Used or Replaced					2	
	9. Lighting Controls Installed			1			
	Total Points Available in Appliances and Lighting = 19						
N. OTHER			**Possible Points**				
No	**1. Incorporate GreenPoint Checklist in Blueprints Or Distribute Checklist (Required for Whole House and Elements)**			**R**			
No	**2. Develop Homeowner Manual of Green Features/Benefits**			1			1
	3. Hazardous Waste Testing						
No	a. Lead Testing Interior, Exterior and Soil				1		
No	b. Asbestos Testing and Remediation				1		
No	**4. Gas Shut Off Valve (motion/ non-motion)**				1	1	
	Total Points Available in Other = 6						
P. INNOVATIONS			**Possible Points**				
	AA. Community: No Innovation Measures At This Time						
	A. Site						
No	1. Cool Site		1				
	B. Foundation: No Innovation Measures At This Time						
	C. Landscaping						
No	1. Irrigation System Uses Recycled Wastewater						1
	2. FSC-Certified Wood, Recycled Plastic or Composite Lumber - Fencing					1	
	D. Structural Frame and Building Envelope						
	1. Design, Build and Maintain Structural Pest and Rot Controls						
No	a. Locate All Wood (Siding, Trim, Structure) At Least 12 Inches Above Soil					1	
	b. All Wood Framing 3 Feet from the Foundation is Treated with Borates (or Use Factory-Impregnated Materials) OR Walls are Not Made of Wood				1		
No	2. Use Moisture Resistant Materials and Practices in Wet Areas of Kitchen, Bathrooms, Utility Rooms, and Basements				1		
	3. Use FSC-Certified Engineered Lumber						
	a. Engineered Beams and Headers					1	
	b. Insulated Engineered Headers					1	
	c. Wood I-Joists or Web Trusses for Floors					1	
	d. Wood I-Joists for Roof Rafters					1	
	e. Engineered or Finger-Jointed Studs for Vertical Applications					1	
	f. Roof Trusses					1	
	E. Exterior Finish						
	1. Green Roofs (25% or Roof Area Minimum)						
No	a. 25% (2 points) measured on the horizontal		1	1			
No	b. 50% (4 points total)		1	1			

Project Name		Points Achieved	Community	Energy	IAQ/Health	Resources	Water
	F. Insulation: No Innovation Measures At This Time						1
	G. Plumbing						2
No	1. Graywater Pre-Plumbing (Includes Clothes Washer at Minimum)						1
No	2. Graywater System Operational (Includes Clothes Washer at Minimum)						1
No	3. Innovative Wastewater Technology (Constructed Wetland, Sand Filter, Aerobic System)			1			
	4. Composting or Waterless Toilet						
No	5. Install Drain Water Heat-Recovery System				1		
	H. Heating, Ventilation and Air Conditioning (HVAC)						
No	1. Humidity Control Systems (Only in California Humid/Marine Climate Zones 1,3,5,6,7)			1			
	I. Renewable Energy: No Innovation Measures At This Time						
	J. Building Performance						
No	1. Test Total Supply Air Flow Rates			1			
No	2. Energy Budget Analysis (J3) Completed By CEPE			5			
No	3. Design and Build Zero Energy Homes						
	K. Finishes: No Innovation Measures At This Time.						
	L. Flooring: No Innovation Measures At This Time.						
	M. Appliances: No Innovation Measures At This Time.						
	N. Other						
No	1. Homebuilder's Management Staff Are Certified Green Building Professionals		1				
No	2. Comprehensive Owner's Manual and Homeowner Education Walkthroughs		1				
	3. Additional Innovations: List innovative measures that meet green building objectives. Points will be assessed by Build It Green and the GreenPoint Rater.						
No	a. Describe Innovation Here and Enter Possible Points in Columns L-P						
No	b. Describe Innovation Here and Enter Possible Points in Columns L-P						
No	c. Describe Innovation Here and Enter Possible Points in Columns L-P						
No	d. Describe Innovation Here and Enter Possible Points in Columns L-P						
No	e. Describe Innovation Here and Enter Possible Points in Columns L-P						
No	f. Describe Innovation Here and Enter Possible Points in Columns L-P						
No	g. Describe Innovation Here and Enter Possible Points in Columns L-P						
No	h. Describe Innovation Here and Enter Possible Points in Columns L-P						
	Total Points Available in Innovation = 26+						

Summary						
Total Available Points	224+	26	93	47	79	44
Minimum Points Required (Whole House)	50		20	5	6	8
Minimum Points Required (Elements)	25		8	2	2	4
Total Points Achieved						

Project has not yet met the recommended minimum requirements for GreenPoint Rated Elements:

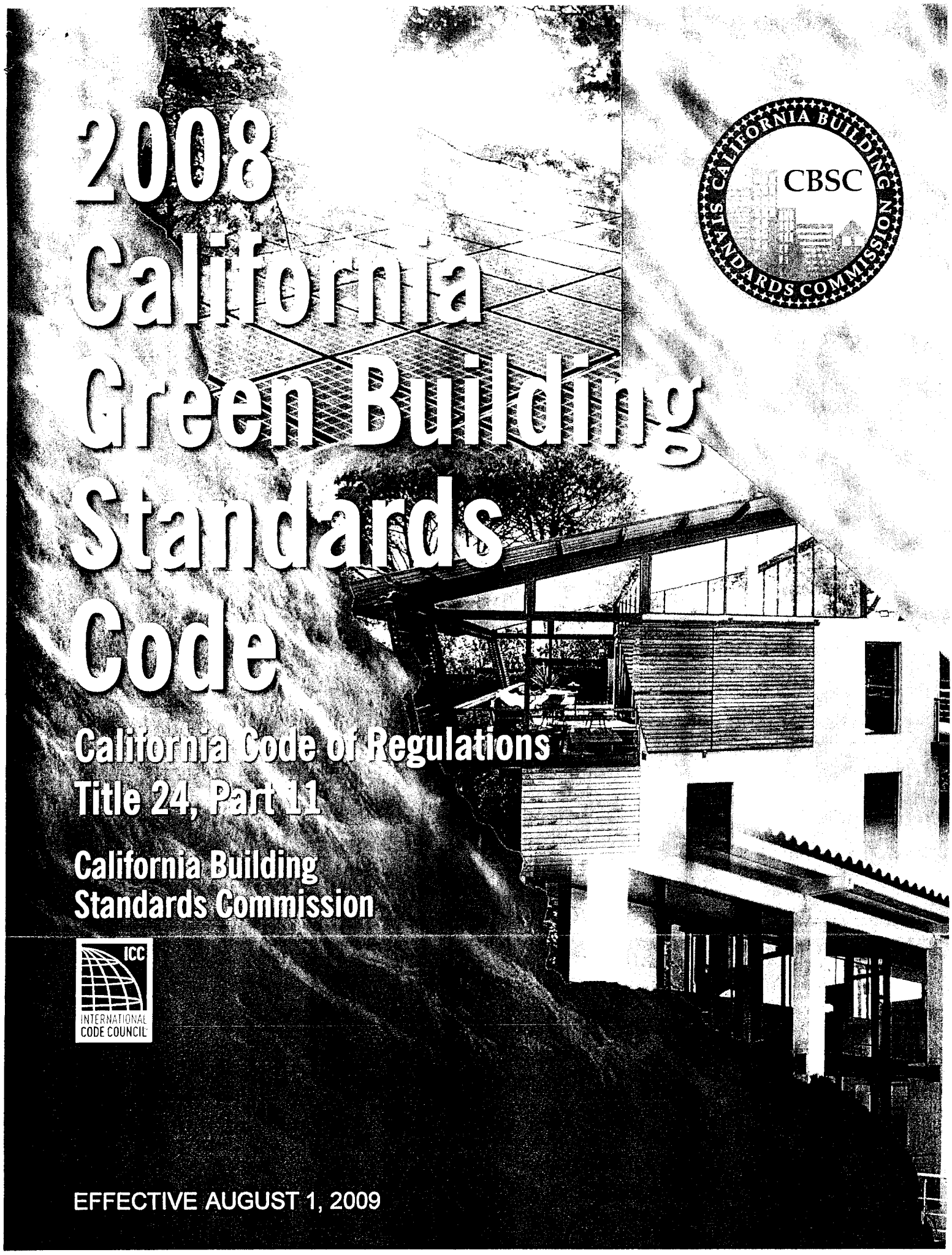
- *Total Project Score of At Least 25 Points*
- *Required measures:*
  - *-A2a: Divert All Cardboard, Concrete and Metals*
  - *-G4: Plumbing System Integrity and No Plumbing Leaks*
  - *-H1a: Visual Survey of Installation of HVAC Equipment*
  - *-J1: Energy Survey and Education OR J3a: Meet Energy Budget for Home Based on Year*
  - *-N1: Incorporate GreenPoint Checklist in Blueprints or Distribute Checklist*
- *Minimum points in specific categories:*
  - *-Energy (8 points)*
  - *-IAQ/Health (2 points)*
  - *-Resources (2 points)*
  - *-Water (4 points)*

Project must meet the following minimum requirements to qualify for GreenPoint Rated Whole House:

- *Total Project Score of At Least 50 Points*
- *Required measures:*
  - *-A2a: Divert All Cardboard, Concrete and Metals*
  - *-B2: Moisture Source Verification and Correction*
  - *-D9: Sound Exterior Assemblies*
  - *-G3a: All Fixtures Meet Federal Energy Policy Act*

-G4: Plumbing System Integrity and No Plumbing Leaks
-H1a: Visual Survey of Installation of HVAC Equipment
-H12a: Carbon Monoxide Testing and Correction
-H13: Combustion Safety Backdraft Test
-J3a: Meet Energy Budget for Home Based on Year (includes blower door test)
-M5: Electrical Verification
-N1: Incorporate GreenPoint Checklist in Blueprints or Distribute Checklist

- Minimum points in specific categories:
-Energy (20 points)
-IAQ/Health (5 points)
-Resources (6 points)
-Water (8 points)



2008 California Green Building Standards Code

California Code of Regulations Title 24, Part 11

California Building Standards Commission

EFFECTIVE AUGUST 1, 2009

2008 California Green Building Standards Code

EFFECTIVE AUGUST 1, 2009
(Adopted as part of the 2007 California Building Standards Code supplement)

The California Green Building Standards Code is a
Supplement to the 2007 California Building Standards Code

First Printing: January 2009

ISBN: 978-1-58001-769-5

PRINTED IN THE U.S.A.

PREFACE

This document is the 11th of 12 parts of the official compilation and publication of the adoptions, amendments and repeal of regulations to *California Code of Regulations,* Title 24, also referred to as the *California Building Standards Code.* This part is known as the *California Green Building Standards Code.*

The *California Building Standards Code* is published in its entirety every three years by order of the California legislature, with supplements published in intervening years. The California legislature delegated authority to various State agencies, boards, commissions and departments to create building regulations to implement the State's statutes. These building regulations or standards, have the same force of law, and take effect 180 days after their publication unless otherwise stipulated. The *California Building Standards Code* applies to all occupancies in the State of California as annotated.

A city, county or city and county may establish more restrictive building standards reasonably necessary because of local climatic, geological or topographical conditions. Findings of the local condition(s) and the adopted local building standard(s) must be filed with the California Building Standards Commission to become effective and may not be effective sooner than the effective date of this edition of the *California Building Standards Code.* Local building standards that were adopted and applicable to previous editions of the *California Building Standards Code* do not apply to this edition without appropriate adoption and the required filing.

Should you find publication (e.g., typographical) errors or inconsistencies in this code or wish to offer comments toward improving its format, please address your comments to:

California Building Standards Commission
2525 Natomas Park Drive, Suite 130
Sacramento, CA 95833-2936
Phone: (916) 263-0916
Fax: (916) 263-0959

Website: www.bsc.ca.gov

ACKNOWLEDGEMENT

The 2007 *California Green Building Standards Code* (Code), first adopted in July 2008, was developed through the outstanding collaborative efforts of the Department of Housing and Community Development, the Division of the State Architect, the Office of the State Fire Marshal, the Office of Statewide Health Planning and Development, the California Energy Commission and the Building Standards Commission (Commission).

This collaborative effort included the assistance of the Commission's Green Building Code Advisory Committee and many other state agencies and volunteers that worked tirelessly to assist the Commission in the production of this Code.

Members of the Building Standards Commission

Secretary Rosario Marin – Chair
Isam Hasenin – Vice-Chair
James Barthman
Craig Daley
Susan Dowty
Christina Jamison
Stephen Jensen
Tony Hoffman
Michael Paravagna
Richard Sawhill
Steven Winkel

David Walls – Executive Director
Thomas Morrison – Deputy Executive Director

For questions on California state agency amendments; please refer to the contact list on page v.

EFFECTIVE USE OF THIS CODE

This format of this code is common to other parts of the *California Building Standards Code* and contains building standards applicable to occupancies which fall under the authority of different state agencies. Occupancies and applications under the authority of a specific state agency are identified in Chapter 1, Sections 103 through 106. Sections of this code which are applicable and adopted by each state agency are identified in the Application Matrix for each state agency, contained in Chapter 11. The following outline may be helpful as a guide to establish which provisions are applicable to a specific occupancy.

1. Establish the type of occupancy.
2. Verify which state agency has authority for the established occupancy by reviewing the authorities list in Sections 103 through 106.
3. Once the appropriate agency has been identified, find the application matrix for that agency in Chapter 11.
4. The application matrix will list the green building measures adopted and provide the effective date and other information regarding each green building measure applicable to the established occupancy.
5. Each green building measure listed in the application matrix has a section number which correlates with a section number in Chapters 4 through 8.
6. More information is available for each green building measure listed in the application matrix in the correlated sections contained in Chapters 4 through 8.

California Code of Regulations, Title 24

California Agency Information Contact List

California Energy Commission

Energy Hotline . . . . . (800) 772-3300
Building Efficiency Standards
Appliance Efficiency Standards
Compliance Manual/Forms

California State Lands Commission

Marine Oil Terminals . . . . . (562) 499-6317

California State Library

Construction Standards . . . . . (916) 445-9604

Corrections Standards Authority

Local Adult Jail Standards . . . . . (916) 324-1914
Local Juvenile Facility Standards . . . . . (916) 324-1914

Department of Consumer Affairs – Acupuncture Board

Office Standards . . . . . (916) 445-3021

Department of Consumer Affairs – Board of Pharmacy

Pharmacy Standards . . . . . (916) 574-7900

Department of Consumer Affairs – Bureau of Barbering and Cosmetology

Barber and Beauty Shop and College Standards . . . . . (916) 952-5210

Department of Consumer Affairs – Bureau of Home Furnishings and Thermal Insulation

Insulation Testing Standards . . . . . (916) 574-2041

Department of Consumer Affairs – Structural Pest Control Board

Structural Standards . . . . . (800) 737-8188

Department of Consumer Affairs – Veterinary Medical Board

Veterinary Hospital Standard . . . . . (916) 263-2610

Department of Food and Agriculture

Meat and Poultry Packing Plant Standards . . . . . (916) 654-0509
Dairy Standards . . . . . (916) 654-07

Department of Health Services

Organized Camps Standards . . . . . (916) 449-5661
Public Swimming Pools Standards . . . . . (916) 449-5661
Asbestos Standards . . . . . (510) 620-2874

Department of Housing and Community Development

Residential – Hotels, Motels, Apartments, Single-Family Dwellings . . . . . (916) 445-9471
Permanent Structures in Mobilehome and Special Occupancy Parks . . . . . (916) 445-9471
Factory-Built Housing, Manufactured Housing and Commercial Modular . . . . . (916) 445-3338
Mobilehomes – Permits and Inspections
Northern Region . . . . . (916) 255-2501
Southern Region . . . . . (951) 782-4420
Employee Housing Standards . . . . . (916) 445-9471

Department of Water Resources

Gray Water Installations Standards . . . . . (916) 651-9667

Division of the State Architect – Access Compliance

Access Compliance Standards . . . . . (916) 445-8100

Division of the State Architect – Structural Safety

Public Schools Standards . . . . . (916) 445-8100
Essential Services Building Standards . . . . . (916) 445-8100

Division of the State Architect - State Historical Building Safety Board

Alternative Building Standards . . . . . (916) 445-8100

Office of Statewide Health Planning and Development

Hospital Standards . . . . . (916) 440-8409
Skilled Nursing Facility Standards . . . . . (916) 440-8409
Clinic Standards . . . . . (916) 440-8409

Office of the State Fire Marshal

Code Development and Analysis . . . . . (916) 445-8200
Fire Safety Standards . . . . . (916) 445-8200
Fireplace Standards . . . . . (916) 445-8200
Day Care Centers Standards . . . . . (916) 445-8200
Exit Standards . . . . . (916) 445-8200

TABLE OF CONTENTS

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 1—ADMINISTRATION

Adopting agency	BSC	SFM	HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
			1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire CA chapter																			
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below	X		X				X	X	X	X	X								
Chapter/Section																			
101	X		X				X	X	X	X	X								
102	X		X				X	X	X	X	X								
103	X																		
104			X																
105							X												
106								X	X	X	X								

CHAPTER 1
ADMINISTRATION

SECTION 101
GENERAL

101.1 Title. These regulations shall be known as the *California Green Building Standards Code* and may be cited as such and will be referred to herein as "this code." The *California Green Building Standards Code* is Part 11 of twelve parts of the official compilation and publication of the adoption, amendment and repeal of building regulations to the *California Code of Regulations,* Title 24, also referred to as the *California Building Standards Code.*

101.2 Purpose. The purpose of this code is to improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories:

1. Planning and design
2. Energy efficiency
3. Water efficiency and conservation
4. Material conservation and resource efficiency
5. Environmental air quality

101.3 Scope. It is not the intent of the California Building Standards Commission that this code substitute or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission.

The provisions of this code shall apply to the planning, design, operation, construction, replacement, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such building structures throughout the State of California.

101.3.1 State-regulated buildings, structures and applications. Provisions of this code shall apply to the following buildings, structures and applications regulated by state agencies as referenced in the Matrix Adoption Tables and as specified in Sections 103 through 106, except where modified by local ordinance pursuant to Section 101.7. When adopted by a state agency, the provisions of this code shall be enforced by the appropriate enforcing agency, but only to the extent of authority granted to such agency by the State Legislature.

1. State-owned buildings, including buildings constructed by the Trustees of the California State University, and to the extent permitted by California laws, buildings designed and constructed by the Regents of the University of California and regulated by the Building Standards Commission. See Section 103 for additional scoping provisions.
2. Energy efficiency standards regulated by the California Energy Commission
3. Low-rise residential buildings constructed throughout the State of California, including but not limited to, hotels, motels, lodging houses, apartment houses, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory-built housing and other types of dwellings containing sleeping accommodations with common toilets or cooking facilities. See Section 104 for additional scoping provisions.
4. Public elementary and secondary schools and community college buildings regulated by the Division of the State Architect. See Section 105 for additional scoping provisions.
5. Qualified historical buildings and structures and their associated sites regulated by the State Historical Building Safety Board within the Division of the State Architect.
6. General acute care hospitals, acute psychiatric hospitals, skilled nursing and/or intermediate care facilities, clinics licensed by the Department of Public Health and correctional treatment centers regulated by the Office of Statewide Health Planning and Development. See Section 106 for additional scoping provisions.
7. Graywater systems regulated by the Department of Water Resources.

101.4 Appendices. Provisions contained in the appendices of this code shall not apply unless specifically adopted by a state agency or adopted by a local enforcing agency in compliance with Health and Safety Code Section 18938 (b) for Building Standards Law, Health and Safety Code Section 17950 for State Housing Law and Health, and Safety Code Section 13869.7 for Fire Protection Districts. See Section 101.7 of this code.

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

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

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

101.5.3 Mechanical. The provisions of the *California Mechanical Code* shall apply to the installation, alterations,

repair and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

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

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

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

101.6 Order of precedence and use.

101.6.1 Differences. In the event of any differences between these building standards and the standard reference documents, the text of these building standards shall govern.

101.6.2 Specific provision. Where a specific provision varies from a general provision, the specific provision shall apply.

101.6.3 Conflicts. When the requirements of this code conflict with the requirements of any other part of the *California Building Standards Code*, Title 24, the most restrictive requirement shall prevail.

101.7 City, county, or city and county amendments, additions or deletions. It is the intent of the California Building Standards Commission, by adopting this code, to set minimum Green Building Standards that may, at the discretion of any local government entity, be applied. It is the further intent of the California Building Standards Commission that all entities subject to this code view these standards as minimal Green Building Standards and that local government entities retain their discretion to exceed the standards established by this code. It is the further intent of the California Building Standards Commission to encourage state and local government entities, private entities and interested members of the public to provide the Commission with input regarding the efficacy of this code, in order to assist the Commission in preparing mandatory Green Building Standards during the next code cycle.

This code does not limit the authority of city, county, or city and county governments to make necessary changes to the provisions contained in this code pursuant to Section 101.7.1. The effective date of amendments, additions or deletions to this code of cities, counties, or city and counties filed pursuant to Section 101.8.1 shall be the date on which it is filed. However, in no case shall the amendments, additions or deletions to this code be effective any sooner than the effective date of this code.

Local modifications shall comply with Health and Safety Code Section 18941.5 (b) for Building Standards Law, Health and Safety Code Section 17958.5 for State Housing Law, or Health and Safety Code Section 13869.7 for Fire Protection Districts.

101.7.1 Findings and filings.

1. The city, county, or city and county shall make express findings for each amendment, addition or deletion based upon climatic, topographical or geological conditions.
2. The city, county, or city and county shall file the amendments, additions or deletions expressly marked and identified as to the applicable findings. Cities, counties, cities and counties, and fire departments shall file the amendments, additions or deletions and the findings with the California Building Standards Commission at 2525 Natomas Park Drive, Suite 130, Sacramento, CA 95833.
3. Findings prepared by fire protection districts shall be ratified by the local city, county, or city and county and filed with the California Department of Housing and Community Development at 1800 3rd Street, Room 260, Sacramento, CA 95811.
4. The city, county, or city and county shall obtain California Energy Commission approval for any energy related ordinances consistent with PRC 25402.1(h)(2) and Title 24, Part 1, Section 10-106. Local governmental agencies may adopt and enforce energy standards for newly constructed buildings, additions, alterations and repairs provided the California Energy Commission finds that the standards will require buildings to be designed to consume no more energy than permitted by Part 6. Such local standards include, but are not limited to adopting the requirements of Part 6 before their effective date, requiring additional energy conservation measures, or setting more stringent energy budgets.

101.8 Alternate materials, designs and methods of construction. The provisions of this code are not intended to prevent the use of any alternate material, appliance, installation, device, arrangement, method, design or method of construction not specifically prescribed by this code. Consideration and compliance provisions for occupancies regulated by adopting state agencies are found in the sections listed below.

1. Section 104.11, Appendix Chapter 1, 2007 *California Building Code* (CBC) for the California Building Standards Commission and the Division of the State Architect.
2. Section 108.7.2, CBC for the Department of Housing and Community Development.
3. Section 7-104, 2007 *California Administrative Code* for the Office of Statewide Health Planning and Development.

101.9 Effective date of this code. Only those standards approved by the California Building Standards Commission that are effective at the time an application for a building permit is submitted shall apply to the plans and specifications for, and to the construction performed under, that permit. For the effective dates of the provisions contained in this code, see the

appropriate application matrix in Chapter 11 of this code and the History Note page of this code.

101.10 Mandatory requirements. This code contains both voluntary and mandatory green building measures. Mandatory and voluntary measures are identified in the appropriate application matrix contained in Chapter 11 of this code.

101.11 Effective use of this code. The following steps shall be used to establish which provisions of this code are applicable to a specific occupancy:

1. Establish the type of occupancy.
2. Verify which state agency has authority for the established occupancy by reviewing the authorities list Sections 103 through 106.
3. Once the appropriate agency has been identified, find the application matrix for that agency in Chapter 11.
4. The application matrix will list the green building measures adopted and provide the effective date and other information regarding each green building measure applicable to the established occupancy.
5. Each green building measure listed in the application matrix has a section number which correlates with a section number in Chapters 4 through 8.
6. More information is available for each green building measure listed in the application matrix in the correlated sections contained in Chapters 4 through 8.

SECTION 102
CONSTRUCTION DOCUMENTS AND INSTALLATION VERIFICATION

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

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

102.2 Information on construction documents. Construction documents shall be of sufficient clarity to indicate the location, nature and scope of the proposed green building feature and show that it will conform to the provisions of this code, the *California Building Standards Code* and other relevant laws, ordinances, rules and regulations as determined by the enforcing agency.

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

SECTION 103
BUILDING STANDARDS COMMISSION

103.1 Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

1. **All occupancies.**

   Application—State buildings (all occupancies), including buildings constructed by the Trustees of the California State University and the Regents of the University of California and all occupancies where no state agency has the authority to adopt building standards applicable to such buildings.
   Enforcing agency—State or local agency specified by the applicable provisions of law.
   Authority cited—Health and Safety Code Sections 18934.5 and 18938 (b).
   Reference—Health and Safety Code, Division 13, Part 2.5, commencing with Section 18901.

2. **University of California, California State Universities and California community colleges.**

   Application—Standards for lighting for parking lots and primary campus walkways at the University of California, California State Universities and California community colleges.
   Enforcing agency—State or local agency specified by the applicable provisions of law.
   Authority cited—Government Code Section 14617.
   Reference—Government Code Section 14617.

3. **Existing state-owned buildings, including those owned by the University of California and by the California State University.**

   Application—Building seismic retrofit standards including abating falling hazards of structural and nonstructural components and strengthening of building structures. See also Division of the State Architect.
   Enforcing agency—State or local agency specified by the applicable provisions of law.
   Authority cited—Government Code Section 16600.
   Reference—Government Code Sections 16600 through 16604.

4. **Unreinforced masonry bearing wall buildings.**

   Application—Minimum seismic strengthening standards for buildings specified in Appendix Chapter 1 of the *California Code for Building Conservation,* except for buildings subject to building standards adopted pursuant to Part 1.5 (commencing with Section 17910).
   Enforcing agency—State or local agency specified by the applicable provisions of law.
   Authority cited—Health and Safety Code Section 18934.6.
   Reference—Health and Safety Code Sections 18901 through 18949.

SECTION 104
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

104.1 Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

1. Housing construction.

Application—Hotels, motels, lodging houses, apartment houses, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory-built housing and other types of dwellings containing sleeping accommodations with or without common toilet or cooking facilities including accessory buildings, facilities and uses thereto. Sections of this code which pertain to applications listed in this section are identified in the Matrix Adoption Table using the abbreviation "HCD 1."
Enforcing agency—Local building department or the Department of Housing and Community Development.
Authority cited—Health and Safety Code Sections 17921, 17922 and 19990.
Reference—Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

SECTION 105
DIVISION OF THE STATE ARCHITECT

105.1 Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated

105.1.1 Application—The Division of the State Architect - Structural Safety (DSA-SS) is authorized by law to promulgate building standards and administrative regulations for application to public elementary and secondary schools, and community colleges.
Enforcing agency—The Division of the State Architect - Structural Safety (DSA-SS) has been delegated the responsibility and authority by the Department of General Services to review and approve the design and observe the construction of public elementary and secondary schools, and community colleges.
Authority cited—Education Code Sections 17310 and 81142.
Reference—Education Code Sections 17280 through 17317, and 81130 through 81147.

105.1.2 Applicable administrative standards.

1. Title 24, Part 1, ***California Code of Regulations:***
Sections 4-301 through 4-355, Group 1, Chapter 4, for public elementary and secondary schools, and community colleges.

2. Title 24, Part 2, ***California Code of Regulations:***

2.1. Sections 101 and 109.2 of Chapter 1.

2.2. Sections 102.1, 102.2, 102.3, 102.4, 102.5, 104.9, 104.10 and 104.11 of Appendix Chapter 1.

105.1.3 Applicable building standards. *California Building Standards Code*, Title 24, Parts 2, 3, 4, 5, 6, 9 and 12, *California Code of Regulations*, for school buildings and community colleges.

Green building standards contained in Part 11, Title 24 are not adopted at this time for mandatory application to public schools and community colleges. DSA-SS will be proposing the adoption of green building standards into Part 11 of the 2010 edition Title 24 *California Building Standards Code.*

SECTION 106
OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT

106.1 OSHPD 1. Specific scope of application of the agency responsible for enforcement, enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

Application—General acute care hospitals and acute psychiatric hospitals, excluding distinct part units or distinct part freestanding buildings providing skilled nursing or intermediate care services. For structural regulations: Skilled nursing facilities and/or intermediate care facilities except those skilled nursing facilities and intermediate care facilities of single-story, Type V, wood or light steel-frame construction.
Enforcing agency—Office of Statewide Health Planning and Development (OSHPD). The office shall enforce the Division of the State Architect—Access Compliance regulations and the regulations of the Office of the State Fire Marshal for the above stated facility types.

106.1.1 Applicable administrative standards.

1. Title 24, Part 1, *California Code of Regulations:* Chapters 6 and 7.
2. Title 24, Part 2, *California Code of Regulations:* Sections 101 and 110 of Chapter 1 and Appendix Chapter 1.

106.1.2 Applicable building standards. *California Building Standards Code,* Title 24, Parts 2, 3, 4, 5, 9 and 12.

106.1.3 Identification of amendments. For applications listed in Section 106.1, amendments appear in this code preceded with the acronym [OSHPD 1].

Authority—Health and Safety Code Sections 127010, 127015, 1275 and 129850.
References—Health and Safety Code Sections 19958, 127010, 127015, 129680, 1275 and 129675 through 130070.

106.2 OSHPD 2. Specific scope of application of the agency responsible for enforcement, enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

Application—Skilled nursing facilities and intermediate care facilities, including distinct part skilled nursing and intermediate care services on a general acute care or acute psychiatric

hospital license, provided either are in a separate unit or a freestanding building. For structural regulations: Single-story, Type V skilled nursing facility and/or intermediate care facilities utilizing wood or light steel-frame construction.
Enforcing agency—Office of Statewide Health Planning and Development (OSHPD). The office shall also enforce the Division of the State Architect—Access Compliance regulations and the regulations of the Office of the State Fire Marshal for the above-stated facility type.

106.2.1 Applicable administrative standards.

1. Title 24, Part 1, *California Code of Regulations:* Chapter 7.
2. Title 24, Part 2, *California Code of Regulations:* Sections 101 and 110 of Chapter 1 and Appendix Chapter 1.

