

## GLOSSARY

### A

- AB 32** The Global Warming Solutions Act of 2006, or California Assembly Bill 32 (Nuñez, Pavley), directs the California Air Resources Board to regulate green house gas emissions through a cap to be phased in starting in 2012.
- AB 75** California Assembly Bill 75 (Strom, Martin, 1999) requires state agencies to develop and implement an integrated waste management plan to divert at least 25 percent of solid waste by 2002, and at least 50 percent by 2004.
- Active Strategies** Building system technologies that are predominantly powered by generated energy sources and contain no motorized components.
- Adaptive Reuse** The process of changing the function of a historic building while retaining important historic elements.
- Albedo** The ratio of reflected to incident electromagnetic radiation on a surface. Also known as **solar reflectance**.
- Alternative Fuel Vehicle** A vehicle fueled by ultra-low-sulphur diesel, bio-diesel, CNG, LNG, electric, fuel cell, or ethanol (E85).
- Alternative Transportation** Modes of personal transportation that have a reduced impact on the environment and on community infrastructures. Includes car and vanpools, alternative fuel vehicles, public transportation, walking, and bicycling.

### B

- Baseline** A PER Element complied with through either a system- or campus-wide performance policy, or by a campus-wide infrastructure component (i.e. centralized parking or campus-wide stormwater management).
- Best Management Practices** Conservation practices or systems of practices and management measures that control soil loss and reduce water quality degradation caused by nutrients, animal wastes, toxics, and sediment.
- Biodiesel** A biomass-based fuel for use in diesel engines, with characteristics similar to petroleum-based diesel. Biodiesel can be used neat (B100) or as a blend with petroleum diesel (B5, 20, B50). Biodiesel emissions are significantly lower in most categories when compared to petroleum diesel.

## CSU Program for Environmental Responsibility

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| <i>Biodiversity</i>                  | As defined in the proposed US Congressional Biodiversity Act, HR1268 (1990), "biological diversity means the full range of variety and variability within and among living organisms and the ecological complexes in which they occur, and encompasses ecosystem or community diversity, species diversity, and genetic diversity." |
| <i>Biophilic Effect</i>              | Biological based affinity to gravitate towards natural settings such as trees, flowers, changing elevations and water.  |
| <i>Bioswale</i>                      | A landscape element that slows stormwater surface flows and filters contaminants and debris.  |
| <i>Brownfield</i>                    | Real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.  |
| <i>Building Information Modeling</i> | Graphically depicts an integrated database of coordinated information among the contributors to the design and engineering of a building as well as analyze the building performance.   |
| <i>Building Systems</i>              | Any set of equipment, assemblies, or improvements that falls under the responsibility of a single discipline and which addresses a specific project goal. Examples of building systems include HVAC, plumbing, lighting, envelope, structure, stormwater, landscaping, interior finishes, and others.                               |
| <b>C</b>                             |   |
| <i>Car Sharing</i>                   | A system in which a fleet of automobiles is made available to users on an hourly reservation basis.   |
| <i>Carbon Sequestration</i>          | Long-term storage of carbon in the terrestrial biosphere, underground, or the oceans so that buildup of carbon dioxide will reduce or slow down. This may be accomplished by maintaining or enhancing natural processes, or other technological techniques.   |
| <i>Chlorofluorocarbon (CFC)</i>      | A type of refrigerant which was banned by the Montreal Protocol to be phased out by the year 2000 due to the negative effect it had on the ozone layer.   |
| <i>Coefficient of Performance</i>    | Ratio of work or useful output to the amount of work or energy input.   |
| <i>Co-Generation</i>                 | Integrated technologies that generate electricity and produce useful heat from a single fuel source. Also known as combined heat and power (CHP).   |

