

ENERGY ATMOSPHERE

CREDIT NUMBER	CREDIT	PTS	INTENT OF CREDIT	REQUIREMENTS	STRATEGY	CODE OR STANDARD	EXEMPLARY PERFORMANCE
ENERGY & ATMOSPHERE (3 Prerequisites, 6 Credits, NC = 35 pts)							
EA-P1	Fundamental Commissioning of Building Energy Systems	0	Verify systems installed and working per OPR, BOD and Construction Docs	<ol style="list-style-type: none"> Designate - Commissioning Authority (CxA) <ul style="list-style-type: none"> CxA Must have worked on 2 projects of similar scope Independent of construct/design management - Report directly to owner Owner OPR, Designers BOD, CA review for clear and complete Develop and incorporate comm. requirements into construction docs Develop and implement comm plan (what/who/how) Verify installation and performance of systems Summary commissioning report 	<ul style="list-style-type: none"> Must Include Systems: HVAC&R, lighting and controls, domestic hot water, renewable energy Owner can request other systems, envelope, stormwater management, water treatment be included CxA = Commissioning Authority OPR = Owner Project Requirements BOD - Basis of Design 		
EA-P2	Minimum Energy Performance	0	Establish minimum level of Energy Efficiency	<ol style="list-style-type: none"> Performance: Whole Building Energy Simulation or Prescriptive: ASHRAE Advanced Energy or Prescriptive: Advanced Buildings Core Performance 	Systems covered: Envelope, HVAC, Service water heating incl pool, Power, Lighting, Permanently wired motors <ul style="list-style-type: none"> Prescriptive Requirements change by climate zone 	ASHRAE 90.1-2007	
EA-P3	Fundamental Refrigerant Management	0	Reduce Ozone Depletion	<ul style="list-style-type: none"> Zero use of CFC refrigerants in NEW base build HVAC&R. If reusing HVAC in existing building, CFC phase out plan before completion of project If central chilled water system: Commit 5yr phase out, max 5% annual leakage or If independent audit shows >10yr payback for chillers, reduce leaks 5%, max 30% life. 	<ul style="list-style-type: none"> CFC = Chlorofluorocarbon Montreal Protocol: Phaseout CFCs by 2010 and HCFCs by 2030 	US EPA Clean Air Act	
EA-c1	Optimize Energy Performance	1-19	Achieve energy performance beyond prerequisite requirement	<p>Option 1 (1-19 pts): Performance Path: Whole Building Energy Simulation</p> <ul style="list-style-type: none"> Whole Building Energy Simulation uses computer model to predict energy performance % improvement over baseline determines number of points earned <p>Option 2 (1 pt): Prescriptive: ASHRAE Advanced Energy Design Guide</p> <ul style="list-style-type: none"> Only: Office/retail < 20,000 sqft □ Warehouse < 50,000 sqft □ School < 200,000 sqft <p>Option 3 (1-3 pts): Prescriptive: Advanced Buildings Core Performance Guide</p> <ul style="list-style-type: none"> Cannot be healthcare, warehouse, lab or >100,000 sqft 	<ul style="list-style-type: none"> Integrated building approach to achieve max efficiency Performance path compares baseline & design cases On-site renewable energy double counts Prescriptive path = checklist Process Loads = Identical between base and design case Process Loads = Office equipment, computers, elevators, escalators, kitchen cooking/refrigeration, and laundry 	ASHRAE 90.1-2007	Option 1 only: □ New Building = 50% □ Existing Building = 46%
EA-c2	On-site Renewable Energy	1-7	Encourage On-Site Energy Production	Replace Building Energy - Calculations based on - \$\$\$ Cost 1% of annual energy cost = 1 pt + 1pt for each additional 2% Baseline: <ol style="list-style-type: none"> EA-c1 Energy Model or DOE(CBECS) Commercial Building Energy Consumption Survey 	<ul style="list-style-type: none"> Allowed: solar, wind, geothermal, low-impact hydro, biomass, biogas, tidal, agricultural crops/waste, animal waste, landfill gas, mill residue Not allowed: architectural, passive solar, daylighting, geo-exchange (ground source heat pumps), renewable or green-power from off-site, forestry biomass (mill residue OK), wood fuel if >1% has been treated 	ASHRAE 90.1-2007	15% On-Site Renewable Energy
EA-c3	Enhanced Commissioning	2	To begin the commissioning process early and execute additional verification	<p><u>Additional requirements over Fundamental EA-P1:</u></p> <ol style="list-style-type: none"> Prior to construction documents phase designate an independent commissioning authority to oversee "all commissioning activities." CxA to perform <u>review</u> of OPR, BOD and design documents prior to mid-construction documents phase and perform a back-check. CxA to perform a post-occupancy <u>review</u> within 10 months. Verify operator and occupant training. CxA to <u>review</u> contractor submittals. Develop a systems manual. 	<p><u>CxA may be:</u></p> <ul style="list-style-type: none"> Disinterested subcontractor to architect/engineer Construction manager not holding constructor contracts Independent consultant contracted to owner Owner employee or staff 		EP for envelope commissioning
EA-c4	Enhanced Refrigerant Management	2	Reduce Ozone Depletion and Global Warming	<ol style="list-style-type: none"> Naturally ventilate - Do not use refrigerants or Natural refrigerants – Water, CO2, Ammonia (NH3), Propane or Refrigerants and HVAC that minimize or eliminate ozone depletion & global warming <ul style="list-style-type: none"> LCGWP + LCODP x 10⁵ ≤ 100 and <ol style="list-style-type: none"> No Fire systems that have Ozone Depleting substance CFCs; HCFCs; Halons 	<ul style="list-style-type: none"> No refrigerants - Automatically earn credit Minimize refrigerant leakage Select equipment w/ efficient refrigerant charge Select equipment with long service life Use refrigerants with low ODP, GWP 		
EA-c5	Measurement & Verification	3	Ongoing accountability of building Energy Consumption	<ul style="list-style-type: none"> M&V period must cover 1-year post-occupancy Provide process for corrective action if energy savings not achieved Option 1: M&V Plan consistent with Option D: Calibrated Simulation Use for large/complex buildings with interactive ECM, holistic approach Option 2: M&V Plan consistent with Option B: Energy Conservation Measure Isolation 	<ul style="list-style-type: none"> Compare actual to predicted energy use i.e. EA-c1, Adjust apples to apples. Reveals ECM/design or operational underperformance. ECM = Energy Conservation Measure 	International Performance Measurement & Verification Protocol (IPMVP)	
EA-c6	Green Power	2	Encourage Grid-source Renewable Energy Off-Site	<ul style="list-style-type: none"> Replace Building Electricity - Calculations based on - kWh (not \$\$\$) 35% of forecast electricity from Renewable Sources for 2-year contract Baseline: EA-c1 model or DOE Commercial Building Energy Consumption data 	<ol style="list-style-type: none"> Open market: Buy direct from Green-e provider Closed Market: Buy power company's green power Closed Market: Purchase RECs/Green-tags <ul style="list-style-type: none"> Open = Deregulated Market Closed = Regulated Market 	Center for Resource Solutions (CRS), Green-e Product Certification Requirements	EP 100% Greenpower