106.2.2 Applicable building standards. *California Building Standards Code,* Title 24, Parts 2, 3, 4, 5, 9 and 12.

106.2.3 Identification of amendments. For applications listed in Section 106.2, amendments appear in this code preceded with the acronym [OSHPD 2].

Authority cited—Health and Safety Code Sections 127010, 127015, 1275 and 129850.
References—Health and Safety Code Sections 127010, 127015, 1275 and 129680.

106.3 OSHPD 3. Specific scope of application of the agency responsible for enforcement, enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

Application—Licensed clinics and any freestanding building under a hospital license where outpatient clinical services are provided.
Enforcing agency—Local building department.

106.3.1 Applicable administrative standards.

1. Title 24, Part 1, *California Code of Regulations:* Chapter 7.
2. Title 24, Part 2, *California Code of Regulations:* Sections 101 and 110 of Chapter 1 and Appendix Chapter 1.

106.3.2 Applicable building standards. *California Building Standards Code,* Title 24, Parts 2, 3, 4, 5, 9 and 12.

106.3.3 Identification of amendments. For applications listed in Section 106.3, amendments appear in this code without the acronym [OSHPD 3].

Authority cited—Health and Safety Code Sections 127010, 127015 and 1226.
References—Health and Safety Code Sections 127010, 127015, 129885 and 1226, Government Code Section 54350 and State Constitution Article 11, Section 7.

106.4 OSHPD 4. Specific scope of application of the agency responsible for enforcement, enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

Application—Correctional treatment centers.
Enforcing agency—Office of Statewide Health Planning and Development (OSHPD). The office shall also enforce the Division of the State Architect—Access Compliance regulations and the regulations of the Office of the State Fire Marshal for the above-stated facility types.

106.4.1 Applicable administrative standards.

1. Title 24, Part 1, *California Code of Regulations:* Chapter 7.
2. Title 24, Part 2, *California Code of Regulations:* Sections 101 and 110 of Chapter 1 and Appendix Chapter1.

106.4.2 Applicable building standards. *California Building Standards Code*, Title 24, Parts 2, 3, 4, 5, 9 and 12.

106.4.3 Identification of amendments. For applications listed in Section 106.4, amendments appear in this code preceded with the acronym [OSHPD 4], unless the entire chapter is applicable.

Authority cited—Health and Safety Code Sections 127010, 127015 and 129790.
References—Health and Safety Code Sections 127010, 127015, 1275 and 129675 through 130070.

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 2—DEFINITIONS

Adopting agency	BSC	SFM	HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
			1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire CA chapter	X		X					X	X	X	X								
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below																			
Chapter/Section																			

CHAPTER 2
DEFINITIONS

SECTION 201
GENERAL

201.1 Scope. Unless otherwise stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this chapter.

201.2 Interchangeability. Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

201.3 Terms defined in other documents. Where terms are not defined in this code and are defined in the *California Building Standards Code* or other referenced documents, such terms shall have the meanings ascribed to them as in those publications.

201.4 Terms not defined. Where terms are not defined as specified in this section, such terms shall have ordinarily accepted meanings such as the context implies.

SECTION 202
DEFINITIONS

AUTOMATIC. Automatic means capable of operating without human intervention.

BUILDING ENVELOPE. The ensemble of exterior and demising partitions of a building that enclose conditioned space.

CALIFORNIA BUILDING CODE. The current version of the *California Building Code.*

CALIFORNIA ELECTRICAL CODE. The current version of the *California Electrical Code.*

CALIFORNIA ENERGY CODE. The current version of the *California Energy Code.*

CALIFORNIA MECHANICAL CODE. The current version of the *California Mechanical Code.*

CALIFORNIA PLUMBING CODE. The current version of the *California Plumbing Code.*

CONDITIONED SPACE. A space in a building that is either directly conditioned or indirectly conditioned.

COOLING EQUIPMENT. Equipment used to provide mechanical cooling for a room or rooms in a building.

ENERGY COMMISSION. The California State Energy Resources Conservation and Development Commission.

ENFORCING AGENCY. The designated department or agency as specified by statute or regulation.

GREEN BUILDING. A holistic approach to design, construction, and demolition that minimizes the building's impact on the environment, the occupants and the community.

INFILTRATION. An uncontrolled inward air leakage from outside a building or unconditioned space, including leakage through cracks and interstices, around windows and doors and through any other exterior or demising partition or pipe or duct penetration.

KITCHEN. That portion in a residential dwelling unit that is a room or area used for cooking, food storage and preparation and washing dishes, including associated counter tops and cabinets, refrigerator, stove, ovens and floor area.

LOW-RISE RESIDENTIAL BUILDING. A building, other than a hotel/motel, that is of Occupancy Group R, Division 1, and is three stories or less, or that is of Occupancy Group R, Division 3.

OUTDOOR AIR (Outside air). Air taken from outdoors and not previously circulated in the building.

RESIDENTIAL BUILDING. (See "low-rise residential building.")

VAPOR BARRIER. Material that has a permeance of one perm or less and that provides resistance to the transmission of water vapor.

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 3—GREEN BUILDING

Adopting agency	BSC	SFM	HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
			1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire CA chapter	X		X					X	X	X	X								
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below																			
Chapter/Section																			

CHAPTER 3
GREEN BUILDING

SECTION 301
GENERAL

301.1 Scope. Buildings shall be designed to include the green building measures specified as mandatory in the application matrices contained in Chapter 11 of this code. Voluntary green building measures may be included but are not required.

SECTION 302
MIXED OCCUPANCY BUILDINGS

302.1 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.

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 4—PLANNING AND DESIGN

			HCD			DSA		OSHPD											
Adopting agency	BSC	SFM	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire CA chapter																			
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below	X		X																
Chapter/Section																			
401.1	X		X																
402.1	X		X																
402.1 WATTLES	X		X																
406.1	X		X																
406.2	X		X																

CHAPTER 4
PLANNING AND DESIGN

SECTION 401
GENERAL

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

SECTION 402
DEFINITIONS

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

WATTLES. Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.

SECTION 403
SITE SELECTION
(Reserved)

SECTION 404
SITE PRESERVATION
(Reserved)

SECTION 405
DECONSTRUCTION AND REUSE OF EXISTING STRUCTURES
(Reserved)

SECTION 406
SITE DEVELOPMENT

406.1 General. Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.

406.2 Storm water drainage and retention during construction. Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall develop a plan to manage storm water drainage during construction. A plan to manage storm water drainage during construction shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site. One or more of the followings methods shall be utilized to manage storm water drainage.

1. Retention basins of sufficient size shall be utilized to retain storm water on the site.
2. Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattles or other method approved by the enforcing agency.
3. Compliance with a lawfully enacted storm water management ordinance.

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 5—ENERGY EFFICIENCY

			HCD			DSA		OSHPD											
Adopting agency	BSC	SFM	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire CA chapter																			
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below	X		X					X	X	X	X								
Chapter/Section																			
501.1	X		X																
501.1 with amendment								X	X	X	X								
502.1 Definitions—General	X		X																
502.1 BUILDING COMMISSIONING	X																		
502.1 ENERGY STAR	X						X	X	X	X	X								
502.1 DEMAND RESPONSE AUTOMATION INTERNET SOFTWARE CLIENT	X																		
502.1 GEOTHERMAL	X																		
502.1 OVERCURRENT PROTECTION DEVICE RATING	X																		
502.1 PROCESS	X																		
502.1 TIME DEPENDENT VALUATION	X																		
503.1	X																		
503.2			X																
504.1	X						X	X	X	X	X								
504.2	X																		
504.3	X																		
504.4	X																		
504.5	X																		
504.5 Items 1 & 2 only	X						X	X	X	X	X								
504.6			X																
506.1			X																
511.1	X																		
511.2	X																		
512.1	X																		
513.1	X																		

CHAPTER 5
ENERGY EFFICIENCY

SECTION 501
GENERAL

501.1 Scope. The provisions of this chapter shall outline means of achieving enhanced building energy efficiency **[OSHPD 1, 2, 3 & 4]** using either a performance approach or a prescriptive approach.

SECTION 502
DEFINITIONS

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

BUILDING COMMISSIONING. A systematic quality assurance process that spans the entire design and construction process. Building commissioning helps ensure that a new building's performance meets owner expectations by verifying and documenting that building systems and components are planned, designed, installed, tested, operated and maintained to meet the owner's project requirements.

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

DEMAND RESPONSE AUTOMATION INTERNET SOFTWARE CLIENT. Software that resides in a building Energy Management Control System that can receive a demand response signal and automatically reduce HVAC and lighting system loads. Demand Response programs developed by Utilities and ISOs depend upon timely and reliable communications of events and information to the buildings that are participating in the programs.

GEOTHERMAL. Renewable energy generated by deep-earth water or steam.

OVERCURRENT PROTECTION DEVICE RATING. The highest current at rated voltage that an overcurrent protection device is intended to interrupt under standard test conditions.

PROCESS. An activity or treatment that is not related to the space conditioning, lighting, service water heating or ventilating of a building as it relates to human occupancy.

TIME-DEPENDENT VALUATION (TDV) ENERGY. The time varying energy caused to be used by the building to provide space conditioning and water heating and for specified buildings lighting. TDV energy accounts for the energy cost used at the building site and consumed in producing and in delivering energy to a site, including, but not limited to, power generation, transmission and distribution losses.

SECTION 503
PERFORMANCE APPROACH

503.1 Energy performance. For the purposes of energy efficiency standards in this code the California Energy Commission will continue to adopt mandatory building standards. It is the intent of this code to encourage green buildings to achieve exemplary performance in the area of energy efficiency. Specifically, a green building should achieve more than a 15 percent reduction in energy usage when compared to the State's mandatory energy efficiency standards.

Using an Alternative Calculation Method approved by the California Energy Commission, calculate each nonresidential building's TDV energy and CO2 emissions, and compare it to the standard or "budget" building.

503.1.1 Tier 1. Exceed 2007 *California Energy Code* requirements by 15 percent.

503.1.2 Tier 2. Exceed 2007 *California Energy Code* requirements by 30 percent.

Field verify and document the measures and calculations used to reach the desired level of efficiency following the requirements specified in the *Title 24 Nonresidential Alternative Calculation Method Manual*.

503.2 Minimum energy performance for low-rise residential buildings. Low-rise residential buildings shall meet or exceed the minimum performance or prescriptive standard design required by the *California Energy Code* currently in effect.

SECTION 504
PRESCRIPTIVE APPROACH

504.1 ENERGY STAR equipment and appliances. All equipment and appliances provided by the builder shall be ENERGY STAR labeled if ENERGY STAR is applicable to that equipment or appliance.

504.2 Energy monitoring. Provide submetering or equivalent combinations of sensor measurements and thermodynamic calculations, if appropriate, to record energy use data for each major energy system in the building, including chillers, heat pumps, packaged AC systems, fans, pumps, cooling towers, boilers and other heating systems, lighting systems and process loads. This energy use data, once collected, shall be stored within a data management system.

504.2.1 Data storage. The data management system must be capable of electronically storing energy data and creating user reports showing hourly, daily, monthly and annual energy consumption for each major energy system. Hourly data shall be retained a minimum of 30 days, daily data shall be retained a minimum of 6 months and monthly data shall be retained a minimum of 2 years.

504.2.2 Data access. Hourly energy use data shall be accessible through a central data management system and must be available daily.

504.3 Demand response. HVAC systems with Direct Digital Control Systems and centralized lighting systems shall include preprogrammed demand response strategies that are automated with either a Demand Response Automation Internet Software Client or dry contact relays.

504.3.1 HVAC. The preprogrammed demand response strategies shall be capable of reducing the peak HVAC demand by cooling temperature set point adjustment.

504.3.2 Lighting. The preprogrammed demand response strategies shall be capable of reducing the total lighting load by a minimum 30 percent through dimming control or bilevel switching.

504.3.3 Software clients. The software clients shall be capable of communicating with a DR Automation Server.

504.4 Commissioning. 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 project requirements. Commissioning shall be performed in accordance with this section by personnel trained and certified in commissioning by a nationally recognized organization. Commissioning requirements shall include as a minimum:

1. Owner's project requirements
2. Basis of design
3. Commissioning measures shown in the construction documents
4. Commissioning plan
5. Functional performance testing
6. Postconstruction documentation and training
7. Commissioning report

All building systems and components covered by Title 24, Part 6, as well as process equipment and controls, and renewable energy systems shall be included in the scope of the Commissioning Requirements.

504.4.1 Owner's project requirements (OPR). The expectations and requirements of the building shall be documented before the design phase of the project begins. At a minimum, this documentation shall include the following:

1. Environmental and sustainability goals
2. Energy efficiency goals
3. Indoor environmental quality requirements
4. Equipment and systems expectations
5. Building occupant and O&M personnel expectations

504.4.2 Basis of design (BOD). A written explanation of how the design of the building systems meets the owner's project requirements shall be completed at the design phase of the building project, and updated as necessary during the design and construction phases. At a minimum, the basis of design document shall cover the following systems:

1. Heating, ventilation, air conditioning (HVAC) systems and controls
2. Indoor lighting system and controls
3. Water heating system
4. Renewable energy systems

504.4.3 Commissioning plan. A commissioning plan shall be completed to document the approach to how the project will be commissioned and shall be started during the design phase of the building project. The commissioning plan shall include the following at a minimum:

1. General project information
2. Commissioning goals
3. Systems to be commissioned. Plans to test systems and components shall include at a minimum:
   a. A detailed explanation of the original design intent
   b. Equipment and systems to be tested, including the extent of tests
   c. Functions to be tested
   d. Conditions under which the test shall be performed
   e. Measurable criteria for acceptable performance
4. Commissioning team information
5. Commissioning process activities, schedules and responsibilities – plans for the completion of commissioning requirements listed in Sections 504.4.4 through 504.4.6 shall be included.

504.4.4 Functional performance testing. Functional performance tests shall demonstrate the correct installation and operation of each component, system and system-to-system interface in accordance with the approved plans and specifications. Functional performance testing reports shall contain information addressing each of the building components tested, the testing methods utilized, and include any readings and adjustments made.

504.4.5 Postconstruction documentation and training. A systems manual and systems operations training are required.

504.4.5.1 Systems manual. Documentation of the operational aspects of the building shall be completed within the systems manual and delivered to the building owner and facilities operator. At a minimum, the systems manual shall include the following:

1. Site information, including facility description, history and current requirements
2. Site contact information
3. Basic operations and maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log
4. Major systems
5. Site equipment inventory and maintenance notes
6. Other resources and documentation

504.4.5.2 Systems operations training. The training of the appropriate maintenance staff for each equipment type and/or system shall include, as a minimum, the following:

1. System/equipment overview (what it is, what it does and what other systems and/or equipment it interfaces with).
2. Review of the information in the systems manual.
3. Review of the record drawings on the system/equipment.

504.4.6 Commissioning report. A complete report of commissioning process activities undertaken through the design, construction and postconstruction phases of the building project shall be completed and provided to the owner.

504.5 Building orientation and shading. Locate, orient and shade the building as follows:

1. Provide exterior shade for south-facing windows during the peak cooling season.
2. Provide vertical shading against direct solar gain and glare due to low altitude sun angles for east- and west-facing windows.
3. When site and location permit, orient the building with the long sides facing north and south.
4. Protect the building from thermal loss, drafts and degradation of the building envelope caused by wind and wind-driven materials such as dust, sand, snow and leaves with building orientation and landscape features.

504.5.1 Shading with vegetation. As applicable, comply with local ordinance, Chapter 7A of the 2007 *California Building Code* and, Chapter 47 of the *California Fire Code* for locations designated by the enforcing agency as having a significant risk for wildfires.

504.5.2 Sun angle calculations. For information on sun angles and shading, visit http://www2.aud.ucla.edu/energy-design-tools/. Calculations may be made using the Solar-2 tool.

504.6 Minimum energy performance for low-rise residential buildings. Low-rise residential buildings shall meet or exceed the minimum performance or prescriptive standard design required by the *California Energy Code* currently in effect.

SECTION 505
BUILDING ENVELOPE
(Reserved)

SECTION 506
AIR SEALING PACKAGE

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

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

506.1.1 Other openings. Whole house exhaust fans shall have insulated louvers or covers which close when the fan is off. Covers or louvers shall have a minimum insulation value of R-4.2.

SECTION 507
HVAC DESIGN, EQUIPMENT AND INSTALLATION
(Reserved)

SECTION 508
WATER HEATING DESIGN, EQUIPMENT AND INSTALLATION
(Reserved)

SECTION 509
LIGHTING
(Reserved)

SECTION 510
APPLIANCES
(Reserved)

SECTION 511
RENEWABLE ENERGY

511.1 On-site renewable energy. Use on-site renewable energy sources such as solar, wind, geothermal, low-impact hydro, biomass and bio-gas for at least 1 percent of the electric power calculated as the product of the building service voltage and the amperage specified by the electrical service overcurrent protection device rating or 1kW (whichever is greater), in addition to the electrical demand required to meet 1 percent of the natural gas and propane use. The building project's electrical service overcurrent protection device rating shall be calculated in accordance with the 2007 *California Electrical Code.* Natural gas or propane use is calculated in accordance with the 2007 *California Plumbing Code.*

511.1.1 Documentation. Calculate renewable on-site energy cost savings as a percentage of estimated local utility rates for conventional fuel types. Factor in net-metering, if offered by local utility, on an annual basis.

511.2 Green power. Using a calculation method approved by the California Energy Commission, calculate the renewable on-site energy system to meet the requirements of Section 511.1, expressed in kW. Factor in net-metering, if offered by local utility, on an annual basis.

SECTION 512
ELEVATORS, ESCALATORS AND OTHER EQUIPMENT

512.1 Elevators and escalators. In buildings with more than one elevator or two escalators, provide controls to reduce the energy demand of elevators for part of the day and escalators to reduce speed when no traffic is detected. Document the controls in the project specifications and commissioning plan.

512.1.1 Controls. Controls that reduce energy demand shall meet requirements of CCR, Title 8, Chapter 4, Subchapter 6 and shall not interrupt emergency operations for elevators required in CCR, Title 24, Part 2, *California Building Code.*

SECTION 513
ENERGY EFFICIENT STEEL FRAMING

513.1 Steel framing. Design steel framing for maximum energy efficiency. Techniques for avoiding thermal bridging in the envelope include:

1. Punching large holes in the stud web without affecting its structural integrity,
2. Spacing the studs as far as possible while maintaining the structural integrity of the structure,
3. Exterior rigid insulation, and
4. Detailed design of intersections of wall openings and building intersections of floors, walls, and roofs.

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 6—WATER EFFICIENCY AND CONSERVATION

Adopting agency	BSC	SFM	HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
			1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire CA chapter																			
Adopt entire chapter																			
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below	X		X																
Chapter/Section																			
601.1	X		X																
602.1 Definitions—General	X		X																
602.1 DENSITY FACTOR	X																		
602.1 EVAPOTRANSPIRATION	X																		
602.1 GRAYWATER	X																		
502.1 GEOTHERMAL	X																		
602.1 HISTORICAL EVAPOTRANSPIRATION	X																		
602.1 LANDSCAPE (PLANT) COEFFIECIENT	X																		
602.1 MICROCLIMATE FACTOR	X																		
602.1 MODEL WATER EFFICIENT LANDSCAPE ORDINANCE	X																		
602.1 PLANT SPECIES FACTOR	X																		
602.1 POTABLE WATER	X																		
602.1 RECYCLED WATER	X																		
602.1 REFERENCE EVAPOTRANSPIRATION	X																		
602.1 SUBMETER	X																		
603.1	X																		
603.2 Items 1 & 2	X		X																
603.2.1			X																
Table 603.1	X		X																
Table 603.2	X		X																
603.3	X																		
Table 603.3	X																		
603.4	X																		
603.5	X																		
604.1	X																		
604.2	X																		
604.3	X																		
604.4	X																		
604.5	X																		

CHAPTER 6

WATER EFFICIENCY AND CONSERVATION

SECTION 601
GENERAL

601.1 Scope. The provisions of this chapter shall establish the means of conserving water used indoors, outdoors and in wastewater conveyance.

SECTION 602
DEFINITIONS

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

DENSITY FACTOR [Kd]{dimensionless}. The coefficient used to modify Ks to reflect the water needs of a particular plant or group of plants with reference to the density of the plant material. Kd ranges from 0.5 for a sparse planting to 1.3 for very dense plantings and averages 1.0. (Landscape, 2000).

EVAPOTRANSPIRATION [ET]. The combination of water transpired from plant tissues and evaporated from the soil and plant surfaces measured in inches per unit of time.

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

HISTORICAL EVAPOTRANSPIRATION [Historical ETo]. A multiple-year average of recorded historical reference ETo data from a weather station or evaporative pan in a given geographic location. This value is typically a monthly average of the specific month in a given multiyear time frame. This value, when corrected for plant species characteristics, can be used as a baseline to evaluate the expected water needs of a landscape planting in that geographic area.(FAO 1998; ASCE, 1990)

LANDSCAPE (PLANT) COEFFICIENT [Kl]. The product of the species factor multiplied by the density factor and the microclimate factor. {Kl = Ks × Kd × Kmc} The landscape coefficient is used in the landscape water budget calculation. (UCCE, 2000)

MICROCLIMATE FACTOR [Kmc]. The coefficient used to modify Ks to reflect water needs of a particular plant or group of plants with reference to the microclimate of the planting area. Microclimate factors include sun exposure, proximity to reflective surfaces, and windy locations. Kmc ranges from 0.5 for low microclimate factors to 1.4 for high microclimate factors. (UCCE, 2000)

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

PLANT SPECIES FACTOR, [Ks]{dimensionless}. A factor or coefficient used to adjust reference evapotranspiration to reflect water use by a particular plant species. Ks ranges from < 0.1 for very low water using plants, 0.1–0.3 for low water using, 0.4–0.6 moderate water using to 0.7–0.9 for high water using plants. The Ks for cool season turfgrass is 0.8 and for warm season turfgrass is 0.6.

POTABLE WATER. Water that is drinkable and meets the U.S. Environmental Protection Agency (EPA) Drinking Water Standards. See definition in the *California Plumbing Code,* Part 5.

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

REFERENCE EVAPOTRANSPIRATION [ETo]. The estimated rate of evapotranspiration from a standardized surface of well watered, actively growing cool season turfgrass clipped to 12 cm with sufficient density to fully shade the soil. The water needs of a landscape planting can be calculated by multiplying the Landscape Coefficient [Kl] and Reference Evapotranspiration {ETo}

SUBMETER. A meter installed subordinate to a site meter. Usually used to measure water intended for one purpose, such as landscape irrigation, also known as a dedicated meter.

SECTION 603
INDOOR WATER USE

603.1 Meters. Separate meters or submeters shall be installed for indoor and outdoor potable water use.

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

1. Each plumbing fixture and fitting shall meet the 20 percent reduced flow rate specified in Table 603.2, or
2. A calculation demonstrating a 20 percent reduction in the building "water use baseline" as established in Table 603.1 shall be provided. For low-rise residential occupancies, the calculation shall be limited to the following

plumbing fixture and fitting types: water closets, urinals, lavatory faucets and showerheads.

603.2.1 Multiple showerheads serving one shower. When single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the 20 percent reduction column contained in Table 603.2, or the shower shall be designed to only allow one showerhead to be in operation at a time.

TABLE 603.1
WATER USE BASELINE[5]

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

Fixture "water use" = flow rate x duration x occupants x daily uses

1. Except for low-rise residential occupancies, the daily use number shall be increased to three if urinals are not installed in the room.
2. The flow rate is from the CEC Appliance Efficiency Standards, Title 20, *California Code of Regulations*; where a conflict occurs, the CEC standards shall apply.
3. For low rise residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.
4. For nonresidential occupancies, refer to Table A, Chapter 4, 2007 *California Plumbing Code*, for occupant load factors.
5. Use worksheet WS-1 to calculate base line water use.

TABLE 603.2
FIXTURE FLOW RATES

FIXTURE TYPE	FLOW RATE	MAXIMUM FLOW RATE AT 20% REDUCTION
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi
Lavatory faucets residential	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi
Kitchen faucets	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi
Wash fountains	2.2 [rim space (in.) / 20 gpm @ 60 psi]	1.8 [rim space (in.) / 20 gpm @ 60 psi]
Metering faucets	0.25 gallons/cycle	0.2 gallons/cycle
Metering faucets for wash fountains	.25 [rim space (in.) / 20 gpm @ 60 psi]	.20 [rim space (in.) / 20 gpm @ 60 psi]
Gravity tank type water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Flushometer tank water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Flushometer valve water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Electromechanical hydraulic water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Urinals	1.0 gallons/flush	.8 gallons/flush

1. Includes water closets with an effective flush rate of 1.28 gallons or less when tested per ASME A112.19.2 and ASME A112.19.14.

603.3 Appliances.

1. Clothes washer shall have a maximum water factor (WF) that will reduce the use of water by 10 percent below the California Energy Commission's WF standards for commercial clothes washers located in Title 20 of the *California Code of Regulations.*
2. Dishwashers shall meet the following water use standards:
   a. Residential—5.8 gallons per cycle
   b. Commercial—refer to Table 603.3

TABLE 603.3
COMMERCIAL DISHWASHER WATER USE

TYPE	HIGH-TEMPERATURE—MAXIMUM GALLONS PER RACK	CHEMICAL—MAXIMUM GALLONS PER RACK
Conveyer	0.70	0.62
Door	0.95	1.16
Undercounter	0.90	0.98

3. Ice makers shall be air cooled.
4. Food steamers shall be connection-less or boiler-less.
5. The use and installation of water softeners that discharge to the community sewer system shall be limited or prohibited by local agencies if certain conditions are met.

603.4 Wastewater reduction. Each building shall reduce the generation of wastewater by one of the following methods:

1. The installation of water-conserving fixtures (water closets, urinals) meeting the criteria established in Sections 603.2 or 603.3, or
2. Utilizing nonpotable water systems (captured rainwater, graywater and municipally treated wastewater (recycled water).

603.5 Dual plumbing. New buildings and facilities shall be dual plumbed for potable and recycled water systems for toilet flushing when recycled water is available as determined by the enforcement authority.

SECTION 604
OUTDOOR WATER USE

604.1 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.

604.2 Potable water reduction. Provide water efficient landscape irrigation design that reduces by 50 percent the use of potable water beyond the initial requirements for plant installation and establishment. Calculations for the reduction shall be based on the water budget developed pursuant to section 604.1.

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 be limited to, the following:

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

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

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

604.4 Graywater irrigation system. Install a graywater collection system for onsite subsurface irrigation using graywater collected from bathtubs, showers, bathroom wash basins and

laundry water. See Appendix G, 2007 *California Plumbing Code*.

604.5 Rainwater or stormwater collection systems. Either as a site design feature (vegetated swales, etc.), or as a constructed system (rain cistern, etc.), rain cisterns and other constructed water collection devices may store water for landscape irrigation.

SECTION 605
RECYCLED (RECLAIMED) AND GRAYWATER SYSTEMS
(Reserved)

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 7—MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

			HCD			DSA		OSHPD											
Adopting agency	BSC	SFM	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire CA chapter																			
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below	X		X					X	X	X	X								
Chapter/Section	X		X					X	X	X	X								
701.1	X		X					X	X	X	X								
702.1 Definitions—General	X		X					X	X	X	X								
702.1 EMBODIED ENERGY	X																		
702.1 LIFE CYCLE ASSESSMENT (LCA)	X																		
702.1 OVE	X																		
702.1 POSTCONSUMER CONTENT	X																		
702.1 PRECONSUMER CONTENT	X																		
702.1 RECYCLED CONTENT	X							X	X	X	X								
702.1 RECYCLED CONTENT VALUE (RCV)	X																		
704.1	X																		
705.1	X																		
705.2	X																		
705.3	X																		
705.4	X																		
706.1	X																		
707.1	X																		
707.2	X																		
708.1	X							X	X	X	X								
708.2	X																		
708.3	X		X					X	X	X	X								
708.4	X							X	X	X	X								
709.1	X																		
710.1	X							X	X	X	X								
710.1, Note	X																		
710.2			X																

CHAPTER 7

MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 701
GENERAL

701.1 Scope. The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through reuse of existing building stock and materials; use of recycled, regional, rapidly renewable and certified wood materials; and employment of techniques to reduce pollution through recycling of materials and reduction of building pollutants prior to occupancy.

SECTION 702
DEFINITIONS

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

EMBODIED ENERGY. The energy used for raw material extraction, transportation, manufacturing, assembly, installation, and disposal during the life of a product, including the potential energy stored within the product.

LIFE CYCLE ASSESSMENT (LCA). A technique to evaluate the relevant energy and material consumed and environmental emissions associated with the entire life of a product, process, activity or service.

OVE. Optimal value engineering, another term for advanced wood framing techniques.

POSTCONSUMER CONTENT. Waste material generated by consumers after it is used and which would otherwise be discarded.

PRECONSUMER (or POSTINDUSTRIAL) CONTENT. Material diverted from the waste stream during one manufacturing process, including scraps, damaged goods and excess production, that is used in another manufacturing process.

RECYCLED CONTENT. Refer to International Organization of Standards ISO 14021—Environmental labels and declarations—Self-declared environmental claims (Type II environmental labeling).

RECYCLED CONTENT VALUE (RCV). Material cost multiplied by postconsumer content plus $^1/_2$ the preconsumer content, or RCV = $ × (postconsumer content + $^1/_2$ preconsumer content).

SECTION 703
FOUNDATION SYSTEMS
(Reserved)

SECTION 704
EFFICIENT FRAMING TECHNIQUES

704.1 Wood framing. Employ advanced wood framing techniques, or OVE, as recommended by the U.S. Department of Energy's Office of Building Technology, State and Community Programs and as permitted by the enforcing agency.

704.1.1 Structural integrity. The OVE selected shall not conflict with structural framing methods required by the 2007 *California Building Code.*

704.1.2 Framing specifications. Advanced framing techniques include the following:

1. Building design using 2-foot modules,
2. Spacing wall studs up to 24 inches on center,
3. Spacing floor and roof framing members up to 24 inches on center,
4. Using 2-stud corner framing and drywall clips or scrap lumber for drywall backing,
5. Eliminating solid headers in nonload-bearing walls,
6. Using in-line framing, aligning floor, wall and roof framing members vertically for direct transfer of loads, and
7. Using single lumber headers and top plates where appropriate.