## CSU Program for Environmental Responsibility

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| <i>Commissioning</i>                 | Commissioning is a systematic and documented process of ensuring that specific building systems perform interactively according to the design intent and the owner's operational needs. The CSU required commissioning on most projects.   |
| <i>Constructed Wetlands</i>          | Wetlands that are designed and constructed to mimic natural wetlands, often used to treat stormwater or wastewater.  |
| <i>Cool Roof</i>                     | Roofing material that has high albedo and high emittance.  |
| <i>Convection</i>                    | When heat is transferred by the mass movement of molecules from one place to another resulting from differences in density.  |
| <i>Cradle-to-Cradle</i>              | A manufacturing process that employs a circular flow of materials in which all waste materials provide industrial "nutrients" for future processes.  |
| <i>Cradle-to-Grave</i>               | A manufacturing process that employs a linear flow of materials that begins with the raw material source (whether extracted, harvested, salvaged, or recycled), and ends with disposal.  |
| <i>Cultural Resources</i>            | A broad category that describes a wide variety of resources including archaeological sites, isolated artifacts, features, records, manuscripts, historical sites, traditional cultural properties, historical resources, and historic properties, regardless of significance. For the purposes of the CSU•PER, a cultural resource must be at least fifty years old. |
| <i>Culture</i>                       | Broadly refers to patterns of activity within social groups, and the physical manifestations of that activity that lend significance.  |
| <b>D</b>                             |  |
| <i>Dedicated Transitway Bus</i>      | Public bus lines that operate on roadways specifically dedicated for their use. These bus lines operate in a manner similar to trolleys or light rail.   |
| <i>Demand Controlled Ventilation</i> | Adjusts outside ventilation air based on the number of occupants and the ventilation demands that those occupants create. This saves energy by not heating or cooling unnecessary quantities of outside air.   |
| <i>Detention Pond</i>                | A basin or other low-lying area that temporarily holds stormwater during a storm event. This allows solids and debris settle towards the bottom, and allows the stormwater to be infiltrated or released in a controlled manner.   |
| <i>Development Footprint</i>         | Project area that has been impacted by development activity, including building, hardscape, roads, parking lots, and non-building facilities.  |

**E**

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| <i>Energy Use Intensity</i> | A measure of total energy use normalized for floor area. It is a useful metric for comparing the energy use between different buildings, and it is independent of utility or source fuel type. Typical units are kBTU/sf/year. Often abbreviated as EUI. |
| <i>Envelope</i>             | The building's outside shell that consists of the roof, walls, windows, and doors. The performance objectives include: structural integrity, moisture control, temperature control and control of air pressure.  |
| <i>Erosion</i>              | The wearing away of the earth's surface by running water, wind, ice, or other geological agents. Man-made erosion can be caused by excessive stormwater rates or point discharges of water.  |
| <i>Evapotranspiration</i>   | The loss of water from the earth to the atmosphere by evaporation of water and transpiration from plants.  |

**F**

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| <i>Fine Particulate Matter</i> | Extremely small suspended particles or droplets 10 microns or smaller that can lodge in the lungs, contributing to respiratory problems. Sources of particulate matter include combustion products, cooking activities and shop processes such as wood and metal working.   |
| <i>Foot Candle</i>             | A unit of measure of the intensity of light falling on a surface, equal to one lumen per square foot.   |
| <i>Fossil Fuel</i>             | Hydrocarbon fuel derived from biomass (living matter) from a previous geologic period. Consumption of fossil fuel releases carbon previously sequestered. The most common fossil fuels are crude oil (and derivatives), coal, and natural gas.  |
| <i>Fuel Efficient Vehicles</i> | Vehicles with a minimum "green score" of 40 on the American Council for an Energy Efficient Economy (ACEEE) annual vehicle rating guide.  |
| <i>Fugitive Dust</i>           | A generic term used to describe any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of any person. Fugitive dust can vary in size and composition and in the context of the CSU·PER is related to construction activities such as earth moving and grading. |

