

Real Estate Services Division
Tier 1 and Tier 2 Energy Efficiency and Sustainable Building Measures Checklists
July 1, 2002

Project #:
Project Title:
Project Director:

ENERGY EFFICIENCY AND SUSTAINABLE BUILDING MEASURES

The goals of the State of California are “...to site, design, deconstruct, construct, renovate, operate, and maintain state buildings that are models of energy, water, and materials efficiency; while providing healthy, productive and comfortable indoor environments and long-term benefits to Californians.

The objectives are to implement the sustainable building goal in a cost effective manner, while considering externalities; identify economic and environmental performance measures; determine cost savings; use extended life cycle costing; and adopt an integrated systems approach. Such an approach treats the entire building as one system and recognizes that individual building features, such as lighting, windows, heating and cooling systems, or control systems, are not standalone systems.”

(Governor’s Executive Order D-16-00, in part)

“...It is further ordered that sound and smart growth patterns shall receive maximum support consistent with the foregoing state priorities, including the following considerations:

- *...Proximity to public transit and other needed infrastructure;*
- *Proximity to affordable and available housing;*
- *Pedestrian access to retail and commercial facilities, and exploiting opportunities for mixed use;...*
- *Communication with residents, property owners and businesses regarding local concerns;*
- *Advice and recommendations of local elected officials and their staff with consideration to any incentives offered by local government.”*

(Governor’s Executive Order D-46-01, in part)

DESIGN WORK:

- A. Project shall be designed in accordance with all applicable laws and regulations including, but not limited to, the following:
1. California Code of Regulations, Title 24, Part 6, *California Energy Code* – Current Edition
 2. Government Code Section 15814.30-31
- B. The State has developed and attached the following lists of possible energy efficiency and sustainable building measures:
1. Energy Efficiency Measures – Tier 1 List
 2. Energy Efficiency Measures – Tier 2 List
 3. Sustainable Building Measures – Tier 1 List
 4. Sustainable Building Measures – Tier 2 List

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C. Inclusion of **Tier 1** items in project design:

1. It is anticipated that all applicable items from both Tier 1 lists should be included in the project within the established project: scope, design budget, construction budget and schedule.

D. Inclusion of **Tier 2** items in project design:

1. Items from both Tier 2 lists shall be considered by the Consultant for inclusion in the project. If any of these items appear to be feasible, the Consultant shall notify the State in writing of any additional design and/or construction costs and benefits of incorporating each such item into the project.

E. Consultant shall submit the following at the completion of Preliminary Plan (PP) phase and Working Drawing (WD) phase, as indicated:

1. Completed Tier 1 and 2 Energy Efficiency Measures checklist. (PP and WD)
2. Completed Tier 1 and 2 Sustainable Building Measures checklist. (PP and WD)
3. Written report, including drawings, sketches, charts, calculations, life cycle cost analysis, etc. that describes and documents any included Tier 2 item justification. (PP and WD)
4. Summary Report from the Title 24 compliance software run. (WD)
5. Compliance forms as required by Title 24. (WD)
6. Additional submittal information:
 - a) These submittals are in addition to any other requirements for submittals indicated elsewhere in this contract.
 - b) Complete and submit the Tier checklists at the internet address provided by the State. If the Consultant is not able to access the on-line versions of the documents, contact the State.
 - c) Once a checklist has been submitted, subsequent update submittals shall be made using the previously submitted checklist as a basis. Go to the internet address, insert the project number, and the previously completed checklist will open. Update this checklist and resubmit.
 - d) The electronic version of the lists contain internet links to reference materials that are for informational purposes only and do not represent endorsement by the State, either actual or implied, of the products contained therein. The links should appear as highlighted text, depending upon the configuration of the Consultant's computer.

