

LIGHTING ORDINANCE TASK FORCE MEETING – APRIL 2, 2014 – 4:00 PM

Task Force Members in Attendance:

Carol Lynn Alpert
Chris Basler
Andrea Boyer
David Chilinski
Gavin Kleespies
Steve Lenkauskas
Ranjit Singanayagam
Charles Teague
Bob Woodbury

City Staff in Attendance:

Rona Abrahams
Leonard DiPietro
Jeff Roberts

Members of Public in Attendance:

John Hawkinson
Glenn Heinmiller
Gary Mello
Kenneth Taylor
Marilyn Wellons

Consultants:

Jeffrey Berg

Fourth meeting of Lighting Ordinance Task Force was held in the Fourth Floor Conference Room of the City Hall Annex at 344 Broadway, Cambridge, Massachusetts.

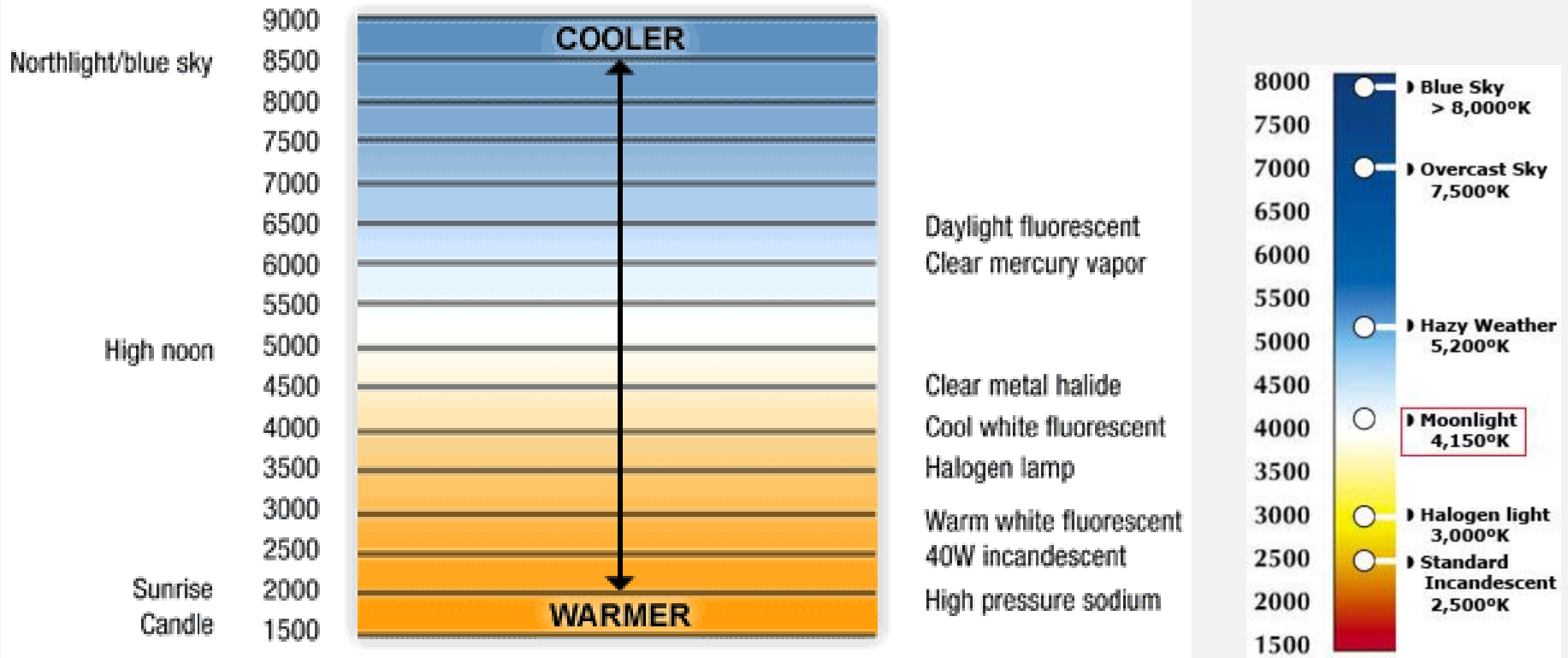
The fifth meeting of the Lighting Ordinance Task Force will be held on Wednesday, May 21, 2014 from 4:00-6:00 PM at 344 Broadway.

MEETING NOTES:

Jeff Berg continued the presentation on proposals for a lighting ordinance based on the feedback from the Walking Tour with Task Force members in January and Task Force meeting in February. The following presentation slides are followed by the key concepts proposed by the lighting consultant and then comments by Task Force Members, City staff, and Public Comment.

- Presentation on Summary of Proposed Ordinance Lighting Restrictions
- Task Force Members (TFMs) commented and discussed each point of the presentation.
- City staff provided additional comments after Task Force Members.
- Public Comment was held at the end of the meeting.