**G**

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| <i>Geothermal Energy</i> | Energy extracted from the internal heat of the Earth, created by the radioactive decay of rocks and by the slow cooling of the Earth.   |
| <i>Graywater</i>         | Wastewater that has not been contaminated with sewage. Typically generated from lavatories, showers, laundry, and dishwashing.  |
| <i>Green Roof</i>        | A roof surface that uses a vegetated planted surface to reduce heat island effect, improve thermal capabilities of the roof assembly, and retain stormwater for the purpose of reducing stormwater flow rates.  |
| <i>Greenfield</i>        | An unrestored site that has not been touched by development activity such as agriculture, grading, or construction.   |
| <i>Greenhouse Gas</i>    | Gases in the atmosphere that affect the earth's heat balance by absorbing infrared radiation functioning much the same as glass in a greenhouse trapping heat. The most prevalent "greenhouse gas" is carbon dioxide which results from the combustion of fossil fuels. Greenhouse gases include carbon dioxide (CO <sub>2</sub> ), methane (CH <sub>4</sub> ), nitrous oxide (N <sub>2</sub> O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF <sub>6</sub> ). |
| <i>Groundcovers</i>      | Low-lying plants, usually chosen with aesthetic considerations in mind and requiring minimal maintenance.   |

**H**

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| <i>Hardscape</i>                       | Inanimate elements of landscaping, especially any masonry work or woodwork.   |
| <i>Hydrochloro-fluorocarbon (HCFC)</i> | Used primarily as a chlorofluorocarbon (CFC) substitute since the ozone depleting effects are about 10% those of CFCs.    |
| <i>Hydrological Process</i>            | The continuous movement of water on, above, and below the surface of the via evaporation, condensation, and precipitation |

**I**

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| <i>Impervious Surface</i> | Site surfaces that have limited or no ability to infiltrate stormwater to the soil below. Traditional forms of paving (concrete, asphaltic concrete) tend to be impervious. |
| <i>Infiltration</i>       | The entry of water (typically stormwater) into the soil.  |

## CSU Program for Environmental Responsibility

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| <i>Integrated Design</i>              | A process of design in which multiple disciplines and seemingly unrelated aspects of design are integrated in a manner that permits synergistic benefits to be realized.   |
| <i>ISO 14000 Standards</i>            | A set of international standards governing environmental assessment. Includes specific guidelines for evaluating materials under life cycle assessment.  |
| <b>L</b>                              |  |
| <i>Life Cycle Analysis</i>            | A study of the all of the ecological and economic effects of a set of product alternatives, with the intent of determining the least environmentally damaging option. Also known as cradle-to-grave analysis.  |
| <i>Life Cycle Cost Analysis</i>       | A study of the total cost of a product or facility over its anticipated useful life.   |
| <i>Light Shelves</i>                  | Bounce visible light up towards the ceiling, which reflect it down deeper into the interior of a room. Blinds are installed above and below the shelves so users are able to adjust the brightness of the room.  |
| <i>Low-Emission Vehicles</i>          | Vehicles classified as Zero Emission Vehicles (ZEV) by the California Air Resources Board.   |
| <i>Lumen</i>                          | A lumen is the metric unit for luminous flux, which is the measure of the perceived power of light from an electric lamp. Luminous flux only measures the power of light that falls within the visible spectrum.   |
| <b>M</b>                              |  |
| <i>Module</i>                         | The dimensions of a structural component used as a unit of measurement or standard for determining the proportions of the rest of the construction.  |
| <i>Monitoring Based Commissioning</i> | An operations practice in which building systems are sub-metered with trending capability to provide building operators with a steady stream of data about building performance. The process identifies dysfunction and ensures persistence of energy savings. Often abbreviated as MBCx.    |
| <i>Montreal Protocol</i>              | The Montreal Protocol on Substances That Deplete the Ozone Layer is an international treaty that phases out the manufacture, sales, and use of specific halogenated substances shown to deplete the ozone layer. The phase-outs started in 1989, and are scheduled to continue through 2030. |

**N**

*New Urbanism*

A style of planning that creates and restores of diverse, walkable, compact, and vibrant mixed-use communities.

**O**

*Once-Through Cooling*

A cooling process used on older equipment that uses potable water from domestic sources to remove heat, then dumps that water directly into the sewer system.

*One Hundred-Year-Flood*

Flood elevation that has a 1 percent chance of being equaled or exceeded each year. Not to be mistaken for a flood that will occur once every 100 years.

*Owner's Project Requirements (OPR)*

A narrative document produced and approved by campus stakeholders that describes, in layperson's terms, the intended performance requirements of a project. This document is often produced as part of the commissioning process. It is sometimes referred to as a Design Intent document.