MATERIALS RESOURCES

CREDIT NUMBER	CREDIT	PTS	INTENT OF CREDIT	REQUIREMENTS	STRATEGY
MATERIALS & RESOURCES (1 Prerequisite, 7 Credits, NC = 14 pts)					
MR-P1	Storage and Collection of R	0	Reduce pressure on landfills	<input type="checkbox"/> Design building to accommodate non-hazardous recycling; whole building <input type="checkbox"/> Must recycle: Paper, corrugated cardboard, glass, plastics and metals	<input type="checkbox"/> No specified size <input type="checkbox"/> Comingling = Mixing recyclables together
MR-c1.1	Building Reuse - Maintain Existing Walls, Floors, and Roof	1-2	Extend life cycle of buildings, conserve resources, cultural, less waste, less manufacturing and transport	55% = 1pt 75% = 2 pts 95% = 3 pts <input type="checkbox"/> Surface area of Structural - foundation , walls and roof. <input type="checkbox"/> Add one side of interior structural/sheer walls. <input type="checkbox"/> Subtract: windows and doors from existing and reuse totals <input type="checkbox"/> Exclude: unsound structure to be replaced, penetrations, anything HAZMAT	<input type="checkbox"/> Calculations done by surface area <input type="checkbox"/> If can't take here, take under MR-c2, Construction Waste Management
MR-c1.2	Building Reuse - Maintain Interior Nonstructural Elements	1		50% = 1 pt <input type="checkbox"/> Interior Non-Structural - Walls, doors, floor coverings and ceilings <input type="checkbox"/> Include both sides on walls, doors one side and cabinets visible area <input type="checkbox"/> Can't take any of these if addition is > 2x existing sqft	<input type="checkbox"/> Calculations done by surface area <input type="checkbox"/> If can't take here, take under MR-c2, Construction Waste Management
MR-c2	Construction Waste Management	1-2	Divert waste from landfills and incinerators, Recycle	50% = 1 pt 75% = 2 pts 95% = + 1 E.P. <input type="checkbox"/> Recycle/salvage non-hazardous construction/demolition debris <input type="checkbox"/> Waste management plan: ID materials to recycle and if sorted on-site or comingled <input type="checkbox"/> Exclude HAZMAT (Asbestos, etc) <input type="checkbox"/> Include concrete; masonry and asphalt crushed and reused on site <input type="checkbox"/> Don't include excavated soil and land clearing debris	<input type="checkbox"/> Calculations done by weight or volume <input type="checkbox"/> Good management plan: Include education of contractors and centralized cutting place.
MR-c3	Materials Reuse	1-2	Reduce demand for virgin materials, reduce waste	5% = 1 pt 10% = 2 pts 15% = + 1 E.P. <input type="checkbox"/> Only materials permanently installed on project <input type="checkbox"/> Not Mechanical, Electrical, Plumbing, Elevators, etc. <input type="checkbox"/> If from another site within 500 miles count for MR-c3 and MR-c5, Regional Content	<input type="checkbox"/> Based on cost of qualifying materials as a % of overall materials cost for Divisions 3-10 <input type="checkbox"/> Can include furniture in calcs, if included in ALL of MR 3-7 <input type="checkbox"/> Assemblies are apportioned by weight <input type="checkbox"/> Exclude Mechanical, Electrical, Plumbing & Elevators
MR-c4	Recycled Content	1-2	Increase demand for recycled and reduce demand for virgin materials	10% = 1 pt 20% = 2 pt 30% = + 1 E.P. <input type="checkbox"/> Promote use of recycled, establish goals during design phase <input type="checkbox"/> Post-consumer (i.e. consumer waste) + 1/2 pre-consumer (i.e. manufacturing waste) <input type="checkbox"/> Recycled content defined by ISO 14021-1999 <input type="checkbox"/> If no info assume 25% post-consumer content in Steel; fly-ash is always pre-consumer	<input type="checkbox"/> Based on cost of qualifying materials as a % of overall materials cost for Divisions 3-10 <input type="checkbox"/> Can include furniture in calcs, if included in ALL of MR 3-7 <input type="checkbox"/> Assemblies are apportioned by weight <input type="checkbox"/> Exclude Mechanical, Electrical, Plumbing & Elevators
MR-c5	Regional Materials	1-2	Increase demand for local goods, indigenous resources and reduce transport	10% = 1 pt 20% = 2 pt 30% = + 1 E.P. <input type="checkbox"/> All steps must happen within 500 miles: Extract / Process / Manufacture <input type="checkbox"/> If salvaged within 500 miles can also earn MR-c3, Material Reuse	<input type="checkbox"/> Based on cost of qualifying materials as a % of overall materials cost for Divisions 3-10 <input type="checkbox"/> Can include furniture in calcs, if included in ALL of MR 3-7 <input type="checkbox"/> Assemblies are apportioned by weight <input type="checkbox"/> Exclude Mechanical, Electrical, Plumbing & Elevators
MR-c6	Rapidly Renewable Materials	1	Stop waste of finite and long-cycle renewable materials	2.5% = 1 pt 5% = +1 E.P. <input type="checkbox"/> Materials harvested with a 10 year lifecycle or shorter <input type="checkbox"/> Agricultural products: animal and fiber <input type="checkbox"/> Examples: Linoleum, Natural Rubber, Wool, Bamboo, Wheatboard, Strawboard, Cork, Cotton, etc.	<input type="checkbox"/> Based on cost of qualifying materials as a % of overall materials cost for Divisions 3-10 <input type="checkbox"/> Can include furniture in calcs, if included in ALL of MR 3-7 <input type="checkbox"/> Assemblies are apportioned by weight <input type="checkbox"/> Exclude Mechanical, Electrical, Plumbing & Elevators
MR-c7	Certified Wood	1	Encourage environmentally responsible forest management	50% = 1 pt 95% = + 1 E.P. <input type="checkbox"/> 50% wood permanently installed, Forest Stewardship Council (FSC) certified <input type="checkbox"/> COC tracked all the way through value chain <input type="checkbox"/> FSC Recycled does not count 1. Forest management certification: Responsible forest managers 2. Chain-of-Custody (CoC) Certification: Companies manufacture and/or sell products with proper records of material flows	<input type="checkbox"/> Based on cost of FSC wood as a % of all new wood <input type="checkbox"/> Can include furniture in calcs, if included in ALL of MR 3-7 <input type="checkbox"/> Can include temp (scaffolding), but must include all. Cannot count temp on >1 project. <input type="checkbox"/> Assemblies are apportioned by weight, volume, or cost <input type="checkbox"/> Forest Management Certification Required = Forest <input type="checkbox"/> CoC Required = Transport, Supplier/Manufacturer, Vendor <input type="checkbox"/> No CoC Required = End User (Contractor/Sub-Contractor)