Additional information can be obtained at the following website: http://www.eere.energy.gov/buildings/info/publications.html#technology%20fact%20sheets

SECTION 705
MATERIAL SOURCES

705.1 Regional materials. Compared to other products in a given product category, select building materials or products for permanent installation on the project that have been harvested or manufactured in California or within 500 miles of the project site.

1. For those materials locally manufactured, select materials manufactured using low embodied energy or those that will result in net energy savings over their useful life.
2. Regional materials shall make up at least 10 percent, based on cost, of total materials value.
3. If regional materials make up only part of a product, their values are calculated as percentages based on weight.
4. Provide documentation of the origin, net projected energy savings and value of regional materials.

705.2 Bio-based materials. Select bio-based building materials and products made from solid wood, engineered wood, bamboo, wool, cotton, cork, straw, natural fibers, products made from crops (soy-based, corn-based) and other bio-based materials with at least 50 percent bio-based content.

705.2.1 Certified wood products. Certified wood is an important component of green building strategies, and the California Building Standards Commission will continue to develop a standard through the next code cycle.

705.2.2 Rapidly renewable materials. Use materials made from plants harvested within a ten-year cycle for at least 2.5 percent of total materials value, based on estimated cost.

705.3 Reused materials. Use salvaged, refurbished, refinished or reused materials for a minimum of 5 percent of the total value, based on estimated cost of materials on the project. Provide documentation as to the respective values.

705.3.1 Sources of reused materials. Sources of some reused materials can be found at http://www.ciwmb.ca.gov/RCP/Product.asp?VW=CAT&CATID=257

See also Appendix A, Sections A405.1 and A405.2 for on-site materials reuse.

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

705.4.1 Determination of recycled content value (RCV). The recycled content of a material assembly shall be determined by weight, and the fractional value of the weight is then multiplied by the total estimated cost of the material assembly.

705.4.2 Sources of recycled materials. Sources and recycled content of some recycled materials can be found at http://www.ciwmb.ca.gov/RCP/Product.asp?VW=CAT&CATID=257.

705.5 Cement and concrete. Use cement and concrete made with recycled products complying with Sections 705.5.1 through 705.5.3.

705.5.1 Alternative fuels. Where permitted by state or local air quality standards, use alternative fuels in the manufacture of cement.

705.5.2 Cement. Meet the following standards for cement:

1. Portland cement shall meet ASTM C 150 Specifications.
2. Blended cement shall meet ASTM C 595 or ASTM C 1157.

705.5.3 Concrete. Use concrete manufactured in accordance with Sections 705.5.3.1 and 705.5.3.2, as approved by the enforcing agency.

705.5.3.1 Industrial byproducts. Use concrete made with the following materials:

1. Fly ash meeting ASTM C 618, Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
2. Slag cement meeting ASTM C 989, Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars, up to 70 percent.
3. Silica fume meeting ASTM C 1240, Specification for Silica Fume Used in Cementitious Mixtures, up to 7 percent.

705.5.3.2 Recycled aggregates. Use concrete made with one of the following materials:

1. Blast furnace slag as a lightweight aggregate.
2. Recycled concrete that meets grading requirements of ASTM C 33, Standard Specification for Concrete Aggregates.

SECTION 706
ENHANCED DURABILITY AND REDUCED MAINTENANCE

706.1 Choice of materials. Compared to other products in a given product category, choose materials proven to be characterized by one or more of the following.

706.1.1 Service life. Select materials for longevity and minimal deterioration under conditions of use.

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

706.1.3 Recyclability. Select materials that can be reused or recycled at the end of their service life in the project.

SECTION 707
WATER RESISTANCE AND MOISTURE MANAGEMENT

707.1 Weather protection. Provide a weather-resistant exterior wall and foundation envelope as required by *California Building Code* Section 1403.2 and *California Energy Code* Section 150, manufacturer's installation instructions, or local ordinance, whichever is more stringent.

707.2 Moisture control. Employ moisture control measures by one of the following methods.

707.2.1 Sprinklers. Design and maintain landscape irrigation systems to prevent spray on structures.

707.2.2 Entries and openings. Design exterior entries and openings to prevent water intrusion into buildings, using features such as overhangs and recesses, flashings integrated with a drainage plane, and use nonpervious interior finishes in the vicinity of such openings.

SECTION 708
CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

708.1 Construction waste diversion. Establish a construction waste management plan for the diverted materials, or meet local construction and demolition waste management ordinance, whichever is more stringent.

708.2 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance, submit a construction waste management plan for approval by the enforcement authority that:

1. Identifies the materials to be diverted from disposal by efficient usage, recycling, reuse on the project, or salvage for future use or sale.
2. Determines if materials will be sorted on-site or mixed.
3. Identifies diversion facilities where material collected will be taken.
4. Specifies that the amount of materials diverted shall be calculated by weight or volume, but not by both.

708.3 Construction waste reduction of at least 50 percent. Recycle and/or salvage for reuse a minimum of 50 percent of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent. Calculate the amount of materials diverted by weight or volume, but not by both.

Exceptions:

1. Excavated soil and land-clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.

708.4 Excavated soil and land clearing debris. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled.

SECTION 709
LIFE CYCLE ASSESSMENT

709.1 Materials and system assemblies. Select materials assemblies based on life cycle assessment of their embodied energy and/or green house gas emission potentials.

709.1.1 Materials and system assemblies. Software for calculating life cycle costs for materials and assemblies may be found at:

1. The Athena Institute website at: http://www.athenasmi.ca/tools/impactEstimator/
2. The NIST BEES website at: http://www.bfrl.nist.gov/oae/software/bees/ .
3. Life cycle assessment may also be done in accordance with ISO Standard 14044, www.iso.ch.

709.1.2 Additional resources. More information on life cycle assessment may be found at the Sustainable Products Purchasers Coalition: www.sppcoalition.org; at the American Center for Life Cycle Assessment: www.lcacenter.org; at U.S. EPA Life Cycle Assessment Research: www.epa.gov/nrmrl/lcaccess/index.html; and at U.S. EPA Environmentally Preferable Products, www.epa.gov/epp.

SECTION 710
BUILDING MAINTENANCE AND OPERATION

710.1 Recycling by occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics and metals.

710.1.1 Sample ordinance. Space allocation for recycling areas shall comply with Chapter 18, Part 3, Division 30 of the Public Resources Code. Chapter 18 is known as the California Solid Waste Reuse and Recycling Access Act of 1991 (Act.) A sample ordinance for use by local agencies may be found in Appendix A of the document at the California Integrated Waste Management's website at: http://www.ciwmb.ca.gov/Publications/LocalAsst/3100012.doc

See also Section 504 for commissioning.

710.2 Operation and maintenance manual. At the time of final inspection, a manual which includes all of the following shall be placed in the building:

1. Directions to the owner or occupant that the manual shall remain with the building throughout the lifecycle of the structure.
2. Operation and maintenance instructions for the following:
   a. Equipment and appliances
   b. Roof and yard drainage, including gutters and downspouts
   c. Air filters
   d. Landscape irrigation systems
3. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption and recycle.
4. Public transportation and/or carpool options available in the area.
5. Educational material on the positive impacts of an interior relative humidity between 30–60 percent and what methods an occupant may use to maintain the relative humidity level in that range.
6. Information about water conserving landscape and irrigation design and controllers which conserve water.
7. Instructions for maintaining gutters and downspouts and importance of diverting water at least five feet away from foundation.
8. Information on required routine maintenance measures, including but not limited to, caulking, painting, grading around building, etc.

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 8—ENVIRONMENTAL QUALITY

Adopting agency	BSC	SFM	HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
			1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire CA chapter																			
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below	X		X					X	X	X	X								
Chapter/Section																			
801.1	X		X					X	X	X	X								
802.1 Definitions—General	X		X					X	X	X	X								
802.1 AGRIFIBER PRODUCTS			X																
802.1 COMPOSITE WOOD PRODUCTS	X		X					X	X	X	X								
802.1 HVAC UNITS, SMALL	X							X	X	X	X								
802.1 INTERIOR, BUILDING	X							X	X	X	X								
802.1 MERV	X		X					X	X	X	X								
802.1 MOISTURE CONTENT			X																
802.1 MULTI-OCCUPANT SPACES	X							X	X	X	X								
802.1 SINGLE OCCUPANT SPACES	X							X	X	X	X								
802.1 VOC	X		X					X	X	X	X								
803.1	X																		
804.1	X																		
804.2	X																		
804.3			X																
804.4	X		X					X	X	X	X								
804.4.1	X		X					X	X	X	X								
804.4.2	X		X					X	X	X	X								
Table 804.4.1	X		X					X	X	X	X								
Table 804.4.1, Footnote 1	X		X																
Table 804.4.2, Footnote 1								X	X	X	X								
Table 804.4.2, Footnotes 1 & 2	X		X																
804.4.3	X		X					X	X	X	X								
804.4.4	X		X					X	X	X	X								
804.4.4.1	X							X	X	X	X								
804.4.4.2	X		X					X	X	X	X								
Table 804.4.4	X		X					X	X	X	X								
804.4.5	X							X	X	X	X								
804.4.6	X							X	X	X	X								

(continued)

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 8—ENVIRONMENTAL QUALITY (continued)

			HCD			DSA		OSHPD											
Adopting agency	BSC	SFM	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire CA chapter																			
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below																			
Chapter/Section																			
804.4.7	X							X	X	X	X								
804.5	X							X	X	X	X								
804.5.1	X							X	X	X	X								
804.5.2	X																		
804.5.3	X																		
804.6	X																		
804.7	X							X	X	X	X								
805.1	X		X					X	X	X	X								
805.2			X																
805.3			X																
806.1	X		X																
806.2	X																		
806.3			X																
806.4			X																
807.1	X																		
807.2	X																		
807.3	X																		
807.4	X																		
807.5	X							X	X	X	X								

CHAPTER 8
ENVIRONMENTAL QUALITY

SECTION 801
GENERAL

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

SECTION 802
DEFINITIONS

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

AGRIFIBER PRODUCTS. Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. Composite wood products does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber as specified in "Structural Glued Laminated Timber" (ANSI A190.1-2002) or prefabricated wood I-joists.

HVAC UNITS, SMALL. Those containing less than 0.5 lbs of refrigerant.

INTERIOR, BUILDING. The inside of the weatherproofing system.

MERV. Filter minimum efficiency reporting value, based on ASHRAE 52.2-1999.

MOISTURE CONTENT. The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.

MULTI-OCCUPANT SPACES. Indoor spaces used for presentations and training, including classrooms and conference rooms.

SINGLE OCCUPANT SPACES. Private offices, workstations in open offices, reception workstations and ticket booths.

VOC. A volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).

SECTION 803
FIREPLACES

803.1 Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove, and refer to residential requirements in the *California Energy Code*, Title 24, Part 6, Subchapter 7, Section 150.

SECTION 804
POLLUTANT CONTROL

804.1 Indoor air quality (IAQ) during construction. Maintain IAQ as provided in Sections 804.1.2 and 804.1.3.

804.1.2 Temporary ventilation. Provide temporary ventilation during construction in accordance with Section 121 of the *California Energy Code*, CCR, Title 24, Part 6, and Chapter 4 of CCR, Title 8, and as follows:

1. Ventilation during construction shall be achieved through openings in the building shell using fans to produce a minimum of three air changes per hour.
2. During dust-producing operations, protect supply and return HVAC system openings from dust.
3. 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 with MERV 13 filters by Section 804.2.3 immediately prior to occupancy.
4. If the building is occupied during demolition or construction, meet or exceed the recommended Control Measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 1995, Chapter 3.

804.1.3 Additional IAQ measures. Employ additional measures as follows:

1. When using generators to generate temporary power, use generators meeting the requirements of CCR, Title 13, Chapter 9, or local ordinance, whichever is more stringent.
2. Protect on-site absorbent materials from moisture. Remove and replace any materials with evidence of mold, mildew or moisture infiltration.
3. Store odorous and high VOC-emitting materials off-site, without packaging, for a sufficient period to allow odors and VOCs to disperse.
4. When possible, once materials are on the jobsite, install odorous and high VOC-emitting materials prior to those that are porous or fibrous.
5. Clean oil and dust from ducts prior to use.

804.2 IAQ postconstruction. After construction ends, with all interior finishes installed, flush-out the building by supplying continuous ventilation with all air handling units at their maximum outdoor air rate for at least 14 days while maintaining an internal temperature of at least 60°F, and relative humidity no higher than 60 percent. Occupancy may start after 7 days, provided flush-out continues for the full 14 days. Do not "bake out" the building by increasing the temperature of the space. (If continuous ventilation is not possible, flush-out must total the equivalent of 14 days of maximum outdoor air.)

804.3 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust or debris which may collect in the system.

804.4 Finish material pollutant control. Finish materials shall comply with Sections 804.4.1 through 804.4.4.

804.4.1 Adhesives. Adhesives used on the project shall meet the requirements of the following standards.

1. Adhesives, adhesive bonding primers and adhesive primers shall comply with Table 804.4.1.
2. Aerosol adhesives shall meet the requirements of *California Code of Regulations,* Title 17, commencing with Section 94507, http://ccr.oal.ca.gov/.

804.4.2 Paints and coatings. Architectural paints and coatings shall comply with Table 804.4.2.

TABLE 804.4.1
ADHESIVE VOC LIMIT[1]
Less Water and Less Exempt Compounds in Grams per Liter

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesive	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Dry wall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single ply roof membrane adhesives	250

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

TABLE 804.4.2
COATING VOC LIMITS[1,2]
Grams of VOC Per Liter of Coating, Less Water and Less Exempt Compounds

COATING CATEGORY	CEILING LIMIT*	CURRENT LIMIT	EFFECTIVE DATE 7/1/08	EFFECTIVE DATE
Bond breakers	350			
Clear wood finishes	350	275		
Varnish	350	275		
Sanding sealers	350	275		
Laquer	680	275		
Clear brushing lacquer	680	275		
Concrete-curing compounds	350	100		
Dry-fog coatings	400	150		
Fire-proofing exterior coatings	450	350		
Flats	250	100	50	
Floor coatings	420	50		
Graphic arts (sign) coatings	500			
Industrial maintenance (IM) coatings	420	100		
High-temperature IM coatings		420		
Zinc-rich IM primers	420	100		
Japans/faux finishing coatings	700	350		
Magnesite cement coatings	600	450		
Mastic coatings	300			
Metallic pigmented coatings	500			
Multicolor coatings	420	250		
Nonflat coatings -	250	50		
Nonflat high gloss	250	50		
Pigmented lacquer	680	275		
Pretreatment wash primers	780	420		
Primers, sealers, and undercoaters	350	100		
Quick-dry enamels	400	50		
Quick-dry primers, sealers and undercoaters	350	100		
Recycled coatings	250			
Roof coatings	300	50		
Roof coatings, aluminum	500	100		
Roof primers, bituminous	350			

TABLE 804.4.2—continued
COATING VOC LIMITS[1,2]
Grams of VOC Per Liter of Coating, Less Water and Less Exempt Compounds

COATING CATEGORY	CEILING LIMIT*	CURRENT LIMIT	EFFECTIVE DATE 7/1/08	EFFECTIVE DATE
Rust preventative coatings	420	100		
Shellac Clear Pigmented	730	 550		
Specialty primers	350	100		
Stains Interior	350 250	100		
Swimming pool coatings Repair Other	 650 340	340		
Waterproofing sealers	400	100		
Waterproofing concrete/masonry sealers	400	100		
Wood preservatives Below-Ground Other	350 350			

1. The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.
2. For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1113: http://www.arb.ca.gov/DRDB/SC/CURHTML/R1113.PDF.

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

1. Manufacturers product specification.
2. Field verification of on-site product containers.

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

1. Carpet and Rug Institute's Green Label or Green Label Plus Program, http://www.carpet-rug.com/
2. CDPH Standard Practice for the testing of VOCs (Specification 01350)
3. Department of General Services, California Gold Sustainable Carpet Standard, http://www.green.ca.gov/ EPP/standards.htm
4. Scientific Certifications Systems Indoor Advantage™ Gold, http://www.scscertified.com/iaq/indooradvantage.htm

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

804.4.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 804.4.1.

804.4.4 Composite wood products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in Table 804.4.4.

804.4.4.1 Early compliance. Where complying product is available for nonresidential occupancies, meet Phase 2 requirements before the compliance dates indicated in Table 804.4.4.

804.4.4.2 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:

1. Product certifications and specifications
2. Chain of custody certifications
3. Other methods acceptable to the enforcing agency

TABLE 804.4.4
FORMALDEHYDE LIMITS[1]
Maximum formaldehyde emissions in parts per million.

PRODUCT	PHASE 1	PHASE 2				
	Jan 1, 2009	July 1, 2009	Jan 1, 2010	Jan 1, 2011	Jan 1, 2012	July 1, 2012
Hardwood plywood veneer core	0.08		0.05			
Hardwood plywood composite core		0.08				0.05
Particle board	0.18			0.09		
Medium density fiberboard	0.21			0.11		
Thin medium density fiberboard[2]	0.21				0.13	

1. Values in this table are consistent with those developed by the California Air Resources Board. For additional information see *California Code of Regulations,* Title 17, Section 93120 through 93120.12.
2. Thin medium density fiberboard has a maximum thickness of eight millimeters.

804.4.5 Resilient flooring systems. Comply with the VOC-emission limits defined in the Collaborative for High Performance Schools (CHPS) Low-emitting Materials List, www.chps.net/manual/lem_table.htm.

804.4.6 Thermal insulation. Comply with Chapter 12-13 in Title 24, Part 12, the *California Referenced Standards Code*, and with the VOC-emission limits defined in CHPS Low-emitting Materials List, www.chps.net/manual/lem_table.htm.

804.4.7 Acoustical ceilings and wall panels. Comply with Chapter 8 in Title 24, Part 2, the *California Building Code*, and with the VOC-emission limits defined in the CHPS Low-emitting Materials List, www.chps.net/manual/lem_table.htm.

804.5 Hazardous particulates and chemical pollutants. Minimize and control pollutant entry into buildings and cross-contamination of regularly occupied areas.

804.5.1 Entryway systems. Install permanent entryway systems measuring at least six feet in the primary direction of travel to capture dirt and particulates at entryways directly connected to the outdoors.

1. Qualifying entryways are those that serve as regular entry points for building users.
2. Acceptable entryway systems include, but are not limited to, permanently installed grates, grilles or slotted systems that allow cleaning underneath.
3. Roll-out mats are acceptable only when maintained regularly by janitorial contractors as documented in service contract, or by in-house staff as documented by written policies and procedures.

804.5.2 Isolation of pollutant sources. In rooms where activities produce hazardous fumes or chemicals, such as garages, janitorial or laundry rooms, and copy or printing rooms, exhaust them and isolate them from their adjacent rooms.

1. Exhaust each space with no air recirculation in accordance with ASHRAE 62.1, Table 6-4 to create negative pressure with respect to adjacent spaces with the doors to the room closed.
2. For each space, provide self-closing doors and deck to deck partitions or a hard ceiling.
3. Install low-noise, vented range hoods for all cooking appliances and in laboratory or other chemical mixing areas.

804.5.3 Filters. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a Minimum Efficiency Reporting Value (MERV) of 13.

804.6 Ozone depletion and global warming reductions. Installations of HVAC, refrigeration and fire suppression equipment shall comply with Sections 804.6.1, and optionally Section 804.6.2.

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

804.6.2 Hydrochlorofluorocarbons (HCFCs) and Halons. Install HVAC, refrigeration and fire suppression equipment that do not contain HCFCs or Halons.

Exception: Small HVAC and other equipment such as standard refrigerators, small water coolers and any other cooling equipment that contains less than .5 pounds of refrigerant.

804.7 Environmental tobacco smoke (ETS) control. Prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows and in buildings; or as enforced by ordinances, regulations or policies of 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.

SECTION 805
INDOOR MOISTURE CONTROL

805.1 Indoor moisture control. Buildings shall meet or exceed the provisions of *California Building Code,* CCR, Title 24, Part 2, Sections 1203 and Chapter 14. For additional measures not applicable to low-rise residential occupancies, see Section 707.2 of this code.

805.2 Concrete slab foundations. Concrete slab foundations required to have a vapor retarder by *California Building Code*, CCR, Title 24, Part 2, Chapter 19 shall also comply with this section.

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

1. A 4-inch (101.6 mm) thick base of $^1/_2$ inch (12.7 mm) or larger clean aggregate shall be provided with a vapor barrier in direct contact with concrete and a concrete mix design which will address bleeding, shrinkage and curling shall be used. For additional information, see ACI 302.2R-06.
2. Other equivalent methods approved by the enforcing agency.
3. A slab design specified by a licensed design professional.

805.3 Moisture content of building materials. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following:

1. Moisture content shall be determined with either a probe-type or a contact-type moisture meter.
2. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the gradestamped end of each piece to be verified.
3. At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing.

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

SECTION 806
INDOOR AIR QUALITY AND EXHAUST

806.1 Outside air delivery. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 of the *California Energy Code,* CCR, Title 24, Part 6 and Chapter 4 of CCR, Title 8, or the applicable local code, whichever is more stringent.

806.2 Carbon dioxide (CO2) monitoring. Install permanent CO2 monitoring equipment that permits adjustment of ventilation system controls and set points that can be adjusted based on human occupancy. CO2 sensors and ventilation controls shall be specified and installed in accordance with the requirements of the latest edition of the *California Energy Code*, CCR, Title 24, Part 6, Section 121(c).

Exception: In buildings without energy management systems, monitoring equipment shall trigger alarms to alert facilities operators or occupants of ventilation deficiencies.

806.3 Bathroom exhaust fans. Except when a whole house ventilation system is used, a mechanical exhaust fan shall be provided in each room containing a bathtub, shower or tub/shower combination. Mechanical exhaust fans shall comply with the following:

1. Exhaust system shall comply with ASHRAE 62.2, Section 5.
2. Exhaust fans shall be ENERGY STAR compliant and terminate outside the building.

   Exception: Multiple bathrooms using a common multiple port fan.

806.4 Filters. Heating and air conditioning filters shall be rated at MERV 6 or higher. Duct system design shall account for pressure drop across the filter.

SECTION 807
ENVIRONMENTAL COMFORT

807.1 Lighting and thermal comfort controls. Provide controls in the workplace as described in Sections 807.1.1 and 807.1.2.

807.1.1 Single-occupant spaces. Provide individual controls that meet energy use requirements in the 2007 *California Energy Code* in accordance with Sections 807.1.1.1 and 807.1.1.2.

807.1.1.1 Lighting. Provide individual task lighting and/or daylighting controls for at least 90 percent of the building occupants.

807.1.1.2 Thermal comfort. Provide individual thermal comfort controls for at least 50 percent of the building occupants.

1. Occupants shall have control over at least one of the factors of air temperature, radiant temperature, air speed and humidity as described in ASHRAE 55-2004.
2. Occupants inside 20 feet of the plane of and within 10 feet either side of operable windows can substitute windows to control thermal comfort. The areas of operable window must meet the requirements of Section 121 of the *California Energy Code*.

807.1.2 Multi-occupant spaces. Provide lighting and thermal comfort system controls for all shared multi-occupant spaces, such as classrooms and conference rooms.

807.2 Verification of indoor environmental quality. Within a period of six to 18 months after occupancy, conduct an indoor environmental survey of building occupants.

1. Collect voluntary anonymous responses about indoor environmental quality, including thermal comfort, air quality, lighting, acoustics, daylighting and operable windows.
2. Take corrective action if the survey results indicate that more than 20 percent of surveyed occupants are dissatisfied with thermal comfort, or if more than 5 percent complain of odor, irritation, fatigue, nausea and respiratory problems arising from the workplace.
3. Samples of survey format and appropriate responses may be found at: http://www.cbe.berkeley.edu/RESEARCH/survey.htm.

807.3 Daylight. Provide daylit spaces as required for toplighting and sidelighting in the 2007 *California Energy Code*. In constructing a design, consider the following:

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

807.4 Views. Achieve direct line of sight to the outdoor environment via vision glazing between 2' 6" and 7' 6" above finish floor for building occupants in 90 percent of all regularly occupied areas as demonstrated by plan view and section cut diagrams.

807.4.1 Interior office spaces. Entire areas of interior office spaces may be included in the calculation if at least 75 percent of each area has direct line of sight to perimeter vision glazing.

807.4.2 Multi-occupant spaces. Include in the calculation the square footage with direct line of sight to perimeter vision glazing.

Exceptions to Sections 807.3 and 807.4: Copy/printing rooms, storage areas, mechanical spaces, restrooms, auditoria and other intermittently or infrequently occupied spaces or spaces where daylight would interfere with use of the space.

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

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

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

807.5.2 Interior sound. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 50.

SECTION 808
OUTDOOR AIR QUALITY
(Reserved)

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 9—REFERENCED STANDARDS

			HCD			DSA		OSHPD											
Adopting agency	BSC	SFM	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire CA chapter	X		X					X	X	X	X								
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below																			
Chapter/Section																			

CHAPTER 9
REFERENCED STANDARDS

SECTION 901
GENERAL

901.1 This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard.

AAMA American Architectural Manufacturers Association
1827 Walden Office Square
Suite 550
Schaumburg, IL 60173-4268
www.aamanet.org

ANSI American National Standards Institute
Operations Office
25 West 43rd Street
Fourth Floor
New York, NY 10036
www.ansi.org

ARI Air Conditioning and Refrigeration Institute
4100 North Fairfax Drive
Suite 200
Arlington, VA 22203
www.ari.org

ASHRAE American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
1791 Tullie Circle, NE
Atlanta, GA 30329
www.ashrae.org

ASME American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990
www.asme.org

ASTM ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2859
www.astm.org

CSA Canadian Standards Association
5060 Spectrum Way, Suite 100
Mississauga, Ontario, Canada L4W 5N6
www.csa.ca

CTI Cooling Technology Institute
2611 FM 1960 West, Suite A-101
Houston, TX 77068-3730
www.cti.org

DOE U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
www.energy.gov

HI Hydronics Institute, Division of the Gas Appliance Manufacturers Association
P.O. Box 218
Berkeley Heights, NJ 07054
www.gamanet.org

IAPMO International Association of Plumbing and Mechanical Officials
5001 E. Philadelphia St.
Ontario, CA 91761
www.iapmo.org

ICC International Code Council, Inc.
National Headquarters
500 New Jersey Avenue NW
6th Floor
Washington, D.C. 20001-2070
www.iccsafe.org

California Office
Los Angeles District Office
5360 Workman Mill Road
Whittier, CA 90601
www.iccsafe.org

NFPA National Fire Protection Association
1 Batterymarch Park
Quincy, Massachusetts
USA 02169-7471
www.nfpa.org

NFRC National Fenestration Rating Council, Inc.
6305 Ivy Lane, Suite 140
Greenbelt, MD 20770
www.nfrc.org

SMACNA Sheet Metal and Air Conditioning Contractors National Association, Inc.
4021 Lafayette Center Drive
Chantilly, VA 20151-1209
www.smacna.org

UL Underwriters Laboratories Inc.
Headquarters
333 Pfingsten Road
Northbrook, IL 60062-2096
www.ul.com

WDMA Window and Door Manufacturers Association
1400 East Touhy Avenue, Suite 470
Des Plaines, IL 60018
www.wdma.com

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 10—INSTALLER AND THIRD PARTY QUALIFICATIONS

Adopting agency	BSC	SFM	HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
			1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire CA chapter																			
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below																			
Chapter/Section																			

CHAPTER 10

INSTALLER AND THIRD PARTY QUALIFICATIONS

SECTION 1001
GENERAL
(Reserved)

SECTION 1002
QUALIFICATIONS
(Reserved)

SECTION 1003
VERIFICATIONS
(Reserved)

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 11—APPLICATION MATRICES AND WORKSHEETS

			HCD			DSA		OSHPD											
Adopting agency	BSC	SFM	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire CA chapter																			
Adopt entire chapter as amended (amended sections listed below)																			
Adopt only those sections that are listed below	X		X				X	X	X	X	X								
Chapter/Section																			
AM-BSC	X																		
AM-HCD			X																
AM-DSA							X												
AM-OSHPD	X		X					X	X	X	X								
WS 1 – BASELINE WATER USE	X		X																
WS 2 – REDUCTION WATER USE	X		X																

CHAPTER 11

APPLICATION MATRICES AND WORKSHEETS

APPLICATION MATRIX (AM-BSC)

GREEN BUILDING MEASURE	REQUIRED	VOLUNTARY
PLANNING AND DESIGN		
SITE DEVELOPMENT (406)		
406.1 General. Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.		☐
406.2 Storm water drainage and retention during construction. Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall develop and implement a plan to manage storm water drainage during construction. Use one or more of the following methods:		☐
1. Retention basins of sufficient size shall be utilized to retain storm water on the site.		☐
2. Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattles or other method approved by the enforcing agency.		☐
3. Compliance with a lawfully enacted storm water management ordinance.		☐
ENERGY EFFICIENCY		
PERFORMANCE REQUIREMENTS (503)		
503.1 Energy performance. Using an Alternative Calculation Method approved by the California Energy Commission, calculate each nonresidential building's TDV energy and CO2 emissions, and compare it to the standard or "budget" building.		
503.1.1 Tier 1. Exceed 2007 *California Energy Code* requirements by 15 percent.		☐
503.1.2 Tier 2. Exceed 2007 *California Energy Code* requirements by 30 percent.		☐
PRESCRIPTIVE MEASURES (504)		
504.1 ENERGY STAR equipment and appliances. All equipment and appliances provided by the builder shall be ENERGY STAR labeled if ENERGY STAR is applicable to that equipment or appliance.		☐
504.2 Energy monitoring. Provide submetering or equivalent combinations of sensor measurements and thermodynamic calculations, if appropriate, to record energy use data for each major energy system in the building.		☐
504.3 Demand response. HVAC systems with Direct Digital Control Systems and centralized lighting systems shall include preprogrammed demand response strategies that are automated with either a Demand Response Automation Internet Software Client or dry contact relays.		
504.3.1 HVAC. The preprogrammed demand response strategies should be capable of reducing the peak HVAC demand by cooling temperature set point adjustment.		☐
504.3.2 Lighting. The preprogrammed demand response strategies should be capable of reducing the total lighting load by a minimum 30 percent through dimming control or bilevel switching.		☐
504.3.3 Software clients. The software clients will be capable of communicating with a DR Automation Server.		☐