*Ozone Depletion*

(or stratospheric ozone depletion) The slow destruction of naturally occurring ozone which resides in the upper atmosphere protecting the earth from the damaging effects of solar radiation. Certain compounds including chlorofluorocarbons (CFC's) and halons accumulate in the lower atmosphere and then gradually migrate into the stratosphere where they participate in complex chemical reactions resulting in destruction of the upper ozone layer. This increases the penetration of ultraviolet radiation to the earth's surface, a known risk that can increase the evidence of skin cancers and cataracts, contribute to crop damage and further degrade air quality.

**P**

*Passive Strategies*

Building system technologies that are not powered by any generated energy source and do not contain any motorized components.

*Peak Load Shifting*

Passive or active strategies that shift energy consumption away from periods when source energy generation is at its highest, and towards period when source energy generation is at its lowest. Power generators tend to operate at lower efficiency as they approach maximum capacity.

*Pervious Surface*

Site surfaces that allow infiltration of stormwater to the soil below. Although landscaped and vegetated soil provide the best pervious surfaces, new paving technologies (permeable

concrete, permeable asphalt, grass pavers) have a greater degree of perviousness.

*Photovoltaic*

Materials that are capable of converting light energy (photons) directly into electric direct current (DC).

*Photocatalysis*

In chemistry, it is a change in the rate of chemical reactions or their generation under the action of light. May be used in building materials so buildings could be self-cleaning and less polluted.

*Polyculture*

The practice of landscaping areas with a mix of plant species that benefit each other in a symbiotic fashion.

*Post-Consumer Recycled Content*

Material generated by households, commercial, industrial, and institutional facilities as waste.

*Post-Industrial Recycled Content*

Material diverted from the waste stream during the manufacturing process. Materials (such as scrap) that are reclaimed within the same process that generated them are excluded from this definition. Also known as pre-consumer recycled content.

*Potable Water*

Water that is suitable for human consumption.

*Predatory Fauna*

Animal life that preys on other animal life. Deployed carefully, predatory fauna can be an effective pest control mechanism. For example, ladybugs introduced into a garden can effectively control aphids without the use of pesticides.

*Preferred Parking*

Parking spaces that are either located adjacent to building entrance, or have a unique amenity such as shade. Preferred parking must be clearly marked by painted and/or mounted signage.

**R**

*Radiant Heat*

Supplying heat directly from a heat source, this heat then penetrates all objects in its path, including people. Because the heating surface is much larger than convection heating, a much lower temperature is required to achieve the same level of heat transfer.

*Rapidly Renewable Resources*

Natural resources that are typically harvested within a ten-year cycle or shorter.

*Reclaimed Water*

Wastewater that has been treated to **tertiary treatment** standards and used for non-potable needs such as irrigation and sewage conveyance.

*Remediation*

Cleanup or other methods used to remove or contain a toxic spill or hazardous materials from a Superfund or Brownfield site.

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### *Renewable Energy*

Naturally replenished (and typically clean) sources of energy. Includes solar, wind, geothermal, biomass, and hydroelectric.

## **S**

### *Sedimentation*

A process by which soil, debris, and other solids are deposited into receiving bodies of water, thereby reducing volume or constraining flows.

### *Solar Fiber Optics*

Sunlight is collected by panels outdoors, transported through fiber optic cables, enabling natural light to diffuse throughout the building.

### *Smog Forming Pollutants*

Gaseous pollutants that, when exposed to sunlight, form photochemical smog. Pollutants include nitrogen oxides (NO<sub>x</sub>), tropospheric (ground-level) ozone, volatile organic compounds (VOCs), peroxyacyl nitrates, and aldehydes.

### *Solar Reflectance*

See **albedo**.

### *Solar Reflectance Index*

The measure of a surface's ability to reject solar heat, which is a function of its albedo and thermal emittance combined. It is measured on a scale from 0 to 100. SRI is determined through ASTM E1980-01.

### *Solar Thermal System*

A system that produces useful heat directly from solar radiation. Examples include solar water heating or air heating.

### *Stormwater Harvesting*

The practice of capturing and retaining stormwater for graywater applications such as sewage conveyance or irrigation.

### *Stormwater Runoff*

Rain water or snow melt that flows over surfaces and flows into receiving streams or channels, or onto adjacent land.

