

## UCSD OUTDOOR LIGHTING POLICY

### I. SCOPE

The following policy applies to all land under the jurisdiction of UCSD, including the La Jolla campus, the UCSD Medical Center - Hillcrest, The UCSD Medical Center – East Campus, the Mt. Soledad research facilities, UC Natural Reserve System properties under UCSD purview, the Nimitz Marine facilities, and the Elliott Field Station. This policy applies to all exterior lighting whether free-standing or attached to buildings or other structures. The requirements of this policy are supported by the UCSD Outdoor Lighting Design Guidelines that provide general guidance in the practical implementation of the policy. Staff of the Office of Facilities Design and Construction shall provide direction to design consultants as it pertains to the implementation of this Policy and shall provide both the policy and the supporting guidelines to architects and other design consultants at the outset of design contracts.

### II. POLICY

The primary goal of the UCSD Outdoor Lighting Policy is to reduce nighttime light pollution radiating from campus facilities to minimally acceptable levels so that local astronomical research is supported and advanced, while ensuring adequate lighting levels for safety and security. In view of the fact that a certain amount of late night activity occurs regularly on campus, it is impossible to completely eliminate light pollution without compromising the convenience and pleasure of the campus community. Given UCSD's environmental stewardship and sustainability responsibilities, this policy also considers the installation of lighting that is energy efficient, cost-effective and easily maintainable.

Therefore, this policy operationally defines minimally acceptable levels of light pollution and establishes implementing rules and guidelines accordingly. The design and installation of outdoor lighting on UCSD properties should follow the intent of this policy with regard to any issues that may arise not specifically addressed by either the Policy or the Guidelines.

#### A. Astronomical Observations

Astronomical observations of extremely faint objects typically require large telescopes in operation at sites free of air pollution and urban sky glow. UCSD is relatively close to the Palomar Observatory and the Mount Laguna Observatory (both approximately 40 miles from La Jolla). As a leader in the scientific research community, including active institutional participation in fundamental astronomical investigations, UCSD will strive to implement lighting regulations that will meet and where feasible exceed the restrictions contained in the policies of the City of San Diego. UCSD is located outside the 30-mile radius zone established by the City of San Diego that restricts the type and quantity of lighting to minimize lighting impacts to the observatories. Although the majority of campus properties lie outside this zone (the Dawson Los Monos Canyon Reserve, a property of the UC Natural Reserve System, is located within the 30-mile zone and would be required to meet the lighting restrictions for properties within the 30-mile zone), UCSD's promulgation of this policy ensures that lighting emanating from the University will not be a detriment to astronomical research activities and will reflect UCSD's leadership position. Further, this policy recognizes the intrinsic value of seeing the night

sky and stars and its positive effect on students and generating interest in astronomical studies.

#### **B. Environmental and Safety Considerations**

1. Another important goal of the UCSD Outdoor Lighting Policy is to limit nuisance light and glare impacts to adjacent properties. This limitation of luminosity aims to avoid adverse visual impacts to the surrounding community as UCSD properties are developed.
2. This policy ensures nighttime safety and security for staff, faculty, students and visitors and recognizes the importance of "color rendition" in creating a safe nighttime environment.
3. It is important to ensure that campus lighting does not have detrimental impacts to natural and biological resources. In areas that are adjacent to or contain sensitive biological resources or sensitive species lighting shall be limited to minimize the amount of light entering these sensitive areas.

#### **C. Energy Conservation**

This policy promotes energy conservation with efficient and cost-effective lighting; incorporating Leadership in Energy and Environmental Design (LEED) goals and California Code of Regulations - Title 24 standards, as applicable. Because energy conservation is and will increasingly be an important consideration, preference should be given to the most efficient lamp type (highest lumens/watt) that is feasibly and effectively used in a given lighting situation.

### **III. GENERAL ASSUMPTIONS AND PROVISIONS**

- A.** Astronomers filter out monochromatic color fields to avert significant negative effects on their research activities. However, light pollution can be significantly reduced through the use of well designed, shielded, and directed light fixtures. Astronomers begin observations as early as sundown and work until sunrise the following day. To achieve a balance between protection of the observatories in the San Diego region, and the enjoyment of an attractively lit campus environment unnecessary lighting shall be turned off after activities are over or after the lighting has served its purpose. This would include lighting for landscape, lighting for aesthetic purposes, special activities and other events which occur occasionally.
- B.** In addition to the UCSD Outdoor Lighting Design Guidelines, the application of this Policy shall be informed by a Model Lighting Ordinance (MLO), jointly developed by the International Dark Sky Association (IDA) and the Illuminating Engineering Society (IES) that provides general guidance for the installation, operation and maintenance of outdoor lighting. The MLO is consistent with the California Code of Regulations - Title 24 outdoor lighting energy code, the IES' Recommended Practice for Outdoor Environmental Lighting, and other applicable energy codes. Further, the MLO specifies recommended lighting levels and methods of quantifying appropriate lighting levels that shall be considered in the design process.

- C. All outdoor lighting shall be focused and shielded so as to avoid nuisance light and glare impacts to surrounding properties.
- D. To the extent practical, buildings shall be managed in a manner that minimizes unnecessary light spillage from building interiors (e.g. interior lighting should be turned off when not in use.)

