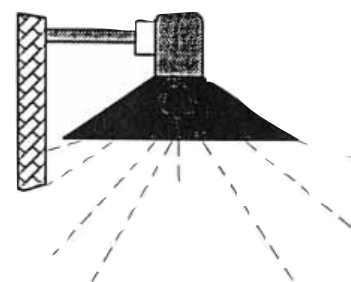
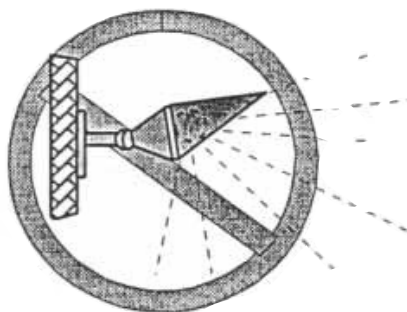
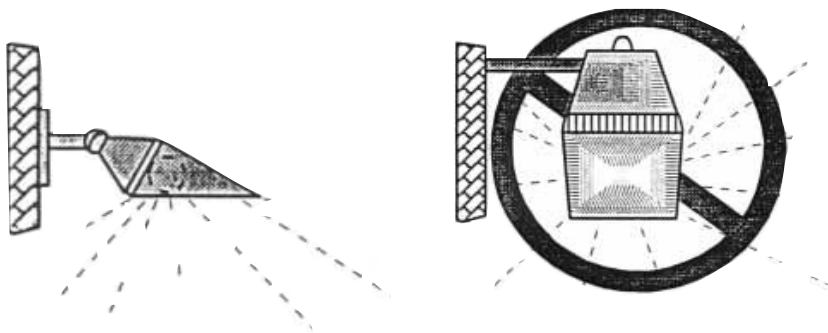


IDA Practical Guide



Fixture illustrations by Peter Talmage

Topic: *Residential Lighting* *(Good Neighbor Guide)*

MANY OF US HAVE EXPERIENCED THIS SCENARIO: Your neighbors have installed a new light on their property. It is an unshielded fixture that casts a bright light with no control and lots of glare. The light trespass from this fixture produces light pollution and energy waste. Their new fixture is lighting up your yard or shining into your home, maybe even illuminating your bedroom and disrupting your sleep. Your neighbors cite safety as the reason for installing this light. The illumination gives them a newfound “feeling of security.”

What your neighbor may not know is that unshielded fixtures that create glare and splatter light everywhere may make a property less safe by not focusing the light where it is needed. Likewise, your neighbor also may not be aware of how you are affected by the light trespass coming off the property.

How do you talk to your neighbor about this situation? The International Dark-Sky Association suggests the following steps to educate your neighbor, and by extension your community, about the value of dark sky friendly lighting.



George Fleenor

The glare from an unshielded light creates deep shadows.



George Fleenor

The glare from the light hid a possible attacker.

Don't hesitate to ask your neighbors for their advice or opinion in solving the problem. Goodwill goes a long way.



IDA

Fixture shields can be made from household objects. This shield is made from a rain gutter.



IDA

Fully shielded lighting casts light on your porch, not your neighbor's yard.

Practical Actions:

- 1. Make friends, not enemies.** Your neighbors probably don't realize the light is bothersome.

 - Always approach people in a friendly, non-threatening way.
 - Don't argue. Be tactful and understanding about their right to light their property.
 - Don't dismiss their need to feel safe.
 - Suggest alternatives to their current fixture. Ask them to move the light, shield it or add a motion sensor.
- 2. Be informative.** Talking to your neighbor is an exciting chance to be an advocate for good lighting and share knowledge on an important issue.

 - There are many reasons to use dark sky friendly lighting. IDA sound bites can help to convey the benefits:
 - » Dark sky friendly lighting does not mean dark ground.
 - » Safety is important, but brighter does not mean safer.
 - » A starry sky is a natural resource.
 - The topics of safety, energy savings, cost, wildlife are addressed briefly in this document. Additional articles and brochures from the IDA Web site are downloadable and free for use.
 - » Print off free materials from the IDA Education tab and present this information to your neighbor.
- 3. Do your homework and be prepared to address the real issues.**

 - It is useful to know the local costs of electricity (cents per KWH), and the local lighting control ordinances. This information is available on most city Web sites, from your regional utility company, and on your utility bill.
 - You may also want to compile a list of local businesses with good quality lighting as an example of effective security measures that are dark sky friendly.
 - A list of shielded light fixtures to provide as alternatives to your neighbor's current light is also recommended. A comprehensive list of dark sky friendly fixtures and devices is available on the IDA Web site in the Fixture Seal of Approval section.
 - If there are any further questions, call us +1 520 293 3198, or e-mail us at ida@darksky.org. IDA will answer!
- 4. Stay positive.** Don't let bad lighting create a feud in your residential area.