### *Sustainably Managed Forest*

Timber forest that is managed with consideration for perpetuation of forest resources, biological diversity, forest health and vitality, socio-economic functions, and other issues.

### *Sustainability Workshop*

One or a series of facilitated meetings in which project performance goals are set and prioritized, constraints are defined, systems and alternatives are selected and tested, and synergies between systems are determined. Participation should include as many project stakeholders as possible.

## **T**

### *Technical Analysis*

Computer-based modeling used to predict or calculate building performance, and to compare alternatives against

a baseline. Includes energy analysis, daylight analysis, computational fluid dynamics (wind and ventilation), and sun-cast analysis.

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| <i>Tertiary Treatment</i>                  | The treatment of wastewater beyond the secondary or biological stage. Normally implies the removal of nutrients, such as phosphorous and nitrogen, and a high percentage of suspended solids.                       |
| <i>Thermal Emittance</i>                   | The percentage of heat energy a material can radiate away after it is absorbed.   |
| <i>Thermal Mass</i>                        | A material that absorbs heat from a source (typically the sun) and releases it slowly. Thermal mass is effective at controlling climatic temperature swings inside a space.   |
| <i>Title 24</i>                            | California's Energy Efficiency Standards for Residential and Non-residential buildings. Established in 1978 in response to legislative mandate to reduce the state's energy consumption. Updated every three years. |
| <i>Translucent wall and ceiling panels</i> | By incorporating day lighting into the building design, structural walls and skylights diffuse natural light to enter the building.   |
| <i>Trigeneration</i>                       | Integrated technologies that generate electricity, produce useful heat, and provides cooling from a single or dual fuel source. Also known as combined cooling, heat, and power (CCHP).                             |
| <i>Tubular Skylights</i>                   | Allows natural sunlight to be directed from the rooftop down through a highly reflective tube, and disperses natural light throughout the room  |

**U**

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| <i>UVC Light</i> | A type of ultraviolet energy using the "C" wavelengths which targets the DNA of microorganisms, causing cell death or making replication impossible. |
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**V**

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| <i>Volatile Organic Compound (VOC)</i> | Organic chemical compounds that readily vaporize under normal conditions. VOCs are major contributors to poor indoor air quality, photochemical smog, and greenhouse effect. |
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**W**

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| <i>Wildlife Corridor</i> | A continuous area connecting fragmented habitats and facilitating the movement of wildlife through rural or urban environments. They work to prevent isolation of wildlife populations. |
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**X**