#### IV. SPECIFIC LIGHTING USES

- A. Lighting for uses as described in this section is allowable until conclusion of specific events, until midnight, or all night, as specifically provided in IV. B. 1 - 7.
- B. The restrictions contained in this policy are intended to meet or exceed the restrictions contained in the comparable policies of the City of San Diego and San Diego County. Light pollution shall be controlled by defining the purposes and location, the type of shielding and light distribution required, and the quantity of light required to satisfy specified needs. Control of the shielding and light distribution required by specifically permitted lighting uses will limit the percentage of light reaching the night sky directly. Light pollution will be limited by requiring designers to use lumens efficiently, and yet, in accordance with the parameters of this policy, designers will be afforded ample design flexibility. (For purposes of this policy, lumen shall be defined as a unit of output of a light source equal to the light output of one standard candle on a one square foot surface at a distance of one foot.)
  - 1. Activity Lighting – Activity lighting should be provided for at the following specific important gathering places: a) primary building entrances (especially at theaters and performance facilities); b) limited areas within courtyards and plazas where the surface is paved and seating is provided; and, c) outdoor dining areas. For light sources in this category, appropriate shielding is required so that no light is directed above the lighting source. Lighting in this category may be left on only until midnight, or in the case of special events, until the particular event is concluded, whichever is earlier.
  - 2. Recreation and Sporting Event Lighting – Lighting in this category may be left on until the particular recreation or sporting event is concluded. Recreation and sporting event lighting should be downwardly directed with appropriate shielding to ensure that no light is directed above the light source.
  - 3. Orientation Lighting – Illumination of special features may be helpful for orientation. Sculptures that serve as orientation features, building identification signs, and a limited number of special orientation features may be designated within this category. With the exception of the University Center, each UCSD neighborhood and major campus entry, as defined by the UCSD Master Plan study, shall be limited to one special orientation feature; the University Center neighborhood may have several special orientation features or points of identity or a larger central feature designated to achieve the special urban ambiance desired for this area. In addition, special features, such as flags, may be illuminated at major campus entries as defined by the UCSD Master Plan study. Upon recommendation from Facilities Design and Construction and the Physical

Planning Office, the UCSD Campus/Community Planning Committee shall consider orientation designation proposals.

Upwardly directed lighting is a significant source of light pollution and is strongly discouraged; however, when down-lighting for orientation purposes is impossible, 100% interception of any upwardly directed lighting is required. When only up-lighting is warranted, and 100% interception cannot be achieved due to the configuration of the object being illuminated, tightly controlled beam spreads must be selected to maximize the percentage of light intercepted by the object illuminated (e.g. building surfaces, cupolas, eaves, etc. should intercept at least 90% of the upwardly directed lighting, sculptures should intercept at least 75% of the upwardly directed lighting.)

4. Graphic Information Using Low Output Sources – Neon or low output point sources may be used for signage used to communicate directional information and identity. Lighting defined in this category may radiate all night if necessary. These applications shall be subject to the approval Physical Planning Office and Facilities Design and Construction. Shielding above the light source is required unless the lighting is specifically required to be seen from above (e.g. helipads.)
5. Task Lighting – Higher levels of task lighting may be provided in localized areas. Task areas and activities include outdoor research equipment assembly areas, marine facilities loading and equipment areas, reading or writing at benches and tables, standing reading areas such as bus shelters and bus stops, telephone booths, vending machines, and Automated Teller Machines. In addition, short-term (not to exceed two weeks) lighting for marine experiments is permitted under this category. For task lighting, 100% shielding above light sources is required, and horizontal spillage from the task surface should be restricted to the absolute minimum. Lighting defined in this section may radiate all night if necessary.
6. Emergency Lighting – Emergency lighting, such as may be required by the applicable building and fire codes may require special consideration. Lighting in this category may include building exit and egress route lighting. Lighting in this category may be left on all night if necessary.
7. Roads, Entries, Parking Lots, and Pathway Lighting – Will require full cutoff fixtures to avoid light spillover and upward light trespass. Lighting in this category may be left on all night if necessary.

## **V. TIMING**

This policy encourages new and remodel projects to incorporate electronic control systems (“smart buildings”) or sensor activated lighting that will automatically shut off unnecessary outdoor lighting on and around the building in conformance with Section IV of this policy.

## **VI. RETROFITTING/REPLACEMENT**

Maintenance and operation of outdoor lighting installations on all properties governed by this policy shall be in accordance with the specific provisions and the intent of the policy.

## **VII. SPECIAL PERMISSIONS AND EXCEPTIONS**

All uses allowable under Section IV shall be reviewed by the Office of Facilities Design and Construction and the Physical Planning Office for conformance with this policy. Appeals requesting exceptions to this policy must be reviewed and approved by the Campus/Community Planning Committee and if appropriate, the Marine Sciences Physical Planning Committee, for the Scripps Institution of Oceanography, and by the Director, UCSD Medical Center, for the UCSD Medical Center at Hillcrest and East Campus.

## **VIII. SPECIFICALLY PROHIBITED USES**

- A. No outdoor recreational facility shall be illuminated after 10:00 p.m. except to conclude a specific recreational event.
- B. Illumination of any building or surrounding landscaping for aesthetic or decorative purposes shall be prohibited after 10:00 p.m.

## **IX. REFERENCES**

- A. [UCSD Outdoor Lighting Design Guidelines](#)
- B. [California Code of Regulations – Title 24 Energy Efficiency Standards](#)
- C. [U.S. Green Building Council - Leadership in Energy and Environmental Design \(LEED\) Rating System](#)
- D. [International Dark-Sky Association](#)
- E. [Illumination Engineering Society](#)
- F. [UCSD Master Plan Study](#)