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<u>TIER 1</u>				
ENERGY EFFICIENCY MEASURES				
<i>ITEM</i>		<i>INCLUDED IN DESIGN?</i>		<i>IF "No", INDICATE REASON(S).</i>
		Yes	No	
ENERGY EFFICIENCY PERFORMANCE				
1.	This project shall be designed within the project budget, to exceed the applicable Title 24 Energy Efficiency Regulations, Whole Building Approach, in effect at initiation of Preliminary Plans, by a minimum of 10%.			To be completed by designer: This project is designed to exceed Title 24 Energy, [REDACTED] Edition (insert year), by a minimum of [REDACTED] %.
<i>NOTE: For projects that include whole building energy modeling to determine the level of Title 24 compliance, only complete item #1 of Tier 1 Energy Efficiency Measures (EEM) along with all of Tier 2 EEM and Tiers 1 & 2 Sustainable Building Measures (SBM). All other projects shall complete all of Tiers 1 & 2 of EEM and SBM. These lists have items that may pertain to new construction, renovations, or both. Not all items may be applicable to a project. For all Tier 1 items, the individual completing the form must indicate the reason(s) why a particular item is not included.</i>				
SPACE CONDITIONING AND VENTILATION				
Motors				
2.	National Electrical Manufacturers Association rated premium motors.			
Cooling Towers				
3.	Degree of approach at 8° F or less at design temperature.			
4.	Multiple or variable speed tower fan motor.			
Boilers				
5.	Efficient boiler and furnace units with a minimum combustion efficiency of 80%.			
6.	Automated staging of multiple boilers.			
Chilled Water System				
7.	Chillers to exceed applicable Title 24 Energy Efficiency Standards by at least 10%.			
8.	Plate and frame heat exchanger.			
9.	Automated staging of multiple chillers.			
Air Conditioners and Heat Pumps				
10.	Must exceed applicable Title 24 Energy Efficiency Standards by at least 10%.			
11.	Evaporative pre-cooled condensers on all Rooftop Package Units over 20 tons in Climate Zones 11-15, where applicable.			
12.	Avoid direct evaporative cooling.			

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<u>TIER 1</u>				
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		<i>Yes</i>	<i>No</i>	
Distribution Systems				
13.	Leak repair: Use mastic or UL approved sealant for air distribution system (1998 CMC Section 601-604 & std 6-3). Cloth backed tape shall not be used. Duct leakage shall be 3% or less at 25 Pascal for both supply and return ducts (ASHRAE std 152P).			
14.	Variable speed pumping on chilled and hot water loops over 300 GPM. (Variable speed on either primary or secondary is acceptable).			
Ventilation				
15.	Carbon monoxide (CO)-controlled exhaust ventilation for enclosed garage applications.			
16.	Demand control variable exhaust ventilation with CO ₂ sensors on units serving spaces with at least 100 people and where the occupant density is intermittent. ¹			
17.	Constant air volume conversion to variable air volume (subject to health standard requirements/outside air).			
LIGHTING				
General				
18.	Power density (watts/s.f.) for office spaces greater than 250 square feet must be lower than the applicable Title 24 Energy Efficiency Standards by at least 10%.			
19.	Exit lights - Input rating of 5 watts or less per illuminated face.			
20.	Light colored interior finishes.			
Fluorescent				
21.	Linear fluorescent lamps: Minimum system efficacy of 76 lumens per watt.			

¹ Demand Control Ventilation is defined in Title 24 Energy Efficiency Standards, Section 121 (c) 3 & 4.

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TIER 1				
ENERGY EFFICIENCY MEASURES				
	<i>ITEM</i>	<i>INCLUDED IN DESIGN?</i>		<i>IF "No", INDICATE REASON(S).</i>
		<i>Yes</i>	<i>No</i>	
22.	Compact fluorescent systems: Minimum system efficacy of 50 lumens per watt.			
Daylighting				
23.	Shading systems to reduce solar glare, utilize daylighting and minimize solar heat gain.			
24.	Building orientation aspects for utilization of daylighting and minimizing solar heat gain.			
OTHER MEASURES				
Point Use Controls				
25.	365 day digital time clocks with battery backup.			
26.	Programmable thermostats.			
27.	Occupancy sensors for lights in spaces with intermittent use.			
Energy Management System				
28.	Energy Management System (EMS) – include programming, commissioning and training to optimize energy usage.			
Envelope				
29.	Windows with metal frames shall have a thermal break or use non-metal frames.			
30.	Increase roof, wall and floor insulation so that it exceeds applicable Title 24 Energy Efficiency Standards by at least 10%, where feasible.			
31.	Except in Climate Zone 1, for low slope and flat roofs use cool roofing materials on the Energy Star Cool Roofs list that meet either of the following requirements: a) an initial reflectivity of at least 65% (ability to reflect sunlight) and an emissivity of at least 80% (ability to shed heat), or b) a minimum solar reflectance index (SRI) of 75% (calculated using ASTM E-1980 for moderate wind conditions).			
Miscellaneous				
32.	Energy Star equipment and appliances.			
33.	Gas appliances.			