*Xeriscape*

Landscaping in ways that do not require supplemental irrigation



PER / LEED® CROSS REFERENCE

| PER |                                     | LEED-NC v2.2 Rating System™ Criteria                 |  | Exceeds LEED-NC requirements |  |
|-----|-------------------------------------|--|--|------------------------------|--|
| A.1 | Sustainability Workshop             | IDc2   | LEED Accredited Professional   | Yes                          | No LEED-NC equivalent.   |
| A.2 | Campus Master Plan                  |  |  | Yes                          | No LEED-NC equivalent.   |
| A.3 | Innovation                          | IDc1   | Innovation in Design   | No                           | Similar to LEED-NC.  |
| B.1 | Greenhouse Gases                    | EAp3<br>EAc4   | Fundamental Refrigerant Management<br>Enhanced Refrigerant Management  | Yes                          | Addresses on-site combustion efficiency, passive and active energy efficiency measures, reduced transportation, co-generation. Ties Element to pending AB32 requirements.  |
| B.2 | Energy Efficiency                   | EAp1<br>EAp2<br>EAc1<br>EAc3<br>EAc5<br>SSc8         | Fundamental Commissioning/Energy Systems<br>Minimum Energy Performance<br>Optimize Energy Performance<br>Enhanced Commissioning<br>Measurement & Verification<br>Light Pollution Reduction | Yes                          | Requires life cycle cost analysis and performance-based energy analysis. Addresses non-building energy-consuming systems, energy efficient equipment. Emphasizes the prioritization of passive over active strategies. Requires calculation of carbon emission reduction.  |
| B.3 | Clean Renewable Energy              | EAc2<br>EAc6   | On-Site Renewable Energy<br>Green Power  | Yes                          | Requires sub-metering of renewable energy systems. Requires demonstration of carbon emissions reduction. Requires consideration of aesthetic impacts of renewable energy systems.  |
| B.4 | Environmentally Preferable Products | MRc4.1<br>MRc4.2<br>MRc5.1<br>MRc5.2<br>MRc6<br>MRc7 | Recycled Content: 10%<br>Recycled Content: 20%<br>Regional Materials: 10%<br>Regional Materials: 20%<br>Rapidly Renewable Materials<br>Certified Wood                                      | Yes                          | Requires comprehensive life cycle analysis of materials, rather than isolated characteristics. Also addresses FF&E items. Requires identification of alternative materials considered but not ultimately selected.   |
| B.5 | Material Conservation               | MRc3.1<br>MRc3.2                                     | Materials Reuse: 5%<br>Materials Reuse: 10%  | Yes                          | Addresses a much broader scope of material conservation. Credits design and construction techniques that conserve material, including integral finishes, multi-purpose space, appropriate use of material modules, low floor-to-floor heights, reduction of hardscape, "right-sizing" of HVAC equipment, lighting efficiency, and reuse of formwork and other temporary materials. |
| C.1 | Regional Air Quality                | SSp1   | Construction Activity Pollution Prevention   | Yes                          | Addresses post-development sources of particulate air pollution.   |
| C.2 | Habitat Management                  | SSc1<br>SSc5.1<br>SSc8                               | Site Selection<br>Site Development: Protect or Restore Habitat<br>Light Pollution Reduction  | No                           | Similar to LEED-NC.  |
| C.3 | Heat Island Effect                  | SSc7.1<br>SSc7.2                                     | Heat Island Effect: Non-Roof<br>Heat Island Effect: Roof   | No                           | Similar to LEED-NC.  |

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| PER  |                                    | LEED-NC v2.2 Rating System™ Criteria         |   | Exceeds LEED-NC requirements |   |
|------|------------------------------------|--|---|------------------------------|---|
| C.4  | Live / Learn Campus Communities    | SSc2   | Development Density & Community Connectivity  | Yes                          | Requires a qualitative response, using <i>Ahwahnee Principles for Resource-Efficient Communities</i> as a benchmark. Encourages addressing the issue on a campus master-plan level.   |
| C.5  | Transportation                     | SSc4.1<br>SSc4.2<br>SSc4.3<br>SSc4.4         | Public Transportation Access<br>Bicycle Storage & Changing Rooms<br>Low-Emission & Fuel-Efficient Vehicles<br>Parking Capacity  | Yes                          | Requires a comprehensive campus-wide response to reduce motorized vehicle trips, including integration with local off-campus transportation routes and agencies. Requires provision of safe and illuminated pedestrian and bike routes. Encourages connection to off-campus routes. |
| C.6  | Cultural Identity and Preservation | MRc1.1<br>MRc1.2<br>MRc1.3                   | Building Reuse: Maintain 75% of Existing<br>Building Reuse: Maintain 95% of Existing<br>Building Reuse: Maintain 50% of Interior  | Yes                          | Requires a catalog of any existing cultural resources. If demolition is proposed, a feasibility study justifying the demolition must be provided.   |
| C.7  | Open Space                         | SSc5.2                                       | Site Development: Maximize Open Space   | Yes                          | Encourages addressing the issue on a campus master-plan level.  |
| C.8  | Water Quality Protection           | SSp1<br>SSc6.1<br>SSc6.2                     | Construction Activity Pollution Prevention<br>Stormwater Design: Quantity Control<br>Stormwater Design: Quality Control   | No                           | Similar to LEED-NC.   |
| C.9  | Water Efficiency                   | WEc1.1<br>WEc1.2<br>WEc2<br>WEc3.1<br>WEc3.2 | Water Efficient Landscaping: Reduce by 50%<br>Water Efficient Landscaping: No Potable H2O Use<br>Innovative Wastewater Technologies<br>Water Use Reduction: 20%<br>Water Use Reduction: 30% | No                           | Similar to LEED-NC.   |
| C.10 | Regeneration / Restoration         | SSc5.1                                       | Site Development: Protect or Restore Habitat  | Yes                          | Seeks implementation of both landscape and non-landscape regenerative strategies and technologies.  |
| C.11 | Solid Waste Diversion              | MRp1<br>MRc2.1<br>MRc2.2                     | Storage & Collection of Recyclables<br>Construction Waste Management: Divert 50%<br>Construction Waste Management: Divert 75%   | Yes                          | Encourages designing for easy dismantling to reduce solid waste in future renovation, reconfiguration of facilities, or at end of service life.   |
| D.1  | Universal Access                   |  |   | Yes                          | No LEED-NC equivalent.  |
| D.2  | Brownfield Reclamation             | SSc3   | Brownfield Redevelopment  | Yes                          | Justification must be provided if brownfield site is available but not used.  |
| D.3  | Design Efficiency                  |  |   | Yes                          | No LEED-NC equivalent.  |
| D.4  | Durability                         |  |   | Yes                          | No LEED-NC equivalent.  |
| D.5  | Information Feedback               |  |   | Yes                          | No LEED-NC equivalent.  |
| D.6  | Green Cleaning                     |  |   | Yes                          | No LEED-NC equivalent.  |
| D.7  | Maintainability                    |  |   | Yes                          | No LEED-NC equivalent.  |
| E.1  | Environmental Comfort              | EQc6.1<br>EQc6.2<br>EQc7.1<br>EQc7.2         | Controllability of Systems: Lighting<br>Controllability of Systems: Thermal Comfort<br>Thermal Comfort: Design<br>Thermal Comfort: Verification   | Yes                          | Addresses visual and acoustic comfort.  |
| E.2  | Light Quality                      | EQc8.1<br>EQc8.2                             | Daylighting & Views: Daylight 75% of Spaces<br>Daylighting & Views: Views for 90% of Spaces   | Yes                          | Requires complete integration of daylight and electric light.   |