MATERIALS & RESOURCES Breakdown

Material	MR-c1 Building Reuse	MR-c2 Construction Waste Management	MR-c3 Material Reuse	MR-c4 Recycled Content	MR-c5 Regional Materials	MR-c6 Rapidly Renewable Materials	MR-c7, Certified Wood
CSI Div 3-10	Based on Surface Area	Based on weight or volume. Include demolition and construction waste.	Based on replacement value	Based on cost of qualifying materials as a percent of overall materials cost for Divisions 3-10			Based on cost of FSC wood as a percentage of all new wood
Mech	Based on weight or volume. Include demolition and construction waste.						
Electrical							
Plumbing							
Furniture							
CSI Div 12			May be included with Divisions 3-10, if done consistently for credits 3-7				

INDOOR ENVIRONMENTAL QUALITY

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INDOOR ENVIRONMENTAL QUALITY (2 Prerequisites, 8 Credits, NC = 15 pts)							
EQ-P1	Minimum Indoor Air Quality Performance	0	Improve indoor air quality	Design using higher of Ventilation Rate Procedure or Local code - meet/ exceed min outdoor air ventilation, consider impact on energy use 1. Mechanical meet ASHRAE 62.1-2007 - Ventilation for Acceptable IAQ 2. Naturally ventilated building comply with ASHRAE 62.1-2007 paragraph 5.1 <input type="checkbox"/> Open to and within 25' of window/opening at least 4% of occupied floor area	<input type="checkbox"/> Active = Mechanical <input type="checkbox"/> Passive = Natural <input type="checkbox"/> Mixed = Combo of Natural and Mechanical	ASHRAE 62.1 - 2007	
EQ-P2	Environmental Tobacco Smoke Control	0	Reduce exposure of occupants, indoor surfaces, air distribution systems to ETS	<u>Commercial</u> Option 1: Prohibit smoking indoors <input type="checkbox"/> Designated outside smoking areas 25' from windows/entries/air intake Option 2: Interior Smoking room: Negative pressure, exhausted, sealed <u>Residential</u> <input type="checkbox"/> Prohibit smoking in common areas <input type="checkbox"/> Designated outside smoking areas 25' from windows/entries/air intake <input type="checkbox"/> Seal units from each other, weather-strip doors or put halls under pos. pressure <input type="checkbox"/> Blower door test units per ANSI/ASTM-E779-03	<input type="checkbox"/> Average of 5 Pa pressure difference in smoking lounge <input type="checkbox"/> Minimum 1 Pa pressure difference at any moment in time	1. ASTM E-779-03, Standard Test Method for Determining Air Leakage Rate by Fan Pressurization 2. Residential Manual for Compliance with CA 2001 Energy Efficiency Standards	
EQ-c1	Outdoor Air Delivery Monitoring	1	Capacity for monitoring ventilation systems, for comfort and well-being	ALL: Permanent system monitoring, alarm 10% variance of setpoint (alarm operator) or (visible/audible occupants) Case 1 (Mechanical): <input type="checkbox"/> Dense occupancy $\geq 25/1000$, CO2 sensors 3 to 6' above floor <input type="checkbox"/> Non-dense, direct outdoor airflow measurement device Case 2 (Natural): CO2 in all spaces. 1 sensor for > 1 spaces with stack effect	<input type="checkbox"/> Feed info to HVAC/BAS to trigger corrective action <input type="checkbox"/> Sensors should be in "breathing zone" 3'-6' off floor <input type="checkbox"/> Sensors need calibration (~ 6 months) <input type="checkbox"/> Most uncalibrated sensors have false high readings = over-ventilation = wasted energy	ASHRAE 62.1 - 2007	
EQ-c2	Increased Ventilation	1	Provide additional outdoor air for comfort, well-being, productivity	Case 1 (Mechanical): 30% above EQ-P1 airflow Case 2 (Natural): ALL - Follow Carbon Trust Good Practice Guide and Option 1: Use diagrams and calcs to show meets CIBSE Applications Manual 10:2005 Nat Vent non-domestic bldgs or Option 2: Macroscopic, multi-zone, analytic model to predict room flows ventilate to min ASHRAE 62.1-2007 for 90% of occupied spaces	<input type="checkbox"/> Use heat recovery to reduce energy impact (heat wheel) <input type="checkbox"/> Increased ventilation improves worker health, welfare, productivity, and well being	1. ASHRAE 62.1-2007 2. Chartered Institute of Building Services Engineers (CIBSE) Applications Manual 10-2005, Natural Ventilation in Non-Domestic Buildings	