 - Remember that home is a place where everyone wants to feel relaxed and safe.
 - Accept your neighbors' need to feel secure and politely ask them to accept your need to enjoy the nighttime environment in your own yard.
 - Explain that light trespass is a form of light pollution, but never threaten to sue. The idea of a lawsuit can create bad feelings among the whole neighborhood.
 - Remember that everyone wants the same thing: a chance to relax in their own environment. Work together to create an atmosphere that benefits the community.

What you and your neighbors should know about dark sky friendly lighting

Safety

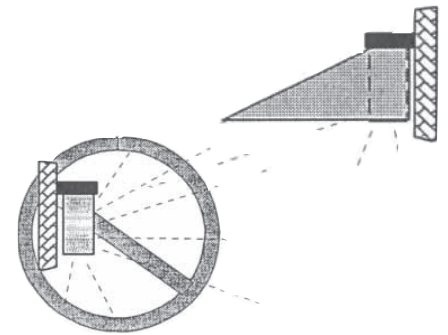
Studies have indicated that there is no conclusive correlation between night lighting and crime*. Most property crime is still committed during the day, or inside lit buildings. Outside illumination can draw attention to the building or facility and help a criminal see what they are doing. Lights triggered by motion sensors are much more effective in indicating the presence of an intruder.

IDA believes that outdoor lighting should provide real security, not just the feeling of safety. Effective security lighting starts with determining and illuminating target areas such as entry points. Using shielded fixtures is beneficial in two ways. First, glare is decreased or eliminated. Uncomfortable or temporarily blinding, a glaring light can distract the eye and cast harsh shadows that create easy concealment opportunities for a trespasser. Second, shielded fixtures help you control both the placement and the amount of light. Entrances, windows, and gates can be the focal points of a lighting scheme that does not over illuminate, but allows adequate and uniform visibility that dissipates shadows.



Malcolm Smith

This fully shielded lighting with motion sensors safely lights the walkway with a pleasant ambiance.



“Crime is not reduced by sending light upward into the sky or by sending glare into your eyes.”

—Maggie Tracey,
IDA Nevada Section Leader

People can see more in soft lighting than they can in spotlights because they can see beyond the point of illumination. Our eyes can take up to 20 minutes to adjust to the dark—longer for aging eyes. Fully shielded lighting provides enough illumination to see your surroundings while reducing excess light harmful to your night vision.

Safety lighting for your home includes being able to see where you are walking. However, you do not need a floodlight or a single harsh lamp to create enough light. Shielded foot lamps along paths provide an alternative to harsh illumination. A smart lighting plan directs the light where you need it, so you don't have to choose between security and the preservation of the night sky.

Lights do not need to be bright to be effective. Effective lighting produces uniform coverage of the area, while glaring points of light can attract criminals by creating shadows in which to hide.



GlareBuster

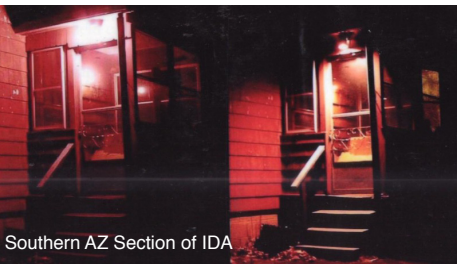
Shielding reduces glare and points the light where it will do the most good.

* Sherman, Lawrence W., et al. “Preventing Crime: What Works, What Doesn't, What's Promising” A Report to the United States Congress Chapter 7. 1997—<http://www.ncjrs.gov/works/chapter7.htm>

Energy and cost savings



A floodlight run amok!



Southern AZ Section of IDA
By shielding the light (right side), the bulb was reduced from 60 watts to 40 watts, a 33% savings.