## CSU Program for Environmental Responsibility

| PER |                        | LEED-NC v2.2 Rating System™ Criteria   |   | Exceeds LEED-NC requirements |  |
|-----|------------------------|--|---|------------------------------|--|
| E.3 | Indoor Air Quality     | EQp1<br>EQc1<br>EQc2<br>EQc3.1<br>EQc3.2<br>EQc4.1<br>EQc4.2<br>EQc4.3<br>EQc4.4<br>EQc5 | Minimum IAQ Performance<br>Outdoor Air Delivery Monitoring<br>Increased Ventilation<br>Construction IAQ Mgt Plan: During Construction<br>Construction IAQ Mgt Plan: Before Occupancy<br>Low-Emitting Materials: Adhesives & Sealants<br>Low-Emitting Materials: Paints & Coatings<br>Low-Emitting Materials: Carpet Systems<br>Low-Emitting Materials: Wood and Agrifiber<br>Indoor Chemical & Pollutant Source Control | Yes                          | Requires demand control ventilation in all applicable areas. Requires compliance with CSU Executive Order No. 987. |
| E.4 | Infection Control      |  |   | Yes                          | No LEED-NC equivalent.   |
| E.5 | Buildings That Educate |  |   | Yes                          | No LEED-NC equivalent.   |



## PER REFERENCE LIST

AASHE *Master Plans That Include Sustainability*

AGI32 lighting analysis software – [www.agi32.com](http://www.agi32.com)

AIA California Council / McGraw-Hill Construction Integrated Project Delivery – [ipd-ca.net](http://ipd-ca.net)

American Council for an Energy Efficient Economy Green Book - [www.greencars.org](http://www.greencars.org)

Architecture2030 <http://www.architecture2030.com/home.html>

Athena Institute Environmental Impact Calculator – [www.athenasmi.ca/tools/impactEstimator/](http://www.athenasmi.ca/tools/impactEstimator/)

Biodiesel in emergency standby generators – [http://www.transmission.bpa.gov/PlanProj/Non-Wires\\_Round\\_Table/NonWireDocs/BiodieselOlympicPeninsula\\_7\\_04.pdf](http://www.transmission.bpa.gov/PlanProj/Non-Wires_Round_Table/NonWireDocs/BiodieselOlympicPeninsula_7_04.pdf)