EQ-c3	EQ-c3.1 Construction IAQ Management Plan - During Construction	1	Reduce IAQ problems from construction/ renovation	1. During construction meet SMACNA control measures and 2. Protect on-site absorptive materials from moisture damage and 3. Install MERV 8 filters on return grilles if Air Handler is used	<input type="checkbox"/> Protect HVAC, Control Sources of Contamination, Pathway Interruption, Housekeeping, and Scheduling	1. Sheet Metal & Air Conditioners Contractors Nat. Assoc. (SMACNA) 2. ASHRAE 52.2-1999 (air filters)	
	EQ-c3.2 Construction IAQ Management Plan - Before Occupancy	1		After construction with all interior surfaces in place, before occupancy follow one: Option 1: Complete Flush Out - 14,000 ft ³ Option 2: Flush Out at least 3,500 ft ³ before occupancy. Continue until 14,000. Option 3: IAQ Testing to EPA Standards	<input type="checkbox"/> Internal temp $\geq 60^{\circ}\text{F}$ and Humidity $\leq 60\%$ <input type="checkbox"/> IAQ Testing: Before occupancy w/ all systems running, w/ everything installed(furniture recommended), during work hours, minimum outside air flow rate	EPA Compendium of Methods Determination of Indoor Air Pollutants in Indoor Air	
EQ-c4	EQ-c4.1 Low-Emitting Materials - Adhesives & Sealants	1	Reduce indoor air contaminants	<input type="checkbox"/> Adhesives, Sealants, Primers: Follow South Coast AQ Mgmt District #1168 <input type="checkbox"/> Aerosol adhesives follow Green Seal Standard 36		1. SCAQMD #1168 2. Green Seal Standard 36 (GS-36)	
	EQ-c4.2 Low-Emitting Materials - Paints & Coatings	1		<input type="checkbox"/> Paints & coatings: Green Seal Standard 11 VOC limit <input type="checkbox"/> Anti-corrosive/rust paints: Green Seal Standard 3 VOC limit <input type="checkbox"/> Clear wood, floor seal, stains, primers, and shellacs SCAQMD #1113		1. Green Seal Standard 11 (GS-11) 2. Green Seal Standard 3 (GS-3) 3. SQAQMD #1113	
	EQ-c4.3 Low-Emitting Materials - Flooring Systems	1		<input type="checkbox"/> All carpet must meet Carpet and Rug Institute's (CRI) Green Label Plus <input type="checkbox"/> Carpet Cushion must meet CRI's Green Label requirements <input type="checkbox"/> Hard surface flooring & 100% non-carpet finished floor must meet Floorscore <input type="checkbox"/> Carpet adhesives meet requirements from EQ-c4.1 <input type="checkbox"/> Concrete, wood, bamboo, and cork floor finishes meet SCAQMD #1113 <input type="checkbox"/> Setting adhesives and grout must meet SCAQMD #1168	Floorscore = vinyl, linoleum, laminate, wood, ceramic & rubber flooring + wall base	1. Carpet and Rug Institute (CRI) Green Label Plus Testing Program 2. SCAQMD #1168 3. SCAQMD #1113	
	EQ-c4.4 Low-Emitting Materials - Composite Wood & Agrifiber	1		<input type="checkbox"/> No added urea-formaldehyde resins on interior of building <input type="checkbox"/> Furniture & equipment not installed in the building are excluded	<input type="checkbox"/> Particle board, MDF, Plywood, Wheatboard, Strawboard, Door Cores	None	
EQ-c5	Indoor Chemical and Pollutant Source Control	1	Minimize exposure of building occupants to hazardous particulates and chemicals	1. Permanent entryway systems at least 10 feet long in the primary direction of travel to capture dirt (grill, grate, roll out carpet, etc) 2. Rooms with chemicals must be sealed, under negative pressure, and exhausted outside (no recirculation), deck to deck walls, and self-closing doors. 3. MERV 13 filters in mechanically ventilated buildings (both return & incoming outside air) 4. Provide containment for disposal of hazardous liquid waste		ASHRAE 52.2-1999 (air filters)	