(continued)

APPLICATION MATRIX (AM-BSC)—continued

GREEN BUILDING MEASURE	REQUIRED	VOLUNTARY
504.4 Commissioning. Building commissioning for all building systems covered by T24, Part 6, process systems, and renewable energy systems shall be included in the design and construction processes of the building project. Commissioning requirements shall include as a minimum items listed in Section 504.4.		☐
504.4.1 Owner's Project Requirements (OPR). Documented before the design phase of the project begins the OPR shall include items listed in Section 504.4.1.		☐
504.4.2 Basis of Design (BOD). A written explanation of how the design of the building systems meets the OPR shall be completed at the design phase of the building project and updated periodically to cover the systems listed in Section 504.4.2.		☐
504.4.3 Commissioning plan. A commissioning plan describing how the project will be commissioned shall be started during the design phase of the building project and shall include as a minimum items listed in Section 504.4.3.		☐
504.4.4 Functional performance testing shall demonstrate the correct installation and operation of each component, system and system-to-system interface in accordance with the approved plans and specifications.		☐
504.4.5 Post construction documentation and training. A Systems Manual and Systems Operations Training are required.		
504.4.5.1 Systems manual. The Systems Manual shall be delivered to the building owner and facilities operator and shall include the items listed in Section 504.4.5.1.		☐
504.4.5.2 Systems operations training. The training of the appropriate maintenance staff for each equipment type and/or system shall include as a minimum items listed in Section 504.4.5.2.		☐
504.4.6 Commissioning report. A complete report of commissioning process activities undertaken through the design, construction and postconstruction phases of the building project shall be completed and provided to the owner.		☐
504.5 Building orientation and shading. Locate, orient and shade the building as follows:		
1. Long sides facing north and south		☐
2. Exterior shade for south-facing windows during peak cooling season		☐
3. Vertical shading for east-facing windows		☐
4. Vertical shading for west-facing windows		☐
5. Protect the building from thermal loss, drafts and degradation of the building envelope caused by wind and wind-driven materials.		☐
RENEWABLE ENERGY (511)		
511.1 On-site renewable energy. Use on-site renewable energy for at least 1 percent of the electrical service overcurrent protection device rating calculated in accordance with the 2007 *California Electrical Code*, or 1 KW, whichever is greater, in addition to the electrical demand required to meet 1 percent of natural gas and propane use calculated in accordance with the 2007 *California Plumbing Code*.		☐
511.1.1 Documentation. Calculate renewable on-site system to meet the requirements of Section 511.1. Factor in net-metering, if offered by local utility, on an annual basis.		☐
511.2 Green Power. Participate in the local utility's renewable energy portfolio program that provides a minimum of 50 percent electrical power from renewable sources. Maintain documentation through utility billings.		☐
ELEVATORS, ESCALATORS AND OTHER EQUIPMENT (512)		
512.1 Elevators and escalators. In buildings with more than one elevator or two escalators, provide controls to reduce the energy demand of elevators and reduce the speed of escalators. Document the controls in the project specifications and commissioning plan.		☐
512.1.1 Controls. Controls that reduce energy demand shall meet requirements of CCR, Title 8, Chapter 4, Subchapter 6 and shall not interrupt emergency operations for elevators required in CCR, T24, Part 2.	☐	

(continued)

APPLICATION MATRIX (AM-BSC)—continued

GREEN BUILDING MEASURE	REQUIRED	VOLUNTARY
ENERGY EFFICIENT STEEL FRAMING (513)		
513.1 Steel framing. Design for and employ techniques to avoid thermal bridging.		☐
WATER EFFICIENCY AND CONSERVATION		
INDOOR WATER USE (603)		
603.1 Meters. Separate meters or submeters shall be installed for indoor and outdoor potable water use.		☐
603.2 Twenty percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 20 percent shall be provided.(Calculate savings by Water Use Worksheets.)		☐
603.3 Appliances. 1. Clothes washers shall have a maximum Water Factor (WF) that will reduce the use of water. 2. Dishwashers shall meet the criteria in Section 603.3(2)(a) and (b). 3. Ice makers shall be air cooled. 4. Food steamers shall be connection-less or boiler-less. 5. The use and installation of water softeners shall be limited or prohibited by local agencies.		☐ ☐ ☐ ☐ ☐
603.4 Wastewater reduction. Each building shall reduce the generation of wastewater by one of the following methods: 1. The installation of water-conserving fixtures or 2. Utilizing nonpotable water systems		☐ ☐
603.5 Dual plumbing. New buildings and facilities shall be dual plumbed for potable and recycled water systems		
OUTDOOR WATER USE (604)		
604.1 Water budget. A water budget shall be developed for landscape irrigation use.	☐	
604.2 Potable water reduction. Provide water efficient landscape irrigation design that reduces by 50 percent the use of potable water. Methods used to accomplish the requirements of this section shall include, but not be limited to, the items listed in Section 604.2.		☐
604.3 Potable water elimination. Provide a water efficient landscape irrigation design that eliminates the use of potable water beyond the initial requirements for plant installation and establishment. Methods used to accomplish the requirements of this section shall include, but not be limited to, the items listed in Section 604.3.		☐
604.4 Graywater irrigation system. Install graywater collection system for onsite subsurface irrigation using graywater.		☐
604.5 Rainwater or stormwater collection systems. Constructed water collection devices may store water for landscape irrigation.		☐
MATERIAL CONSERVATION AND RESOURCE EFFICIENCY		
EFFICIENT FRAMING SYSTEMS (704)		
704.1 Wood framing. Employ advanced wood framing techniques, or OVE, as permitted by the enforcing agency.		☐
MATERIAL SOURCES (705)		
705.1 Regional materials. Select building materials or products for permanent installation on the project that have been harvested or manufactured in California or within 500 miles of the project site, meeting the criteria listed in Section 705.1.		☐

(continued)

APPLICATION MATRIX (AM-BSC)—continued

GREEN BUILDING MEASURE	REQUIRED	VOLUNTARY
705.2 Bio-based materials. Select bio-based building materials per Section 705.2.1 or 705.2.2.		
705.2.1 Certified wood products. Certified wood is an important component of green building strategies, and the California Building Standards Commission will continue to develop a standard through the next code cycle.		☐
705.2.2 Rapidly renewable materials. Use materials made from plants harvested within a ten-year cycle for at least 2.5 percent of total materials value, based on estimated cost.		☐
705.3 Reused materials. Use salvaged, refurbished, refinished or reused materials for at least 5 percent of the total value, based on estimated cost of materials on the project.		☐
705.4 Recycled content. Use materials, equivalent in performance to virgin materials, with postconsumer or preconsumer recycled content value (RCV) equaling at least 10 percent of the total value, based on estimated cost of materials on the project.		☐
705.5 Cement and concrete. Use cement and concrete made with recycled products complying with Sections 705.5.1 through 705.5.3.		
705.5.1 Alternate fuels. Where permitted, use high-energy waste materials in the cement kiln.		☐
705.5.2 Cement. Meet ASTM standards for portland cement or blended cement.		☐
705.5.3 Concrete. Use concrete per Section/s 705.5.3.1 and/or 705.5.3.2.		☐
705.5.3.1 Industrial byproducts. Use industrial byproducts in the concrete.		
705.5.3.2 Recycled aggregates. Use recycled aggregates in the mix.		☐
ENHANCE DURABILITY AND REDUCED MAINTENANCE (706)		
706.1.1 Service life. Select materials for longevity and minimal deterioration under conditions of use.		☐
706.1.2 Reduced maintenance. Select materials that require little, if any, finishing.		☐
706.1.3 Recyclability. Select materials that can be re-used or recycled at the end of their service life.		☐
WEATHER RESISTANCE AND MOISTURE MANAGEMENT (707)		
707.1 Weather protection. Provide a weather-resistant exterior wall and foundation envelope as required by T24, Part 2, Section 1403.2 and Part 6, Section 150, manufacturer's installation instructions, or local ordinance.	☐	
707.2 Moisture control. Employ moisture control measures by one of the following methods:		
707.2.1 Sprinklers. Prevent irrigation spray on structures.		☐
707.2.2 Entries and openings. Design exterior entries and openings to prevent water intrusion into buildings.		☐
CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING (708)		
708.1 Construction waste diversion. Establish a construction waste management plan or meet local ordinance, whichever is more stringent.		☐
708.2 Construction waste management plan. Submit plan per this section to enforcement authority.		☐
708.3 Construction waste. Recycle and/or salvage for reuse a minimum of 50 percent of nonhazardous construction and demolition debris or meet local ordinance, whichever is more stringent. **Exceptions:** 1. Excavated soil and land-clearing debris. 2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.		☐
708.4 Excavated soil and land clearing debris. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled.		☐
LIFE CYCLE ASSESSMENT (709)		
709.1 Materials and system assemblies. Select materials assemblies based on life cycle assessment of their embodied energy and/or green house gas emission potentials. See Sections 709.1.1 and 709.1.2 for available tools.		☐

(continued)

APPLICATION MATRIX (AM-BSC)—continued

GREEN BUILDING MEASURE	REQUIRED	VOLUNTARY
BUILDING MAINTENANCE AND OPERATION (709)		
710.1 Recycling by occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling.	☐	
ENVIRONMENTAL QUALITY		
FIREPLACES (803)		
803.1 Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove, and refer to residential requirements in the *California Energy Code*, Title 24, Part 6, Subchapter 7, Section 150.		☐
POLLUTANT CONTROL (804)		
804.1 Indoor air quality (IAQ) during construction. Maintain IAQ as provided in Sections 804.1.1 and 804.1.2.		
804.1.2 Temporary ventilation. Provide temporary ventilation during construction in accordance with Section 121 of the *California Energy Code*, CCR, Title 24, Part 6, and Chapter 4 of CCR, Title 8, and as listed in Items 1 through 4 in 804.1.2.		☐
804.1.3 Additional IAQ measures. Employ additional measures as listed in Items 1 through 5 in Section E 804.1.3:		☐
804.2 IAQ postconstruction. Flush out the building per Section 804.2.1 prior to occupancy or if the building is occupied.		☐
804.4 Finish material pollutant control. Finish materials shall comply with Sections 804.4.1 through 804.4.4.		
804.4.1 Adhesives. Adhesives used on the project shall meet the requirements of the following standards:		
1. Adhesives, adhesive bonding primers and adhesive primers shall comply with Table 804.4.1.		☐
2. Aerosol adhesives shall meet the requirements of *California Code of Regulations*, Title 17, commencing with Section 94507		☐
804.4.2 Paints and coatings. Architectural paints and coatings shall comply with Table 804.4.2.		
804.4.3 Carpet systems. All carpet installed in the building interior shall meet the testing and product requirements of one of the programs listed in Items 1 through 4 in Section 804.4.3.		☐
804.4.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.		☐
804.4.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 804.4.1.		☐
804.4.4 Composite wood products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in Table 804.4.	☐	
804.4.4.1 Early compliance. Where complying product is readily available for nonresidential occupancies, meet Phase 2 requirements before the compliance dates indicated in Table 804.4.		☐
804.4.4.2 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:		☐
1. Product certifications and specifications		
2. Chain of custody certifications		
3. Other methods acceptable to the enforcing agency		
804.4.5 Resilient flooring systems. Comply with the VOC-emission limits defined in the CHPS Low-emitting Materials List.		☐
804.4.6 Thermal insulation. Comply with Chapter 12-13 in Title 24, Part 12 and with the VOC-emission limits defined in CHPS Low-emitting Materials List.		☐
804.4.7 Acoustical ceilings and wall panels. Comply with Chapter 8 in Title 24, Part 2 and with the VOC-emission limits defined in the CHPS Low-emitting Materials List.		☐

(continued)

APPLICATION MATRIX (AM-BSC)—continued

GREEN BUILDING MEASURE	REQUIRED	VOLUNTARY
804.5 Hazardous particulates and chemical pollutants. Minimize and control pollutant entry into buildings and cross-contamination of regularly occupied areas.		
804.5.1 Entryway systems. Install permanent entryway systems measuring at least six feet in the primary direction of travel to capture dirt and particulates at entryways directly connected to the outdoors as listed in Items 1 through 3 in Section 804.5.1.		☐
804.5.2 Isolation of pollutant sources. In rooms where activities produce hazardous fumes or chemicals, exhaust them and isolate them from their adjacent rooms as listed in Items 1 through 3 in Section 804.5.2.		☐
804.5.3 Filters. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a MERV of 13.		☐
804.6 Ozone depletion and global warming reductions. Installations of HVAC, refrigeration and fire suppression equipment shall comply with Sections 804.6.1, and optionally Section 804.6.2.	☐	
804.6.1 CFCs. Install HVAC, refrigeration and fire suppression equipment that do not contain CFCs.		
804.6.2 HCFCs and Halons. Install HVAC, refrigeration and fire suppression equipment that do not contain HCFCs or Halons.		☐
804.7 Environmental tobacco smoke (ETS) control. Prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows and in buildings; or as enforced by local ordinances, regulations or policies, whichever are more stringent.		☐
INDOOR MOISTURE AND RADON CONTROL (805)		
805.1 Indoor moisture control. Buildings shall meet or exceed the provisions of *California Building Code*, CCR, Title 24, Part 2, Sections 1203 and Chapter 14.		☐
AIR QUALITY AND EXHAUST (806)		
806.1 Outside air delivery. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 of the *California Energy Code*, CCR, Title 24, Part 6 and Chapter 4 of CCR, Title 8, or the applicable local code, whichever is more stringent.	☐	
806.2 Carbon dioxide (CO2) monitoring. Install permanent CO2 monitoring equipment that permits adjustment of ventilation system controls and set points and meets the latest edition of the *California Energy Code* requirements.		☐
Exception: In buildings without energy management systems, monitoring equipment shall trigger alarms to alert facilities operators or occupants of ventilation deficiencies.		☐
ENVIRONMENTAL COMFORT (807)		
807.1 Lighting and thermal comfort controls. Provide controls in the workplace as described in Sections 807.1.1 and 807.1.2.		☐
807.1.1 Single-occupant spaces. Provide individual controls that meet energy use requirements in the 2007 *California Energy Code* by Sections 807.1.1.1 and 807.1.1.2.		
807.1.1.1 Lighting. Provide individual task lighting and/or daylighting controls for at least 90 percent of the building occupants.		☐
807.1.1.2 Thermal comfort. Provide individual thermal comfort controls for at least 50 percent of the building occupants by Items 1 and 2 in Section 807.1.1.2.		☐
807.1.2 Multi-occupant spaces. Provide lighting and thermal comfort system controls for all shared multi-occupant spaces.		☐

(continued)

APPLICATION MATRIX (AM-BSC)—continued

GREEN BUILDING MEASURE	REQUIRED	VOLUNTARY
807.2 Verification of indoor environmental quality. Within a period of six to 18 months after occupancy, conduct an indoor environmental survey of building occupants.		☐
1. Collect voluntary anonymous responses about indoor environmental quality, including thermal comfort, air quality, lighting, acoustics, daylighting and operable windows.		☐
2. Take corrective action if the survey results indicate that more than 20 percent of surveyed occupants are dissatisfied with thermal comfort, or if more than 5 percent complain of odor, irritation, fatigue, nausea and respiratory problems arising from the workplace.		☐
807.3 Daylight. Provide daylit spaces as required for toplighting and sidelighting in the 2007 *California Energy Code*. In constructing a design, consider Items 1 through 4 in Section 807.3.		☐
807.4 Views. Achieve direct line of sight to the outdoor environment via vision glazing between 2' 6" and 7' 6" above finish floor for building occupants in 90 percent of all regularly occupied areas.		☐
807.4.1 Interior office spaces. Entire areas of interior office spaces may be included in the calculation if at least 75 percent of each area has direct line of sight to perimeter vision glazing.		☐
807.4.2 Multi-occupant spaces. Include in the calculation the square footage with direct line of sight to perimeter vision glazing.		☐
807.5 Acoustical control. Employ building assemblies and components with STC values determined in accordance with ASTM E 90 and ASTM E 413.		☐
807.5.1 Exterior noise transmission. Wall and floor-ceiling assemblies making up the building envelope shall have an STC of at least 50, and exterior windows shall have a minimum STC of 30 for any of the building locations listed in Items 1 through 3 in Section 807.5.1.		☐
807.5.2 Interior sound. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 50.		☐

APPLICATION MATRIX (AM-HCD)

GREEN BUILDING MEASURE	REQUIRED	VOLUNTARY
PLANNING AND DESIGN		
SITE DEVELOPMENT (406)		
406.2 A plan is developed and implemented to manage storm water drainage during construction.	2010 CBC[1]	
ENERGY EFFICIENCY		
PERFORMANCE APPROACH (503)		
503.2 Minimum requirements. Low-rise residential buildings shall meet or exceed the minimum standard design required by the California Energy Standards currently in effect.	2010 CBC[1]	
PRESCRIPTIVE APPROACH (504)		
504.6 Minimum requirements Low-rise residential buildings shall meet or exceed the minimum standard design required by the California Energy Standards currently in effect.	2010 CBC[1]	
AIR SEALING PACKAGE (506)		
506.1 Joints and openings. Joints and other openings at the following locations: 1. Exterior joints around window and door frames, including doors between the house and garage, between interior HVAC closets and unconditioned space, between attic and underfloor access and conditioned space and between wall sole plates, floors, exterior panels and all siding materials. 2. Openings for plumbing, electrical and gas lines in exterior walls and interior wall, ceilings and floors. 3. Openings into the attic. 4. Exhaust ducts from clothes dryers and other exhaust fans shall have a damper. 5. Cuts or notches in exterior wall plates.	2010 CBC[1]	
506.1.1 Other openings. Whole house fan louvers shall close tightly and be insulated or covered to a minimum of R-4.2.		
WATER EFFICIENCY AND CONSERVATION		
INDOOR WATER USE (603)		
603.2 Indoor water use shall be reduced by 20 percent using one of the follow methods: 1. Water saving fixtures or flow restrictors shall be used. 2. A 20 percent reduction in baseline water use shall be demonstrated.	7/01/2011	
603.2.1 Multiple showerheads shall not exceed maximum flow rates.	7/01/2011	
MATERIAL CONSERVATION AND RESOURCE EFFICIENCY		
CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING (708)		
708.3 A minimum of 50 percent of the construction waste generated at the site is diverted to recycle or salvage. **Exception:** Alternate waste reduction methods are developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.	2010 CBC[1]	
BUILDING MAINTENANCE AND OPERATION (710)		
710.2 An operation and maintenance manual shall be provided to the building occupant or owner.	2010 CBC[1]	

(continued)

APPLICATION MATRIX (AM-HCD)—continued

GREEN BUILDING MEASURE	REQUIRED	VOLUNTARY
INDOOR ENVIRONMENTAL QUALITY		
POLLUTANT CONTROL (804)		
804.3 Duct openings and other related air distribution component openings shall be covered.	2010 CBC[1]	
804.4.1 Adhesives shall be No- or Low-VOC.	2010 CBC[1]	
804.4.2 Paints, stains and other coatings shall be No- or Low-VOC.	2010 CBC[1]	
804.4.3 Carpet and carpet systems shall be Low-VOC.	2010 CBC[1]	
804.4.4 Particleboard, medium density fiberboard (MDF) and plywood used in interior finish systems shall comply with low formaldehyde emission standards.	2010 CBC[1]	
INTERIOR MOISTURE CONTROL (805)		
805.2 Vapor retarder and capillary break is installed at slab on grade foundations.	2010 CBC[1]	
805.3 Moisture content of wood used in wall and floor framing is checked before enclosure.	2010 CBC[1]	
AIR QUALITY AND EXHAUST (806)		
806.3 Exhaust fans which terminate outside the building are provided in every bathroom.	2010 CBC[1]	
806.4 MERV 6, or higher filters are installed on central air and heating systems.	2010 CBC[1]	

1. Unless specified otherwise, this measure shall become effective on the effective date of the 2010 *California Building Code*.

APPLICATION MATRIX (AM-DSA/SS)
(RESERVED)

GREEN BUILDING MEASURE	REQUIRED	VOLUNTARY
PLANNING AND DESIGN		
(Reserved)		
ENERGY EFFICIENCY		
(Reserved)		
WATER EFFICIENCY AND CONSERVATION		
(Reserved)		
MATERIAL CONSERVATION AND RESOURCE EFFICIENCY		
(Reserved)		
ENVIRONMENTAL AIR QUALITY		
(Reserved)		

APPLICATION MATRIX (AM-OSHPD)

GREEN BUILDING MEASURE	REQUIRED	VOLUNTARY
ENERGY EFFICIENCY		
PRESCRIPTIVE MEASURES (504)		
504.1 ENERGY STAR equipment and appliances. All equipment and appliances provided by the builder shall be ENERGY STAR labeled if ENERGY STAR is applicable to that equipment or appliance.		☐
504.5 Building orientation and shading. Locate, orient and shade the building as follows: 1. Exterior shade for south-facing windows during peak cooling season 2. Vertical shading for east-facing windows 3. Vertical shading for west-facing windows		☐ ☐ ☐
MATERIAL CONSERVATION AND RESOURCE EFFICIENCY		
CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING (708)		
708.1 Construction waste diversion. Establish a construction waste management plan or meet local ordinance, whichever is more stringent.		☐
708.3 Construction waste. Recycle and/or salvage for reuse a minimum of 50 percent of non-hazardous construction and demolition debris. **Exceptions:** 1. Excavated soil and land-clearing debris. 2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.		
708.4 Excavated soil and land clearing debris. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled.		☐
BUILDING MAINTENANCE AND OPERATION (709)		
710.1 Recycling by occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling.		☐
ENVIRONMENTAL QUALITY		
POLLUTANT CONTROL (804)		
804.4 Finish material pollutant control. Finish materials shall comply with Sections 804.1.1 through 804.1.4. **804.4.1 Adhesives.** Adhesives used on the project shall meet the requirements of the following standards: 1. Adhesives, adhesive bonding primers and adhesive primers shall comply with Table 804.4.1. 2. Aerosol adhesives shall meet the requirements of *California Code of Regulations*, Title 17, commencing with Section 94507 **804.4.2 Paints and coatings.** Architectural paints and coatings shall comply with Table 804.4.2. **804.4.3 Carpet systems.** All carpet installed in the building interior shall meet the testing and product requirements of one of the programs listed in Items 1 through 4 in Section 804.4.3. **804.4.3.1 Carpet cushion.** All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program. **804.4.3.2 Carpet adhesive.** All carpet adhesive shall meet the requirements of Section 804.4.1.		☐ ☐ ☐ ☐ ☐ ☐

(continued)

APPLICATION MATRIX (AM-OSHPD)—continued

GREEN BUILDING MEASURE	REQUIRED	VOLUNTARY
804.4.4 Composite wood products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in Table 804.4.		☐
804.4.4.1 Early compliance. Where complying product is readily available for nonresidential occupancies, meet Phase 2 requirements before the compliance dates indicated in Table 804.4.		☐
804.4.4.4 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:		☐
1. Product certifications and specifications.		☐
2. Chain of custody certifications.		☐
3. Other methods acceptable to the enforcing agency.		☐
804.4.5 Resilient flooring systems. Comply with the VOC-emission limits defined in the CHPS Low-emitting Materials List.		☐
804.4.6 Thermal Insulation. Comply with Chapter 12-13 in Title 24, Part 12 and with the VOC-emission limits defined in CHPS Low-emitting Materials List.		☐
804.4.7 Acoustical ceilings and wall panels. Comply with Chapter 8 in Title 24, Part 2 and with the VOC-emission limits defined in the CHPS Low-emitting Materials List		☐
804.5 Hazardous particulates and chemical pollutants. Minimize and control pollutant entry into buildings and cross-contamination of regularly occupied areas.		
804.5.1 Entryway systems. Install permanent entryway systems measuring at least six feet in the primary direction of travel to capture dirt and particulates at entryways directly connected to the outdoors as listed in Items 1 through 3 in Section 804.5.1.		☐
804.7 Environmental tobacco smoke (ETS) control. Prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows and in buildings by either Section 804.4.1 or 804.4.2; or as enforced by local ordinances, regulations or policies, whichever are more stringent.		☐
INDOOR MOISTURE AND RADON CONTROL (805)		
805.1 Indoor moisture control. Buildings shall meet or exceed the provisions of *California Building Code*, CCR, Title 24, Part 2, Sections 1203 and Chapter 14.		☐
ENVIRONMENTAL COMFORT (807)		
807.5 Acoustical control. Employ building assemblies and components with STC values determined in accordance with ASTM E 90 and ASTM E 413.		☐
807.5.1 Exterior noise transmission. Wall and floor-ceiling assemblies making up the building envelope shall have an STC of at least 50, and exterior windows shall have a minimum STC of 30 for any of the building locations listed in Items 1 through 3 in Section 807.5.1.		☐
807.5.2 Interior sound. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 50.		☐

WORKSHEET (WS-1)
BASELINE WATER USE

BASELINE WATER USE CALCULATION TABLE

Fixture Type	Quantity		Flow-rate (gpm)		Duration		Daily uses		Occupants[3, 4]		Gallons per day
Showerheads		X	2.5	X	5 min.	X	1	X		=	
Showerheads residential		X	2.5	X	8 min.	X	1	X		=	
Lavatory faucets residential		X	2.2	X	.25 min.	X	3	X		=	
Kitchen faucets		X	2.2	X	4 min.	X	1	X		=	
Replacement aerators		X	2.2	X		X		X		=	
Wash fountains		X	2.2	X		X		X		=	
Metering faucets		X	0.25	X	.25 min.	X	3	X		=	
Metering faucets for wash fountains		X	2.2	X	.25 min.	X		X		=	
Gravity tank type water closets		X	1.6	X	1 flush	X	1 male[1] 3 female	X		=	
Flushometer tank water closets		X	1.6	X	1 flush	X	1 male[1] 3 female	X		=	
Flushometer valve water closets		X	1.6	X	1 flush	X	1 male[1] 3 female	X		=	
Electromechanical hydraulic water closets		X	1.6	X	1 flush	X	1 male[1] 3 female	X		=	
Urinals		X	1.0	X	1 flush	X	2 male	X		=	
Total daily baseline water use (BWU)										=	
_____ (BWU) × .80 = _____ Allowable water use											

1. Except for low-rise residential occupancies, the daily use number shall be increased to three if urinals are not installed in the room.
2. The Flow-rate is from the CEC Appliance Efficiency Standards, *California Code of Regulations*, Title 24; where a conflict occurs, the CEC standards shall apply.
3. For low-rise residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.
4. For nonresidential occupancies, refer to Table A, Chapter 4, 2007 *California Plumbing Code*, for occupant load factors.

WORKSHEET (WS-2)
20% REDUCTION WATER USE CALCULATION TABLE

Fixture Type	Quantity		Flow-rate (gpm)		Duration		Daily uses		Occupants[3, 4]		Gallons per day
Showerheads		X		X	5 min.	X	1	X		=	
Showerheads residential		X		X	8 min.	X	1	X		=	
Lavatory faucets residential		X		X	25 min.	X	3	X		=	
Kitchen faucets		X		X	4 min.	X	1	X		=	
Replacement aerators		X		X		X		X		=	
Wash fountains		X		X		X		X		=	
Metering faucets		X		X	.25 min.	X	3	X		=	
Metering faucets for wash fountains		X		X	.25 min.	X		X		=	
Gravity tank type water closets		X		X	1 flush	X	1 male[1] 3 female	X		=	
HET[5] High efficiency toilet		X	1.28	X	1 flush	X	1 male[1] 3 female	X		=	
Flushometer tank water closets		X		X	1 flush	X	1 male[1] 3 female	X		=	
Flushometer valve water closets		X		X	1 flush	X	1 male[1] 3 female	X		=	
Electromechanical hydraulic water closets		X		X	1 flush	X	1 male[1] 3 female	X		=	
Urinals		X		X	1 flush	X	2 male	X		=	
Urinals nonwater supplied		X	0.0	X	1 flush	X	2 male	X		=	
Proposed water use										=	
_____ (BWU from GW-1) × .80 = _____ Allowable water use											

1. Except for low-rise residential occupancies, the daily use number shall be increased to three if urinals are not installed in the room.
2. The Flow-rate is from the CEC Appliance Efficiency Standards, *California Code of Regulations*, Title 24; where a conflict occurs, the CEC standards shall apply.
3. For low-rise residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.
4. For nonresidential occupancies, refer to Table A, Chapter 4, 2007 *California Plumbing Code*, for occupant load factors.
5. Water closet with an effective flush rate of 1.28 gallons or less when tested per ASME A112.19.2 and ASME A112.19.14.

APPENDIX A
COMMENTARY OF ADDITIONAL DESIGN CONSIDERATIONS

SECTION A101
GENERAL

A101.1 Scope. The measures contained in this appendix are not mandatory and provide additional considerations that designers, builders and property owners may wish to consider during the planning, design and construction process. The standards in this appendix will continue to be developed through the next code adoption cycle for placement in the body of this code.

SECTION A201
DEFINITIONS

A201.1 Scope. Unless otherwise stated, the words and terms used in this appendix shall, for the purposes of this chapter, have the meanings shown in this code.

SECTION A301
GREEN BUILDING

A301.1 Scope. Buildings shall be designed to include the green building measures specified as mandatory in the application matrices contained in Chapter 11 of this code. Voluntary green building measures may be included but are not required. Additional considerations which designers, builders and property owners may wish to consider during the planning, design and construction process are contained in this appendix.

SECTION A401
PLANNING AND DESIGN

A401.1 General. The provisions of this chapter outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore and enhance the environmental quality of the site and respect the integrity of adjacent properties.

A402.1 Definitions.

BIORETENTION. A shallow depression that utilizes conditioned soil and vegetation for the storage, treatment or infiltration of storm water runoff.

LOW-EMITTING AND FUEL EFFICIENT VEHICLES. Eligible vehicles are limited to the following:

1. Zero emission vehicle (ZEV), partial zero emission vehicle (PZEV), alternate technology PZEV (AT ZEV), or CNG fueled (Original equipment manufacturer only) regulated under Health and Safety Code Section 43800 and CCR, Title 13, Sections 1961 and 1962.
2. High-efficiency vehicles, regulated by US EPA, bearing Single-Occupant Vehicle (SOV) car pool lane stickers issued by the Department of Motor Vehicles.