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<u>TIER 1</u>				
ENERGY EFFICIENCY MEASURES				
	<i>ITEM</i>	<i>INCLUDED IN DESIGN?</i>		<i>IF "No", INDICATE REASON(S).</i>
		Yes	No	
34.	Variable frequency drive fume hood interlocked with sash operation, (in laboratories).			
35.	To be completed by designer: Target interior design temperatures shall be ■ degrees for cooling and ■ degrees for heating.			
36.	Investigate existing financial incentive programs such as utility sponsored programs (e.g., Savings by Design), rebates, etc.			
<i>LIST OTHER ENERGY EFFICIENCY MEASURES INCLUDED IN DESIGN THAT MEET TIER 1 CRITERIA:</i>				
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<u>TIER 2</u>				
ENERGY EFFICIENCY MEASURES				
<i>ITEM</i>		<i>INCLUDED IN DESIGN?</i>		<i>IF "Yes", SEE EXHIBIT C - E.3</i>
		<i>Yes</i>	<i>No</i>	
SPACE CONDITIONING AND VENTILATION				
1.	Boiler NOx emissions: 9 ppm NOx at 3% O2 for commercial and institutional gas-fired boilers in areas where air quality minimums are higher.			
2.	Heat recovery from chillers.			
3.	Variable speed chillers.			
4.	Ground source and/or Geo-thermal heat pumps.			
LIGHTING				
5.	Indirect lighting options.			
6.	Skylights and/or solar tubes with lighting controls.			
7.	Full cutoff luminaires for exterior lighting.			
OTHER MEASURES				
Controls				
8.	CO ₂ monitors for high occupancy areas exceeding one person per 10 ft ² . Maintain a maximum CO ₂ concentration of 800 ppm as per Title 24.			
Energy Management System				
9.	Real time energy metering.			
Load Shifting or Shedding				
10.	Thermal energy storage for facilities on time-of-use rates with chillers.			
11.	Building load cycling – remote metering and controls for demand responsiveness.			
12.	Install control options that allow the building energy using systems to shed load (onsite).			
13.	On-demand water heaters.			
Energy Sources				
14.	Cogeneration/generation systems-consider for facilities that have constant, year-round electrical and thermal loads.			
15.	Utility distribution upgrades.			
16.	Passive solar space & water heating.			
17.	Photovoltaics.			
18.	Other renewable energy.			

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<u>TIER 2</u>				
ENERGY EFFICIENCY MEASURES				
<i>ITEM</i>		<i>INCLUDED IN DESIGN?</i>		<i>IF "Yes", SEE EXHIBIT C - E.3</i>
		<i>Yes</i>	<i>No</i>	
Miscellaneous				
19.	Substation purchase and rate change.			
20.	Electrical supply and account aggregation.			
21.	Performance verification: Whole building and indoor air quality commissioning.			
Alternative Transportation				
22.	Provide suitable means for securing bicycles, with convenient changing/shower facilities for cyclists, for 5% or more of building occupants. (Also see State Administrative Manual, section 4189).			
23.	Install alternative-fuel refueling station(s) for 3% of the total vehicle parking capacity of the site (includes zero emission vehicles). Liquid or gaseous fueling facilities must be separately ventilated or located outdoors.			
LIST OTHER ENERGY EFFICIENCY MEASURES INCLUDED IN DESIGN THAT MEET TIER 2 CRITERIA:				
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DESIGN ADVISORIES FOR CONSIDERATION BY DESIGNER				
1.	Distribution systems: Reduced headloss and/or friction designs for water pipes and air ducts.			
2.	Energy Management Systems and other controls: Sequence equipment operation to minimize demand charges.			