INDOOR ENVIRONMENTAL QUALITY

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EQ-c6	EQ-c6.1	1	Individual/group control of lighting	1. 90% individual control of at least on/off, prefer adjustable and level and 2. 100% for all multi-occupant spaces	<input type="checkbox"/> Individual Occupant = Cubicle, Private Office <input type="checkbox"/> Multi-Occupant = Breakrooms, Conference Rooms, Lecture Halls, Cafeterias, and Classrooms <input type="checkbox"/> If can be subdivided design so each space has controls		
	EQ-c6.2	1	Individual/group control of thermal comfort	Individual Occupants: 50% able to control and Multi-Occupant: 100% comfort controls to meet group needs/preferences	<input type="checkbox"/> Mech Control = Air flow, humidity, air & radiant temp <input type="checkbox"/> Natural Control = Must be 20' inside and 10' each side of an operable window.	1. ASHRAE 62.1 - 2007 (ventilation) 2. ASHRAE 55-2007 (thermal comfort)	
EQ-c7	EQ-c7.1	1	Design building for thermal comfort	Design <u>HVAC</u> and <u>Envelope</u> to make 80% of occupants comfortable	<input type="checkbox"/> Naturally ventilated difficult to evaluate during design, CIBSE AM10 presents strategies	1. ASHRAE 55-2004 2. CIBSE Applications Manual 10	
	EQ-c7.2	1	Assess building's thermal Comfort	<input type="checkbox"/> Agree to survey 6 - 18 months, with plan for corrections if fail by more than 20% <input type="checkbox"/> Scoring system of -3 to +3 where 0 is neutral, must include follow up for complaints <input type="checkbox"/> Can be by phone/person/email/paper - must be consistent & for all regular occupants <input type="checkbox"/> Survey must identify nature & location of problems i.e. temp, airflow, solar adjustments	<input type="checkbox"/> Only available for projects pursuing EQ-c7.1	ASHRAE 55-2004	
EQ-c8	EQ-c8.1	1	Connect occupants with outdoors	Daylight 75% of <u>Regularly Occupied</u> Spaces Option 1: Computer simulation set for 21 September. Must have 25-500 footcandles. Option 2: Prescriptive compliance: .180 > VLT x WFR >.150 Option 3: Daylight Measurement: Measure on 10' grid and show > 25 footcandles Option 4: Any combination of options 1-3	<input type="checkbox"/> Vision Glazing = 2'6" – 7'6" <input type="checkbox"/> Daylight Glazing = Above 7'6" <input type="checkbox"/> For Option #2: Only count window area above 30" <input type="checkbox"/> Install devices to minimize glare (i.e. shades, light shelf, fritted glazing) <input type="checkbox"/> VLT = Visible Light Transmittance <input type="checkbox"/> WFR = Window to Floor Area Ratio	ASTM D1003-07e1, Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics	<input type="checkbox"/> 95% of Regularly Occupied Spaces
	EQ-c8.2	1		Direct line of sight for <u>90%</u> of building areas to glazing between 2'6" - 7'6" <input type="checkbox"/> Plan view – The area is within line of sight of vision glazing <input type="checkbox"/> Section view – Direct line of sight can be drawn from 42"	<input type="checkbox"/> Interior offices – If 75% or more of the office has a direct line of sight to a view then 100% of the square footage counts in the calculation	Exemplary Performance for EQ-c8.2: Meet 2 of 4 for 90% of spaces: 1. Lines of sight to vision glazing at least 90° apart 2. Can see at least 2: vegetation, human activity, or objects 70' away 3. Unobstructed views within 3 times the head height of the glazing 4. Access to views with a view factor of 3 or greater.	