A403.1 Site selection. (Reserved)

A404.1 Site preservation. (Reserved)

A405.1 Deconstruction and reuse of existing structures.

A405.1.1 If feasible, disassemble existing buildings instead of demolishing to allow reuse or recycling of building materials.

A405.1.2 Existing building structure. Maintain at least 75 percent of existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing) based on surface area.

Exceptions:

1. Window assemblies and nonstructural roofing material.
2. Hazardous materials that are remediated as a part of the project.
3. A project with an addition of more than two times the square footage of the existing building.

A405.1.3 Existing nonstructural elements. Reuse existing interior nonstructural elements (interior walls, doors, floor coverings and ceiling systems) in at least 50 percent of the area of the completed building (including additions).

Exception: A project with an addition of more than two times the square footage of the existing building.

Salvage additional items in good condition such as light fixtures, plumbing fixtures and doors for reuse on this project in an onsite storage area or for salvage in dedicated collection bins. Document the weight or number of the items salvaged.

A406.1 Site development.

A406.1.1 Orient buildings to optimize the use of solar energy with the long side of the house oriented within 30° of south.

A406.1.2 Postconstruction landscapes designs accomplish as many of the following as possible:

1. Areas disrupted during construction are restored to be consistent with native vegetation species and patterns.
2. Limit turf areas to the extent possible.
3. Utilize plant and tree species appropriate for the climate zone region.

A406.1.3 Storm water design. Design storm water runoff rate and quantity in conformance with Section A406.1.3.1 and storm water runoff quality by Section A406.1.3.2, or by local requirements, whichever are stricter.

A406.1.3.1 Storm water runoff rate and quantity. Implement a storm water management plan resulting in

no net increase in rate and quantity of storm water runoff from existing to developed conditions.

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

A406.1.3.2 Storm water runoff quality. Use postconstruction treatment control best management practices to mitigate (infiltrate, filter or treat) storm water runoff from the 85th percentile 24-hour runoff event (for volume-based BMPs) or the runoff produced by a rain event equal to two times the 85th percentile hourly intensity (for flow-based BMPs).

A406.1.3.3 Parking lots. Use depressed planter areas and curb cuts to allow for drainage into the planter areas, or utilize other specified bioretention techniques.

A406.1.4 Bicycle storage and changing rooms. Provide secure racks or storage for bicycles for a minimum of 10 percent of parking capacity, with 3 percent or more being long-term storage. Provide changing/shower facilities, or document arrangements with nearby changing/shower facilities.

A406.1.5 Fuel efficient vehicles. Purchasing policy and refueling sites for low emitting vehicles for state employees use can be found at: http://www.ofa.dgs.ca.gov/NR/exeres/BEAD98C9-035D-4229-8C90-3D47BD5D81FF.htm, Management Memo MM 06-03, and http://www.documents.dgs.ca.gov/osp/sam/mmemos/MM08_04.pdf, Management Memo MM 08-04.

A406.1.5.1 Designated parking. Provide designated parking for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as follows:

TABLE A406.1.5.1

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED SPACES
10–25	2
26–50	4
51–75	6
76–100	8
101–150	11
151–200	16
201 and over	At least 8 percent of total

A406.1.5.1.1 Vehicle designations. Building managers may consult with local community Transit Management Associations (TMAs) for methods of designating qualifying vehicles, such as issuing parking stickers.

A406.1.5.1.2 Additional resources. Information on qualifying vehicles, car labeling regulations, and DMV SOV stickers may be obtained from the following sources:

1. CaliforniaDriveClean, www.driveclean.ca.gov
2. California Air Resources Board, www.arb.ca.gov/msprog/ccvl/ccvl.htm
3. US EPA fuel efficiency standards, www.fueleconomy.gov
4. Janet Okino, DMV Registration Operations, (916) 657 6678, and John Swanton, ARB Public Information, (626) 575-6858.

A406.1.5.2 Electric vehicle charging. Provide facilities meeting Section 406.7 of the *California Building Code* and as follows:

A406.1.5.2.1 Electric vehicle supply wiring. For each space required in Table A406.1.5.2, provide one 120 VAC 20 amp and one 208/240 V 40 amp, grounded AC outlets or panel capacity and conduit installed for future outlets.

TABLE A406.1.5.2

TOTAL NUMBER OF PARKING SPACES[1]	NUMBER OF REQUIRED SPACES
1–50	1
51–200	2
201 and over	4

1. In a parking garage, the total number of parking spaces is for each individual floor or level.

A406.1.6 Parking capacity. Design parking capacity to meet but not exceed minimum local zoning requirements.

A406.1.6.1 Reduce parking capacity. With the approval of the enforcement authority, employ strategies to reduce on-site parking area by

1. Use of on street parking or compact spaces, illustrated on the site plan, or
2. Implementation and documentation of programs that encourage occupants to carpool, ride share or use alternate transportation. Strategies for programs may be obtained from local TMAs.

SECTION A501
ENERGY EFFICIENCY

A501.1 General. For the purposes of energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory building standards. It is the intent of this code to encourage green buildings to achieve exemplary performance in the area of energy efficiency. Specifically, a green building should achieve more than a 15 percent reduction in energy usage when compared to the State's mandatory energy efficiency standards.

A502.1 Definitions. (Reserved)

A503.1 Performance approach.

A503.1.1 Incorporate the California Energy Commission, New Solar Homes Partnership (NSHP) [1,2] specifications for building energy performance requirements.

Using an Alternative Calculation Method (ACM) approved by the California Energy Commission, calculate each build-

ing's energy and CO2 emissions, and compare it to the standard or "budget" building to achieve the following:

Tier I. Exceed 2007 *California Energy Code* requirements by 15 percent.

Tier II. Exceed 2007 *California Energy Code* requirements by 35 percent and cooling energy requirements by 40 percent.

Solar water heating may be used to assist in meeting the energy efficiency requirements of either Tier I or Tier II.

Document and field verify the measures and calculations used to reach the desired level of efficiency following the requirements specified in the *Title 24 Residential Alternative Calculation Manual.*

1. In addition, for either Tier I or II, each appliance provided by the builder must be Energy Star if an Energy Star designation is applicable for that appliance. Solar water heating may be used to assist in meeting the energy efficiency requirements of either Tier I or Tier II.
2. Information on NSHP incentives available through the California Energy Commission may be obtained at the "Go Solar California" website: www.GoSolarCalifornia.ca.gov/nshp/index.html.

A504.1 Prescriptive approach. (Reserved)

A505.1 Building envelope. (Reserved)

A506.1 Air Sealing package. (Reserved)

A507.1 HVAC design, equipment and installation. (Reserved)

A507.1.1 Duct systems are sized, designed and equipment is selected using the following methods:

1. Size duct systems according to ACCA 29-D (Manual D) or equivalent.
2. Select heating and cooling equipment according to ACCA 36-S (Manual S) or equivalent.
3. Establish heat loss and heat gain values according to ACCA Manual J or equivalent.

A507.1.2 Radiant, hydronic and other innovative space heating and cooling systems included in the proposed design shall be designed using generally accepted industry-approved guidelines and design criteria.

A507.1.3 The following items pertaining to the heating and cooling systems are inspected and certified by an independent third party agency:

1. Verify compliance with the manufacturer's recommended start-up procedures.
2. Verify refrigerant charge by super-heat or other methods specified by the manufacturer.
3. Burner is set to fire at the nameplate input rating.
4. Temperature drop across the evaporator is within the manufacturer's recommended range.
5. Test and verify air flow to be within 10 percent of the initial design air flow.
6. Static pressure within the duct system is within the manufacturer's acceptable range.

A507.1.4 The HVAC contractor and installer are certified for equipment and duct installation by a nationally or regionally recognized training or certification program.

A507.1.5 When possible, use gas-fired (natural or propane) space heating equipment with an Annual Fuel Utilization Ratio (AFUE) of .92 or higher.

A507.1.6 If an electric heat pump must be used, select equipment with a Heating Seasonal Performance Factor (HSPF) of 8.0 or higher.

A507.1.7 When climatic conditions necessitate the installation of cooling equipment, select cooling equipment with a Seasonal Energy Efficiency Ratio (SEER) higher than 13.0.

A507.1.8 If possible, install ductwork to comply with as many of the following as possible:

1. Install ducts within the conditioned envelope of the building.
2. Install ducts in an underfloor crawl space.
3. Use ducts with an R-6 insulation value or higher.

A507.1.9 Perform duct leakage testing to verify a total leakage rate of less than 6 percent of the total fan flow.

A507.1.10 In cooling zones, install a whole-house fan with insulated louvers or an insulated cover.

A508.1 Water heating design, equipment and installation.

A508.1.1 The Energy Factor (EF) for a gas fired storage water heater is .62 or higher.

A508.1.2 The Energy Factor (EF) for a gas fired tankless water heater is .80 or higher.

A508.1.3 Insulate all hot water lines with a minimum of R-6 insulation.

A509.1 Lighting. (Reserved)

A510.1 Appliances.

A510.1.1 Each appliance provided by the builder meets Energy Star if an Energy Star designation is applicable for that appliance.

A511.1 Renewable energy.

A511.1.1 Install a solar photovoltaic (PV) system in compliance with the California Energy Commission New Solar Homes Partnership (NSHP).[1, 2] Install energy efficiency measures meeting either Tier I or Tier II below.

Tier I. Exceed 2007 *California Energy Code* requirements by 15 percent.

Tier II. Exceed 2007 *California Energy Code* requirements by 35 percent and cooling energy requirements by 40 percent.

1. In addition, for either Tier I or II, each appliance provided by the builder must be Energy Star if an Energy Star designation is applicable for that appliance. Solar water heating may be used to assist in meeting the energy efficiency requirements of either Tier I or Tier II.
2. Information on NSHP incentives available through the California Energy Commission may be obtained at the "Go Solar California" website: www.GoSolarCalifornia.ca.gov/nshp/index.html.

A512.1 Elevators, escalators and other equipment. (Reserved)

SECTION A601
WATER EFFICIENCY AND CONSERVATION

A601.1 General. (Reserved)

A602.1 Definitions. (Reserved)

A603.1 Indoor water use.

A603.1.1 Hot-water distribution systems should utilize at least one of the following methods or features in the distribution system:

1. An on-demand hot-water recirculation system.
2. A point of use hot-water system.
3. A centrally located hot-water heater to minimize the length of piping between the fixtures and water heater.
4. Hot water piping is sized to meet the minimum pipe size diameters allowed by the *California Plumbing Code*.
5. A hot-water distribution system is designed to keep all hot-water piping runs as short as possible.

A604.1 Outdoor water use.

A604.1.1 Install a low-water consumption irrigation system which does not rely on spray type heads.

A604.1.2 Use a zoned irrigation system.

A604.1.3 Use weather-based irrigation controllers to automatically bypass the irrigation schedule if rain is forecast.

A605.1 Recycled (reclaimed) and graywater systems.

A605.1.1 If feasible, utilize a graywater underground irrigation system in compliance with Chapter 16 of the *California Plumbing Code*.

SECTION A701
MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

A701.1 General. (Reserved)

A702.1 Definitions. (Reserved)

A703.1 Foundation Systems.

A703.1.1 As allowed by local conditions, utilize a Frost-Protected Shallow Foundation (FPSF) in compliance with the *International Residential Code*.

A704.1 Efficient framing techniques.

A704.1.1 When possible, minimize the cutting of framing material and eliminate waste by designing building dimensions in 2-foot increments and by placing windows and doors at stud positions established by a running layout.

A704.1.2 Use premanufactured floor and roof systems to eliminate solid sawn lumber whenever possible.

A705.1 Material Sources.

A705.1.1 Utilize prefinished building materials which do not require additional painting or staining when possible.

A705.1.2 Use sealed concrete floors instead of other floor coverings when possible.

A705.1.3 Use recycled or salvaged building materials if possible.

A705.1.4 Utilize building materials manufactured from renewable resources when possible.

A705.1.5 Utilize wood products harvested from certified forests when available.

A705.1.6 Incorporate sufficient space for recycling containers into the design of the building.

A706.1 Enhanced durability and reduced maintenance. (Reserved)

A707.1 Water resistance and moisture management.

A707.1.1 Install foundation and landscape drains.

A707.1.2 Install gutter and downspout systems to route water away from the foundation or connect to landscape drains.

A707.1.3 Provide flashing details on the building plans and comply with accepted industry standards or manufacturers instructions.

A707.1.4 Protect building materials delivered to the construction site from rain and other sources of moisture.

A708.1 Construction waste reduction, disposal and recycling. (Reserved)

A709.1 Life-cycle assessment. (Reserved)

A710.1 Building maintenance and operation. (Reserved)

SECTION A801
ENVIRONMENTAL QUALITY

A801.1 General. (Reserved)

A802.1 Definitions. (Reserved)

A803.1 Fireplaces.

A803.1.1 If possible, use direct-vent heating and cooling equipment if the equipment will be located in the conditioned space.

A804.1 Pollutant control. (Reserved)

A805.1 Interior moisture control. (Reserved)

A806.1 Indoor air quality and exhaust.

A806.1.1 Install a fan controlled by a humidistat in each room containing a shower or bathtub, or use a whole house humidity control system.

A807.1 Environmental comfort. (Reserved)

A808.1 Outdoor air quality. (Reserved)

INDEX

L

M

O

P

R

W

HISTORY NOTE APPENDIX

California Green Building Standards Code
(Title 24, Part 11, *California Code of Regulations*)

1. (BSC 02/07, DSA-SS 01/07, HCD 03/07, OSHPD 07/07) Adoption of voluntary green building standards by BSC and OSHPD, green building standards with a delayed effective date by HCD, and administrative standards by DSA-SS in the 2007 California Green Building Standards Code. Approved by the California Building Standards Commission on July 17, 2008, filed with the Secretary of State on August 12, 2008, and effective on August 1, 2009.

FEBRUARY 9, 2009

State of California Department of Water Resources
Office of Water Use Efficiency and Transfers
P.O. Box 942836
Sacramento CA 94236-0001

California Code of Regulations Title 23, Sections 490 - 495 regarding the
Model Water Efficient Landscape Ordinance

FINAL REGULATION TEXT

- Existing text of the regulation is displayed in plain type.
- Text proposed to be added is displayed in *italic* type. This includes non-substantive changes that occurred after the extended 15-day comment period.
- Text proposed to be deleted for is displayed in ~~strikeout~~ type.

ATTACHMENT 7

California Code of Regulations
Title 23. Waters
Division 2. Department of Water Resources
Chapter 2.7. Model Water Efficient Landscape Ordinance

§490. Purpose.

~~1.~~*(a)* The State Legislature has found:

~~(a)~~*(1)* ~~that the limited supply of state waters are subject to ever increasing demands;~~ *the waters of the state are of limited supply and are subject to ever increasing demands;*

~~(b)~~*(2)* ~~that the continuation of California's economic prosperity depends on adequate supplies of water being available for future uses.~~ *the continuation of California's economic prosperity is dependent on adequate supplies of water being available for future uses;*

~~(c)~~*(3)* ~~that state policy promotes conservation and efficient use of water and to prevent waste of this valuable resource.~~ *it is the policy of the State to promote the conservation and efficient use of water and to prevent the waste of this valuable resource;*

~~(d)~~*(4)* ~~that landscapes provide recreation areas, clean the air and water, prevent erosion, offer fire protection, and replace ecosystems displaced by development; and~~ *landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development;*

~~(e)~~*(5)* ~~that~~ landscape design, installation, maintenance *and management* can and ~~should~~ shall be water efficient; *and*

(6) Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use.

~~2.~~*(b)* Consistent with the legislative findings, the purpose of this model ordinance is to:

~~(a)~~*(1)* promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible;

~~(b)~~*(2)* establish a structure for *planning*, designing, installing, ~~and~~ maintaining, *and managing* water efficient landscapes in new *construction and rehabilitated* projects; ~~and~~

~~(c)~~*(3)* establish provisions for water management practices and water waste prevention for ~~established~~ *existing* landscapes;

(4) use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount;

(5) promote the benefits of consistent landscape ordinances with neighboring local and regional agencies;

(6) encourage local agencies and water purveyors to use economic incentives that promote the efficient use of water, such as implementing a tiered rate structure; and

(7) encourage local agencies to designate the necessary authority that implements and enforces the provisions of the Model Water Efficient Landscape Ordinance or its local landscape ordinance.

~~Note: Authority cited: Sections 65591.5, 65594, Gov. Code. Reference: Sections 65591, 65591.5, 65597, Gov. Code.~~

Note: Authority cited: Section 65593, Gov. Code. Reference: Sections 65591, 65593, 65596, Gov. Code.

§490.1. Applicability.
~~(a) APPLICABILITY~~
~~(1) Except as provided in Section 492 (a) (3), this section shall apply to:~~
~~(A) all new and rehabilitated landscaping for public agency projects and private development projects that require a permit; and~~
~~(B) developer-installed landscaping in single-family and multi-family projects.~~
~~(2) Projects subject to this section shall conform to the provisions in Section 492.~~
(a) After January 1, 2010, this ordinance shall apply to all of the following landscape projects:
(1) new construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review;
(2) new construction and rehabilitated landscapes which are developer-installed in single-family and multi-family residential projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review;
(3) new construction landscapes which are homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet requiring a building or landscape permit, plan check or design review;
(4) existing landscapes limited to Section 493.1; and
(5) cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 492.4, 492.11, and 492.12; and existing cemeteries are limited to Section 493.1.
(b)~~(3) This section shall~~ *This ordinance does* not apply to:
~~(a) homeowner-provided landscaping at single-family and multi-family projects;~~
~~(b) cemeteries;~~
~~(c)~~*(1)* registered *local, state or federal* historical sites*;*
~~(d)~~*(2)* ecological restoration projects that do not require a permanent irrigation system;
~~(e)~~*(3)* mined-land reclamation projects that do not require a permanent irrigation system; or
~~(f) any project with a landscaped area less than 2,500 square feet.~~
(4) botanical gardens and arboretums open to the public.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§491. Definitions.
The ~~words~~ *terms* used in this ordinance have the meaning set forth below:
~~(b) "application rate" means the depth of water applied to a given area, measured in inches per minute, or inches per hour.~~
~~(c)~~*(a)* "applied water" means the portion of water supplied by the irrigation system to the landscape.
~~(d) "automatic controller" means a mechanical or solid state timer, capable of operating valve stations to set the days and length of time of a water application.~~
~~(e)~~*(b)* "backflow prevention device" means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.
~~(a)~~*(c) "check valve"* or "anti-drain valve" means a valve located under a sprinkler head *or other location in the irrigation system* to hold water in the system ~~so it~~ *to prevent* ~~minimizes~~ drainage from ~~the lower elevation sprinkler heads~~ sprinkler heads when the system is off.

~~(f)~~*(d)* "conversion factor (0.62)" means ~~a~~ *the* number that converts ~~the maximum applied water allowance from~~ acre-inches per acre per year to gallons per square foot per year. ~~The conversion factor is calculated as follows: (325,851 gallons/43,560 square feet)/12 inches = (0.62) 325,851 gallons = one acre foot 43,560 square feet = one acre 12 inches = one foot To convert gallons per year to 100 cubic feet per year, another common billing unit for water, divide gallons per year by 748. (748 gallons = 100 cubic feet.)~~

(e) "Certificate of Completion" means the document required under Section 492.9.

(f) "certified landscape irrigation auditor" means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the United States Environmental Protection Agency WaterSense irrigation auditor certification program and Irrigation Association Certified Landscape Irrigation Auditor program.

(g) "certified irrigation designer" means a person certified to design irrigation systems by an accredited academic institution, or a professional trade organization or other program such as the United States Environmental Protection Agency WaterSense irrigation designer certification program and Irrigation Association Certified Irrigation Designer program.

(h) "common interest developments" means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1353.8.

(i) "controller" means an automatic timing device used to remotely control valves to set an irrigation schedule. A weather-based controller is a controller that uses evapotranspiration or weather data. A self-adjusting irrigation controller is a controller that uses sensor data (i.e., soil moisture sensor).

(j) "drip irrigation" means any non-spray low volume irrigation system utilizing emission devices with a flow rate equal to or less than two (2) gallons per hour.

~~(g)~~*(k)* "ecological restoration project" means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

~~(h)~~*(l)* "effective precipitation" or "usable rainfall" *(Eppt)* means the portion of total precipitation that is used by the plants. ~~Precipitation is not a reliable source of water in summer, *but does contribute towards the water needs of the landscape during the remainder of the year.*~~

~~(i)~~*(m)* "emitter" means a drip irrigation ~~fitting~~ *emission device* that delivers water slowly from the system to the soil.

~~(j)~~*(n)* "established landscape" means the point at which plants in the landscape have developed *significant* roots *growth* into the site ~~adjacent to the root ball~~. *Typically, most plants are established after one or two years of growth.*

~~(k)~~*(o)* "establishment period *of the plants*" means the first year after installing the plant in the landscape *or the first two years if irrigation will be terminated after establishment.*

~~(l) "Estimated Applied Water Use" means the portion of the Estimated Total Water Use that is derived from applied water, *as described in Section 492.6.* The Estimated Applied Water Use shall not exceed the Maximum Applied Water Allowance. The Estimated Applied Water Use may be the sum of the water recommended through the irrigation schedule, as referenced in Section 492 (c) (3).~~

~~(m)~~*(p)* "Estimated Total Water Use" *(ETWU)* means the ~~annual total amount of water estimated to be needed to keep the plants in the landscaped area healthy. It is based upon such factors as the local evapotranspiration rate, the size of the landscaped area, the types of plants, and the efficiency of the irrigation system, as described in Section 492 (c) (4)~~ *total water used for the landscape as described in Section 492.4.*

~~(n)~~*(q)* "ET adjustment factor" *(ETAF)* means a factor of ~~0.8~~ *0.7,* that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. A combined plant mix with a site-wide average of 0.5 is the basis of the plant factor portion of this calculation. For purposes of the ET Adjustment Factor, the *average* irrigation efficiency is ~~0.625~~ *0.71.* Therefore, the ET Adjustment Factor ~~(0.8) = (0.50/0.625)~~ *(0.7) = (0.5/0.71). ETAF for a Special Landscape Area shall not exceed 1.0. ETAF for existing, non-rehabilitated landscapes is 0.8.*

~~(o)~~*(r)* "evapotranspiration *rate*" means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a *specified* time.

~~(p)~~*(s)* "flow rate" means the rate at which water flows through pipes, ~~and~~ valves *and emission devices, measured in* gallons per minute, gallons per hour, or cubic feet per second.

(t) "hardscapes" means any durable surface material (pervious and non-pervious).

(u) "homeowner-provided landscaping" means landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner.

~~(q)~~*(v)* "hydrozone" means a portion of the landscaped area having plants with similar water needs. ~~that are served by a valve or set of valves with the same schedule. A hydrozone may be irrigated or non-irrigated. For example, a naturalized area planted with native vegetation that will not need supplemental irrigation once established is a non-irrigated hydrozone.~~ *A hydrozone may be irrigated or non-irrigated.*

~~(r)~~*(w)* "infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (*e.g.,* inches per hour).

~~(t)~~*(x) "irrigation audit" means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to: inspection, system tune-up, system t*est with distribution uniformity *or emission uniformity,* reporting *overspray or run off that causes overland flow, and preparation of an irrigation schedule.*

~~(s)~~*(y)* "irrigation efficiency" *(IE)* means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum *average* irrigation efficiency for purposes of this ordinance is ~~0.625~~ *0.71.*

(z) "irrigation survey" means an evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test and written recommendations to improve performance of the irrigation system.

(aa) "irrigation water use analysis" means an analysis of water use data based on meter readings and billing data.

(bb) "Landscape Documentation Package" means the documents required under Section 492.3.

~~(u)~~*(cc)* "landscaped area" ~~means the entire parcel less the building footprint, driveways, non-irrigated portions of parking lots, hardscapes- such as decks and patios, and other non-porous areas. Water features are included in the calculation of the landscaped area. Areas dedicated to edible plants, such as orchards or vegetable gardens are not included.~~ *means all of the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).*

(dd) "landscape architect" means a person who holds a license to practice landscape architecture in the state of California (Government Code, Section 5615).
(ee) "landscape contractor" means a person licensed (with a valid C-27 license) by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems and facilities consistent with the Business and Professions Code, Sections 7058 and 7059.
~~(t) "landscape irrigation audit" means a process to perform site inspections, evaluate irrigation systems, and develop efficient irrigation schedules.~~
(ff) "landscape project" means total area of landscape in a project as defined in "landscape area," for the purposes of this ordinance, meeting the requirements under Section 490.1.
~~(v)~~*(gg)* "lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
(hh) "local agency" means a city or county, including a charter city or charter county, that is responsible for adopting and implementing the ordinance. The local agency is also responsible for the enforcement of this ordinance, including but not limited to, approval of a permit and plan check or design review of a project."
(ii) "local water purveyor" means any entity, including a public agency, city, county or private water company that provides retail water service.
(jj) "low volume irrigation" means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
~~(w)~~*(kk)* "main line" means the pressurized pipeline that delivers water from the water source to the valve or outlet.
~~(x)~~*(ll)* "Maximum Applied Water Allowance" *(MAWA)* means~~, for design purposes,~~ the upper limit of annual applied water for the established landscaped area as specified in *Section 492.4.* It is based upon the area's reference evapotranspiration, the ET Adjustment Factor and the size of the landscape~~d~~ area. The Estimated ~~Applied~~ *Total* Water Use shall not exceed the Maximum Applied Water Allowance. *Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0.*
(mm) "microclimate" means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as: wind, sun exposure, plant density or proximity to reflective surfaces.
~~(y)~~*(nn)* "mined-land reclamation projects" means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.
~~(z)~~*(oo)* "mulch" means any *organic* material such as leaves, bark, straw or ~~other~~ *inorganic mineral* ~~mulches~~ *materials such as rocks, gravel, and decomposed granite* left loose and applied to the soil surface for the beneficial purpose*s* of reducing evaporation, *suppressing weeds, moderating soil temperature and preventing soil erosion.*
~~(aa)~~*(pp)* "operating pressure" means the pressure at which *the parts of* a*n irrigation* system ~~of sprinklers is~~ *are* designed by the manufacturer to operate~~, usually indicated at the base of a sprinkler~~.
~~(bb)~~*(qq)* "overhead sprinkler irrigation systems" means ~~those~~ *systems* ~~with high flow rates~~ *that deliver water through the air (e.g.,* ~~pop-ups, impulse sprinklers,~~ *spray heads and* rotors~~, etc~~).

~~(ee)~~*(rr)* "overspray" means the water which is delivered beyond the ~~landscaped~~ *target* area *and which can cause overland flow caused by irrigation events onto non-targeted areas such as* ~~wetting~~ pavements, walks *and* structures~~, or other non-landscaped areas~~.

(ss) "pervious" means any surface or material that allows the passage of water through the material and into the underlying soil.

(tt) "permit" means any permit issued by local agencies for new building or rehabilitated landscapes.

~~(dd)~~*(uu)* "plant factor" *or "plant water use factor"* ~~means~~ *is* a factor ~~that~~, when multiplied by the ETo ~~reference evapotranspiration~~, estimates the amount of water ~~used by~~ *needed by* plants. ~~For purposes of this ordinance, the average plant factor of low water using plants ranges from 0 to 0.3, for average moderate water using plants the ranges is 0.4 to 0.6, and for high water using plants the range is 0.7 to 1.0.~~ *For purposes of this ordinance, the plant factor range for low water use plants is 0 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this ordinance are derived from the Department of Water Resources 1999 publication "Water Use Classification of Landscape Species."*

(vv) "precipitation rate" means the rate of application of water measured in inches per hour.

(ww) "project applicant" means the individual or entity submitting a Landscape Documentation Package required under Section 492.3, to request a permit, plan check or design review from the local agency. A project applicant may be the property owner or his/her designee.

~~(ee)~~*(xx) "rain sensor" or* "rain sensing *shutoff* device" means ~~a system which~~ a component which automatically ~~shuts off~~ *suspends* the irrigation ~~system~~ *event* when it rains.

~~(ff)~~*(yy)* "record drawing" or "as-builts" means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.

~~(gg)~~*(zz)* "recreational area" means areas *dedicated to* ~~of~~ active play ~~or recreation~~ such as ~~sports fields, school yards, picnic grounds, or other areas with intense foot traffic.~~ *parks, sports fields and golf courses where turf provides a playing surface.*

~~(hh)~~*(aaa)* "recycled water," "reclaimed water," or "treated sewage effluent water" means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. *This water is* not intended for human consumption.

~~(ii)~~*(bbb)* "reference evapotranspiration" *(ETo)* means a standard measurement of environmental parameters which affect the water use of plants. ETo is given in inches per day, month, or year as represented in Section 495, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool season turf that is well watered. Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowances so that regional differences in climate can be accommodated.

~~(jj)~~*(ccc)* "rehabilitated landscapes" means any re-landscaping project that requires a permit, *plan check or design review and meets the requirements of Section 490.1. The modified landscape area is greater than 2,500 square feet and 50% of the total landscape area and the modifications occur within one year.*

~~(kk)~~*(ddd)* "runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the *landscape* area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a ~~severe~~ slope.

~~(ll)~~*(eee)* "soil moisture sensing device*" or "soil moisture sensor*" means a device that measures the amount of water in the soil. *The device may also suspend or initiate an irrigation event.*
~~(mm)~~*(fff)* "soil texture" means the classification of soil based on *its* ~~the~~ percentage of sand, silt, and clay ~~in the soil~~.
(ggg) "Special Landscape Area" (SLA) means an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.
~~(nn)~~*(hhh)* "sprinkler head" means a device which delivers water through a nozzle.
~~(oo)~~*(iii)* "static water pressure" means the pipeline or municipal water supply pressure when water is not flowing.
~~(pp)~~ *(jjj)* "station" means an area served by one valve or by a set of valves that operate simultaneously.
(kkk) "swing joint" means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.
~~(qq)~~*(lll)* "turf" means ~~a surface layer of earth containing mowed grass with its roots~~ *a groundcover surface of mowed grass.* Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are common cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are common warm-season grasses.
~~(rr)~~*(mmm)* "valve" means a device used to control the flow of water in the irrigation system.
~~(ss) "water conservation concept statement" means a one page checklist and a narrative summary of the project as shown in Section 492 (c) (1).~~
(nnn) "water conserving plant species" means a plant species identified as having a low plant factor.
(ooo) "water feature" means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas and swimming pools (where water is artificially supplied). The surface area of water features is included in the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.
(ppp) "WUCOLS" means Water Use Classification of Landscape Species and refers to the Department of Water Resources 1999 publication authored by a U.C. Cooperative Extension employee, Larry Costello.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Sections 65592, 65596, Gov. Code.

