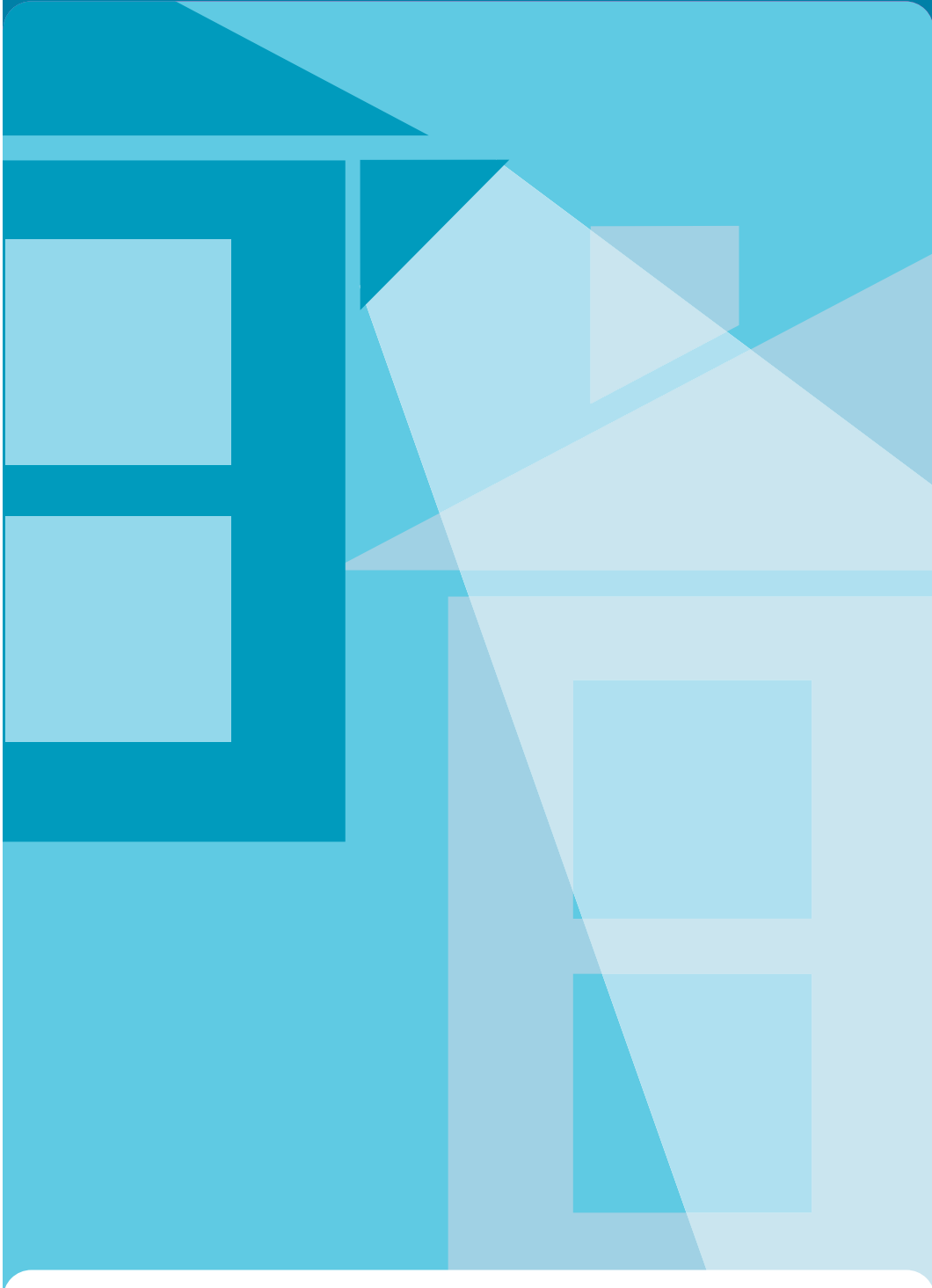


# LIGHT POLLUTION



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Since 1898

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Artificial light is essential in our modern society. It has many uses including illumination of streets, roads and hazardous areas; for security lighting; to increase the hours of usage for outdoor sports and recreation facilities, to enhance the appearance of buildings at night.

The increased use of lighting, however, can cause problems. Light in the wrong place at the wrong time can be intrusive. There has been an increase in complaints about light to local authorities in recent years.

This leaflet looks at the different aspects of light pollution, explains the steps that can be taken to reduce it and describes what you can do if faced with the problem of pollution from light.