Innovation in Design & Regional Priority

CREDIT NUMBER	CREDIT	PTS	INTENT OF CREDIT	REQUIREMENTS	STRATEGY	CODE OR STANDARD	EXEMPLARY PERFORMANCE
ID-c1	Innovation in Design	1-5	To provide teams with opportunity for exceptional or innovative performance	Path 1: Innovation in Design (1-5 points) 1. Intent of proposed innovation credit 2. Proposed requirement for compliance 3. Proposed submittals to demonstrate compliance 4. The design approach to meet requirements Path 2: Achieve exemplary performance for any eligible credit (1-3 points max) <input type="checkbox"/> Usually double or next incremental step on credit requirements	Path 1: Must have quantitative (i.e. significant & measurable) environmental benefit		N/A
ID-c2	LEED Accredited Professional	1	To support & encourage design integration and to streamline application/certification process	At least one <u>principle participant</u> of project team member shall be a LEED AP 1. Name of LEED AP 2. LEED AP's company 3. LEED AP's project role 4. Copy of LEED AP certificate	Role of LEED AP: <input type="checkbox"/> LEED Documentation <input type="checkbox"/> Understand Integrated Design & Credit Interactions <input type="checkbox"/> Educate other team members on sustainable building <input type="checkbox"/> LEED AP is not mandatory for LEED certification		N/A
RP-1	Regional Priority	4		Earn 1-4 of the 6 Regional Priority credits identified as important for a project's region	<input type="checkbox"/> Credits are identified by zip code		N/A

SUSTAINABLE SITES

GET 1 EXTRA PT

CREDIT NUMBER	CREDIT	PTS	INTENT OF CREDIT	REQUIREMENTS	STRATEGY	CODE OR STANDARD	EXEMPLARY PERFORMANCE	
SUSTAINABLE SITES (1 Prerequisite, 8 Credits, NC = 26 pts)								
SS-P1	Construction Activity Pollution Prevention	0	Reduce pollution during construction - soil erosion; waterway sedimentation; dust	1. Prevent soil loss from stormwater runoff and wind. 2. Prevent sedimentation of storm sewers and streams. 3. Prevent polluting air with dust. Use Erosion & Sedimentation Control (ESC) Plan	Civil Eng or Landscape Arch responsible for: 1. Structural (Manage Erosion) <input type="checkbox"/> Earth Dike - Silt Fence - Sediment Trap - Sediment Basin 2. Stabilization (Prevent): Temp & Perm Seeding - Mulching	1. 2003 EPA Construction General Permit (CGP) or Local Code <input type="checkbox"/> CGP normally for > 1 acre projects but applies to all LEED projects		
SS-c1	Site Selection	1	Don't develop inappropriate sites. Reduce environmental impact.	<u>Don't develop on:</u> Prime Farmland <input type="checkbox"/> Undeveloped (Greenfield) less than 5' above floodplain <input type="checkbox"/> Threatened or Endangered Species <input type="checkbox"/> In 100' of Wetlands <input type="checkbox"/> 50' Water Undeveloped, Sea;Lake;River;Tributary -fish/play/indust <input type="checkbox"/> Public Parkland not Swapped for same	<input type="checkbox"/> Consult specialists, private and government as well as local zoning before selecting site.	1. US Department of Agriculture 2. FEMA 3. Threatened/Endangered Species Lists <input type="checkbox"/> US Fish & Wildlife Service <input type="checkbox"/> National Marine Fisheries Service 4. US Code of Federal Regulations		
SS-c2	Development Density & Community Connectivity	5	Develop urban areas that already have infrastructure, protect greenfields, preserve habitat/ resources	1. Development Density - Density Radius - center of site - based on site size <input type="checkbox"/> Previously developed site, project to be at least 60,000 ft/acre & average density 60,000 ft/acre within density radius <input type="checkbox"/> Area not include park/water/public or 2. Community Connectivity - 1/2 mile from door (multiple doors) <input type="checkbox"/> Previously developed site - 1/2 mile radius, at least one res zone 10units/acre and 10 Services and pedestrian access <input type="checkbox"/> Must have pedestrian access - no walls, freeway, barrier, etc	<input type="checkbox"/> Services: Bank; Worship; Grocery; Day Care; Restaurant; Fire Station; Park; Post Office; Gym; School; Doctor etc. <input type="checkbox"/> Only include restaurants twice, all others once only. <input type="checkbox"/> May include 1 service from LEED project	None	EP for Development Density, building twice average for area or average density ≥ 120,000 for twice area	
SS-c3	Brownfield Redevelopment	1	Rehabilitate damaged sites	1. Documented contaminated - ASTM Phase II or Local Voluntary Cleanup Prgm or 2. Defined brownfield by local, state or federal agency	<input type="checkbox"/> Give preference to brownfield, weigh tax and property cost incentives against cost of remediation and impact on development process.	1. ASTM E1903-97 - Phase II Environmental Site Assessment		
SS-c4	SS-c4.1	6	Reduce pollution and land development from auto use	1. 1/2 mile existing planned/funded commuter rail, light rail, subway or 2. 1/4 mile one stop for at least two bus lines (line ≠ stop)	<input type="checkbox"/> Choose a site near existing transport networks <input type="checkbox"/> Measure 1/2 & 1/4 based on pedestrian route		EP Double all: 1a. 2 commuter rail or 1b. 2 stops 4 buses and 2. Total 200 rides/day	
	SS-c4.2	1		1. Commercial Racks, 200 yds, 5% Peak users & 1/2% showers FTE or 2. Residential 15% covered storage for occupants	<input type="checkbox"/> Showers can be unit or group <input type="checkbox"/> Campus can share showers if 200yds <input type="checkbox"/> FTE is % of 8hr day			
	SS-c4.3	3		1. Give LEFE vehicle & parking 3% FTE or 2. 5% total parking pref to LEFE or 3. 3% Alternative Refuel Stations total parking	<input type="checkbox"/> Preferred parking = closest spot or discount	LEFE Defined By: <input type="checkbox"/> ZEV by CA Air Resource Board <input type="checkbox"/> Score ≥ 40 by ACEEE		EP transportation management plan showing quantifiable reduction in auto use through multiple options
	SS-c4.4	2		1. Non-Res: Parking ≤ zoning and preferred carpool for 5% of spots or 2. Non-Res: If parking spots ≤ 5% of FTE, then preferred carpool for 5% spots or 3. Res: Parking ≤ zoning and provide infrastructure to support carpooling or 4. ALL: Provide no new parking	<input type="checkbox"/> Service lots excluded			
SS-c5	SS-c5.1	1	Conserve existing natural and restore damage areas	1. Greenfield - goal is to limit disturbance: 40' building 10' from walk, patio, parking, 12" utility 15' primary road, main utility 25' constructed permeable (sport field) 2. Previously Developed - goal is to improve: Restore 50% of site excluding building or 20% including building w/ native vegetation (whichever is greater)	<input type="checkbox"/> Pick build site carefully <input type="checkbox"/> Mark disturbance boundaries <input type="checkbox"/> Paved areas for staging <input type="checkbox"/> Assign and mark recycling areas <input type="checkbox"/> Fence dripline of existing trees <input type="checkbox"/> Replace pavement & turf-grass with native <input type="checkbox"/> If eligible for SSc2, Garden Roof = Open Space		EP 75% excluding build	
SS-c5	SS-c5.2	1	Provide high ratio of open space to development footprint	1. 25% more open space than zoning or 2. If no zoning at all (Campus/Military), Same as building size or 3. If zoning exists but there's no minimum, 20% of project site area <input type="checkbox"/> If SS-c2 count veg roof & ped hardscape (> 25% of must be vegetated) <input type="checkbox"/> Wetland/ponds- count if ≤ 1/4 slope and vegetated	<input type="checkbox"/> Doesn't have to be next to building, just preserved for life of building. <input type="checkbox"/> Ped hardscape = pocket parks, roof decks, plaza's, courtyards		EP double open space on any option	