§492. Provisions for New *Construction* or Rehabilitated Landscapes.
(a) A local agency may designate another agency, such as a water purveyor, to implement some or all of the requirements contained in this ordinance. Local agencies may collaborate with water purveyors to define each entity's specific responsibilities relating to this ordinance.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§492.1. Compliance with Landscape Documentation Package.

(a) Prior to construction, the local agency shall:
(1) provide the project applicant with the ordinance and procedures for permits, plan checks or design reviews;
(2) review the Landscape Documentation Package submitted by the project applicant;
(3) approve or deny the Landscape Documentation Package;
(4) issue a permit or approve the plan check or design review for the project applicant; and
(5) upon approval of the Landscape Documentation Package, submit a copy of the Water Efficient Landscape Worksheet to the local water purveyor.
(b) Prior to construction, the project applicant shall:
(1) submit a Landscape Documentation Package to the local agency.
(c) Upon approval of the Landscape Documentation Package by the local agency, the project applicant shall:
(1) receive a permit or approval of the plan check or design review and record the date of the permit in the Certificate of Completion;
(2) submit a copy of the approved Landscape Documentation Package along with the record drawings, and any other information to the property owner or his/her designee; and
(3) submit a copy of the Water Efficient Landscape Worksheet to the local water purveyor.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§492.2. Penalties.

(a) A local agency may establish and administer penalties to the project applicant for non-compliance with the ordinance to the extent permitted by law.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

~~(b) LANDSCAPE DOCUMENTATION PACKAGE~~
~~(1) A copy of the landscape documentation package conforming to this chapter shall be submitted to the city or county. No permit shall be issued until the city or county reviews and approves the landscape documentation package.~~
~~(2) A copy of the approved landscape documentation package shall be provided to the property owner or site manager along with the record drawings and any other information normally forwarded to the property owner or site manager.~~
~~(3) A copy of the Water Conservation Concept statement and the Certificate of Substantial Completion shall be sent by the project manager to the local retail water purveyor.~~
~~(4) Each landscape documentation package shall include the following elements, which are described in Section 492 (e):~~
~~(A) Water Conservation Concept Statement~~
~~(B) Calculation of the Maximum Applied Water Allowance~~
~~(C) Calculation of the Estimated Applied Water Use~~
~~(D) Calculation of the Estimated Total Water Use~~
~~(E) Landscape Design Plan~~
~~(F) Irrigation Design Plan~~
~~(G) Irrigation Schedules~~
~~(H) Maintenance Schedule~~

~~(I) Landscape Irrigation Audit Schedule~~
~~(J) Grading Design Plan~~
~~(K) Soil Analysis~~
~~(L) Certificate of Substantial Completion. (To be submitted after installation of the project.)~~
~~(5) If effective precipitation is included in the calculation of the Estimated Total Water Use, then an Effective Precipitation Disclosure Statement from the landscape professional and the property owner shall be submitted with the Landscape Documentation Package.~~
~~(c) Elements of Landscape Documentation Package~~
~~(1) Water Conservation Concept Statement~~
~~Each landscape documentation package shall include a cover sheet, referred to as the Water Conservation Concept Statement similar to the following example. It serves as a check list to verify that the elements of the landscape documentation package have been completed and has a narrative summary of the project.~~
~~Sample Water Conservation Concept Statement~~
~~Project Site:~~
~~Project Number:~~
~~Project Location:~~
~~Landscape Architect/Irrigation Designer/Contractor:~~
~~Included in this project submittal package are: (Check to indicate completion)1. Maximum Applied Water Allowance: ____gallons or cubic feet/year~~
~~2. Estimated Applied Water Use: ____gallons or cubic feet/year~~
~~*2.(a) Estimated Amount of Water Expected from Effective Precipitation: ____gallons or cubic feet/year~~
~~3. Estimated Total Water Use:____gallons or cubic feet/year~~
~~Note: * If the design assumes that a part of the Estimated Total Water Use will be provided by precipitation, the Effective Precipitation Disclosure Statement in Section 494 shall be completed and submitted.~~
~~4. Landscape Design Plan~~
~~5. Irrigation Design Plan~~
~~6. Irrigation Schedules~~
~~7. Maintenance Schedule~~
~~8. Landscape Irrigation Audit Schedule~~
~~9. Grading Design Plan~~
~~10. Soil Analysis~~
~~Description of Project (Briefly describe the planning and design actions that are intended to achieve conservation and efficiency in water use.) Date: ___Prepared By: ___~~

§492.3. Elements of the Landscape Documentation Package.
(a) The Landscape Documentation Package shall include the following six (6) elements:
(1) Project Information;
(A) Date
(B) Project Applicant
(C) Project Address (if available, parcel and/or lot number(s))
(D) Total Landscape Area (square feet)
(E) Project Type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)

(F) Water Supply Type (e.g., potable, recycled, well) and identify the local retail water purveyor if the applicant is not served by a private well
(G) Checklist of all documents in Landscape Documentation Package
(H) Project contacts to include contact information for the project applicant and property owner;
(I) Applicant signature and date with statement "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package."
(2) Water Efficient Landscape Worksheet;
(A) Hydrozone Information Table
(B) Water Budget Calculations
(i) Maximum Applied Water Allowance (MAWA)
(ii) Estimated Total Water Use (ETWU)
(3) Soil Management Report;
(4) Landscape Design Plan;
(5) Irrigation Design Plan; and
(6) Grading Design Plan.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§492.4. Water Efficient Landscape Worksheet.
(a) A project applicant shall complete the Water Efficient Landscape Worksheet which contains two sections. See sample worksheet in Section 495.2, Appendix B.
(1) A hydrozone information table (see Appendix B, Section A) for the landscape project.
(2) A water budget calculation (see Appendix B, Section B) for the landscape project. For the calculation of the Maximum Applied Water Allowance and Estimated Total Water Use, a project applicant shall use the ETo values from the Reference Evapotranspiration Table in Section 495, Appendix A. For geographic areas not covered in Appendix A, use data from other cities located nearby in the same reference evapotranspiration zone.
(b) Water Budget Calculations shall adhere to the following requirements:
(1) The plant factor used shall be from WUCOLS. The plant factor ranges from 0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants and from 0.7 to 1.0 for high water use plants.
(2) All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.
(3) Special Landscape Area shall be identified and its water use calculated as described below.
(4) ETAF for Special Landscape Area shall not exceed 1.0.
(c) ~~(2) The~~ Maximum Applied Water Allowance (MAWA)
~~(A)~~ The *landscape* project's Maximum Applied Water Allowance shall be calculated using this ~~formula~~ *equation*:

~~MAWA = (ETo) (0.8) (LA) (0.62)~~
$MAWA = (ETo)(0.62)[0.7 \times LA + 0.3 \times SLA]$

where:
MAWA = Maximum Applied Water Allowance (gallons per year)

ETo = Reference Evapotranspiration Appendix A (inches per year)
~~0.8~~ 0.7 = ET Adjustment Factor
LA = Landscaped Area includes Special Landscape Area (square feet)
0.62 = Conversion factor (to gallons per square foot)
SLA = Portion of the landscape area identified as Special Landscape Area (square feet)
0.3 = the additional ET Adjustment Factor for Special Landscape Area (1.0 - 0.7 = 0.3)

If a local agency considers Effective Precipitation or Eppt (25% of annual precipitation) in areas where precipitation is significant, a local agency shall use the following equation to calculate Maximum Applied Water Allowance:

MAWA= (ETo – Eppt)(0.62)[0.7 x LA+0.3 x SLA]

~~(B) Two example calculations of the Maximum Applied Water Allowance are presented as follows:~~
~~(i) PROJECT SITE ONE: Landscaped area of 50,000 sq.ft. in Fresno.~~
~~MAWA = (ETo) (0.8) (LA) (0.62)~~
~~= (51 inches) (0.8) (50,000 square feet) (.62)~~
~~Maximum Applied Water Allowance = 1,264,800 gallons per year (or 1,691 hundred-cubic feet per year: 1,264,800/748 = 1,691)~~

The example calculations below are hypothetical to demonstrate proper uses of the equations and do not represent an existing and/or planned landscape project. The ETo values used in these calculations are from the Reference Evapotranspiration Table in Section 495.1, Appendix A for planning purposes only. For actual irrigation scheduling, a project applicant shall use current reference evapotranspiration data, such as from the California Irrigation Management Information System (CIMIS), other equivalent data, or use other self-adjusting devices (e.g., soil moisture sensor).

(1) Example MAWA calculation: A hypothetical landscape project in Fresno, CA with an irrigated landscape area of 50,000 square feet without any Special Landscape Area (SLA= 0, no edible plants or recreational areas or use of recycled water). To calculate MAWA, the annual reference evapotranspiration value for Fresno is 51.1 inches as listed in the Reference Evapotranspiration Table in Section 495.1, Appendix A.

MAWA = (ETo) (0.62)[0.7 x LA+0.3 x SLA]
MAWA = (51.1 inches)(0.62)[0.7 x 50,000 square feet + 0.3 x 0]
= 1,108,870 gallons per year

To convert from gallons per year to hundred-cubic-feet per year:
= 1,108,870/748 = 1,482 hundred-cubic-feet per year
(100 cubic feet = 748 gallons)

(2) In this next hypothetical example, the landscape project in Fresno, CA has the same ETo value of 51.1 inches and a total landscape area of 50,000 square feet. Within the 50,000 square

foot project, there is now a 2,000 square foot area planted with edible plants. This 2,000 square foot area is considered to be a Special Landscape Area.

MAWA = (ETo) (0.62)[0.7 x LA+0.3 x SLA]
MAWA = (51.1 inches)(0.62)[0.7 x 50,000 square feet + 0.3 x 2,000 square feet]
= 31.68 x [35,000 +600] gallons per year
= 31.68 x 35,600 gallons per year
=1,127,808 gallons per year or 1,508 hundred-cubic-feet per year

~~(ii) PROJECT SITE TWO: Landscaped area of 50,000 sq. ft. in San Francisco~~
~~MAWA = (ETo) (.8) (LA) (.62) = (35 inches) (.8) (50,000 square feet) (.62)~~
~~Maximum Applied Water Allowance = 868,000 gallons per year~~
~~(or 1,160 hundred-cubic-feet per year)~~
~~(C) Portions of landscaped areas in public and private projects such as parks, playgrounds, sports fields, golf courses, or school yards where turf provides a playing surface or serves other recreational purposes are considered recreational areas and may require water in addition to the Maximum Applied Water Allowance. A statement shall be included with the landscape design plan, designating recreational areas to be used for such purposes and specifying any needed amount of additional water above the Maximum Applied Water Allowance.~~
~~(4) Estimated Total Water Use.~~
~~(A) A calculation of the Estimated Total Water Use shall be submitted with the Landscape Documentation Package. The Estimated Total Water Use may be calculated by summing the amount of water recommended in the irrigation schedule and adding any amount of water expected from effective precipitation (not to exceed 25 percent of the local annual mean precipitation) or may be calculated from a formula such as the following: The Estimated Total Water Use for the entire landscaped area equals the sum of the Estimated Water Use of all hydrozones in that landscaped area.~~
~~EWU=(ETo)(PF)(HA)(.62)/(IE)~~
~~EWU (hydrozone) = Estimated Water Use (gallons per year)~~
~~ETo = Reference Evapotranspiration (inches per year)~~
~~W = plant factor~~
~~HA = hydrozone area (square feet)~~
~~(.62) = conversion factor~~
~~IE = irrigation efficiency~~
~~(B) If the Estimated Total Water Use is greater than the Estimated Applied Water Use due to precipitation being included as a source of water, an Effective Precipitation Disclosure Statement such as the one in Section 494 shall be included in the Landscape Documentation Package.~~

(d) Estimated Total Water Use.
The Estimated Total Water Use shall be calculated using the equation below. Estimated Total Water Use shall not exceed MAWA. The sum of the Estimated Total Water Use calculations for all hydrozones shall not exceed MAWA.

$$ETWU = (ETo)(0.62)\left(\frac{PF\,x\,HA}{IE} + SLA\right)$$

Where:

ETWU = Estimated total water use per year (gallons)
ETo = Reference Evapotranspiration (inches)
PF = Plant Factor from WUCOLS (see Section 491)
HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
SLA = Special Landscape Area (square feet)
0.62 = Conversion Factor
IE = Irrigation Efficiency (minimum 0.71)

(1) Example ETWU calculation: Total Landscape Area is 50,000 square feet; plant water use type, plant factor and hydrozone area are shown in the table below. The ETo value is 51.1 inches per year. There is no water requirement for recreational area, area permanently and solely dedicated to edible plants and area irrigated with recycled water.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)*	Area (square feet)	PF x Area (square feet)
1	High	0.8	7,000	5,600
2	High	0.7	10,000	7,000
3	Medium	0.5	16,000	8,000
4	Low	0.3	7,000	2,100
5	Low	0.2	10,000	2,000
			Sum	24,700

**Plant Factor from WUCOLS*

$$ETWU = (51.1)(0.62)\left(\frac{24{,}700}{0.71} + 0\right)$$

= 1,102,116 gallons per year

Compare ETWU with MAWA. The ETWU (1,102,116 gallons per year) is less than MAWA (1,108,870 gallons per year). In this example, the water budget complies with the MAWA.

(2) Example ETWU calculation: Total Landscape area is 50,000 square feet, 2,000 square feet of which is planted with edible plants. The edible plant area is considered a Special Landscape Area. The reference evapotranspiration value is 51.1 inches per year. The plant type, plant factor and hydrozone area are shown in the table below.

Hydrozone	*Plant Water Use Type(s)*	*Plant Factor (PF)**	*Area (square feet)*	*PF x Area (square feet)*
1	*High*	*0.8*	*7,000*	*5,600*
2	*High*	*0.7*	*9,000*	*6,300*
3	*Medium*	*0.5*	*15,000*	*7,500*
4	*Low*	*0.3*	*7,000*	*2,100*
5	*Low*	*0.2*	*10,000*	*2,000*
			Sum	*23,500*
6	*SLA*		*2,000*	*2,000*

**Plant Factor from WUCOLS*

$$ETWU = (51.1)(0.62)\left(\frac{23{,}500}{0.71} + 2{,}000\right)$$

= (31.68)(33,099 + 2,000)
= 1,111,936, gallons per year

Compare ETWU with MAWA. For this example:
MAWA = (51.1)(0.62)[0.7 x 50,000 +0.3 x 2000]
= 31.68 x [35000 +600]
= 31.68 x 35,600
=1,127,808 gallons per year

The ETWU (1,111,936 gallons per year) is less than MAWA (1,127,808 gallons per year). For this example the water budget complies with the MAWA.

~~(4) Estimated Applied Water Use.~~
~~(A) The Estimated Applied Water Use shall not exceed the Maximum Applied Water Allowance.~~
~~(B) A calculation of the Estimated Applied Water Use shall be submitted with the Landscape Documentation Package. It may be calculated by summing the amount of water recommended in the irrigation schedule.~~

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

~~(11) Soils~~
~~(A) A soil analysis satisfying the following conditions shall be submitted as part of the Landscape Documentation Package.~~
~~(i) Determination of soil texture, indicating the percentage of organic matter.~~
~~(ii) An approximate soil infiltration rate (either measured or derived from soil texture infiltration rate tables.) A range of infiltration rates shall be noted where appropriate.~~
~~(iii) Measure of pH, and total soluble salts.~~
~~(B) A mulch of at least three inches shall be applied to all planting areas except turf.~~

§492.5. Soil Management Report.

(a) In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant, or his/her designee, as follows:
(1) Submit soil samples to a laboratory for analysis and recommendations;
(A) soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants; and
(B) the soil analysis may include:
(i) soil texture
(ii) infiltration rate determined by laboratory test or soil texture infiltration rate table
(iii) pH
(iv) total soluble salts
(v) sodium
(vi) percent organic matter, and
(vii) recommendations.
(2) The project applicant, or his/her designee, shall comply with one of the following:
(A) if significant mass grading is not planned, the soil analysis report shall be submitted to the local agency as part of the Landscape Documentation Package; or
(B) if significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.
(3) The soil analysis report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans to make any necessary adjustments to the design plans.
(4) The project applicant, or his/her designee, shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with Certificate of Completion.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§492.6. Landscape Design Plan.

~~(A) Plant Selection and Grouping~~
~~(i) Any plants may be used in the landscape, providing the Estimated Applied Water Use recommended does not exceed the Maximum Applied Water Allowance and that the plants meet the specifications set forth in (ii), (iii) and (iv).~~
~~(ii) Plants having similar water use shall be grouped together in distinct hydrozones.~~
~~(iii) Plants shall be selected appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the site. Protection and preservation of native species and natural areas is encouraged. Avoidance of invasive species is encouraged. The planting of trees is encouraged wherever it is consistent with the other provisions of this ordinance.~~
~~(iv) Fire prevention needs shall be addressed in areas that are fire prone. Information about fire prone areas and appropriate landscaping for fire safety is available from local fire departments or the California Department of Forestry.~~

(a) For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following ~~requirements~~ *design criteria* shall be submitted as part of the Landscape Documentation Package.
(1) Plant Material

(A) Any plant may be selected for the landscape, providing the total landscape area does not exceed the Maximum Applied Water Allowance. To encourage the efficient use of water, the following is highly recommended:
(i) protection and preservation of native species and natural vegetation;
(ii) selection of water-conserving plant species and turf species;
(iii) selection of trees based on applicable local tree ordinances or tree shading guidelines; and
(iv) selection of plants from local and regional landscape program plant lists.
(B) Each hydrozone shall have plant materials with similar water use. For hydrozones with plants of mixed water use, refer to Section 492.7 (a) (2) (D) for more information.
(C) Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended:
(i) Use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate;
(ii) Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots to minimize damage to property or infrastructure [e.g., buildings, sidewalks, power lines]; and
(iii) Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.
(D) Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).
(E) A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291(a) and (b). Avoid fire-prone plant materials and highly flammable mulches.
(F) Invasive species of plants shall be avoided especially near parks, buffers, greenbelts, water bodies, and open spaces because of their potential to cause harm to environmentally sensitive areas.
(G) The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group (Civil Code, Section 1358.8).

(2) Water Features
~~(i)~~*(A)* Recirculating water *systems* shall be used for ~~decorative~~ water features.
(B) Where available, recycled water shall be used as the source for decorative water features.
(C) Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.
~~(ii)~~*(D)* Pool and spa covers are *highly recommended* ~~encouraged~~.

(3) Mulch and Amendments
(A) A minimum two inch (2") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers or direct seeding applications where mulch is contraindicated.
(B) Stabilizing mulching products shall be used on slopes.

(C) The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.
(D) Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 492.5).

~~(C) Landscape Design Plan Specifications~~
~~The landscape design plan shall be drawn on project base sheets at a scale that accurately and clearly identifies:~~
~~(i) Designation of hydrozones.~~
~~(ii) Landscape materials, trees, shrubs, groundcover, turf, and other vegetation. Planting symbols shall be clearly drawn and plants labeled by botanical name, common name, container size, spacing, and quantities of each group of plants indicated.~~
~~(iii) Property lines and street names.~~
~~(iv) Streets, driveways, walkways, and other paved areas.~~
~~(v) Pools, ponds, water features, fences, and retaining walls.~~
~~(vi) Existing and proposed buildings and structures including elevation if applicable.~~
~~(vii) Natural features including but not limited to rock outcroppings, existing trees, shrubs that will remain.~~
~~(viii) Tree staking, plant installation, soil preparation details, and any other applicable planting and installation details.~~
~~(ix) A calculation of the total landscaped area.~~
~~(x) Designation of recreational areas.~~

(b) The landscape design plan shall follow standard industry practices and applicable local agency requirements. The landscape design plan, at a minimum, shall contain:
(1) delineate and label each hydrozone by number, letter, or other method;
(2) identify each hydrozone as low, moderate, high water or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation;
(3) identify recreational areas;
(4) identify areas permanently and solely dedicated to edible plants;
(5) identify areas irrigated with recycled water;
(6) identify type of mulch and application depth;
(7) identify soil amendments, type, and quantity;
(8) identify type and surface area of water features;
(9) identify hardscapes (pervious and non-pervious);
(10) identify location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to:
(A) Infiltration beds, swales and basins that allow water to collect and soak into the ground;
(B) Constructed wetlands and retention ponds that retain water, handle excess flow and filter pollutants;
(C) Pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff;

(11) identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.);
(12) the landscape design plan shall contain the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan;" and
(13) the signature of a licensed landscape architect, licensed landscape contractor or any other applicable landscape professional, person, licensed or unlicensed, as listed in the Business and Professions Code, California Code of Regulations, or Food and Agriculture Code.

Note: Authority Cited: Section 65595, Gov. Code and Section 1353.8, Civil Code. Reference: Section 65596, Gov. Code and Section 1353.8, Civil Code.

§492.7. Irrigation Design Plan.
~~(A) Irrigation Design Criteria~~
~~(i) Runoff and Overspray. Soil types and infiltration rate shall be considered when designing irrigation systems. All irrigation systems shall be designed to avoid runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, or structures. Proper irrigation equipment and schedules, including features such as repeat cycles, shall be used to closely match application rates to infiltration rates therefore minimizing runoff. Special attention shall be given to avoid runoff on slopes and to avoid overspray in planting areas with a width less than ten feet, and in median strips.~~
~~No overhead sprinkler irrigation systems shall be installed in median strips less than ten feet wide.~~
~~(ii) Irrigation Efficiency. For the purpose of determining the maximum applied water allowance, irrigation efficiency is assumed to be 0.625. Irrigation systems shall be designed, maintained, and managed to meet or exceed 0.625 efficiency.~~
~~(iii) Equipment. Water meters. Separate landscape water meters shall be installed for all projects except for single family homes or any project with a landscaped area of less than 5,000 square feet.~~
~~Controllers. Automatic control systems shall be required for all irrigation systems and must be able to accommodate all aspects of the design.~~
~~Valves. Plants which require different amounts of water shall be irrigated by separate valves. If one valve is used for a given area, only plants with similar water use shall be used in that area.~~
~~Anti-drain (check) valves shall be installed in strategic points to minimize or prevent low-head drainage.~~
~~Sprinkler heads. Heads and emitters shall have consistent application rates within each control valve circuit. Sprinkler heads shall be selected for proper area coverage, application rate, operating pressure, adjustment capability, and ease of maintenance.~~
~~Rain Sensing Override Devices. Rain sensing override devices shall be required on all irrigation systems.~~
~~Soil Moisture Sensing Devices. It is recommended that soil moisture sensing devices be considered where appropriate.~~

(a) For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers' specifications. The irrigation system and its related components shall be planned and designed to allow for proper installation, management and

maintenance. An irrigation design plan meeting the following ~~conditions~~ *design criteria* shall be submitted as part of the Landscape Documentation Package.

(1) System

(A) Dedicated landscape water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management.

(B) Weather-based irrigation controllers or soil moisture-based controllers or other self-adjusting irrigation controllers shall be required for irrigation scheduling in all irrigation systems.

(C) The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

(i) If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps or other devices shall be installed to meet the required dynamic pressure of the irrigation system.

(ii) Static water pressure, dynamic or operating pressure and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at installation.

(D) Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions such as rain or a freeze shall be required on all irrigation systems, as appropriate for local climatic conditions.

(E) Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.

(F) Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the applicable local agency code (i.e., public health) for additional backflow prevention requirements.

(G) High flow sensors that detect and report high flow conditions created by system damage or malfunction are recommended.

(H) The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways or structures.

(I) Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.

(J) The design of the irrigation system shall conform to the hydrozones of the landscape design plan.

(K) The irrigation system must be designed and installed to meet irrigation efficiency criteria as described in Section 492.4 regarding the Maximum Applied Water Allowance.

(L) It is highly recommended that the project applicant or local agency inquire with the local water purveyor about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.

(M) In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.

(N) Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's specifications.

(O) Head to head coverage is recommended. However, sprinkler spacing shall be set to achieve distribution uniformity using the manufacturer's specifications.

(P) Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.
(Q) Check valves or anti-drain valves are required for all irrigation systems.
(R) Long, narrow, or irregularly shaped areas including turf less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation technology.
(S) Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:
(i) the landscape area is adjacent to permeable surfacing and no overspray and runoff occurs; or
(ii) the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
(iii) the irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates strict adherence to irrigation system design criteria in Section 492.7 (a)(1)(H). Prevention of overspray and runoff must be confirmed during irrigation audit.
(T) Slopes greater than 25% shall not be irrigated with an irrigation system with a precipitation rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during irrigation audit.

(2) Hydrozone
(A) Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions and plant materials with similar water use.
(B) Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
(C) Where feasible, trees shall be placed on separate valves from shrubs, groundcovers and turf.
(D) Individual hydrozones that mix plants of moderate and low water use or moderate and high water use, may be allowed if:
(i) plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
(ii) the plant factor of the higher water using plant is used for calculations.
(E) Individual hydrozones that mix high and low water use plants shall not be permitted.
(F) On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table (see Section 495.2 Appendix B Section A). This table can also assist with pre- and final inspections of the irrigation system, and programming the controller.

~~(C) Irrigation Design Plan Specifications Irrigation systems shall be designed to be consistent with hydrozones. - The irrigation design plan shall be drawn on project base sheets. It shall be separate from, but use the same format as, the landscape design plan. The scale shall be the same~~

~~as that used for the landscape design plan described in Section 492 (c) (5) (C). The irrigation design plan shall accurately and clearly identify:~~
~~(i) Location and size of separate water meters for the landscape.~~
~~(ii) Location, type, and size of all components of the irrigation system, including automatic controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, and backflow prevention devices.~~
~~(iii) Static water pressure at the point of connection to the public water supply.~~
~~(iv) Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (psi) for each station.~~
~~(v) Recycled water irrigation systems as specified in the Section 492 (c) (4) (6).~~

(b) The irrigation design plan submitted to the local agency shall follow standard industry practices and applicable local agency requirements, including:
(1) location and size of separate water meters for landscape;
(2) location, type and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators and backflow prevention devices;
(3) static water pressure at the point of connection to the public water supply;
(4) flow rate (gallons per minute), application rate (inches per hour) and design operating pressure (pressure per square inch) for each station;
(5) recycled water irrigation systems as specified in Section 492.14;
(6) the irrigation design plan shall contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan;" and
(7) the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor or any other applicable landscape professional, person, licensed or unlicensed, as listed in the Business and Professions Code, California Code of Regulations, or Food and Agriculture Code.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§492.8. Grading Design Plan.
(a) For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff and water waste. A grading design plan ~~satisfying~~ shall be submitted as part of the Landscape Documentation Package. *A comprehensive grading plan prepared by a civil engineer or other local agency permits satisfies this requirement.*
(1) The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including:
(A) height of graded slopes;
(B) drainage patterns;
(C) pad elevations;
(D) finish grade; and
(E) stormwater retention improvements, if applicable.
(2) To prevent excessive erosion and runoff, it is highly recommended that project applicants:
(A) grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;

(B) avoid disruption of natural drainage patterns and undisturbed soil; and
(C) avoid soil compaction in landscape areas.
(3) The grading design plan shall contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading design plan;" and the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor or any other applicable landscape professional, person, licensed or unlicensed, as listed in the Business and Professions Code, California Code of Regulations, or Food and Agriculture Code.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

~~(12) Certification~~
~~(A) Upon completing the installation of the landscaping and the irrigation system, an irrigation audit shall be conducted by a certified landscape irrigation auditor prior to the final field observation. (See Landscape Irrigation Auditor Handbook as referenced in Section 492 (c) (9) (A)).~~
~~(B) A licensed landscape architect or contractor, certified irrigation designer, or other licensed or certified professional in a related field shall conduct a final field observation and shall provide a certificate of substantial completion to the city or county. The certificate shall specifically indicate that plants were installed as specified, that the irrigation system was installed as designed, and that an irrigation audit has been performed, along with a list of any observed deficiencies.~~
~~(C) Certification shall be accomplished by completing a Certificate of Substantial Completion and delivering it to the city or county the retail water supplier, and to the Owner of Record. A sample of such a form, which shall be provided by the city or county is:~~
~~SAMPLE CERTIFICATE OF SUBSTANTIAL COMPLETION~~
~~Project Site:~~
~~Project Number:~~
~~Project Location:~~
~~Preliminary Project Documentation Submitted: (check indicating submittal)~~
~~- 1. Maximum Applied Water Allowance:(gallons or cubic feet per year)~~
~~- 2. Estimated Applied Water Use:(gallons or cubic feet/year)~~
~~* 2a. Estimated Amount of Water Expected from Effective Precipitation: (gallons or cubic feet/year)~~
~~3. Estimated Total Water Use:(gallons or cubic feet year)~~
~~Note: * If the design assumes that a part of the Estimated Total Water Use will be provided by precipitation, the Effective Precipitation Disclosure Statement in Section 495 shall be completed and submitted. The Estimated Amount of Water Expected from Effective Precipitation shall not exceed 25 percent of the local annual mean precipitation (average rainfall .)~~
~~4. Landscape Design Plan~~
~~5. Irrigation Design Plan~~
~~6. Irrigation Schedules~~
~~7. Maintenance Schedule~~
~~8. Landscape Irrigation Audit Schedule~~
~~9. Grading Design Plan~~
~~10. Soil Analysis~~

~~Post-Installation Inspection: (Check indicating substantial completion)~~
~~A. Plants installed as specified~~
~~B. Irrigation system installed as designed~~
~~- dual distribution system for recycled water~~
~~- minimal run-off or overspray~~
~~C. Landscape Irrigation Audit performed~~
~~(Certificate of Substantial Completion, continued)~~
~~Project submittal package and a copy of this certification has been provided to owner /manager and local water agency~~
~~Comments:~~
~~I/we certify that work has been installed in accordance with the contract documents. Contractor Signature Date State License Number I/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the Water Efficient Landscape Ordinance and that the landscape planting and irrigation installation conform with the approved plans and specifications. Landscape Architect Signature Date State License Number or Irrigation Designer/Consultant or Licensed or Certified Professional in a Related Field I/we certify that I/we have received all of the contract documents and that it is our responsibility to see that the project is maintained in accordance with the contract documents. Owner Signature Date~~

§492.9. Certificate of Completion.