CalEPA State Water Resources Control Board Water Quality Storm Water Program – <http://www.swrcb.ca.gov/stormwtr/>

California Assembly Bill 32 (Nuñez) California Global Solutions Warming Act  
[http://www.law.stanford.edu/program/centers/enrlp/pdf/ab\\_32\\_bill\\_20060927\\_chaptered.pdf](http://www.law.stanford.edu/program/centers/enrlp/pdf/ab_32_bill_20060927_chaptered.pdf)

California Climate Action Registry – [www.climateregistry.org](http://www.climateregistry.org)

California Office of Historical Preservation – <http://ohp.parks.ca.gov/>

California Preservation Foundation – <http://www.californiapreservation.org/>

Car Free Cities - [www.carfree.com](http://www.carfree.com)

Center for Habitat Restoration – [www.ccsf.edu/Departments/Biology/Center\\_for\\_Habitat\\_Restoration/](http://www.ccsf.edu/Departments/Biology/Center_for_Habitat_Restoration/)

Center for Livable Communities - <http://www.lgc.org/transportation/index.html>

Center for Universal Design – <http://www.design.ncsu.edu/cud/>

Center for Watershed Protection Site Planning for Urban Stream Protection – <http://www.cwp.org/SPSP/TOC.htm>

Cool Roof Rating Council – [www.coolroofs.org](http://www.coolroofs.org)

CSU Executive Order No. 987

*CSU Sustainable Master Plan Guidelines*

Daylight Dividends program at Rensselaer Polytechnic Institute's Lighting Research Center – [www.lrc.rpi.edu/programs/daylightdividends/](http://www.lrc.rpi.edu/programs/daylightdividends/)

Daylight studies from Heschong Mahone Group – [www.h-m-g.com](http://www.h-m-g.com)

EcoLogo <http://www.environmentalchoice.com/>

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“Engineering Infection Control through Facility Design”, Emerging Infectious Diseases, Gary A. Noskin, Lance R. Peterson, Northwestern Memorial Hospital and Northwestern University Medical School, Chicago IL. Available at [http://www.medscape.com/viewarticle/414421\\_1](http://www.medscape.com/viewarticle/414421_1), free registration required.

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Green Guard <http://www.greenguard.org/>

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Lawrence Berkeley National Laboratories heat Island group – <http://eetd.lbl.gov/HeatIsland/>

LEED for New Construction Version 2.2 [www.usgbc.org](http://www.usgbc.org)

MBDC Cradle-to-Cradle Certification – [www.mbdc.com/certified.html](http://www.mbdc.com/certified.html)

National Institute of Standards and Technology BEES 4.0 – [ww.bfrl.nist.gov/oa/software/bees/](http://www.bfrl.nist.gov/oa/software/bees/)

Progressing the Learning Curve: Designing Healthy Educational Facilities  
[http://www.acoustics.com/ra\\_learningcurve.asp](http://www.acoustics.com/ra_learningcurve.asp)

Scientific Certification Systems Environmentally Preferable Products program –  
<http://www.scs-certified.com/epp/>

Sierra Club California – [www.sierraclub.org/ca/](http://www.sierraclub.org/ca/)

South Coast Air Quality Management District Rule 1146.2 –  
<http://www.aqmd.gov/rules/reg/reg11/r1146-2.pdf>

South Coast AQMD Air Cleaner Regulation  
<http://www.arb.ca.gov/regact/2007/iacd07/appendixb.doc>

South Coast AQMD List of Certified Clean Air Solvent (CAS) Products and Companies  
<http://www.aqmd.gov/rules/cas/prolist.html>

State University Administrative Manual (SUAM)

Surfrider Foundation – [www.surfrider.org](http://www.surfrider.org)

Sustainable Forestry Initiative – [www.sfiprogram.org](http://www.sfiprogram.org)

The Local Government Commission; Ahwahnee Principles – [www.lgc.org/ahwahnee/principles.html](http://www.lgc.org/ahwahnee/principles.html)

The Nature Conservancy – [www.nature.org](http://www.nature.org)

The Whole Building Design Guide – [www.wbdg.org](http://www.wbdg.org)