Blue = Prerequisites

Red = Credits with Exemplary Performance

SUSTAINABLE SITES

CREDIT NUMBER	CREDIT	PTS	INTENT OF CREDIT	REQUIREMENTS	STRATEGY	CODE OR STANDARD	EXEMPLARY PERFORMANCE
SS-c6	SS-c6.1	1	Limit disruption of natural hydrology by: reduce impervious cover; increase infiltration; manage storm water run-off	1. Existing impervious $\leq 50\%$ (=undeveloped) <input type="checkbox"/> SWMP so post-develop peak not more than pre-develop peak or <input type="checkbox"/> Plan to protect receiving from erosion (rate and quantity) or 2. Imperv $> 50\%$ (= developed) <input type="checkbox"/> SWMP to decrease rate and quantity by 25% <input type="checkbox"/> Plan for 1 and 2-year, 24-hour design storm	<input type="checkbox"/> Best - Smaller building footprint (reduce impervious) <input type="checkbox"/> Rainwater harvesting <input type="checkbox"/> Green roofs <input type="checkbox"/> Bioswales/ retention ponds <input type="checkbox"/> Cluster develop, reduce paved surface <input type="checkbox"/> Bioretention/Rain Gardens		No standardized EP available. However, projects may apply for an EP if they document an approach above and beyond credit requirements. Only 1 EP available for SS-c6.1 and SS-c6.2.
	SS-c6.2	1	Reduce water pollution by: increase infiltration; eliminate contaminants & pollutants	Storm Water Management Plan (SWMP): 1. Reduce impervious infiltrate, capture, & treat 90% of avg rainfall and 2. BMP remove 80% TSS - ensure higher of Local std or TARP <input type="checkbox"/> $<20''/yr = arid = .5''/24\ hrs$ <input type="checkbox"/> $20-40''/yr = semi-arid = .75''/24\ hrs$ <input type="checkbox"/> $>40''/yr = humid = 1''/24\ hrs$	<input type="checkbox"/> Most effective - reduce impervious area <input type="checkbox"/> Non-Struc: vegetated swales; disconnect impervious and pervious areas <input type="checkbox"/> Structural: rainwater harvesting; ponds; green roofs; cluster developments	Guidance Specifying Management Measures for Sources of Non-Point Pollution in Coastal Waters, Jan 1993	
SS-c7	SS-c7.1	1	Reduce Heat Island	1. 50% Site hardscape (road, side walk, crt yard, parking) <input type="checkbox"/> Combo: Shade within 5yrs, Paving $SRI \geq 29$, Open Grid Paving, Solar panels' shade or 2. 50% parking spaces under cover/deck/building roof $SRI \geq 29$	<input type="checkbox"/> Open grid pavers at least 50% pervious <input type="checkbox"/> Parking deck, cut space in half <input type="checkbox"/> Trellises with vegetation <input type="checkbox"/> Deciduous trees, sun in winter <input type="checkbox"/> Light colored paving	ASTM International Standards	EP 100%
	SS-c7.2	1		1. 75% Roof $SRI \geq 78$ - Slope(flat) $\leq 2/12$, other $SRI \geq 29$ or 2. 50% Vegetated roof or 3. Combo of Opts 1 & 2: $(SRI\ sqft/0.75) + (Veg\ sqft/0.5) \geq Total\ Roof\ Area$	<input type="checkbox"/> Albedo = Reflectance <input type="checkbox"/> High emissivity and reflectivity roof materials / roof gardens to reduce heat absorption and AC bills <input type="checkbox"/> $SRI = constructed\ surface\ ability\ to\ reflect\ solar\ heat$	ASTM International Standards	EP 100% Garden Roof
SS-c8	Light Pollution Reduction	1	Minimize: Light trespass; Night sky glow; Development impact on nocturnal environments	1a. Interior: Lights shine on walls not out window or 1b. Interior: Non-Emerg lights auto off during non-business hours and 2. Exterior: Only for safety/comfort. Not more than 80% for exterior 50% facades/landscape per ASHRAE 90.1-2007	<input type="checkbox"/> Use minimum lighting necessary <input type="checkbox"/> Occupancy sensors auto-off - manual override <input type="checkbox"/> Computer model to predict light within boundary <input type="checkbox"/> Full cut-off luminaires, low-angle spotlights <input type="checkbox"/> Minimize upward reflection from surfaces	ASHRAE/IESNA 90.1-2007 LZ1 = Dark (Rural) LZ2 = Low (Residential, neighborhood) LZ3 = Medium (High density res, comm) LZ4 = High (Comm district, metro area)	

