

UNDERSTANDING THE DISTRICT OUTDOOR LIGHTING RULES

Encouraging a lighting practice that will avoid upward lighting, and reduce excess brightness without compromising safety at night

WHAT IS LIGHT POLLUTION?

Upward escape of light into the sky.

Lighting that is too bright & directed to unnecessary areas.

Problems arising:

- Sky glow
- Blinding glare
- Light trespass
- Loss of stars

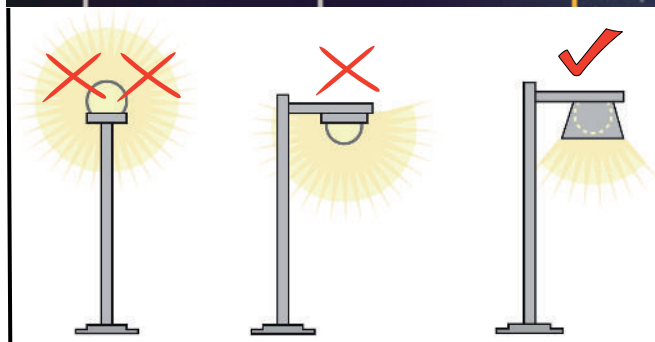
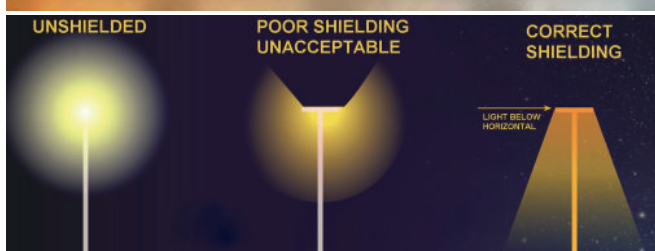
FACTS

- ★ We need lighting but let's think carefully about the direction, brightness & colour.
- ★ New building & upgrade projects requiring consent need to apply.
- ★ When replacing bulbs & outdoor lights you are encouraged to adopt the approved lighting described below.

The pristine night skies of Kaikōura are a valuable and rare resource.

Through education and conservation efforts, we can strive to protect them for future generations to enjoy.

KELVIN RATINGS FOR LIGHTING



A SIMPLIFIED EXPLANATION OF THE OUTDOOR LIGHTING PROVISIONS

#1. Use motion sensors

Adding a sensor to your outside light is the easiest way to cut light pollution & energy costs as well as to keep safe. By using motion sensors that turn a light off within 5 minutes, you are already using approved lighting and you don't have to do #2 or #3 below though we would prefer it if you did.

#2. Use a 3000 Kelvin or lower bulb

Use a warmer white bulb of 3000 Kelvin for approved lighting. **Ideally 2700 Kelvin or lower.** Kelvin is the measure of light temperature (the colour).

#3. Opt for a fully shielded light fitting

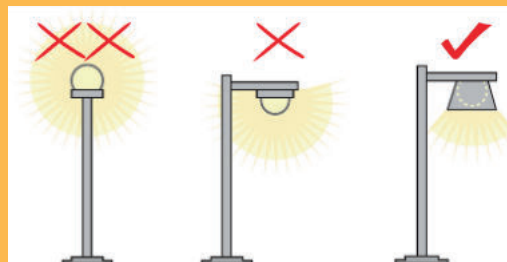
If the light source (bulb) is sitting up within the fitting (see ✓ light), then it's approved. This only shines light down where you need it & not up into the sky.

CHOOSING DARK SKY COMPLIANT LIGHT FITTINGS

Looking to upgrade or fit new outdoor lights?

Here's what makes a light dark sky compliant under the updated Kaikōura District Council provisions.

- **Motion Sensor** – If it turns off within 5 minutes the light is compliant. **Otherwise:**
- **Fully Shielded Fitting** – No light shines upward or outward
- **Warm White Bulbs** – 3000K or lower for efficient and to preserve night vision



Finding compliant outdoor lighting can be surprisingly difficult – we estimate that over 80% of lights and supplied bulbs sold in NZ stores are currently not approved, often due to unshielded designs, up & down lighting and/or cool white colour temperatures. To try and help, we've selected a few options that are available from mainstream retailers. These examples are all fully shielded and, when paired with warm white bulbs (3000K or lower), help reduce light pollution while still keeping you & your property safe.