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<u>TIER 1</u>				
SUSTAINABLE BUILDING MEASURES				
(WATER, MATERIALS, INDOOR ENVIRONMENTAL QUALITY)				
<i>ITEM</i>		<i>INCLUDED IN DESIGN?</i>		<i>IF "No", INDICATE REASON(S)</i> (Designer to fill in blanks as applicable)
		Yes	No	
WATER				
Landscaping/Exterior				
1.	Dedicated, State-owned sub-meter(s) for landscape water budgeting and leak detection.			
2.	Performance Goal: Design and install landscapes at no more than 80 percent of ETo, (reference evapotranspiration). (Local permits not required)			Landscape is designed for ___% of ETo, (reference evapotranspiration)
3.	Landscape and ornamental water use conform to local Water Efficient Landscape Ordinance. (Local permits not required)			
4.	Irrigation systems for water efficiency include hydrozones, high distribution uniformity, and zero runoff. (Local permits not required)			
5.	Appropriate plant selection and placement (considering mature plant size and building locations), design by hydrozones.			
6.	Specify urban or locally derived compost and mulch in landscape areas.			
7.	Automatic irrigation controllers programmed in coordination with local, historical evapotranspiration records. (Local permits not required)			
Interior				
8.	Ultra low flush toilets and low flush urinals: - 1.6 gal. per flush toilets - 1 gal. per flush urinals or as required by local ordinance. (Local permits not required)			
9.	Lavatory faucets not to exceed 0.5 gallons per minute and use laminar flow restrictors to retrofit old fixture.			
10.	Automatic shut-off lavatory faucets.			
11.	Showerheads using 1.5 gallons per minute or as required by local ordinance. (Local permits not required)			



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	<i>ITEM</i>	<i>INCLUDED IN DESIGN?</i>		<i>IF "No", INDICATE REASON(S)</i> (Designer to fill in blanks as applicable)
		YES	NO	
12.	Insulated water pipes between hot water supply and faucets.			
13.	Water and energy efficient clothes washers, (Energy Star or better).			
14.	Automatic shutoff nozzles on hoses for maintenance and dishwashing.			
15.	Use water softener only where needed, such as water heater feed water.			
Kitchens				
16.	Recycle dishwasher final rinse water to pre-wash cycle.			
17.	Install manual controls on garbage disposal water so it does not run when not being used.			
18.	Spray rinses at sinks should have manual control "dead man" shut off.			
19.	Install low-flow pre-rinse nozzles.			
20.	Use appropriate nozzles to direct rinse and cleaning sprays accurately.			
Chilling Towers				
21.	Control cooling tower to bleed off water (sump filters, etc.) and make-up water with conductivity meters or other water quality measurement.			
MATERIALS				
Design Features				
22.	Provide for dedicated space in and outside building for the collection, storage, and loading of recyclable materials per Public Resources Code Section 42924 (c). Check for local ordinance about recycling space.			
Recycling				
23.	Construction waste recycling plan/program: 50% or better diversion of demolition and construction materials from landfills.			Specified requirement for diversion of materials from landfills is ___%.

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(WATER, MATERIALS, INDOOR ENVIRONMENTAL QUALITY)				
<i>ITEM</i>		<i>INCLUDED IN DESIGN?</i>		<i>IF "No", INDICATE REASON(S)</i> (Designer to fill in blanks as applicable) PC = postconsumer content ² PI = postindustrial content ³
		Yes	No	
Materials Selection for Materials Efficiency⁴ and Indoor Environmental Quality				
24.	Specified products can be maintained with non-toxic cleaning products, (i.e. cleaning /maintenance products on DGS Environmentally Preferred Products list).			
25.	Aggregate base, Class II: recycled content, recycled and reused onsite.			___% PC ___% PI
26.	Wheel stops: recycled content.			___% PC ___% PI
27.	Steel and aluminum products with high recycled content.			___% PC ___% PI
28.	Pressed wood products: low-formaldehyde emitting.			
29.	Partitions: low-VOC emitting and refurbished or bio-harvested renewable material content.			___% PC ___% PI
30.	Thermal and acoustical insulation: zero or low formaldehyde emissions			
31.	Acoustical ceiling tiles: calculated formaldehyde building concentrations from acoustical ceiling tiles should not exceed current statewide ambient levels (4.0 ug/m3), low-VOC (other than formaldehyde) emitting, recycled-content or bio-harvested renewable material content.			___% PC ___% PI
32.	Carpet and carpet padding: low VOC emitting, recycled or refurbished content.			___% PC ___% PI
33.	Latex paint, interior applications: low or zero VOC, zero formaldehyde, water based paints.			
34.	Latex paint: reprocessed latex paint made from post-consumer paint. (Exterior applications or non-enclosed spaces when medium grade is acceptable).			___% PC ___% PI

² Postconsumer (PC): material that has been previously used by consumers and is then recycled.