Color Temperature Chart



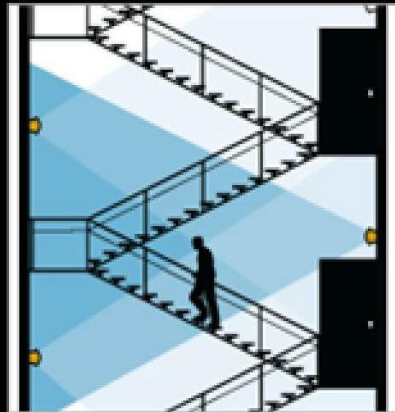
Color temperatures of common light sources





INTEGRATED OCCUPANCY SENSOR

Integral control options include dual technology micro-sensors to enhance your energy savings capabilities.



OCCUPANCY SENSING AND SEQUENTIAL CONTROLS

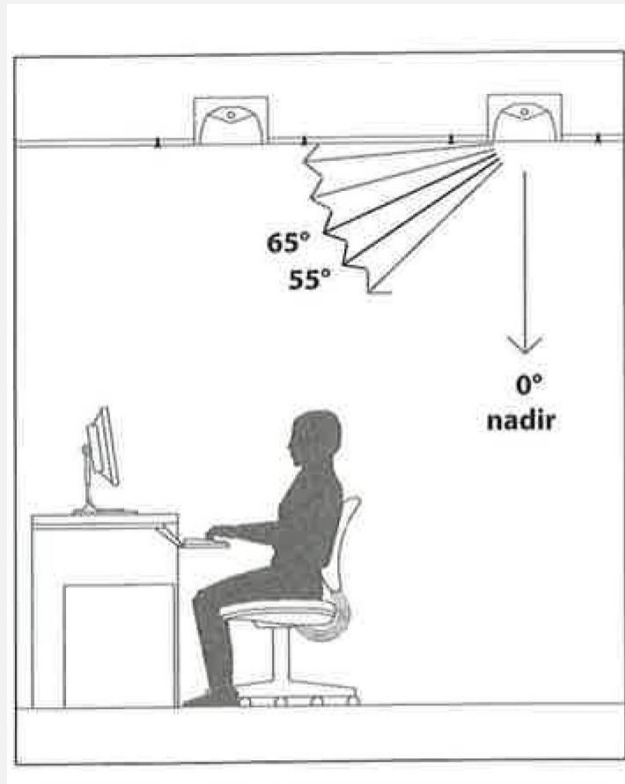
Integral control options include dual technology micro-sensor and short range sequential stairwell option. The sequential control option keeps occupants safe and comfortable while saving energy and money when not in use. The sensor is designed with “fail-to-on” feature preventing any disruption in operation.

See the [DEMO](#) (Smart building)

Life Safety Code permits reducing illumination in stairs to 1 fc (10.8 lux) minimum by occupancy sensor.



“Buildings larger than 5,000 SF shall be equipped with an automatic control device to shut off lighting in those areas.” – state building code (IECC 2009)



“For all regularly occupied spaces, use light fixtures with a luminance of less than 2,500 cd/m² between 45 and 90 degrees from nadir.” – LEED v4, EQ Credit: Interior Lighting



Movable shading with electronic controls -
“Provide...glare control devices for all regularly occupied spaces”
LEED v4, EQ Credit: Daylight

City to review Dark Sky Ordinance after residents claim it's unreasonable

February 11, 2014

By MCKENZIE CASSIDY (mcassidy@breezenewspapers.com) , Island Reporter, Captiva Current, Sanibel-Captiva Islander

[Save](#) | [Comments \(1\)](#) | [Post a comment](#) | 

The Sanibel City Manager's office was recently directed to compile information about the Dark Sky Ordinance so council could address concerns raised by residents that it wasn't reasonable.

By Jan. 1, 2015 properties are expected to comply with the ordinance, which passed in 2000 to protect the island's natural beauty and habitat for nocturnal and crepuscular species - such as sea turtles in nesting season - by minimizing the amount of light pollution.

Jeff Molnar, owner and operator of Molnar Electric on the island, said the Dark Sky Ordinance had undergone 17 revisions over the course of a year-and-a-half before it was passed, and that included regular consultation with the International Dark Skies Association.

He said there aren't a lot of reasonably priced, compliant light fixtures on the market today. When the ordinance passed in 2000 the presiding council believed 15 years was enough time for the upgrades to be made and for new technology to be developed, but it didn't work out that way.

"At the time they thought the industry was going to catch up, but it really hasn't," said Molnar.

Local resident Gloria Hannan said property owners have had enough time to make the changes, but she agreed that more work needed to be done to find reasonably-priced fixtures.

Other residents addressed city council on Feb. 4 to discuss the costs associated with updating light fixtures and local safety concerns at night.

Sunset clause for existing fixtures?

Color Temperature Chart Slide :

Jeff Berg provided a color temperature chart that showed the scale of common light sources and provided light fixtures to demonstrate color temperatures of 3,000°K and 4,000°K. Jeff recommended that the maximum limit of a lamp's color temperature should be 4,250°K.

