

TECHNICAL MEMO

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DATE	30 September 2025	CONFIDENTIALITY	Public
SUBJECT	CtoC Inquiry, Technical Clarification, Solar Studs & Bat hats		

Background

WSP has been requested to provide additional information on solar powered in-ground stud / lighting technology, in particular how it reduces impact on light sensitive biodiversity using shielding also known as bat hats.

Case Studies

Solar LED lighting studs provided by SolarEye are widely used across the country and within Cambridgeshire to enable sustainable travel whilst reducing impact on bats refer to Figure 1.



Figure 1. Solar powered stud installation in Lammas Land, Cambridgeshire

There are case studies showcasing the use of this technology within GN08 – Artificial Lighting & Bats produced by the Bat Conservation Trust & the Institution of Lighting Professionals **(CD22-02)**.

Technology

The studs are solar powered and are a green technology as they do not require a mains power supply. Of important to this project, the SolarEye Light Emitting Diode (LED) lighting studs also reduce impact on light sensitive biodiversity and bats in two important ways.

Firstly, the studs utilise a cowl (which is commonly termed a bat hat) manufactured within the cover the of the fitting. The bat hat is mounted directly over the top of the LED light and its inclusion removes circa 98% of all direct upward light.

This is very important because one of the key drivers within GN08 – Artificial Lighting & Bats where a need to light is identified and bats are present is to reduce intensity and provide shielding.

Refer to Figure 2 which shows the difference between a standard LED solar powered stud and bat hat enabled LED solar powered stud. A red arrow has been drawn on the image to draw the reader's attention the black circle which indicates the inclusion of the bat hat.

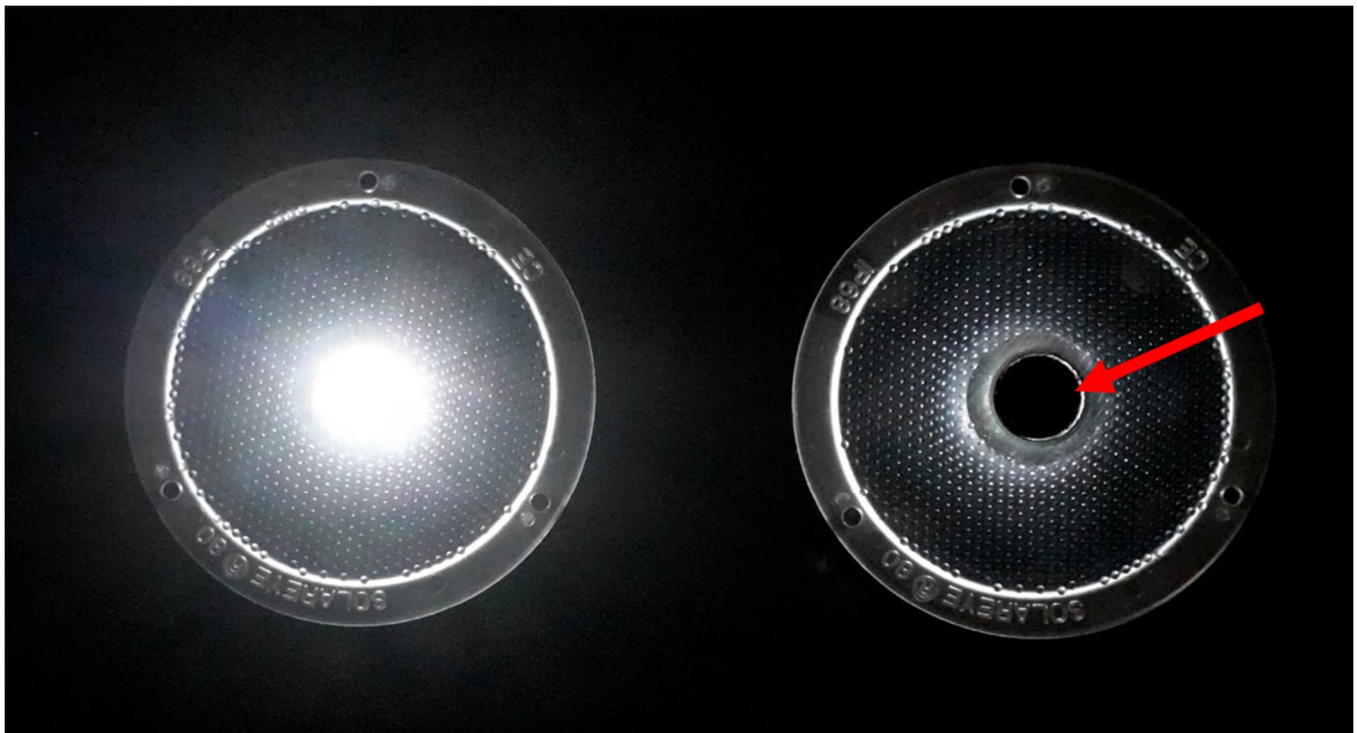


Figure 2. Standard LED solar powered stud (left) and bat hat enabled LED solar powered stud (right)

Secondly, the studs utilise LEDs which are manufactured to a warmer colour temperature, 2,700K Correlated Colour Temperature (CCT) which reduces blue light content compared to a typical lighting scheme and is comparable to the wider lighting proposals.

Overall, a reduction in blue light content alongside a reduction in intensity aligns with key mitigation principles within GN08.

Safety impact on humans

Critically for human safety, the inclusion of the bat hat on the solar stud does not restrict visibility of the light source. Finally, as the inclusion of the bat hat is held within the light source, it does not increase the height of the stud and therefore there are no increased challenges around slip, trips or falls. Refer to figure 3. Solar Eye installation cross section below which shows a 6mm lip above surface finish.

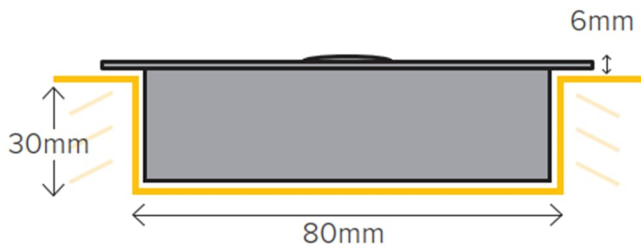


Figure 3. Solar Eye installation cross section

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