³ Postindustrial (PI): material fragments or by-products of the manufacturing process that are then recycled.

⁴ To qualify as a recycled content product under the State Agency Buy Recycled Campaign ([SABRC](#)) a product must have a minimum of 50% recycled content, 10% postconsumer, except tire-derived products which must have 50% postconsumer content, and steel which must have 25% recycled content. For a product to count toward the recycled content requirements for both LEED[™] and SABRC, seek at least 20% postconsumer content, except tire derived products which must have 50% postconsumer content for SABRC.

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<i>ITEM</i>		<i>INCLUDED IN DESIGN?</i>		<i>IF "No", INDICATE REASON(S)</i> (Designer to fill in blanks as applicable) PC = postconsumer content ⁵ PI = postindustrial content ⁶
		Yes	No	
35.	Wall panel fabrics with recycled content.			___% PC ___% PI
36.	Floor tiles: low-VOC emitting and refurbished or bio-harvested renewable material content.			___% PC ___% PI
37.	Sealants (including concrete sealers), adhesives, finishes, coatings and fireproofing that are low VOC emitting .			
INDOOR ENVIRONMENTAL QUALITY				
Design Features				
38.	Ventilation: Operable windows (consider for smaller buildings).			
39.	Locate outside air intakes upwind and away (>25 feet) from sources of contamination.			
40.	Provide local exhaust ventilation to areas where indoor air pollutant build-up could be a problem such as copier rooms, shops, etc.			
41.	Installed, exterior duct work, other than that for dedicated exhaust systems, shall be protected from the weather by an architectural, weathertight cover/enclosure that maintains duct access for maintenance/repair.			
42.	Specify high efficiency filters (at least 85% according to ASHRAE Standard 52.1-1992).			
43.	Use exterior wrap for duct installation.			
44.	Avoid interior insulation in ducts unless required for acoustical attenuation. Consider non-fibrous liners in areas where insulation is required for acoustical attenuation. Use materials that do not promote mold growth.			
45.	Provide convenient maintenance accessibility to all HVAC components including critical areas of the ductwork.			
46.	Specify proper slope for condensate pans to avoid accumulation of standing water.			

⁵ Postconsumer (PC): material that has been previously used by consumers and is then recycled.

⁶ Postindustrial (PI): material fragments or by-products of the manufacturing process that are then recycled.

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		Yes	No	
Materials Selection (See Materials Selection section in <i>MATERIALS</i>)				
Construction Practices				
47.	Specify to remove all debris and oily residue from air ducts after manufacturing and prior to installation.			
48.	Specify that all openings in duct work shall be covered and sealed during transportation, storage and installation.			
49.	Specify moisture content testing of concrete floors prior to installation of new flooring, to verify compliance with flooring manufacturer requirements.			
Installation Practices				
50.	Specify that the contractor sequence installation of finishing materials to avoid absorption of VOCs by porous materials such as carpets, fabrics, insulation, spray-on fireproofing materials, etc.			
51.	Specify outside air ventilation is required during application of "wet" systems in the building to reduce absorption by porous materials.			
52.	Specify to flush-out buildings continuously at maximum feasible outdoor airflow rates for 30 days or as many days as possible before occupancy. Install new filtration media after completion of flush-out. Length of flush-out can be adjusted based on building air sampling. (Building bake-outs are not advised.)			Number of days specified for flush out prior to occupancy =
LIST OTHER SUSTAINABLE BUILDING MEASURES INCLUDED IN DESIGN THAT MEET TIER 1 CRITERIA:				
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(WATER, MATERIALS, INDOOR ENVIRONMENTAL QUALITY)				
<i>ITEM</i>		<i>INCLUDED IN DESIGN?</i>		<i>IF "Yes", SEE EXHIBIT C - E.3</i>
		Yes	No	
WATER				
Recycling				
1.	Recycled water used in landscaping, toilet flushing, or cooling towers.			
2.	On-site water treatment and reuse.			
Landscaping/Exterior				
3.	Rain shut-off device.			
4.	Diagnostic circuitry to notify user when a station is shorted or a power failure has occurred.			
5.	Pool covers.			
6.	Site irrigation using reclaimed (recycled) water.			
7.	Use of evapotranspiration based irrigation controllers that are regularly updated electronically through an automated management system.			
Interior				
8.	Exceed water efficient standards for plumbing fixtures and fittings within code.			
9.	Vacuum aided toilets.			
10.	Dual-flush toilets which allow user to select one of two different quantities of water, (low-rise buildings).			
11.	"No-water" urinals.			
Kitchens				
12.	High efficiency dishwashers.			
13.	Connectionless food steamers instead of steam generator.			
Space Conditioning and Distribution				
14.	Evaluate closed loop cooling systems.			
Storm Water				
15.	On-site rainwater collection systems for stormwater control and non-potable water uses.			
16.	Filtering storm water runoff via holding ponds and natural wetlands.			
17.	Green roof.			
18.	Storm water filters and debris separators.			