## What is Lighting?

Lighting is simply a means of illumination and apart from rare instances of glare only really becomes a problem after dark. It is measured in lux and is a product of both the luminous intensity (brightness) of the lamp used and the distance from the lamp to the surface being lit.

## How Much Light Do We Need?

The level of light needed in lux will vary depending upon the circumstances, but as a rough guide the level of illumination required in a dark area to recognise a face at a distance of 10 metres is 2.7 lux. Here are some other examples of typical outdoor lux levels which lighting engineers try to achieve:

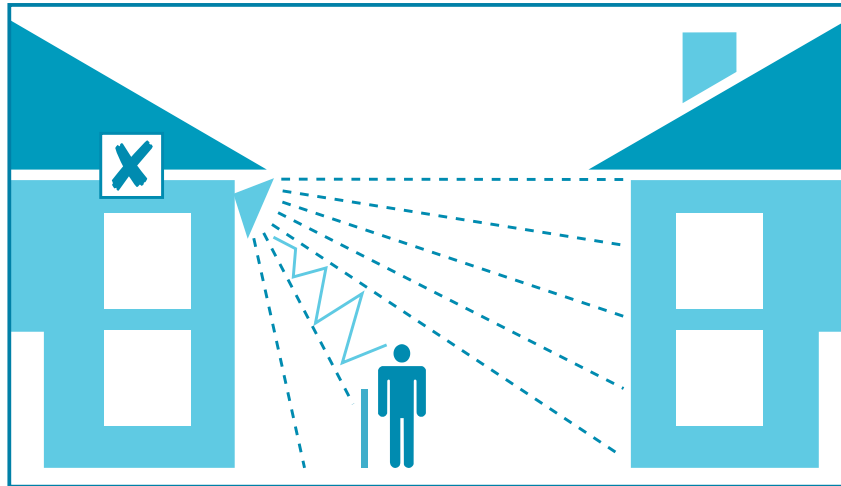
Situation	Lux
Night-time on a dark landscape (remote area, national park)	<1
Night-time in a rural location	1
Night-time in an urban street (suburban)	5
Night-time in an urban street (town or city centre)	10
Floodlighting onto stone building	60
Evening televised football match (at pitch level)	1600

## What is Light Pollution?

Light pollution is probably best described as artificial light that is allowed to illuminate, or intrude upon, areas not intended to be lit.

### Intrusive Light

This is the intrusion of over bright or poorly directed lights onto neighbouring property, which affect the neighbours' right to enjoy their own property. A typical example would be an inconsiderately directed security light shining into a bedroom window.



### Skyglow

Skyglow is the orange glow seen over towns and roads from upward light. This is a serious problem for astronomers as the artificial brightness of the sky overpowers distant stars, especially those low in the night sky. It is becoming more and more difficult to find areas where our view of the night sky is unaffected by illumination. The light from distant stars can take hundreds, even thousands, of years to reach our eyes - so it is a pity to lose it on the last moment of its journey!

### Poor Lighting

Inconsiderate or incorrectly set lighting can have other effects:

- It produces glare which occurs when the over brightness of a light source against a dark background interferes with a person's ability to view an area or object, i.e. glare can conceal rather than reveal.
- It can detract from the architectural appearance of a building and even hide complex or attractive features.
- It can impact on the ecology and wildlife of an area, and affect the behavioural patterns of mammals, birds, insects and fish.
- The wasting of light is a waste of the energy which powers the light and is therefore a waste of resources and money.

## How to Prevent Light Pollution

Before going to the expense and effort of installing lighting a few simple questions should be asked:

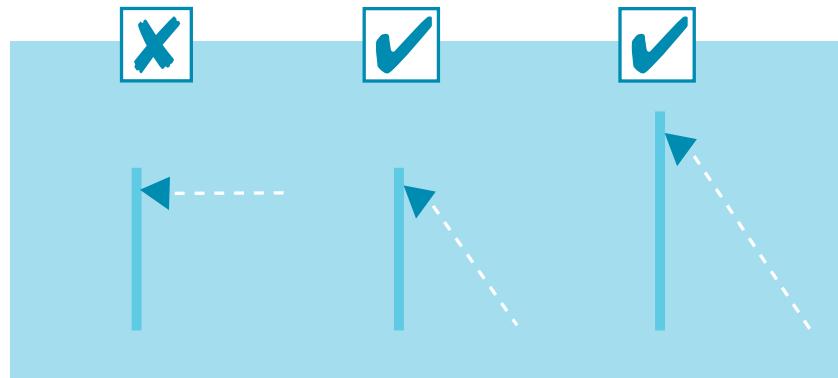
- Is lighting necessary?
- Could safety or security be achieved by other measures, such as segregation or screening of an area?
- Do the lights have to be on all night? For example, over advertising hoardings; the exterior of buildings or empty car parks.
- If lighting is the best option then only the right amount of light for the task should be installed. Lighting will then only become a problem if it is poorly designed or incorrectly installed.