Down Wall Light

- Approx. \$33 - Bunnings
- [black-corbett](#)
- Use with a GU10 warm white bulb (3000K or less)



Antique Coach Wall Light

- Approx. \$148 - Bunnings
- [bronze-jardin-antique](#)
- Fit with E27 LED globe
- warm white bulb (3000K or less)



Motion Sensors - Lights which are on a motion sensor of 5 minutes or less are compliant but still aim for warmer white (3000K) bulbs & ensure that flood lights are aimed down.

Sensor Flood Light

- Approx. \$78 - Mitre 10
- Twin-led-floodlights
- Warm white (3000K)
- Aim down when installed



Sensor Wall Light

- Approx. \$117 - Lighting Outlet
- atlas-sensor-outdoor-led-wall-light
- Use with a GU10 warm white bulb (3000K or less)



Sensor Solar Wall Light

- Approx. \$35 - Bunnings
- arlec-ritter-sensor-solar-wall-light
- Up to 400 lumens



Don't forget your local electrician will be able to source approved lighting.

As demand for dark sky approved lighting grows, there will be more options. In the meantime, feel free to reach out to the Kaikōura Dark Sky Trust if you'd like further guidance on lighting choices for your home or business.

CHOOSING DARK SKY COMPLIANT LIGHT BULBS

We promote the use of **warm lighting** for nighttime illumination

WHY USE WARM LIGHTING?

At night the body's day/night cycle needs warm light (3000K, 2700K, 2200K) because cool light interferes with the body's hormonal control of sleep.

- Warm light allows night vision.
- Warm light reduces ecological interference, including fallout of seabirds (Hutton's shearwater).
- Warm light scatters less in the atmosphere and reduces light pollution.

UNDERSTANDING TERMS YOU FIND ON LIGHT BULB BOXES

WATTS (W)

Measures electrical power used by bulbs

LED lights use about 1/10 of the wattage and they last up to 25 X longer than incandescent (tungsten filament) bulbs. The total yearly electricity cost of using 1 LED bulb is \$1.83 compared to \$10.95 for using 1 incandescent bulb.

LUMENS (lm)

Measures the brightness of light

To provide the same brightness (1500 lm) an LED bulb uses 5 times less electricity than an incandescent bulb.

This is because LED bulbs give higher lumens per watt than incandescent bulbs.

KELVINS (K)

Measures the colour temperature of light in degrees K

Warm light (yellow-white to amber-white) is from 3000K to 2200K, whereas cool light (blue white) is up to 6500K. All new buildings & upgrades in the Kaikōura District must have outdoor lights at 3000K or lower.

KELVIN RATINGS FOR LIGHTING



FOR NIGHT TIME LIGHTING - INDOORS AND OUTDOORS

- Choose warm bulbs with 3000K, 2700K or 2200K.
- Use LED bulbs to lower your electricity bill.
- Cost between LED, compact fluorescent (CFL) and incandescent (INC) light bulbs each giving similar brightness (850 lm).



BULB	PRICE \$	WATTS (W)	LIFESPAN (hours)	20 YEAR ELECTRICITY COST (\$0.37/K/Wh)
LED	\$4.00-10.00	8	15,000-25,000	\$64 (1 bulb used)
CFL	\$9.19	14	8,000	\$128 (2-3 bulbs used)
INC	\$2.35	60	1,200	\$550 (12-21 bulbs used)



