

Chapter 12: Light Trespass

Outdoor lighting is most often an issue when new development causes glare into homes, especially bedrooms, or when rural development reduces the darkness of the sky. Both impacts are known as light trespass or light pollution. Both are also easily avoided and are correctable.

Following are a couple of calls typical of those received by CEDS about light trespass.

I've owned my home for ten years. A new shopping center was just completed nearby. My bedroom is on the side of the house facing the shopping center. To sleep I need to cover my bedroom windows with heavy drapes, yet the light still gets in. During the warmer months I sleep with my windows open; something I really enjoyed. Now I can't do that. I guess I'll need to run the air-conditioning all summer long and board my windows so the light can't get in.

A new housing project was just completed next to my rural home. All my new neighbors seem to have an endless budget for flood lights. And all the floodlights seem to be pointed at my bedroom window. Also, I use to love sitting outside on clear nights to watch the sky. Now there's so much glare that I have to focus on a much smaller portion of the sky to see any stars at all.

The level of illumination causing these complaints and other forms of light trespass may not be measurable on most luminance (light) meters, yet you can read by it and it'll keep you awake, despite drawing curtains or even heavy drapes over windows. But light trespass, including the two examples given above, can be prevented by using lighting fixtures that are properly shielded and adjusted. In fact, a number of local governments around the country have adopted laws requiring that shielding and light adjustment meet specific standards for minimizing light trespass.

Both examples cited above - the shopping center and new residents - were likely using unshielded, poorly aimed lighting fixtures. Everyone would be better off if well shielded and properly aimed lighting was used. The shopping center could be well lit using less energy. The new residents could illuminate sidewalks and driveways yet enjoy one of the principle benefits of a rural lifestyle - great views of the night sky. And existing residents could continue to enjoy their homes.

Shielding consists of lighting fixture designs which direct light to where it is needed while minimizing the amount of light trespassing into areas where it becomes a nuisance. The old globe style street lamps were poorly shielded. Some of the light illuminated the street and sidewalk, but much of it went into the sky and nearby houses. Newer hooded lights are far more efficient and greatly minimize light trespass.

According to the International Dark-Sky Association (IDA) shielding may consist of reflectors, refractors, louvers, or baffles. These shielding measures make it possible to direct light where it is needed. IDA recommends full cutoff fixtures, which is defined as:

there is no light emitted above the horizontal (no up going light). There should also be not much light (generally < 4%) at angles greater than 75 degrees above the vertical. Such light causes a lot of glare.

For floodlights, IDA recommends that:

If floodlights must be used, they should always have top and side shielding, and be pointed at least 45 ° below the horizontal.

Light trespass can also be minimized through the use of timers and motion sensors to keep lights on only as long as they are actually needed.

The IDA website has a page where you can see numerous examples of well shielded lighting fixtures. This webpage appears at: <http://www.darksky.org/fixtures/fixtures.html> Also, a model ordinance for minimizing light trespass can be found on the following IDA webpage: <http://www.darksky.org/ordsregs/odl-reg.html>

Additional information on light trespass can be found on both the IDA website and the Illuminating Engineering Society of North America (IESNA) website: www.iesna.org. IESNA is the recognized technical authority on lighting.