If lighting is necessary, a number of measures can be taken to avoid causing a nuisance:

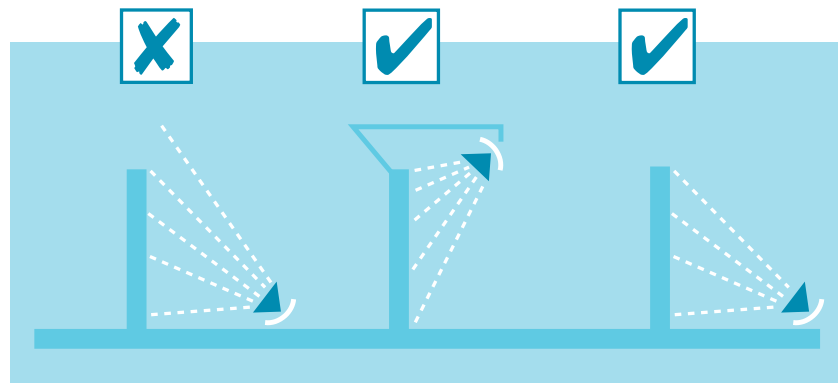
- For domestic security lights a 150W lamp is adequate. High power (300/500W) lamps create too much glare reducing security. For an all-night porch light a 9W lamp is more than adequate in most situations.
- Make sure that lights are correctly adjusted so that they only illuminate the surface intended and do not throw light onto neighbouring property. Security lights should be correctly adjusted so that they only pick up the movement of persons in the area intended and not beyond.



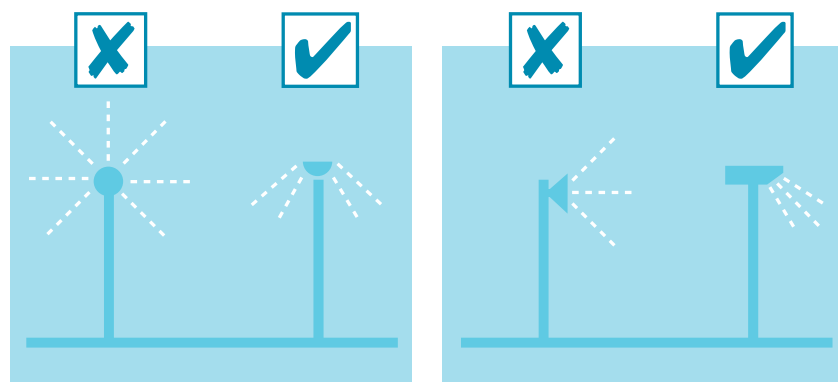
- To reduce the effects of glare main beam angles of all lights should be below 70 degrees.



- Direct light downwards. If uplighting has to be used then install shields or baffles above the lamp to reduce the amount of wasted upward light.



- Do not install equipment which spreads light above the horizontal.



### New Developments

The best method of dealing with light pollution is at the planning stage. This is an ideal time to influence the design or installation of lighting schemes. However, not all developments, for example domestic security lighting, require planning consent. Those that do are developments involving the carrying out of building or engineering or which involve making material changes to existing buildings or land.

### Environmental Zones

The Institute of Lighting Engineers recommend that Local Planning Authorities specify the following environmental zones for exterior lighting control within their Development Plans.

Category	Examples
E1:	Intrinsically dark landscapes (National Parks, Areas of Outstanding Natural Beauty)
E2:	Low district brightness areas (Rural, small villages or relatively dark urban locations)
E3:	Medium district brightness areas (Small town centres or urban locations)
E4:	High district brightness areas (Town/city centres with high levels of night time activity)

Where an area to be lit lies on the boundary of two zones, the obtrusive light limitation values used should be those applicable to the strictest zone.

### Existing Developments - Light Nuisance

Local authorities receiving complaints about artificial light in England and Wales can now assess whether light is a nuisance under the *Clean Neighbourhoods and Environment Act 2005*. The Act extends nuisance provisions of the *Environmental Protection Act 1990* to cover artificial light emitted from premises – including domestic and commercial security lights, some healthy living and sports facilities and domestic decorative lighting; artificial light from transport facilities, freight depots, lighthouses, prisons and defence premises is excluded. Civil action can also be taken by an individual to tackle a lighting problem. He or she would have to be able to prove that a nuisance existed. A nuisance can be described as an adverse state of affairs that interferes with an individual's use and enjoyment of his or her property.

