

**Cranborne Chase
Area of Outstanding Natural Beauty**



FACT SHEETS & GOOD PRACTICE NOTES

Supplement to
GOOD PRACTICE NOTE: GOOD EXTERNAL LIGHTING

Number 7a

**Recommendations for Dark-Sky compliant lighting on new
builds & refurbishments, in and around the AONB area**

DEVELOPERS' GUIDE

Introduction

In order to obtain and retain Dark-Sky status with the International Dark-Sky Association (IDA), compliance with their requirements for the control of upward light is essential for both public and private lighting, including domestic fittings. Correct lighting choices for new builds will therefore aid the AONB's situation and be part of its ongoing Light Management Plan (LMP).

Requirements for public street lighting are dealt with via separate specific Planning & Highway consents. The objective is to eliminate upward and sideways dispersion of light that causes light pollution. In and around this Area of Outstanding Natural Beauty the aim is to achieve the standards of environmental lighting zone E1. The 'domestic' situation is covered below.

Basics

Any manufacturer's or supplier's reference to fittings being 'Dark-Sky friendly', or similar wording, shall **not** be taken as an assumption of acceptability, unless in full compliance with the following requirements.

The rules are based on two characteristics of light sources, namely :-

1) Colour temperature, measured in degrees Kelvin (K).

The maximum permitted colour temperature of light sources shall be 3000K. (This is similar to the warm-white look of a conventional tungsten lamp). Lamps marketed as 'daylight' or 'cool white' are very blue-rich (around 5000K to 6000K) and may appear more obtrusive as well as being poor for human health and wildlife. They are, therefore, not acceptable.

2) Light output measured in Lumens (Lm).

If fitted with light source(s) above 500Lm in total:-

Exterior lighting fittings must be fully shielded

(i.e. emit no direct light whatsoever above the horizontal).

If **500Lm** total or less, shielding is not essential, but for the spirit of the LMP, shielding is recommended in whole or in part.

Light Sources

In terms of modern light sources, LED types are assumed to be the norm. They will be of high efficacy compared with older lamp types. For example, the equivalent light output of an 'old fashioned' 40 watt bulb is in the order of 450 lumens. A modern LED lamp with a similar light output consumes around 4 – 6 watts. However, the stated lumen output shall be the limiting factor, not reference to low wattage.

Light switching should be via Passive Infra-Red (PIR) detectors with daylight sensing.

On the basis of the above, potentially suitable types are:-

A) **$\leq 500lm$ total light output**

Porch Lights (& similar easily accessible fittings, from ground level to 2.5m)

- Lamp fitted within the canopy, cap uppermost
- Clear glazing (Not translucent or diffusing as this can scatter light upwards)
- Downward emitting light source wherever possible

There are many manufacturers of domestic type fittings and probably thousands of designs / styles readily available in the UK. Some manufacturers / importers appear to provide very similar models to a variety of DIY and wholesale outlets.

The following information does not identify or recommend any particular supplier or source, but shows some elements of lighting equipment considered essential for Dark-Sky locations and their immediate surroundings.

Traditional / decorative styles

The pendant style is preferred. This means the lampholder is mounted at the top of the fitting within the canopy. With LED type light sources this permits more options for use of downward emitting light sources, especially if a GU10 'downlighter' type lamp & lampholder can be used. There are very many design styles within this general arrangement.

Options for installing supplementary screening rings are also simplified.

1)



Typical decorative fitting, originally designed for 60w max. tungsten lamp, and now often found with Compact Fluorescent (CFL) types. Both dispersed light upwards and sideways.

More recently used with LED source, which can be specified to have a downward light output.

The relatively large canopy allows a screened lampholder to be fitted within it & creates potential for LED light source with control of upward light.

2)



Another common decorative design.

As shown, the fitting would not be acceptable.

The smaller canopy is of little use for upward light control, but the top lampholder position facilitates adaptation.

With a 'downlighter' GU10 type lamp, this could provide predominantly downward light output. Additional screening could further improve this.

Note:

There are versions with bottom mounting brackets, but their upward pointing lampholders & lamps severely limit any light control options.

These are **not recommended** at the present time.

3)

	<p>Another common decorative design</p> <p>Typically only in the pendant style.</p> <p>Unacceptable with tungsten or CFL light sources.</p> <p>Adapted for a downward projecting LED light source and use of additional screening might make this option acceptable.</p>
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Note:

There are variation of decorative styles 1 & 2 which are 'half' fittings with a metal backplate which mounts directly onto the wall, without the top fixing bracket. In general, with a top mounted lampholder / lamp and suitably sized canopy these may provide useful control of upward light.

'Bulkhead' Styles: Not Recommended!

4)

	<p>Common 'Bulkhead' style fittings scatter light in all directions.</p> <p>Very difficult to properly control light output, due to design and variety of possible installation positions.</p> <p><u>Not permissible for new installations</u></p>
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Note: Painting the top section of glazing on these fitting types is not considered to be legitimate screening!

Contemporary / modern styles

5)



Note:

No fitting of this or similar type, which points upward is acceptable, even if fitted with a light source $\leq 500\text{Lm}$.

For domestic fittings, light sources $< 500\text{Lm}$ should normally be adequate.

B) $> 500\text{LM}$

Fully shielded fittings with no direct upward light output are mandatory.

This applies to all types as indicated in section A above.

All Floodlight fittings must:-

- Be fully shielded.
- Be mounted horizontally in accordance with the manufacturer's requirements
- Have a fixing arrangement which is incapable of being tilted upwards.

6)



Modern LED 'Flat Glass' floodlight.

Mounting arrangement is such that there can be no upward tilt & there is no direct light emitted above the horizontal in any direction.

May be wall mounted, with a bracket arrangement which complies with above.

The same requirements apply to any fitting which is of a 'street lighting' type, where used for private area lighting, i.e. it must:-

- Be of the 'Flat glass type'
- Be Mounted horizontally
- Emit no light above the horizontal

In the context of this and IDA documents, shielding generally refers to the light control of the lamp & fitting combined, which maximizes downward rather than all-round emission of light.

In the case of a floodlight, as above, the inherent design of light source, reflectors and enclosure, together with zero tilt, provides a fully shielded fitting, i.e. one emitting no direct light above the horizontal, in any direction.

Symbols used in text for Lumen limits:-

<= less than or equal to
> greater than

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