(a) The Certificate of Completion (see Section 495.3 Appendix C for a sample certificate) shall include the following information and documentation:
(1) date;
(2) project name;
(3) project applicant name, telephone, and mailing address;
(4) project address and location;
(5) property owner name, telephone, and mailing address;
(6) certification by either the signer of the landscape design plan, the signer of the irrigation design plan, or the licensed landscape contractor that the landscape project has been installed per the approved Landscape Documentation Package;
(7) irrigation audit, see Section 492.12;
(8) parameters used to set the controller, see Section 492.10;
(9) landscape and irrigation maintenance schedule, see Section 492.11;
(10) irrigation audit report, see Section 492.12; and
(11) soil analysis report and documentation verifying implementation of soil report recommendations, see Section 492.5.
(b) The project applicant shall:
(1) submit the signed Certificate of Completion to the local agency for review;
(2) ensure that copies of the approved Certificate of Completion are submitted to the local water purveyor and property owner or his/her designee.
(c) The local agency shall:
(1) receive the signed Certificate of Completion from the project applicant;
(2) approve or deny the Certificate of Completion. If the Certificate of Completion is denied, the local agency shall provide information to the project applicant regarding reapplication, appeal or other assistance.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§492.10. Irrigation Scheduling.

~~(8) Irrigation Schedule~~

(a) For the efficient use of water, all irrigation schedules shall be developed, managed and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules ~~satisfying the following conditions shall be submitted as part of the Landscape Documentation Package~~ *shall meet the following criteria:*

~~(E)~~*(1)* ~~Whenever possible,~~ Irrigation scheduling shall use *automatic irrigation systems and* evapotranspiration data such as those from the California Irrigation Management Information

~~(F)~~*(2)* ~~Whenever possible, landscape irrigation shall be scheduled between 2:00 a.m. and 10:00 a.m. to avoid irrigating during times of high wind or temperature unless weather conditions are unfavorable.~~ *Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it. If allowable hours of irrigation differ from the local water purveyor, the stricter of the two shall apply.*

(3) For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the Estimated Total Water Use. Total annual applied water shall be less than or equal to MAWA. Actual irrigation schedules shall be based on current time reference evapotranspiration data (e.g., CIMIS or soil moisture sensor).

~~(A)~~*(4)* ~~An annual irrigation program with monthly irrigation schedules~~ *Parameters used to set the controller* shall be developed and submitted for each of the following:

(A) the plant establishment period;

(B) the established landscape; and

(C) temporarily irrigated areas.

~~(B) The irrigation schedule shall:~~

~~(i) include run time (in minutes per cycle), suggested number of cycles per day, and frequency of irrigation for each station; and~~

~~(ii) provide the amount of applied water (in hundred cubic feet, gallons, or in whatever billing units the local water supplier uses) recommended on a monthly and annual basis.~~

(5) Each irrigation schedule shall consider for each station all of the following that apply:

(A) irrigation interval (days between irrigation);

(B) irrigation run times (hours or minutes per irrigation event to avoid runoff);

(C) number of cycle starts required for each irrigation event to avoid runoff;

(D) amount of applied water scheduled to be applied on a monthly basis;

(E) application rate setting;

(F) root depth setting;

(G) plant type setting;

(H) soil type;

(I) slope factor setting;

(J) shade factor setting; and

(K) irrigation uniformity or efficiency setting.

~~(C) The total amount of water for the landscape project shall include water designated in the Estimated Total Water Use calculation plus water needed for any water features, which shall be considered as a high water using hydrozone.~~

~~(D) Recreational areas designated in the landscape design plan shall be highlighted and the irrigation schedule shall indicate if any additional water is needed above the Maximum Applied Water Allowance because of high plant factors (but not due to irrigation inefficiency).~~

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

***§492.11. Landscape and Irrigation* Maintenance Schedules.**
~~1.~~*(a)* Landscapes shall be maintained to ensure water *use* efficiency. A regular maintenance schedule shall be submitted *with the Certificate of Completion.*
~~2.~~*(b)* A regular maintenance schedule shall include, but not be limited to, ~~checking,~~ *routine inspection;* ~~adjusting~~ *adjustment* and ~~repairing~~ *repair of* the irrigation *system and its components;* ~~equipment; resetting adjusting the automatic controllers;~~ aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; ~~and~~ weeding in all landscape~~d~~ areas *and removing any obstruction to emission devices.*
~~3.~~*(c)* ~~Whenever possible,~~ Repair of *all* irrigation equipment shall be done with the originally ~~specified materials~~ *installed* components or their equivalents.
~~4.~~*(d) A project applicant is encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.*

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

~~(9) Landscape Irrigation Audit Schedules~~
~~A schedule of landscape irrigation audits, for all but single family residences, satisfying the following conditions shall be submitted to the city or county as part of the Landscape Documentation Package.~~
~~(A) At a minimum, audits shall be in accordance with the State of California Landscape Water Management Program as described in the Landscape Irrigation Auditor Handbook, the entire document, which is hereby incorporated by reference. (See Landscape Irrigation Auditor Handbook (June 1990) version 5.5 [formerly Master Auditor Training].)~~
~~(B) The schedule shall provide for landscape irrigation audits to be conducted by certified landscape irrigation auditors at least once every five years.~~

§492.12.* ~~Landscape~~ Irrigation Audit ~~Schedules~~, *Irrigation Survey and Irrigation Water Use Analysis.
(a) At a minimum, all landscape irrigation audits shall comply with the "Irrigation Association Certified Landscape Irrigation Auditor Training Manual (2004 or most current edition)," which is hereby incorporated by reference.
(b) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.
(c) For new construction and rehabilitated landscape projects installed after January 1, 2010, as described in Section 490.1:
(1) the project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule;

(2) the local agency shall administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits and irrigation surveys for compliance with the Maximum Applied Water Allowance.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§492.13. Irrigation Efficiency.

~~492 (C) (6) (A) (ii) Irrigation Efficiency.~~

(a) For the purpose of determining the maximum applied water allowance, *average* irrigation efficiency is assumed to be ~~0.625~~ *0.71*. Irrigation systems shall be designed, maintained and managed to meet or exceed *an average landscape irrigation efficiency of* ~~0.625~~ *0.71* ~~efficiency~~.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§492.14. Recycled Water.

~~1.(i)~~*(a)* The installation of recycled water irrigation systems ~~(dual distribution systems)~~ shall ~~be~~ allow for the current and future use of recycled water, unless a written exemption has been granted as described in ~~the following~~ *Section 492.14 (b).*

~~2.(ii)~~*(b)* Irrigation systems *and decorative water features* shall ~~make~~ use ~~of~~ recycled water unless a written exemption has been granted by the local water agency stating that recycled water meeting all *public* health *codes and* standards is ~~are~~ not available and will not be available ~~in~~ *for* the foreseeable future.

~~3.(iii)~~*(c)* All ~~The~~ recycled water irrigation systems shall be designed and operated in accordance with all *applicable* local ~~agency~~ and State ~~codes~~ *laws.*

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§492.15. Stormwater Management.

(a) Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site retention and infiltration are encouraged.

(b) Project applicants shall refer to the local agency or Regional Water Quality Control Board for information on any stormwater ordinances and stormwater management plans.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§492.16. Public Education.

~~1.~~*(a)* Publications ~~.(A)Local agencies shall provide information to owners of all new, single family residential homes regarding the design, installation, and maintenance of water efficient landscapes. (B) Information about the efficient use of landscape water shall be provided to water users throughout the community.~~ *Education is a critical component to promote the efficient use of water in landscapes. The use of appropriate principles of design, installation, management and maintenance that save water is encouraged in the community.*

(1) A local agency shall provide information to owners of new, single-family residential homes regarding the design, installation, management and maintenance of water efficient landscapes.

~~2.~~*(b)* Model Homes ~~At least one model home that is landscaped in each project consisting of eight or more homes shall demonstrate via signs and information the principles of water efficient landscapes described in this ordinance.~~ *All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in this ordinance.*

~~(A)~~*(1)* Signs shall be used to identify the model as an example of a water efficient landscape ~~and~~ featuring elements such as hydrozones, irrigation equipment and others ~~which~~ *that* contribute to the overall water efficient theme.

~~(B)~~*(2)* Information shall be provided about designing, installing, managing, and maintaining water efficient landscapes.

Note: Authority cited: Section 65595 Gov. Code. Reference: Section 65596, Gov. Code.

§492.17. Environmental Review.

(a) The adoption of the Model Water Efficient Landscape Ordinance by the state of California is not subject to review under the California Environmental Quality Act (CEQA).

(b) The local agency must comply with CEQA, as appropriate.

Note: Authority cited: Section 21082, Public Resources Code. Reference: Sections 21080, 21082, Public Resources Code.

§493. Provisions for Existing Landscapes.

(a) A local agency may designate another agency, such as a water purveyor, to implement some or all of the requirements contained in this ordinance. Local agencies may collaborate with water purveyors to define each entity's specific responsibilities relating to this ordinance.

~~(a) Water Management~~

~~All existing landscaped areas to which the city or county provides water that are one acre or more, including golf courses, green belts, common areas, multi-family housing, schools, businesses, parks, cemeteries, and publicly owned landscapes shall have a landscape irrigation audit at least every five years. At a minimum, the audit shall be in accordance with the California Landscape Water Management Program as described in the Landscape Irrigation Auditor Handbook, the entire document which is hereby incorporated by reference. (See Landscape Irrigation Auditor Handbook, Dept. of Water Resources, Water Conservation Office (June 1 990) version 5.5.)~~

~~(1) If the project's water bills indicate that they are using less than or equal to the Maximum Applied Water Allowance for that project site, an audit shall not be required.~~

~~(2) Recognition of projects that stay within the Maximum Applied Water Allowance is encouraged.~~

§493.1. Irrigation Audit, Irrigation Survey and Irrigation Water Use Analysis.

(a) For all existing landscapes installed before January 1, 2010 with a dedicated or mixed-use water meter that are one acre or more, including golf courses, green belts, common areas, multi-family housing, schools, businesses, parks, cemeteries and publicly owned landscapes, the local agency shall administer programs that may include, but not be limited to irrigation water use analyses, irrigation surveys and irrigation audits to meet the existing landscape Maximum Applied Water Allowance.

(1) For all existing landscapes installed before January 1, 2010 without a meter that are one acre or more, the local agency shall administer programs that may include, but not be limited to irrigation surveys and irrigation audits to meet the existing landscape Maximum Applied Water Allowance.
(b) Maximum Applied Water Allowance for existing landscapes shall be calculated as: MAWA = (0.8)(ETo)(LA)(0.62).
(c) The audit shall comply with the Irrigation Association Certified Landscape Irrigation Auditor Training Manual (2004) or the most current edition.
(d) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§493.2. ~~**(b)**~~ **Water Waste Prevention.**
(a) Cities and counties shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, or structures. Penalties for violation of these prohibitions shall be established locally.

Note: Authority cited: Section 65594, Gov. Code. Reference: Section 65597, Gov. Code.

§494. Effective Precipitation.
~~If effective precipitation is included in the calculation of the Estimated Total Water Use, then an Effective Precipitation Disclosure Statement from the landscape professional and the property owner shall be submitted with the Landscape Documentation Package.~~
~~SAMPLE EFFECTIVE PRECIPITATION DISCLOSURE STATEMENT~~
~~I certify that I have informed the project owner and developer that this project depends on (gallons or cubic feet) of effective precipitation per year. This represents percent of the local mean precipitation of inches per year. I have based my assumptions about the amount of precipitation that is effective upon: I certify that I have informed the project owner and developer that in times of drought, there may not be enough water available to keep the entire landscape alive. Licensed or Certified Landscape Professional~~
~~I certify that I have been informed by the licensed or certified landscape professional that this project depends upon (gallons or cubic feet) of effective precipitation per year. This represents percent of the local mean precipitation of inches per year. I certify that I have been informed that in times of drought, there may not be enough water available to keep the entire landscape alive. Owner Developer~~

(a) A local agency may consider Effective Precipitation (25% of annual precipitation) in tracking water use and may use the following equation to calculate Maximum Applied Water Allowance: MAWA= (ETo-Eppt) (0.62) (0.7 x LA + 0.3 x (SLA).

Note: Authority Cited: Section 65595, Gov. Code. Reference: Section 65596, Gov. Code.

§495. Appendices.

§495.1 Appendix A – Reference Evapotranspiration (ETo) Table.

~~Section 495. Reference Evapotranspiration~~
~~in inches (Historical Data, extrapolated from 12-month Normal Year ETo Maps and U.C. publication 21426).~~

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
ALAMEDA													
Fremont	1.5	1.9	3.4	4.7	5.4	6.3	6.7	6.0	4.5	3.4	1.8	1.5	47.0
Livermore	1.2	1.5	2.9	4.4	5.9	6.6	7.4	6.4	5.3	3.2	1.5	0.9	47.2
Oakland	1.5	1.5	2.8	3.9	5.1	5.3	6.0	5.5	4.8	3.1	1.4	0.9	41.8
Oakland Foothills	1.1	1.4	2.7	3.7	5.1	6.4	5.8	4.9	3.6	2.6	1.4	1.0	39.6
Pleasanton	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
Union City	1.4	1.8	3.1	4.2	5.4	5.9	6.4	5.7	4.4	3.1	1.5	1.2	44.2
ALPINE													
Markleeville	0.7	0.9	2.0	3.5	5.0	6.1	7.3	6.4	4.4	2.6	1.2	0.5	40.6
AMADOR													
Jackson	1.2	1.5	2.8	4.4	6.0	7.2	7.9	7.2	5.3	3.2	1.4	0.9	48.9
Shanandoah Valley	1.0	1.7	2.9	4.4	5.6	6.8	7.9	7.1	5.2	3.6	1.7	1.0	48.8
BUTTE													
Chico	1.2	1.8	2.9	4.7	6.1	7.4	8.5	7.3	5.4	3.7	1.7	1.0	51.7
Durham	1.1	1.8	3.2	5.0	6.5	7.4	7.8	6.9	5.3	3.6	1.7	1.0	51.1
Gridley	1.2	1.8	3.0	4.7	6.1	7.7	8.5	7.1	5.4	3.7	1.7	1.0	51.9
Oroville	1.2	1.7	2.8	4.7	6.1	7.6	8.5	7.3	5.3	3.7	1.7	1.0	51.5
CALAVERAS													
San Andreas	1.2	1.5	2.8	4.4	6.0	7.3	7.9	7.0	5.3	3.2	1.4	0.7	48.8
COLUSA													
Colusa	1.0	1.7	3.4	5.0	6.4	7.6	8.3	7.2	5.4	3.8	1.8	1.1	52.8
Williams	1.2	1.7	2.9	4.5	6.1	7.2	8.5	7.3	5.3	3.4	1.6	1.0	50.8
CONTRA COSTA													
Brentwood	1.0	1.5	2.9	4.5	6.1	7.1	7.9	6.7	5.2	3.2	1.4	0.7	48.3
Concord	1.1	1.4	2.4	4.0	5.5	5.9	7.0	6.0	4.8	3.2	1.3	0.7	43.4
Courtland	0.9	1.5	2.9	4.4	6.1	6.9	7.9	6.7	5.3	3.2	1.4	0.7	48.0
Martinez	1.2	1.4	2.4	3.9	5.3	5.6	6.7	5.6	4.7	3.1	1.2	0.7	41.8
Moraga	1.2	1.5	3.4	4.2	5.5	6.1	6.7	5.9	4.6	3.2	1.6	1.0	44.9
Pittsburg	1.0	1.5	2.8	4.1	5.6	6.4	7.4	6.4	5.0	3.2	1.3	0.7	45.4
Walnut Creek	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
DEL NORTE													
Crescent City	0.5	0.9	2.0	3.0	3.7	3.5	4.3	3.7	3.0	2.0	0.9	0.5	27.7
EL DORADO													
Camino	0.9	1.7	2.5	3.9	5.9	7.2	7.8	6.8	5.1	3.1	1.5	0.9	47.3
FRESNO													
Clovis	1.0	1.5	3.2	4.8	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.4
Coalinga	1.2	1.7	3.1	4.6	6.2	7.2	8.5	7.3	5.3	3.4	1.6	0.7	50.9
Firebaugh	1.0	1.8	3.7	5.7	7.3	8.1	8.2	7.2	5.5	3.9	2.0	1.1	55.4
FivePoints	1.3	2.0	4.0	6.1	7.7	8.5	8.7	8.0	6.2	4.5	2.4	1.2	60.4
Fresno	0.9	1.7	3.3	4.8	6.7	7.8	8.4	7.1	5.2	3.2	1.4	0.6	51.1
Fresno State	0.9	1.6	3.2	5.2	7.0	8.0	8.7	7.6	5.4	3.6	1.7	0.9	53.7
Friant	1.2	1.5	3.1	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
Kerman	0.9	1.5	3.2	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.2
Kingsburg	1.0	1.5	3.4	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.6
Mendota	1.5	2.5	4.6	6.2	7.9	8.6	8.8	7.5	5.9	4.5	2.4	1.5	61.7
Orange Cove	1.2	1.9	3.5	4.7	7.4	8.5	8.9	7.9	5.9	3.7	1.8	1.2	56.7
Panoche	1.1	2.0	4.0	5.6	7.8	8.5	8.3	7.3	5.6	3.9	1.8	1.2	57.2
Parlier	1.0	1.9	3.6	5.2	6.8	7.6	8.1	7.0	5.1	3.4	1.7	0.9	52.0
Reedley	1.1	1.5	3.2	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
Westlands	0.9	1.7	3.8	6.3	8.0	8.6	8.6	7.8	5.9	4.3	2.1	1.1	58.8

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
GLENN													
Orland	1.1	1.8	3.4	5.0	6.4	7.5	7.9	6.7	5.3	3.9	1.8	1.4	52.1
Willows	1.2	1.7	2.9	4.7	6.1	7.2	8.5	7.3	5.3	3.6	1.7	1.0	51.3
HUMBOLDT													
Eureka	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
Ferndale	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
Garberville	0.6	1.2	2.2	3.1	4.5	5.0	5.5	4.9	3.8	2.4	1.0	0.7	34.9
Hoopa	0.5	1.1	2.1	3.0	4.4	5.4	6.1	5.1	3.8	2.4	0.9	0.7	35.6
IMPERIAL													
Brawley	2.8	3.8	5.9	8.0	10.4	11.5	11.7	10.0	8.4	6.2	3.5	2.1	84.2
Calipatria/Mulberry	2.4	3.2	5.1	6.8	8.6	9.2	9.2	8.6	7.0	5.2	3.1	2.3	70.7
El Centro	2.7	3.5	5.6	7.9	10.1	11.1	11.6	9.5	8.3	6.1	3.3	2.0	81.7
Holtville	2.8	3.8	5.9	7.9	10.4	11.6	12.0	10.0	8.6	6.2	3.5	2.1	84.7
Meloland	2.5	3.2	5.5	7.5	8.9	9.2	9.0	8.5	6.8	5.3	3.1	2.2	71.6
Palo Verde II	2.5	3.3	5.7	6.9	8.5	8.9	8.6	7.9	6.2	4.5	2.9	2.3	68.2
Seeley	2.7	3.5	5.9	7.7	9.7	10.1	9.3	8.3	6.9	5.5	3.4	2.2	75.4
Westmoreland	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Yuma	2.5	3.4	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.6
INYO													
Bishop	1.7	2.7	4.8	6.7	8.2	10.9	7.4	9.6	7.4	4.8	2.5	1.6	68.3
Death Valley Jct	2.2	3.3	5.4	7.7	9.8	11.1	11.4	10.1	8.3	5.4	2.9	1.7	79.1
Independence	1.7	2.7	3.4	6.6	8.5	9.5	9.8	8.5	7.1	3.9	2.0	1.5	65.2
Lower Haiwee Res.	1.8	2.7	4.4	7.1	8.5	9.5	9.8	8.5	7.1	4.2	2.6	1.5	67.6
Oasis	2.7	2.8	5.9	8.0	10.4	11.7	11.6	10.0	8.4	6.2	3.4	2.1	83.1
KERN													
Arvin	1.2	1.8	3.5	4.7	6.6	7.4	8.1	7.3	5.3	3.4	1.7	1.0	51.9
Bakersfield	1.0	1.8	3.5	4.7	6.6	7.7	8.5	7.3	5.3	3.5	1.6	0.9	52.4
Bakersfield/Bonanza	1.2	2.2	3.7	5.7	7.4	8.2	8.7	7.8	5.7	4.0	2.1	1.2	57.9
Bakersfield/Greenlee	1.2	2.2	3.7	5.7	7.4	8.2	8.7	7.8	5.7	4.0	2.1	1.2	57.9
Belridge	1.4	2.2	4.1	5.5	7.7	8.5	8.6	7.8	6.0	3.8	2.0	1.5	59.2
Blackwells Corner	1.4	2.1	3.8	5.4	7.0	7.8	8.5	7.7	5.8	3.9	1.9	1.2	56.6
Buttonwillow	1.0	1.8	3.2	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.5	0.9	52.0
China Lake	2.1	3.2	5.3	7.7	9.2	10.0	11.0	9.8	7.3	4.9	2.7	1.7	74.8
Delano	0.9	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.4	0.7	52.0
Famoso	1.3	1.9	3.5	4.8	6.7	7.6	8.0	7.3	5.5	3.5	1.7	1.3	53.1
Grapevine	1.3	1.8	3.1	4.4	5.6	6.8	7.6	6.8	5.9	3.4	1.9	1.0	49.5
Inyokern	2.0	3.1	4.9	7.3	8.5	9.7	11.0	9.4	7.1	5.1	2.6	1.7	72.4
Isabella Dam	1.2	1.4	2.8	4.4	5.8	7.3	7.9	7.0	5.0	3.2	1.7	0.9	48.4
Lamont	1.3	2.4	4.4	4.6	6.5	7.0	8.8	7.6	5.7	3.7	1.6	0.8	54.4
Lost Hills	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
McFarland/Kern	1.2	2.1	3.7	5.6	7.3	8.0	8.3	7.4	5.6	4.1	2.0	1.2	56.5
Shafter	1.0	1.7	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.5	0.9	52.1
Taft	1.3	1.8	3.1	4.3	6.2	7.3	8.5	7.3	5.4	3.4	1.7	1.0	51.2
Tehachapi	1.4	1.8	3.2	5.0	6.1	7.7	7.9	7.3	5.9	3.4	2.1	1.2	52.9
KINGS													
Caruthers	1.6	2.5	4.0	5.7	7.8	8.7	9.3	8.4	6.3	4.4	2.4	1.6	62.7
Corcoran	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Hanford	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.2	5.4	3.4	1.4	0.7	51.5
Kettleman	1.1	2.0	4.0	6.0	7.5	8.5	9.1	8.2	6.1	4.5	2.2	1.1	60.2
Lemoore	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.4	0.7	51.7
Stratford	0.9	1.9	3.9	6.1	7.8	8.6	8.8	7.7	5.9	4.1	2.1	1.0	58.7
LAKE													
Lakeport	1.1	1.3	2.6	3.5	5.1	6.0	7.3	6.1	4.7	2.9	1.2	0.9	42.8
Lower Lake	1.2	1.4	2.7	4.5	5.3	6.3	7.4	6.4	5.0	3.1	1.3	0.9	45.4

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
LASSEN													
Buntingville	1.0	1.7	3.5	4.9	6.2	7.3	8.4	7.5	5.4	3.4	1.5	0.9	51.8
Ravendale	0.6	1.1	2.3	4.1	5.6	6.7	7.9	7.3	4.7	2.8	1.2	0.5	44.9
Susanville	0.7	1.0	2.2	4.1	5.6	6.5	7.8	7.0	4.6	2.8	1.2	0.5	44.0
LOS ANGELES													
Burbank	2.1	2.8	3.7	4.7	5.1	6.0	6.6	6.7	5.4	4.0	2.6	2.0	51.7
Claremont	2.0	2.3	3.4	4.6	5.0	6.0	7.0	7.0	5.3	4.0	2.7	2.1	51.3
El Dorado	1.7	2.2	3.6	4.8	5.1	5.7	5.9	5.9	4.4	3.2	2.2	1.7	46.3
Glendale	2.0	2.2	3.3	3.8	4.7	4.8	5.7	5.6	4.3	3.3	2.2	1.8	43.7
Glendora	2.0	2.5	3.6	4.9	5.4	6.1	7.3	6.8	5.7	4.2	2.6	2.0	53.1
Gorman	1.6	2.2	3.4	4.6	5.5	7.4	7.7	7.1	5.9	3.6	2.4	1.1	52.4
Hollywood Hills	2.1	2.2	3.8	5.4	6.0	6.5	6.7	6.4	5.2	3.7	2.8	2.1	52.8
Lancaster	2.1	3.0	4.6	5.9	8.5	9.7	11.0	9.8	7.3	4.6	2.8	1.7	71.1
Long Beach	1.8	2.1	3.3	3.9	4.5	4.3	5.3	4.7	3.7	2.8	1.8	1.5	39.7
Los Angeles	2.2	2.7	3.7	4.7	5.5	5.8	6.2	5.9	5.0	3.9	2.6	1.9	50.1
Monrovia	2.2	2.3	3.8	4.3	5.5	5.9	6.9	6.4	5.1	3.2	2.5	2.0	50.2
Palmdale	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
Pasadena	2.1	2.7	3.7	4.7	5.1	6.0	7.1	6.7	5.6	4.2	2.6	2.0	52.3
Pearblossom	1.7	2.4	3.7	4.7	7.3	7.7	9.9	7.9	6.4	4.0	2.6	1.6	59.9
Pomona	1.7	2.0	3.4	4.5	5.0	5.8	6.5	6.4	4.7	3.5	2.3	1.7	47.5
Redondo Beach	2.2	2.4	3.3	3.8	4.5	4.7	5.4	4.8	4.4	2.8	2.4	2.0	42.6
San Fernando	2.0	2.7	3.5	4.6	5.5	5.9	7.3	6.7	5.3	3.9	2.6	2.0	52.0
Santa Clarita	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Santa Monica	1.8	2.1	3.3	4.5	4.7	5.0	5.4	5.4	3.9	3.4	2.4	2.2	44.2
MADERA													
Chowchilla	1.0	1.4	3.2	4.7	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.4
Madera	0.9	1.4	3.2	4.8	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.5
Raymond	1.2	1.5	3.0	4.6	6.1	7.6	8.4	7.3	5.2	3.4	1.4	0.7	50.5
MARIN													
Black Point	1.1	1.7	3.0	4.2	5.2	6.2	6.6	5.8	4.3	2.8	1.3	0.9	43.0
Novato	1.3	1.5	2.4	3.5	4.4	6.0	5.9	5.4	4.4	2.8	1.4	0.7	39.8
Point San Pedro	1.1	1.7	3.0	4.2	5.2	6.2	6.6	5.8	4.3	2.8	1.3	0.9	43.0
San Rafael	1.2	1.3	2.4	3.3	4.0	4.8	4.8	4.9	4.3	2.7	1.3	0.7	35.8
MARIPOSA													
Coulterville	1.1	1.5	2.8	4.4	5.9	7.3	8.1	7.0	5.3	3.4	1.4	0.7	48.8
Mariposa	1.1	1.5	2.8	4.4	5.9	7.4	8.2	7.1	5.0	3.4	1.4	0.7	49.0
Yosemite Village	0.7	1.0	2.3	3.7	5.1	6.5	7.1	6.1	4.4	2.9	1.1	0.6	41.4
MENDOCINO													
Fort Bragg	0.9	1.3	2.2	3.0	3.7	3.5	3.7	3.7	3.0	2.3	1.2	0.7	29.0
Hopland	1.1	1.3	2.6	3.4	5.0	5.9	6.5	5.7	4.5	2.8	1.3	0.7	40.9
Point Arena	1.0	1.3	2.3	3.0	3.7	3.9	3.7	3.7	3.0	2.3	1.2	0.7	29.6
Sanel Valley	1.0	1.6	3.0	4.6	6.0	7.0	8.0	7.0	5.2	3.4	1.4	0.9	49.1
Ukiah	1.0	1.3	2.6	3.3	5.0	5.8	6.7	5.9	4.5	2.8	1.3	0.7	40.9
MERCED													
Kesterson	0.9	1.7	3.4	5.5	7.3	8.2	8.6	7.4	5.5	3.8	1.8	0.9	55.1
Los Banos	1.0	1.5	3.2	4.7	6.1	7.4	8.2	7.0	5.3	3.4	1.4	0.7	50.0
Merced	1.0	1.5	3.2	4.7	6.6	7.9	8.5	7.2	5.3	3.4	1.4	0.7	51.5
MODOC													
Modoc/Alturas	0.9	1.4	2.8	3.7	5.1	6.2	7.5	6.6	4.6	2.8	1.2	0.7	43.2
MONO													
Bridgeport	0.7	0.9	2.2	3.8	5.5	6.6	7.4	6.7	4.7	2.7	1.2	0.5	43.0
Long Valley	1.5	1.9	3.2	4.1	5.8	6.5	7.3	6.7	5.3	3.6	2.0	1.2	49.1