## What Can I Do?

### 1. Tackle the Source

First, approach the owner of the lighting. Often the remedy is quite simple. A minor adjustment may be all that is required, or maybe an agreement about when lights should be turned on or off.

Remember, of course, to be considerate in your own design and installation of lighting systems.

By following the advice outlined in this leaflet you too can play your part in ending complaints of intrusive light and skyglow.

### 2. Environmental Health Department

If you live in England and Wales and the owner of the lighting is unwilling to remedy the situation to your satisfaction, contact the environmental health department at your local authority. First they must investigate your complaint, and if they agree that the light is a nuisance they will contact the offender – informally at first, but with an abatement notice if necessary. If the offender fails to comply with the notice proceedings can be taken in the Magistrates' Court.

There is no legislation for Scotland or Northern Ireland covering nuisance from lighting. The Scottish Government has however published a guidance note on Controlling Light Pollution and Reducing Lighting Energy Consumption (March 2007).

### 3. Planning Department

As mentioned above, some developments require planning permission; if you have any concerns over the potential lighting impact of a development, you should contact the planning department of your local council.

### 4. Mediation

Nuisance disputes can often be resolved informally. Many areas have mediation services who can help you resolve disputes with owners of neighbouring properties. This may prove quicker than the legislative route. Your local authority may be able to put you in touch with a mediation service.

### 5. Take Legal Action

If all else fails contact a solicitor to find out what action may be appropriate to deal with your complaint.



## Further Information

The following organisations can provide information on light pollution:

### **British Astronomical Association (BAA)**

Tel: 0207 734 4145

Email: [office@britastro.org](mailto:office@britastro.org)

[www.britastro.org/baa](http://www.britastro.org/baa)

### **Campaign for Dark Skies**

Email: [info@dark-skies.org](mailto:info@dark-skies.org)

[www.dark-skies.org](http://www.dark-skies.org)

### **Campaign to Protect Rural England**

Tel: 020 7981 2800

Email: [info@cpre.org.uk](mailto:info@cpre.org.uk)

[www.cpre.org.uk](http://www.cpre.org.uk)

### **Chartered Institution of Building Services Engineers (CIBSE)**

Lighting Division

Tel: 020 8675 5211

Email: [info@cibse.org](mailto:info@cibse.org)

[www.cibse.org](http://www.cibse.org)

### **Institution of Lighting Engineers**

Tel: 01788 576492

Email: [info@ile.co.uk](mailto:info@ile.co.uk)

[www.ile.co.uk](http://www.ile.co.uk)

### **Lighting Industry Federation (LIF)**

Tel: 020 7793 3020

Email: [info@lif.org.uk](mailto:info@lif.org.uk)

[www.lif.org.uk](http://www.lif.org.uk)

## Government Contacts

### **Department for Environment Food and Rural Affairs**

Tel: 08459 33 55 77

Email: [helpline@defra.gsi.gov.uk](mailto:helpline@defra.gsi.gov.uk)

[www.defra.gov.uk/environment/localenv/nuisance/light/index.htm](http://www.defra.gov.uk/environment/localenv/nuisance/light/index.htm)

### **Scottish Government**

Tel: 08457 741741

Email: [ceu@scotland.gsi.gov.uk](mailto:ceu@scotland.gsi.gov.uk)

[www.scotland.gov.uk](http://www.scotland.gov.uk)

### **Welsh Assembly Government**

Tel: 0845 010 3300

Email: [env-p&q@wales.gsi.gov.uk](mailto:env-p&q@wales.gsi.gov.uk)

[www.wales.gov.uk](http://www.wales.gov.uk)

### **Environment and Heritage Service Northern Ireland**

Tel: 0800 807060

Email: [EP@doeni.gov.uk](mailto:EP@doeni.gov.uk)

[www.ehsni.gov.uk](http://www.ehsni.gov.uk)



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You may also be interested in our leaflets on:

- Fireworks
- Garden Bonfires
- Noise Pollution
- Small Scale Wind Turbines

**Environmental Protection UK**

**44 Grand Parade**

**Brighton**

**BN2 9QA**

**Email: [admin@environmental-protection.org.uk](mailto:admin@environmental-protection.org.uk)**

**Tel: 01273 878770**

**[www.environmental-protection.org.uk](http://www.environmental-protection.org.uk)**

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