Dark sky friendly lighting fixtures can be less expensive to operate than traditional outdoor lights. Shielding the fixture so no light escapes above a 90 degree angle concentrates the light exactly where it is needed. In their Consumers Guide to Home Energy Savings, the American Council for an Energy-Efficient Economy (ACEEE)[†] endorses IDA approved outdoor fixtures that can “save energy as well as light pollution that can keep your property safe without disturbing dark hours.”

The downward concentration of light created by fully shielded fixtures typically requires a lesser wattage lamp than traditional lighting because every bit of illumination is directed where it can make a difference. A lesser wattage lamp can now be used effectively because you aren't lighting the sky or your porch roof as well as your steps. Cost savings on your utility bill will pay for the fixture within the year. Switching from a 75-watt incandescent bulb (cost: \$0.75) to a 20-watt compact fluorescent (CFL) bulb (cost: \$4.00) can save money the first year if it is used only two hours every day. Switching to a CFL that is on for up to 12 hours a day can save over \$200.00 over five years[‡]. Why pay for light that is not being used? Approximately 30% of the energy produced by every unshielded bulb is used to illuminate the sky. This wasted energy costs \$2.2 billion annually in the United States alone.

Additional energy savers include putting timers, dimmers, and motion sensors on outdoor lighting. These features allow you to use the light when you need it without constant use “just in case” you need it.

Use of compact fluorescent lighting in homes

- CFL bulbs contain mercury, but did you know that they contain only 4 milligrams? Compare that amount to the 500 milligrams in a traditional thermometer[‡].
- The largest source of mercury in the air comes from coal burned to produce electricity. Because CFLs use less electricity than traditional bulbs, their use contributes to a reduction in net mercury emissions.
- Recycling your CFLs is easy. Many cities accept these in their recycling program, otherwise you can find a mail-in recycling program through the EPA at: <http://www.epa.gov/epawaste/hazard/wastetypes/universall/lamps/index.htm>
- Many CFLs do not work well in cold weather, taking time to “warm up.” Make sure to purchase a CFL with a cold-weather ballast if you are in an area that is consistently cold.
- Use a CFL with a built in reflector for outdoor fixtures. CFLs distribute their light differently than incandescents, so using a bulb with a built in reflector allows you to maximize lamp output.
- Try to purchase lamps with a color temperature of 2700 to 3000K[§]. The ENERGY STAR program is proposing that all new qualified lamps include this number on the packaging. If the correlated color temperature (CCT) is not listed, look for one advertised as being Warm White or Soft White. This range of CCT is also the most nighttime friendly for wildlife and stars.

A bright idea for dimmer lights

The Lighting Research Center is currently experimenting with the cost savings of dimmer switches and daylight sensors on LED streetlights. Automatic dimmers are becoming increasingly popular in residences too, because they are affordable, reliable, and relatively easy to program. Motion sensors offer another way to ensure lights go on when they are needed and turn off when they are not.

[†] Values according to the American Council for an Energy-Efficient Economy (ACEEE):

<http://www.aceee.org/consumerguide/lighting.htm>

[‡] http://www.energystar.gov/ial/partners/promotions/change_light/downloads/Fact_Sheet_Mercury.pdf

[§] http://www.energystar.gov/index.cfm?c=cfls.pr_cfls_color

Fixture Seal of Approval

IDA's certification program, called the Fixture Seal of Approval, was created in 2005 to promote environmentally responsible outdoor lighting. The Fixture Seal of Approval provides objective, third-party certification for luminaires that minimize glare, reduce light trespass, and don't pollute the night sky. IDA evaluates the photometric data of any luminaire submitted by its manufacturer. Fixtures that do not emit any light above a 90 degree angle earn the FSA certification.

Previously open exclusively to industrial lighting fixtures, certification has recently been extended to residential lighting fixtures for outdoor use. The criteria of not emitting light above a 90 degree angle remains stringent, ensuring dark sky compliance. The FSA page on the IDA Web site (under the Policy/Programs tab) provides a list of approved fixtures and manufacturers, as well as vendors who distribute dark sky friendly fixtures.



Wildlife

From bird feeders to firefly chases, many people like to experience wildlife in their backyard. But bright light throughout the night can have calamitous effects on animals, insects, and plants. As humans expand into more rural areas, our light pollution produces a continual state of “twilight” in the habitats around us. This twilight affects the mating habits, feeding patterns, and navigational skills of mammals, birds, amphibians, reptiles, and insects. Even certain trees are induced to shed their leaves out of cycle, disrupting the basis of the food chain. Scientists and researchers are only now beginning to understand the long term impacts of artificial light at night on ecosystems. Smart lighting choices can help restore the environmental balance in your neighborhood.