Most of the Task Force Members were concerned that 4,250°K was too high. The discussion focused on a preference of 3,500°K with 2 members agreeing that number should be the upper limit with another member wanting it to be lowered to 2,500°K. Three members submitted that 4,000°K would be acceptable as the higher limit if an information campaign would emphasize that 3,500°K or less is preferred in most circumstances. Two members indicated that there wasn't enough information on how it correlates to existing consumer products and that it needs to be easy for homeowners to follow. However, changes in technology mean that the upper limit should be no more than 4,000°K.

Concerns about the homeowner's ability to easily meet the color temperature limits were raised. TFMs that visited hardware stores noticed that cheaper bulbs didn't have packaging with labels that indicated color temperatures. Also, individual bulbs may not be labeled with proper information so it will be difficult to determine color temperature once out of the packaging. An emphasis on educational materials will be important to help the consumer make an informed decision when purchasing lamps for light fixtures.

Task Force Members raised concerns about the City's capacity to monitor and enforce color temperature. It seems that property owners and residents will only receive information about proper levels when complaints are made about excessive lighting. Examples were given about complaints over existing excessive light levels that required intervention by ISD before changes were made.

How will inspectors answer complaints and monitor light levels? Will inspectors need to access a defendant's property in order to measure color temperature or lumen levels? If yes, this complicates the complaint process and raises liability issues. Jeff Berg informed the committee that there is equipment that can measure color temperature levels but it is expensive.

While limits on color temperature levels are important, the TFMs felt that light trespass is a bigger concern. It will be easier to measure light levels at the property line of a complainant than to access the defendant's property to measure the color temperature at the light source.

Light Trespass from Building Interior Fixtures (Slides 7-11):

Jeff Berg continued the presentation with slides on light trespass from building interiors. The example slide is of a four story residential building with an interior stairwell and window wall allowing light to spill out. He further explained that the state building code requires new construction larger than 5,000 SF must have occupancy sensors to shut off lighting in areas not occupied. Furthermore, these types of occupancy sensors can be included in stairwells.

The Task Force Members discussed how light glare may be controlled by the angle of the fixtures and interior shades. Concerns for safety and difficulty with changing occupant habits were expressed. Automatic shades were offered as a solution but would be difficult to implement.

Light trespass from interior sources is difficult to measure at the property line. City staff indicated that design guidelines and conversation with developers and the Planning Board may be more effective in curbing light trespass from interior sources than a regulation that is difficult to accurately monitor. Some Task Force Members stated that shades will be a more practical solution and the protection should extend to commercial areas, not just residential areas. Other Task Force Members indicated that lowering the light levels across the board for commercial interiors would be an option.

TFMs again commented that an educational campaign will be needed to provide information as tenants and uses change in existing buildings. Some members were concerned about the impact of an ordinance on employees working late in buildings or intermittent activities by third parties, like cleaning services, which take place outside of normal business hours. Other TFMs raised the concern that it is those same activities outside of the commercial use that can be difficult to enforce. An example of building cleaners forgetting to turn the lights off as they exit the building and building owner or property manager is unaware of the circumstances or won't be troubled to address the immediate concern.

The discussion continued around enforcement and the complaint process. Currently complaints are filed with Inspectional Services Department and reviewed on a case-by-case basis. The Lighting Consultant and City staff reiterated that monitoring light levels could be done at the property line following the Model Lighting Ordinance with an 8 vertical lux limit.
Lighting

Sunset Clause (Slide 12):

The Lighting Consultant presented an article about a lighting ordinance in Florida that provided 15 years for property owners to become comply with the lighting restrictions. The article relayed that as the community approached the deadline property owners expressed concerns that the technology didn't evolve as quickly as had been hoped and that compliant light fixtures were still expensive.

The Task Force Members were in general agreement that a sunset clause and grandfathering clause weren't necessary. If an existing fixture is not compliant, then it needs to be replaced with compliant fixtures as complaints are filed. Existing fixtures don't get to be "grandfathered" into compliance but don't need to be replaced until the end of the product life or a complaint is filed and a process to enforcement is followed.

PUBLIC COMMENT

1) First person, resident, to comment.

- Wanted to remind the Task Force that light pollution is a public health hazard and to keep that in mind when looking at enforcement.
- Encouraged that the Task Force is considering shades as a remedy to fight light pollution spilling from interior lights to the adjacent properties.
- She is concerned about the Courthouse development proposals and the commercial/dry lab/office space it will bring. Occupancy sensors can't address the issue if the space if the commercial use is operating 24 hours.
- More lab space is getting developed and becoming available and the City needs to take appropriate steps to limit the impact, which can include interfering with children's sleep cycles and learning abilities if living near these 24 hour operations.
- The City should require lab buildings to have blackout shades and impose fines. However, a \$300/day fine will not work if the City isn't willing to follow-up and take violators to court.

2) Second person, resident, to comment.

- Glad to hear that this subject is getting addressed.
- Reminded Task Force that individual prodding can work better than rules that the public is expected to follow. Let your neighbors know you can see through their windows at night.

3) Third person, resident and lighting professional, to comment.

- Interior lighting is difficult to implement, expensive, difficult to enforce and may have unintended consequences. A practical solution needs to be considered