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
MONTEREY													
Arroyo Seco	1.5	2.0	3.7	5.4	6.3	7.3	7.2	6.7	5.0	3.9	2.0	1.6	52.6
Castroville	1.4	1.7	3.0	4.2	4.6	4.8	4.0	3.8	3.0	2.6	1.6	1.4	36.2
Gonzales	1.3	1.7	3.4	4.7	5.4	6.3	6.3	5.9	4.4	3.4	1.9	1.3	45.7
Greenfield	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
King City	1.7	2.0	3.4	4.4	4.4	5.6	6.1	6.7	6.5	5.2	2.2	1.3	49.6
King City-Oasis Rd.	1.4	1.9	3.6	5.3	6.5	7.3	7.4	6.8	5.1	4.0	2.0	1.5	52.7
Monterey	1.7	1.8	2.7	3.5	4.0	4.1	4.3	4.2	3.5	2.8	1.9	1.5	36.0
Pajaro	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.1
Salinas	1.6	1.9	2.7	3.8	4.8	4.7	5.0	4.5	4.0	2.9	1.9	1.3	39.1
Salinas North	1.2	1.5	2.9	4.1	4.6	5.2	4.5	4.3	3.2	2.8	1.5	1.2	36.9
San Ardo	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
San Juan	1.8	2.1	3.4	4.6	5.3	5.7	5.5	4.9	3.8	3.2	2.2	1.9	44.2
Soledad	1.7	2.0	3.4	4.4	5.5	5.4	6.5	6.2	5.2	3.7	2.2	1.5	47.7
NAPA													
Angwin	1.8	1.9	3.2	4.7	5.8	7.3	8.1	7.1	5.5	4.5	2.9	2.1	54.9
Carneros	0.8	1.5	3.1	4.6	5.5	6.6	6.9	6.2	4.7	3.5	1.4	1.0	45.8
Oakville	1.0	1.5	2.9	4.7	5.8	6.9	7.2	6.4	4.9	3.5	1.6	1.2	47.7
St Helena	1.2	1.5	2.8	3.9	5.1	6.1	7.0	6.2	4.8	3.1	1.4	0.9	44.1
Yountville	1.3	1.7	2.8	3.9	5.1	6.0	7.1	6.1	4.8	3.1	1.5	0.9	44.3
NEVADA													
Grass Valley	1.1	1.5	2.6	4.0	5.7	7.1	7.9	7.1	5.3	3.2	1.5	0.9	48.0
Nevada City	1.1	1.5	2.6	3.9	5.8	6.9	7.9	7.0	5.3	3.2	1.4	0.9	47.4
ORANGE													
Irvine	2.2	2.5	3.7	4.7	5.2	5.9	6.3	6.2	4.6	3.7	2.6	2.3	49.6
Laguna Beach	2.2	2.7	3.4	3.8	4.6	4.6	4.9	4.9	4.4	3.4	2.4	2.0	43.2
Santa Ana	2.2	2.7	3.7	4.5	4.6	5.4	6.2	6.1	4.7	3.7	2.5	2.0	48.2
PLACER													
Auburn	1.2	1.7	2.8	4.4	6.1	7.4	8.3	7.3	5.4	3.4	1.6	1.0	50.6
Blue Canyon	0.7	1.1	2.1	3.4	4.8	6.0	7.2	6.1	4.6	2.9	0.9	0.6	40.5
Colfax	1.1	1.5	2.6	4.0	5.8	7.1	7.9	7.0	5.3	3.2	1.4	0.9	47.9
Roseville	1.1	1.7	3.1	4.7	6.2	7.7	8.5	7.3	5.6	3.7	1.7	1.0	52.2
Soda Springs	0.7	0.7	1.8	3.0	4.3	5.3	6.2	5.5	4.1	2.5	0.7	0.7	35.4
Tahoe City	0.7	0.7	1.7	3.0	4.3	5.4	6.1	5.6	4.1	2.4	0.8	0.6	35.5
Truckee	0.7	0.7	1.7	3.2	4.4	5.4	6.4	5.7	4.1	2.4	0.8	0.6	36.2
PLUMAS													
Portola	0.7	0.9	1.9	3.5	4.9	5.9	7.3	5.9	4.3	2.7	0.9	0.5	39.4
Quincy	0.7	0.9	2.2	3.5	4.9	5.9	7.3	5.9	4.4	2.8	1.2	0.5	40.2
RIVERSIDE													
Beaumont	2.0	2.3	3.4	4.4	6.1	7.1	7.6	7.9	6.0	3.9	2.6	1.7	55.0
Blythe	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Cathedral City	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Coachella	2.9	4.4	6.2	8.4	10.5	11.9	12.3	10.1	8.9	6.2	3.8	2.4	88.1
Desert Center	2.9	4.1	6.4	8.5	11.0	12.1	12.2	11.1	9.0	6.4	3.9	2.6	90.0
Elsinore	2.1	2.8	3.9	4.4	5.9	7.1	7.6	7.0	5.8	3.9	2.6	1.9	55.0
Indio	**3.1**	3.6	6.5	8.3	10.5	11.0	10.8	9.7	8.3	5.9	3.7	2.7	83.9
La Quinta	2.4	2.8	5.2	6.5	8.3	8.7	8.5	7.9	6.5	4.5	2.7	2.2	66.2
Mecca	2.6	3.3	5.7	7.2	8.6	9.0	8.8	8.2	6.8	5.0	3.2	2.4	70.8
Oasis	2.9	3.3	5.3	6.1	8.5	8.9	8.7	7.9	6.9	4.8	2.9	2.3	68.4
Palm Deser	2.5	3.4	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.6
Palm Springs	2.0	2.9	4.9	7.2	8.3	8.5	11.6	8.3	7.2	5.9	2.7	1.7	71.1
Rancho California	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
Rancho Mirage	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Ripley	2.7	3.3	5.6	7.2	8.7	8.7	8.4	7.6	6.2	4.6	2.8	2.2	67.8
Salton Sea North	2.5	3.3	5.5	7.2	8.8	9.3	9.2	8.5	6.8	5.2	3.1	2.3	71.7
Temecula East II	2.3	2.4	4.1	4.9	6.4	7.0	7.8	7.4	5.7	4.1	2.6	2.2	56.7
Thermal	2.4	3.3	5.5	7.6	9.1	9.6	9.3	8.6	7.1	5.2	3.1	2.1	72.8
Riverside UC	2.5	2.9	4.2	5.3	5.9	6.6	7.2	6.9	5.4	4.1	2.9	2.6	56.4
Winchester	2.3	2.4	4.1	4.9	6.4	6.9	7.7	7.5	6.0	3.9	2.6	2.1	56.8

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
SACRAMENTO													
Fair Oaks	1.0	1.6	3.4	4.1	6.5	7.5	8.1	7.1	5.2	3.4	1.5	1.0	50.5
Sacramento	1.0	1.8	3.2	4.7	6.4	7.7	8.4	7.2	5.4	3.7	1.7	0.9	51.9
Twitchell Island	1.2	1.8	3.9	5.3	7.4	8.8	9.1	7.8	5.9	3.8	1.7	1.2	57.9
SAN BENITO													
Hollister	1.5	1.8	3.1	4.3	5.5	5.7	6.4	5.9	5.0	3.5	1.7	1.1	45.1
San Benito	1.2	1.6	3.1	4.6	5.6	6.4	6.9	6.5	4.8	3.7	1.7	1.2	47.2
San Juan Valley	1.4	1.8	3.4	4.5	6.0	6.7	7.1	6.4	5.0	3.5	1.8	1.4	49.1
SAN BERNARDINO													
Baker	2.7	3.9	6.1	8.3	10.4	11.8	12.2	11.0	8.9	6.1	3.3	2.1	86.6
Barstow NE	2.2	2.9	5.3	6.9	9.0	10.1	9.9	8.9	6.8	4.8	2.7	2.1	71.7
Big Bear Lake	1.8	2.6	4.6	6.0	7.0	7.6	8.1	7.4	5.4	4.1	2.4	1.8	58.6
Chino	2.1	2.9	3.9	4.5	5.7	6.5	7.3	7.1	5.9	4.2	2.6	2.0	54.6
Crestline	1.5	1.9	3.3	4.4	5.5	6.6	7.8	7.1	5.4	3.5	2.2	1.6	50.8
Lake Arrowhead	1.8	2.6	4.6	6.0	7.0	7.6	8.1	7.4	5.4	4.1	2.4	1.8	58.6
Lucerne Valley	2.2	2.9	5.1	6.5	9.1	11.0	11.4	9.9	7.4	5.0	3.0	1.8	75.3
Needles	3.2	4.2	6.6	8.9	11.0	12.4	12.8	11.0	8.9	6.6	4.0	2.7	92.1
Newberry Springs	2.1	2.9	5.3	8.4	9.8	10.9	11.1	9.9	7.6	5.2	3.1	2.0	78.2
San Bernardino	2.0	2.7	3.8	4.6	5.7	6.9	7.9	7.4	5.9	4.2	2.6	2.0	55.6
Twentynine Palms	2.6	3.6	5.9	7.9	10.1	11.2	11.2	10.3	8.6	5.9	3.4	2.2	82.9
Victorville	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
SAN DIEGO													
Chula Vista	2.2	2.7	3.4	3.8	4.9	4.7	5.5	4.9	4.5	3.4	2.4	2.0	44.2
Escondido SPV	2.4	2.6	3.9	4.7	5.9	6.5	7.1	6.7	5.3	3.9	2.8	2.3	54.2
Miramar	2.3	2.5	3.7	4.1	5.1	5.4	6.1	5.8	4.5	3.3	2.4	2.1	47.1
Oceanside	2.2	2.7	3.4	3.7	4.9	4.6	4.6	5.1	4.1	3.3	2.4	2.0	42.9
Otay Lake	2.3	2.7	3.9	4.6	5.6	5.9	6.2	6.1	4.8	3.7	2.6	2.2	50.4
Pine Valley	1.5	2.4	3.8	5.1	6.0	7.0	7.8	7.3	6.0	4.0	2.2	1.7	54.8
Ramona	2.1	2.1	3.4	4.6	5.2	6.3	6.7	6.8	5.3	4.1	2.8	2.1	51.6
San Diego	2.1	2.4	3.4	4.6	5.1	5.3	5.7	5.6	4.3	3.6	2.4	2.0	46.5
Santee	2.1	2.7	3.7	4.5	5.5	6.1	6.6	6.2	5.4	3.8	2.6	2.0	51.1
Torrey Pines	2.2	2.3	3.4	3.9	4.0	4.1	4.6	4.7	3.8	2.8	2.0	2.0	39.8
Warner Springs	1.6	2.7	3.7	4.7	5.7	7.6	8.3	7.7	6.3	4.0	2.5	1.3	56.0
SAN FRANCISCO													
San Francisco	1.5	1.3	2.4	3.0	3.7	4.6	4.9	4.8	4.1	2.8	1.3	0.7	35.1
SAN JOAQUIN													
Farmington	1.5	1.5	2.9	4.7	6.2	7.6	8.1	6.8	5.3	3.3	1.4	0.7	50.0
Lodi West	1.0	1.6	3.3	4.3	6.3	6.9	7.3	6.4	4.5	3.0	1.4	0.8	46.7
Manteca	0.9	1.7	3.4	5.0	6.5	7.5	8.0	7.1	5.2	3.3	1.6	0.9	51.2
Stockton	0.8	1.5	2.9	4.7	6.2	7.4	8.1	6.8	5.3	3.2	1.4	0.6	49.1
Tracy	1.0	1.5	2.9	4.5	6.1	7.3	7.9	6.7	5.3	3.2	1.3	0.7	48.5
SAN LUIS OBISPO													
Arroyo Grande	2.0	2.2	3.2	3.8	4.3	4.7	4.3	4.6	3.8	3.2	2.4	1.7	40.0
Atascadero	1.2	1.5	2.8	3.9	4.5	6.0	6.7	6.2	5.0	3.2	1.7	1.0	43.7
Morro Bay	2.0	2.2	3.1	3.5	4.3	4.5	4.6	4.6	3.8	3.5	2.1	1.7	39.9
Nipomo	2.2	2.5	3.8	5.1	5.7	6.2	6.4	6.1	4.9	4.1	2.9	2.3	52.1
Paso Robles	1.6	2.0	3.2	4.3	5.5	6.3	7.3	6.7	5.1	3.7	2.1	1.4	49.0
San Luis Obispo	2.0	2.2	3.2	4.1	4.9	5.3	4.6	5.5	4.4	3.5	2.4	1.7	43.8
San Miguel	1.6	2.0	3.2	4.3	5.0	6.4	7.4	6.8	5.1	3.7	2.1	1.4	49.0
San Simeon	2.0	2.0	2.9	3.5	4.2	4.4	4.6	4.3	3.5	3.1	2.0	1.7	38.1
SAN MATEO													
Hal Moon Bay	1.5	1.7	2.4	3.0	3.9	4.3	4.3	4.2	3.5	2.8	1.3	1.0	33.7
Redwood City	1.5	1.8	2.9	3.8	5.2	5.3	6.2	5.6	4.8	3.1	1.7	1.0	42.8
Woodside	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
SANTA BARBARA													
Betteravia	2.1	2.6	4.0	5.2	6.0	5.9	5.8	5.4	4.1	3.3	2.7	2.1	49.1
Carpenteria	2.0	2.4	3.2	3.9	4.8	5.2	5.5	5.7	4.5	3.4	2.4	2.0	44.9
Cuyama	2.1	2.4	3.8	5.4	6.9	7.9	8.5	7.7	5.9	4.5	2.6	2.0	59.7
Goleta	2.1	2.5	3.9	5.1	5.7	5.7	5.4	5.4	4.2	3.2	2.8	2.2	48.1
Goleta Foothills	2.3	2.6	3.7	5.4	5.3	5.6	5.5	5.7	4.5	3.9	2.8	2.3	49.6
Guadalupe	2.0	2.2	3.2	3.7	4.9	4.6	4.5	4.6	4.1	3.3	2.4	1.7	41.1
Lompoc	2.0	2.2	3.2	3.7	4.8	4.6	4.9	4.8	3.9	3.2	2.4	1.7	41.1
Los Alamos	1.8	2.0	3.2	4.1	4.9	5.3	5.7	5.5	4.4	3.7	2.4	1.6	44.6
Santa Barbara	2.0	2.5	3.2	3.8	4.6	5.1	5.5	4.5	3.4	2.4	1.8	1.8	40.6
Santa Maria	1.8	2.3	3.7	5.1	5.7	5.8	5.6	5.3	4.2	3.5	2.4	1.9	47.4
Santa Ynez	1.7	2.2	3.5	5.0	5.8	6.2	6.4	6.0	4.5	3.6	2.2	1.7	48.7
Sisquoc	2.1	2.5	3.8	4.1	6.1	6.3	6.4	5.8	4.7	3.4	2.3	1.8	49.2
Solvang	2.0	2.0	3.3	4.3	5.0	5.6	6.1	5.6	4.4	3.7	2.2	1.6	45.6
SANTA CLARA													
Gilroy	1.3	1.8	3.1	4.1	5.3	5.6	6.1	5.5	4.7	3.4	1.7	1.1	43.6
Los Gatos	1.5	1.8	2.8	3.9	5.0	5.6	6.2	5.5	4.7	3.2	1.7	1.1	42.9
Morgan Hill	1.5	1.8	3.4	4.2	6.3	7.0	7.1	6.0	5.1	3.7	1.9	1.4	49.5
Palo Alto	1.5	1.8	2.8	3.8	5.2	5.3	6.2	5.6	5.0	3.2	1.7	1.0	43.0
San Jose	1.5	1.8	3.1	4.1	5.5	5.8	6.5	5.9	5.2	3.3	1.8	1.0	45.3
SANTA CRUZ													
De Laveaga	1.4	1.9	3.3	4.7	4.9	5.3	5.0	4.8	3.6	3.0	1.6	1.3	40.8
Green Valley Rd	1.2	1.8	3.2	4.5	4.6	5.4	5.2	5.0	3.7	3.1	1.6	1.3	40.6
Santa Cruz	1.5	1.8	2.6	3.5	4.3	4.4	4.8	4.4	3.8	2.8	1.7	1.2	36.6
Watsonville	1.5	1.8	2.7	3.7	4.6	4.5	4.9	4.2	4.0	2.9	1.8	1.2	37.7
Webb	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.2
SHASTA													
Burney	0.7	1.0	2.1	3.5	4.9	5.9	7.4	6.4	4.4	2.9	0.9	0.6	40.9
Fall River Mills	0.6	1.0	2.1	3.7	5.0	6.1	7.8	6.7	4.6	2.8	0.9	0.5	41.8
Glenburn	0.6	1.0	2.1	3.7	5.0	6.3	7.8	6.7	4.7	2.8	0.9	0.6	42.1
McArthur	0.7	1.4	2.9	4.2	5.6	6.9	8.2	7.2	5.0	3.0	1.1	0.6	46.8
Redding	1.2	1.4	2.6	4.1	5.6	7.1	8.5	7.3	5.3	3.2	1.4	0.9	48.8
SIERRA													
Downieville	0.7	1.0	2.3	3.5	5.0	6.0	7.4	6.2	4.7	2.8	0.9	0.6	41.3
Sierraville	0.7	1.1	2.2	3.2	4.5	5.9	7.3	6.4	4.3	2.6	0.9	0.5	39.6
SISKIYOU													
Happy Camp	0.5	0.9	2.0	3.0	4.3	5.2	6.1	5.3	4.1	2.4	0.9	0.5	35.1
MacDoel	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
Mt Shasta	0.5	0.9	2.0	3.0	4.5	5.3	6.7	5.7	4.0	2.2	0.7	0.5	36.0
Tule lake FS	0.7	1.3	2.7	4.0	5.4	6.3	7.1	6.4	4.7	2.8	1.0	0.6	42.9
Weed	0.5	0.9	2.0	2.5	4.5	5.3	6.7	5.5	3.7	2.0	0.9	0.5	34.9
Yreka	0.6	0.9	2.1	3.0	4.9	5.8	7.3	6.5	4.3	2.5	0.9	0.5	39.2
SOLANO													
Benicia	1.3	1.4	2.7	3.8	4.9	5.0	6.4	5.5	4.4	2.9	1.2	0.7	40.3
Dixon	0.7	1.4	3.2	5.2	6.3	7.6	8.2	7.2	5.5	4.3	1.6	1.1	52.1
Fairfield	1.1	1.7	2.8	4.0	5.5	6.1	7.8	6.0	4.8	3.1	1.4	0.9	45.2
Hastings Tract	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Lincoln	1.2	1.7	2.8	4.7	6.1	7.4	8.4	7.3	5.4	3.7	1.9	1.2	51.9
Putah Creek	1.0	1.6	3.2	4.9	6.1	7.3	7.9	7.0	5.3	3.8	1.8	1.2	51.0
Rio Vista	0.9	1.7	2.8	4.4	5.9	6.7	7.9	6.5	5.1	3.2	1.3	0.7	47.0
Suisun Valley	0.6	1.3	3.0	4.7	5.8	7.0	7.7	6.8	5.3	3.8	1.4	0.9	48.3
Winters	0.9	1.7	3.3	5.0	6.4	7.5	7.9	7.0	5.2	3.5	1.6	1.0	51.0
SONOMA													
Bennett Valley	1.1	1.7	3.2	4.1	5.5	6.5	6.6	5.7	4.5	3.1	1.5	0.9	44.4
Cloverdale	1.1	1.4	2.6	3.4	5.0	5.9	6.2	5.6	4.5	2.8	1.4	0.7	40.7
Fort Ross	1.2	1.4	2.2	3.0	3.7	4.5	4.2	4.3	3.4	2.4	1.2	0.5	31.9
Healdsburg	1.2	1.5	2.4	3.5	5.0	5.9	6.1	5.6	4.5	2.8	1.4	0.7	40.8
Petaluma	1.2	1.5	2.8	3.7	4.6	5.6	4.6	5.7	4.5	2.9	1.4	0.9	39.6
Santa Rosa	1.2	1.7	2.8	3.7	5.0	6.0	6.1	5.9	4.5	2.9	1.5	0.7	42.0
Valley of the Moon	1.0	1.6	3.0	4.5	5.6	6.6	7.1	6.3	4.7	3.3	1.5	1.0	46.1
Windsor	0.9	1.6	3.0	4.5	5.5	6.5	6.5	5.9	4.4	3.2	1.4	1.0	44.2

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
STANISLAUS													
Denair	1.0	1.9	3.6	4.7	7.0	7.9	8.0	6.1	5.3	3.4	1.5	1.0	51.4
La Grange	1.2	1.5	3.1	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
Modesto	0.9	1.4	3.2	4.7	6.4	7.7	8.1	6.8	5.0	3.4	1.4	0.7	49.7
Newman	1.0	1.5	3.2	4.6	6.2	7.4	8.1	6.7	5.0	3.4	1.4	0.7	49.3
Oakdale	1.2	1.5	3.2	4.7	6.2	7.7	8.1	7.1	5.1	3.4	1.4	0.7	50.3
Patterson	1.3	2.1	4.2	5.4	7.9	8.6	8.2	6.6	5.8	4.0	1.9	1.3	57.3
Turlock	0.9	1.5	3.2	4.7	6.5	7.7	8.2	7.0	5.1	3.4	1.4	0.7	50.2
SUTTER													
Nicolaus	0.9	1.6	3.2	4.9	6.3	7.5	8.0	6.9	5.2	3.4	1.5	0.9	50.2
Yuba City	1.3	2.1	2.8	4.4	5.7	7.2	7.1	6.1	4.7	3.2	1.2	0.9	46.7
TEHAMA													
Corning	1.2	1.8	2.9	4.5	6.1	7.3	8.1	7.2	5.3	3.7	1.7	1.1	50.7
Gerber	1.0	1.8	3.5	5.0	6.6	7.9	8.7	7.4	5.8	4.1	1.8	1.1	54.7
Gerber Dryland	0.9	1.6	3.2	4.7	6.7	8.4	9.0	7.9	6.0	4.2	2.0	1.0	55.5
Red Bluff	1.2	1.8	2.9	4.4	5.9	7.4	8.5	7.3	5.4	3.5	1.7	1.0	51.1
TRINITY													
Hay Fork	0.5	1.1	2.3	3.5	4.9	5.9	7.0	6.0	4.5	2.8	0.9	0.7	40.1
Weaverville	0.6	1.1	2.2	3.3	4.9	5.9	7.3	6.0	4.4	2.7	0.9	0.7	40.0
TULARE													
Alpaugh	0.9	1.7	3.4	4.8	6.6	7.7	8.2	7.3	5.4	3.4	1.4	0.7	51.6
Badger	1.0	1.3	2.7	4.1	6.0	7.3	7.7	7.0	4.8	3.3	1.4	0.7	47.3
Delano	1.1	1.9	4.0	4.9	7.2	7.9	8.1	7.3	5.4	3.2	1.5	1.2	53.6
Dinuba	1.1	1.5	3.2	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
Lindcove	0.9	1.6	3.0	4.8	6.5	7.6	8.1	7.2	5.2	3.4	1.6	0.9	50.6
Porterville	1.2	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.3	3.4	1.4	0.7	52.1
Visalia	0.9	1.7	3.3	5.1	6.8	7.7	7.9	6.9	4.9	3.2	1.5	0.8	50.7
TUOLUMNE													
Groveland	1.1	1.5	2.8	4.1	5.7	7.2	7.9	6.6	5.1	3.3	1.4	0.7	47.5
Sonora	1.1	1.5	2.8	4.1	5.8	7.2	7.9	6.7	5.1	3.2	1.4	0.7	47.6
VENTURA													
Camarillo	2.2	2.5	3.7	4.3	5.0	5.2	5.9	5.4	4.2	3.0	2.5	2.1	46.1
Oxnard	2.2	2.5	3.2	3.7	4.4	4.6	5.4	4.8	4.0	3.3	2.4	2.0	42.3
Piru	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Port Hueneme	2.0	2.3	3.3	4.6	4.9	4.9	4.9	5.0	3.7	3.2	2.5	2.2	43.5
Thousand Oaks	2.2	2.6	3.4	4.5	5.4	5.9	6.7	6.4	5.4	3.9	2.6	2.0	51.0
Ventura	2.2	2.6	3.2	3.8	4.6	4.7	5.5	4.9	4.1	3.4	2.5	2.0	43.5
YOLO													
Bryte	0.9	1.7	3.3	5.0	6.4	7.5	7.9	7.0	5.2	3.5	1.6	1.0	51.0
Davis	1.0	1.9	3.3	5.0	6.4	7.6	8.2	7.1	5.4	4.0	1.8	1.0	52.5
Esparto	1.0	1.7	3.4	5.5	6.9	8.1	8.5	7.5	5.8	4.2	2.0	1.2	55.8
Winters	1.7	1.7	2.9	4.4	5.8	7.1	7.9	6.7	5.3	3.3	1.6	1.0	49.4
Woodland	1.0	1.8	3.2	4.7	6.1	7.7	8.2	7.2	5.4	3.7	1.7	1.0	51.6
Zamora	1.1	1.9	3.5	5.2	6.4	7.4	7.8	7.0	5.5	4.0	1.9	1.2	52.8
YUBA													
Browns Valley	1.0	1.7	3.1	4.7	6.1	7.5	8.5	7.6	5.7	4.1	2.0	1.1	52.9
Brownsville	1.1	1.4	2.6	4.0	5.7	6.8	7.9	6.8	5.3	3.4	1.5	0.9	47.4

The values in this table were derived from:1) California Irrigation Management Information System (CIMIS) 2) Reference EvapoTranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept of Water Resources 1999, 3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426

§495.2 Appendix B – Sample Water Efficient Landscape Worksheet.

WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package. Please complete all sections (A and B) of the worksheet.

PROJECT INFORMATION

Project Name		
Name of Project Applicant	*Telephone No.*	
	Fax No.	
Title	*Email Address*	
Company	*Street Address*	
City	*State*	*Zip Code*

SECTION A. HYDROZONE INFORMATION TABLE

Please complete the hydrozone table(s) for each irrigation point of connection. Use as many tables as necessary to provide the square footage of landscape area per valve.

Irrigation Point of Connection (P.O.C.) #_____					
Controller #	**Valve Circuit #**	**Plant Type(s)***	**Irrigation Method****	**Area (Sq. Ft.)**	**% of Landscape Area**
			TOTAL		**100%**

***Plant Type**
CST= Cool Season Turf
WST= Warm Season Turf
HW = High Water Use Plants
MW = Moderate Water Use Plants
LW = Low Water Use Plants

****Irrigation Method**
MS = Microspray
S = Spray
R = Rotor
B= Bubbler
D= Drip
O = Other

Section B1. Maximum Applied Water Allowance (MAWA)

The project's Maximum Applied Water Allowance shall be calculated using this equation:

MAWA = (ETo)(0.62)[0.7 x LA + 0.3 x SLA]

where:

MAWA = Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration Appendix A (inches per year)
0.7 = ET Adjustment Factor
LA = Landscaped Area includes Special Landscape Area (square feet)
0.62 = Conversion factor (to gallons per square foot)
SLA = Portion of the landscape area identified as Special Landscape Area (square feet)
0.3 = the additional ET Adjustment Factor for Special Landscape Area (1.0 - 0.7 = 0.3)

Maximum Applied Water Allowance = _____***gallons***

Show calculations.

Maximum Applied Water Allowance = _____***gallons***

Show calculations.

Section B2. Estimated Total Water Use (ETWU)

The project's Estimated Total Water Use is calculated using the following formula:

$$ETWU = (ETo)(0.62)\left(\frac{PF\,x\,HA}{IE} + SLA\right)$$

where:

ETWU = Estimated total water use per year (gallons)
ETo = Reference Evapotranspiration (inches)
PF = Plant Factor from WUCOLS (see Section 491)

HA = *Hydrozone Area [high, medium, and low water use areas] (square feet)*
SLA = *Special Landscape Area (square feet)*
0.62 = *Conversion Factor*
IE = *Irrigation Efficiency (minimum 0.71)*

Hydrozone Table

Please complete the hydrozone table(s). Use as many tables as necessary.

Hydrozone	*Plant Water Use Type(s)*	*Plant Factor (PF)*	*Area (square feet)*	*PF x Area (square feet)*
			Sum	
	SLA			

Estimated Total Water Use = _____***gallons***

Show calculations.

§495.3 Appendix C – Sample Certificate of Completion.

CERTIFICATE OF COMPLETION

This certificate is filled out by the project applicant upon completion of the landscape project. Please complete all sections (A, B, C and D) below.

SECTION A. PROJECT INFORMATION

Date		
Project Name		
Name of Project Applicant	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

Project Address and Location:

Street Address		Parcel, tract or lot number, if available.
City		Latitude/Longitude (optional for GIS applications)
State	Zip Code	

Property Owner or his/her designee:

Name	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

Please answer the questions below:

1. *Did you submit a Landscape Documentation Package to the local agency?* □ *Yes* □ *No*
2. *Was your Landscape Documentation Package approved by the local agency?* □ *Yes* □ *No*
3. *Was a copy of the Water Efficient Landscape Worksheet (including the Water Budget Calculation) submitted to the local water purveyor?* □ *Yes, Date:*_____ □ *No*

SECTION B. DOCUMENTS

SECTION B1. IRRIGATION SCHEDULING

❑ *Attach parameters for setting the irrigation schedule on controller per ordinance Section 492.10.*

SECTION B2. LANDSCAPE IRRIGATION AUDIT REPORT

❑ *Attach Landscape Irrigation Audit Report per ordinance Section 492.12.*

SECTION B3. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

❑ *Attach schedule of Landscape and Irrigation Maintenance per ordinance Section 492.11.*

SECTION B4. SOIL MANAGEMENT PLAN

- ❑ *Attach soil analysis report, if not previously submitted with the Landscape Documentation Package per ordinance Section 492.5.*
- ❑ *Attach documentation verifying implementation of recommendations from soil analysis report per ordinance Section 492.5.*

SECTION C. CERTIFICATION AT FINAL OBSERVATION OR INSPECTION

"I/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the ordinance and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved landscape documentation package."

*Signature**	*Date*	
Name (print)	*Telephone No.*	
	Fax No.	
Title	*Email Address*	
License No. or Certification No.		
Company	*Street Address*	
City	*State*	*Zip Code*

**Signer of the landscape design plan, signer of the irrigation plan or a licensed landscape contractor.*

SECTION D. PROPERTY OWNER

"I/we certify that I/we have received all of the contract documents and that it is our responsibility to see that the project is maintained in accordance with the Schedule of Landscape and Irrigation Maintenance."

Signature of Property Owner or his/her Designee	*Date*	
Name (print)	*Telephone No.*	
	Fax No.	
Title	*Email Address*	
Company	*Street Address*	
City	*State*	*Zip Code*

LOCAL AGENCY USE ONLY

Signature of the Local Agency Representative		
Name of the Local Agency Representative		
Title		
Telephone No.	*Fax No.*	
Email Address		
Name of Local Agency		
Name of Department/Division/Unit		
Street Address		
City	*State*	*Zip Code*