Insects are attracted to the white light of floodlights.

Upon discovering the magnitude of fatal bird collisions, some cities are initiating mitigation procedures. The Lights Out Toronto campaign, established in 2006 in Toronto, Canada calls for residents to turn out any unnecessary lights for the protection of migratory birds. In addition, the city has issued bird friendly development guidelines for all new buildings, which include the control of unnecessary artificial light. In September 2008, Boston, MA, USA began a two-month initiative to conserve electricity by shutting off lights at 34 city skyscrapers. A stated purpose of this project was the protection of migrating birds. Chicago, IL and New York, NY USA also participate in a “Lights Out” during migration season.

As awareness of the danger of artificial light to sea turtles grows, an increasing number of communities are restricting coastal illumination. Countries all over the world have passed ordinances that control the amount and type of light used in coastal environments. As the list grows, hatchling sea turtles are starting to be able to find the sea without the help of human volunteers to guide them. Learn more about local and regional action by visiting www.seaturtle.org.



Sample letter to neighbor:

Putting your thoughts in writing is good way to avoid a miscommunication. IDA has prepared a sample letter of issues you may want to convey to a neighbor if a lighting nuisance ever arises.

Dear **(insert name)**,

Allow me to introduce myself, I am your neighbor **(insert name)** and I would love to talk to you about good outdoor lighting. I have noticed that you have installed outdoor lights on your property, and I applaud your desire to help improve our neighborhood.

At this time your lights are a bit too bright and they are shining in **(pick areas as they apply: our bedroom window, the backyard, into our house etc.)**, and interfering with our **(sleep, hobbies, view of the sky, etc)**. I'm sure you weren't aware of this and I wanted to bring it to your attention as soon as possible to avoid any misunderstanding. Let me be clear, I am not asking you to remove the lights, but perhaps they can be re-directed onto the ground where they will do the most good.

In addition, we could work together to shield the lights so that they are even more effective. Shielding a lamp usually requires a lesser wattage bulb, which is a big money saver within just a year's time. Shielding reduces glare which can be blinding and produces fewer harsh shadows where the "bad guys" can hide. Dark sky friendly lighting provides real security, not just an illusion.

There are other ways to save money and still be safe. When lights have motion sensors, they provide an alert if someone is in your yard after dark and they save you money by keeping the lights off when they aren't needed. Timers are another money saver because they can turn off your lights when you will not be using the yard; for instance, when you retire for the night.

Thank you so much for your time and understanding. I would love to talk with you about the advantages to using dark sky friendly lighting and how it benefits your safety, your budget, and the night sky.

Sincerely,
Your Neighbor

A Word document of this letter is available by contacting IDA.

Referenced Material:

American Council for an Energy-Efficient Economy—www.aceee.org

Consumers Guide to Home Energy Savings— <http://www.aceee.org/consumerguide/lighting.htm>

ENERGY STAR®—http://www.energystar.gov/ial/partners/promotions/change_light/downloads/Fact_Sheet_Mercury.pdf

The Facts About Mercury in CFLs, Press Release, October 1, 2007, Released by Focus on Energy and Energy Star—
http://www.focusonenergy.com/data/common/dmsFiles/K_MK_MKPR_PR_2048118480.pdf

Sherman, Lawrence W., Denise Gottfredson, Doris MacKenzie, John Eck, Peter Reuter, and Shawn Bushway. “Preventing Crime: What Works, What Doesn’t, What’s Promising” A Report to the United States Congress. Prepared for the National Institute of Justice. 1997. <http://www.ncjrs.gov/works/>

U.S. Environmental Protection Agency—<http://www.epa.gov/epawaste/hazard/wastetypes/universallamps/index.htm>

Related Practical Guides and Web Links:

Crime Prevention Through Environmental Design—www.cpted.net

FLAP—Fatal Light Awareness Program—www.flap.org

ENERGY STAR®—http://www.energystar.gov/index.cfm?c=cfls.pr_cfls_color

“PG1: What is Light Pollution”—www.darksky.org

“PG2: Effects of Artificial Light at Night on Wildlife”—www.darksky.org

For information on IDA membership and donations, visit our Web site at www.darksky.org.