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<i>ITEM</i>		<i>INCLUDED IN DESIGN?</i>		<i>IF “Yes”, SEE EXHIBIT C - E.3</i> (Designer to fill in blanks as applicable) PC = postconsumer content ⁷ PI = postindustrial content ⁸
		Yes	No	
MATERIALS				
Recycling/Reuse				
19.	Construction waste recycling plan/program: 75% or better diversion of demolition and construction materials from landfills.			Specified required diversion of materials from landfills is ___%.
20.	Reuse large portions of existing structures during renovation or rehabilitation projects.			
Materials Selection for Materials Efficiency⁹ and Indoor Environmental Quality				
21.	Agreement that manufacturer will take product back at end of its useful life, (e.g. carpet, ceiling tile, etc.).			Products with “take back” agreement:
22.	HCFC-free and CFC-free chillers.			
23.	Specify building materials manufactured within 500 miles radius of project site.			
24.	Rubberized asphalt concrete.			___% PC ___% PI
25.	Aggregate base with recycled content.			___% PC ___% PI
26.	Porous paving , (also consider recycled content).			___% PC ___% PI
27.	Outdoor benches or furnishings made with recycled content plastic lumber			___% PC ___% PI
28.	Playground surfaces made from tire-derived materials.			___% PC ___% PI
29.	Corrugated plastic drainpipe.			___% PC ___% PI
30.	Concrete containing high volume of fly ash or other pozzolanic material.			___% PC ___% PI
31.	Stained concrete floor slab as alternate to floor covering.			
32.	Mineral oxide pigments.			
33.	Zero VOC form release agents.			

⁷ Postconsumer (PC): material that has been previously used by consumers and is then recycled.

⁸ Postindustrial (PI): material fragments or by-products of the manufacturing process that are then recycled.

⁹ To qualify as a recycled content product under the State Agency Buy Recycled Campaign ([SABRC](#)) a product must have a minimum of 50% recycled content, 10% postconsumer, except tire-derived products which must have 50% postconsumer content, and steel which must have 25% recycled content. For a product to count toward the recycled content requirements for both LEED[™] and SABRC, seek at least 20% postconsumer content, except tire derived products which must have 50% postconsumer content for SABRC.

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Project Director:

Project Phase:
Completed by:
Date Completed:

<u>TIER 2</u>				
SUSTAINABLE BUILDING MEASURES				
(WATER, MATERIALS, INDOOR ENVIRONMENTAL QUALITY)				
<i>ITEM</i>		<i>INCLUDED IN DESIGN?</i>		<i>IF "Yes", SEE EXHIBIT C - E.3</i> (Designer to fill in blanks as applicable) PC = postconsumer content ¹⁰ PI = postindustrial content ¹¹
		Yes	No	
34.	Reuse salvaged brick and/or stone.			
35.	Formaldehyde free Medium Density Fiberboard (MDF)			
36.	Toilet partitions: Solid plastic model made with post consumer HDPE plastic.			___% PC ___% PI
37.	Light transmitting panels.			
38.	Pre-finished panels: recycled content.			___% PC ___% PI
39.	Use of polyethylene plastic piping in lieu of PVC piping.			
40.	Use of certified, sustainable wood products in accordance with the Forest Stewardship Council.			
41.	Roofing materials containing recycled rubber or other recycled content materials.			___% PC ___% PI
42.	Fiberglass batt insulation: formaldehyde-free, 30% recycled content, or Blow-in/sprayed cellulose or cotton batt insulation: formaldehyde-free, 85% recycled content.			___% PC ___% PI
43.	Acoustical ceiling tile: High performance, formaldehyde free, more than 75% recycled content.			___% PC ___% PI
44.	Carpet tiles instead of roll carpeting, low VOC emitting.			___% PC ___% PI
45.	Wood flooring made from salvaged wood.			
46.	Resilient flooring: low emitting bamboo, cork, natural linoleum, tire derived or other recycled content or rapidly renewable flooring material.			___% PC ___% PI ___Life expectancy (yrs.)
47.	Ceramic tile: at least 10% postconsumer glass.			___% PC ___% PI
48.	Signage: Recycled content.			___% PC ___% PI
49.	Auditorium seating: refurbished.			___% PC ___% PI
50.	Entry Mats with recycled content.			___% PC ___% PI

