

# Dark Sky Friendly Lighting

Bringing the Nighttime Sky Back in View



Lighting that is dark sky friendly helps to reduce light pollution, or excessive nighttime lighting, for improved sky views without sacrificing personal safety.

## What is Dark Sky Friendly Lighting?

It is lighting specifically designed to enable residents to enjoy nighttime views of the sky unobstructed by excessive municipal and business lighting. Recent decades have seen the increased use of bright lights on buildings and in parking lots, business parks and other areas. These environments are often flooded with omni-directional lighting that can be seen from blocks or miles away—even from space. They effectively block views of the night sky for entire communities. Dark sky friendly lighting is designed to reverse this trend by providing more focused, site-specific illumination that permits clearer views of the moon, stars and constellations.

With dark sky friendly lighting, light pollution is minimized. Light pollution is wasted light that performs no function or task, such as sky glow or glare. It is artificial light that goes where it is not supposed to go, like into a neighbor's window or into the sky.

## How Does It Work?

Dark sky friendly lighting provides nighttime illumination where and when it is most needed, without disrupting views of the night sky. This can be done by using advanced lighting technology and engineering or by simply turning off your lights when they are not needed.

## Why Does It Matter

Large-scale light pollution is more than just a visual nuisance. Research shows that extreme outdoor light disturbs nighttime sleeping patterns and contributes to increased anxiety, obesity and depression. The human body is designed to function on daily cycles of darkness and light, and it works best when we respect this natural rhythm.

High levels of nighttime lighting also make it difficult for nocturnal wildlife, including birds, insects and mammals, to navigate and forage after dark. Birds' seasonal migrating patterns are also disrupted.

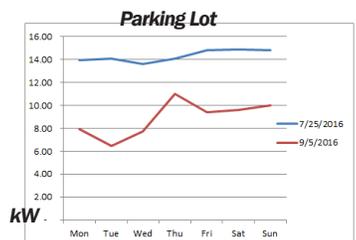
Excessive lighting is unnecessarily costly and wasteful, when more targeted illumination is more efficient.



Holland Energy Park won the Envision® Platinum award from the Institute for Sustainable Infrastructure with the help of dark sky friendly lighting.



Holland residents are able to better enjoy the nighttime view of Lake Macatawa with lower nighttime light levels. All lights are equipped with motion sensors to light the path and keep pedestrians safe.



By adding dark sky friendly lighting controls (wi-fi relays and motion sensors on each light pole integrated to a central lighting computer), Davenport University, Holland campus, was able to reduce its parking lot energy consumption by 40%.



## What About Personal Safety and Business Security?

Dark sky friendly lighting can be achieved without increasing risks to personal safety and security. By using technology including motion sensors, LED bulbs and directionally-focused lights, it's possible to maintain or even improve lighting in areas where it's essential for nighttime safety and security.

According to a Yale University study, "One needs only the right amount of light, in the right place, at the right time. More light often means wasted light and energy."

## What are the Benefits of Dark Sky Friendly Lighting?

### Environmental

- A reduction in Holland's carbon footprint
- More efficient use of our energy resources
- Less impact on wildlife

### Economic

- Consumers can see lower utility bills
- Holland can reduce its power production needs
- Savings can be reinvested in more effective ways

- 1 Light pollution is costly in both economic and environmental terms.
- 2 We can enjoy the nighttime sky without compromising our sense of safety.
- 3 Holland can reduce its energy costs and carbon footprint in line with its vision for a more energy-efficient future.

## Steps to Reduce Your Nighttime Light Pollution

Learn and adopt the five lighting principles for responsible outdoor lighting. For a list of approved products and more information about dark sky friendly lighting, visit [darksky.org](http://darksky.org).



## Five Lighting Principles for Responsible Outdoor Lighting



DarkSky



Illuminating

Responsible outdoor lighting is

### 1 Useful

#### Use light only if it is needed

All light should have a clear purpose. Consider how the use of light will impact the area, including wildlife and their habitats.



### 2 Targeted

#### Direct light so it falls only where it is needed

Use shielding and careful aiming to target the direction of the light beam so that it points downward and does not spill beyond where it is needed.



### 3 Low Level

#### Light should be no brighter than necessary

Use the lowest light level required. Be mindful of surface conditions, as some surfaces may reflect more light into the night sky than intended.



### 4 Controlled

#### Use light only when it is needed

Use controls such as timers or motion detectors to ensure that light is available when it is needed, dimmed when possible, and turned off when not needed.



### 5 Warm-colored

#### Use warmer color lights where possible

Limit the amount of shorter wavelength (blue-violet) light to the least amount needed.



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