WATER EFFICIENCY

WATER EFFICIENCY (1 Prerequisite, 3 Credits, NC = 10 pts)							
WE-P1	Water Use Reduction	0	Maximize efficiency to reduce burden on supply and wastewater systems	<input type="checkbox"/> 20% Below EPA 1992 baseline - Estimated occupant usage / flow rate <input type="checkbox"/> Baseline from EPA 1992. Design based on actual building. <input type="checkbox"/> Regulated Fixtures Only: water closets, urinal, lav faucets, shower, kitchen/janitor sinks, handwash fountain	<input type="checkbox"/> High-performance plumbing fixtures <input type="checkbox"/> Rainwater Harvesting <input type="checkbox"/> Graywater <input type="checkbox"/> 50% of student/visitor, and 20% of retail customers use flush fixture and lavatory faucet	Energy Policy Act of 1992 (EPA 1992) is used to establish a baseline	
WE-c1	Water Efficient Landscaping	2-4	Limit use of <u>potable</u> water for irrigation	Option 1: Reduce potable water use by 50% from mid-summer base case (2 points) <input type="checkbox"/> Can use graywater/rainwater to offset potable reduction Option 2: Reduce potable water use by 100% from mid-summer base case (4 points) <input type="checkbox"/> PATH 1: Must reduce total water by 50% (i.e. still use graywater for 50%) <input type="checkbox"/> PATH 2: Landscaping the requires no irrigation (temp irrigation <1 year) Step 1: Design Case - Water use of actual plants Step 2: Baseline Case - Water use of normal plants in the area Step 3: Calculate irrigation % reduction comparing base vs. design	Reduction attributed to combo of: <input type="checkbox"/> Plant species factor <input type="checkbox"/> Irrigation efficiency <input type="checkbox"/> Use rainwater <input type="checkbox"/> Use recycled wastewater <input type="checkbox"/> Use treated by public agency for non-potable use <input type="checkbox"/> Graywater \neq toilet, dishwasher, kitchen sink <input type="checkbox"/> Monoculture = Single Species = Bad	Terms: KI = Landscape Coefficient Kmc = Microclimate Factor - location (stays constant) Ks = Species Factor - Plant H2O needs Kd = Density Factor - # of plants KI = Kmc x Ks x Kd ETO = Regional Evapotranspiration (stays constant)	
WE-c2	Innovative Wastewater Technologies	2	Reduce Wastewater and Potable Water Demand	Below EPA 1992 EPA baseline Option 1: 50% less potable H2O for sewage conveyance <input type="checkbox"/> Water conserving fixtures (low-flush, dual flush, etc) <input type="checkbox"/> Non-potable (rainwater harvesting, graywater, treated, etc) or Option 2: Treat 50% of wastewater on-site to tertiary standards <input type="checkbox"/> Treated water must be infiltrated or used on-site	<input type="checkbox"/> Low-flush or Dual Flush fixtures <input type="checkbox"/> Rainwater Harvesting to offset potable H2O use <input type="checkbox"/> Re-use graywater <input type="checkbox"/> On-site treatment - mechanical or natural <input type="checkbox"/> low flow fix help WE-c3 <input type="checkbox"/> Male:Female = 1:1 <input type="checkbox"/> Male = 2 Urinal Trips, 1 Toilet trip per day <input type="checkbox"/> Female = 3 Toilet trips per day <input type="checkbox"/> # Fixtures & FTE is constant in base & design cases	Energy Policy Act of 1992 (EPA 1992) is used to establish a baseline	EP 100% of either option
WE-c3	Water Use Reduction	2-4	Maximize efficiency to reduce burden on supply and wastewater systems	Improve over requirements of WE-P1: 30% = 2 points 35% = 3 points 40% = 4 points 45% = +1 Exemplary Performance	<input type="checkbox"/> Baseline EPA 1992 fixture flow rates <input type="checkbox"/> Add: FTE and Transient x annual days <input type="checkbox"/> #Fixtures/users same in base as design <input type="checkbox"/> Design (rainwater, graywater) vs Base <input type="checkbox"/> Install submeters = Benefits O&M		EP 45%