¹⁰ Postconsumer (PC): material that has been previously used by consumers and is then recycled.

¹¹ Postindustrial (PI): material fragments or by-products of the manufacturing process that are then recycled.

**Real Estate Services Division
 Tier 1 and Tier 2 Energy Efficiency and Sustainable Building Measures Checklists
 July 1, 2002**

Project #:
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<u>TIER 2</u>				
SUSTAINABLE BUILDING MEASURES (WATER, MATERIALS, INDOOR ENVIRONMENTAL QUALITY)				
<i>ITEM</i>		<i>INCLUDED IN DESIGN?</i>		<i>IF "Yes", SEE EXHIBIT C - E.3</i> (Designer to fill in blanks as applicable) PC = postconsumer content ¹² PI = postindustrial content ¹³
		Yes	No	
51.	List all other products not previously addressed in Materials section, included in design that have recycled-content or contain rapidly renewable materials:			
(a)				___% PC ___% PI
(b)				___% PC ___% PI
(c)				___% PC ___% PI
(d)				___% PC ___% PI
(e)				___% PC ___% PI
(f)				___% PC ___% PI
(g)				___% PC ___% PI
(h)				___% PC ___% PI
(i)				___% PC ___% PI
(j)				___% PC ___% PI
INDOOR ENVIRONMENTAL QUALITY				
Design Features				
52.	Built-in entry way mats with drop pans and adequate drains to catch dirt off shoes.			
53.	Consider design to accommodate future needs such as space for equipment and conduits to facilitate technology upgrades, alternative uses for spaces, higher occupancy, and facility expansion, etc.			
54.	Provide a separate minimum outdoor airflow measuring station for each HVAC system to ensure that design minimum outdoor airflow is supplied under all operating conditions.			
LIST OTHER SUSTAINABLE BUILDING MEASURES INCLUDED IN DESIGN, (EXCEPT THOSE LISTED IN #51), THAT MEET TIER 2 CRITERIA:				
55.				
56.				
57.				
58.				
59.				
60.				
61.				

¹² Postconsumer (PC): material that has been previously used by consumers and is then recycled.

¹³ Postindustrial (PI): material fragments or by-products of the manufacturing process that are then recycled.

Real Estate Services Division
Tier 1 and Tier 2 Energy Efficiency and Sustainable Building Measures Checklists
July 1, 2002

Resources (for informational purposes only):

Reference Specifications for Energy and Resource Efficiency, a sample specification prepared under the auspices of the California Energy Commission, Public Interest Energy Research (PIER), 2001, downloadable at <http://www.eley.com/specs/index.htm>. See section 1350 for materials and installation practices.

Matrix: Overview of Recycled Content Levels and Product Availability, by the California Integrated Waste Management Board, 2001, provides examples of recycled content products used on other California construction projects and has information on availability: <http://www.ciwmb.ca.gov/GreenBuilding/Materials/Matrix.htm>

LEED Supplement for California State Facilities, based on US Green Building Council LEED 2.0: <http://www.ciwmb.ca.gov/greenbuilding/Design/LEEDforCA.doc>
<http://www.usgbc.org/programs/>

Sustainable Building Tool Kit: <http://www.ciwmb.ca.gov/greenbuilding/Toolkit.htm>

Tier 1: A New Energy Standard for State Buildings, prepared by Eley Associates for the California Energy Commission, March 2000. This document provides context for the Energy Efficiency items.