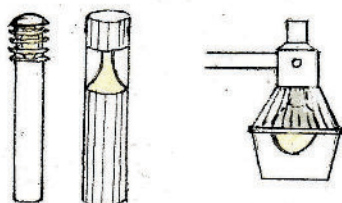
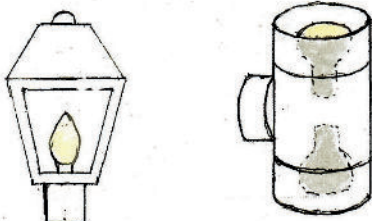
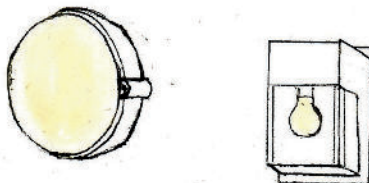
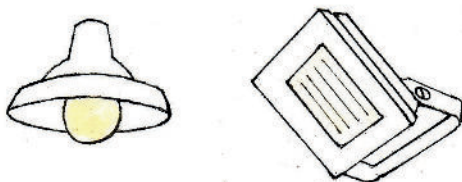
SHIELD YOUR LIGHTS TO PROTECT OUR NIGHT SKY

Use fully shielded lights so light shines down where it's needed &
not into the sky

Not Good (X)



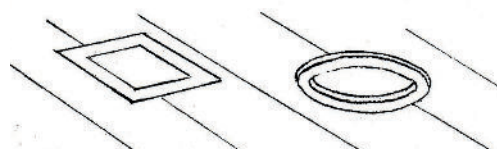
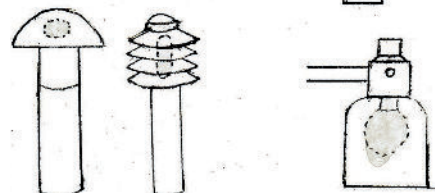
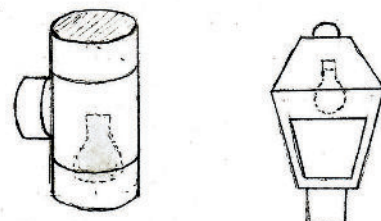
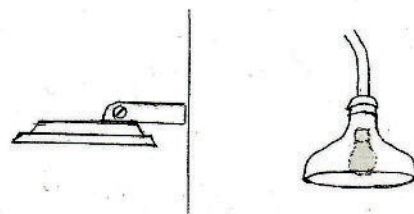
- Light shines in all directions
- Causes glare and light pollution
- Disorients wildlife



Good (✓)



- Fully shielded light
- Light downwards below horizontal
- Protects night sky and wildlife



UNDERSTANDING THE EFFECTS OF LIGHT POLLUTION

on our health, climate, ecosystem & wildlife

For three billion years, life on Earth existed in a rhythm of light and dark that was created solely by the illumination of the Sun, Moon and Stars.

Artificial lights have caused us to disrupt the natural day-night pattern and to shift the delicate balance of our environment.

A growing body of scientific and medical evidence is linking measurable negative impacts of artificial light at night on human and ecological environments.

1. Affecting crime & safety

Lighting is intended to enhance safety and security at night, but ironically excessive bright white lighting can have the opposite effect. 1) does not prevent crime, 2) spoils night vision to see into shadows & 3) temporarily blinds us with glare. Moderate warm lighting avoids this and maintains night vision.

2. Harming our health

Long term exposure to blue-white light at night disrupts our body clock and hormonal cycle. This affects sleep, mood and brain function causing negative flow-on effects to our health.

3. Increased energy consumption

Lighting that shines into the sky and where it is not needed, and is excessively bright, is wasting energy and therefore your money. Also reducing energy use reduces carbon emissions.

4. Disrupting the ecosystem and wildlife

Plants and animals depend on day/night length to: regulate growth and reproduction, control predator/prey interactions, and maintain ecological balances. Artificial light at night disrupts all of this.



Unique to Kaikōura

The last two remaining wild breeding colonies on Earth of the Hutton's shearwater are found in the Kaikōura Ranges.

This highly endangered species is drawn to the town lights at night where they crash land and often die.

Protection of this species by controlling artificial light at night helped to inspire the formation of the Kaikōura Dark Sky Sanctuary.



Hutton's shearwater Kaikōura titi

