SOUTH CAMBRIDGESHIRE DISTRICT COUNCIL

LIGHTING ASSESSMENT REPORT

with regard to

PLANNING APPLICATION: S/2256/10

For

EXTERIOR LIGHTING PROVISION
at
NICHOLS COURT, FLAXFIELDS, LINTON.
For Sanctuary Housing

7 June 2011

By:
NEP Lighting Consultancy
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BY

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I am a registered Incorporated Engineer (I.Eng.), a Fellow of The Institution of Lighting Professionals (FILP) and a Member of the Society of Light and Lighting (MSLL). I hold an HNC in Electrical and Electronic Engineering plus an Endorsement in Illuminating Engineering, also the IES/CIBSE Diploma in Lighting Engineering.

I am an independent Lighting Consultant.

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CONTENTS:

1 INTRODUCTION

1.1 This report examines the current (December 2010) Planning Application by *Sanctuary Housing* with regard to the exterior lighting provision for their development of Nichols Court, Flaxfield in Linton, Cambridgeshire.

1.2 The Development was originally granted planning permission in October 2007, but without reference to the exterior lighting which since being built has been found to be of potential nuisance with relation to Section 102 of the Clean Neighbourhoods and Environment Act 2005. The current planning application dated December 2010 proposes modifications to the existing lighting which hopes to address these issues which were reported on in July 2010 in a Report by *WSP* on behalf of the SCDC Environmental Health Department.

1.3 For both Planning and Environmental Health aspects, all parties are agreed that the guidance best followed in lighting terms are those of the *Institution of Lighting Professionals* - ILP (Previously the *Institution of Lighting Engineers* - ILE) whose "Guidance Notes for the Reduction of Obtrusive Light" 2005 are to be followed together with CIE Publication 150:2003 "Guide on the Limitation of the Effects of Obtrusive Light from Outdoor lighting Installations".

1.4 It is further agreed by all parties that the location of the Development in Linton, Cambridgeshire falls into the ILP/CIE environmental Zone E2 one of low district brightness and that the corresponding light technical parameters to be met are those given in Table 1 below:

TABLE 1 – Obtrusive Light limitations for Exterior lighting installations Zone E2 Low District Brightness (ILE/CIE – 2005)

Sky Glow ULR [Max %]	Light Trespass (into Windows) E_v [Lux]		Source Intensity I [kcd]		Building Luminance Pre-curfew
	Pre- curfew	Post-curfew	Pre- curfew	Post-curfew	Average, L [cd/m²]
2.5	5	1	7.5	0.5	5

Note To understand the table above an understanding of some lighting terminology is required.

Light (or luminous flux) is a type of radiation and forms part of the electromagnetic spectrum visible to the eye. It is measured in ***lumens (lm)*.**

The **upward light ratio (ULR)** of an item of lighting equipment, (a luminaire) is the ratio of its light output when installed on site, at and above the horizontal, to its total light output, and is measured as a lumen ***percentage (%).***

The amount of light falling on a surface is known as **illuminance** and is measured in *lumens per square metre* or ***lux.***
While "illuminance" is easy to calculate and measure and is therefore widely used, the eye does not see this, but rather the light radiated or reflected off a surface. This is known as **luminance**, or brightness. It is measured in ***candelas per square metre (cd/m^2)*** and if the surface is glossy, can differ with the angle of view.

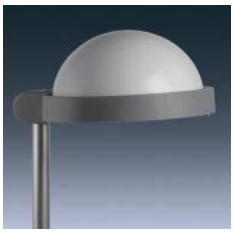
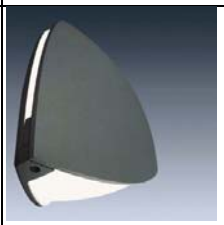
The term ***candela (cd)*** or (Kcd = 1000 cd), is by itself a measure of light **intensity.** Whether this light "intensity" is seen as glare or not, depends on the surrounding "luminance", as can be noted when comparing a road lighting luminaire or floodlight lit during the day and again at night.

2 ASSESSMENT OF PROPOSED EXTERIOR LIGHTING SCHEME

2.1 The proposed exterior lighting scheme is shown on *The Johns Practice* Drawing : Exterior Amenity Lighting – Building, Job No. 77-02, Dwg No. 500 dated 10/12/2010 together with *Thorn* Drawing : Flaxfields External Lighting dated 30/11/2010 and differs in a number of ways from the installation as installed and currently in lighting.

2.2 The main differences are in the luminaire types and power of the lamps which are tabulated below in Table 2.

TABLE 2 – Nichols Court, Flaxfield – Exterior Luminaires

	Column mounted Car park Lighting	Wall mounted Bulkhead Lights	Garden Bollards	Balcony Lights (Soffit mounted)
Proposed	 *Thorn Decostreet* 4 No. 3,200 Lumens ULR = Zero	 *Thorn Oyster* 24 No. 1,800 Lumens ULR = 4.5%	 *Thorn Chartor* 16 No. 1,200 Lumens ULR = 10%	 *Ansell Quad* 4 No. 900 Lumens ULR = n/a
Existing	*Thorn Decostreet* 4 No. 9,000 Lumens ULR = Zero	*Thorn Eye VS* 24 No. 1,700 Lumens ULR = 14%	*Thorn Basalt* 18 No. 4,000 Lumens ULR = 26%	*Ansell Quad* 4 No. 900 Lumens ULR = n/a

2.3 As can be seen from Table 2, the power of some lamps has been reduced considerably which in total makes the newly proposed installation almost half of its current light output – down from 152,000 lumens to 79,000 lumens.

2.4 With regard to direct upward light, while only one of the luminaries strictly meets the requirements for a Zone E2, overall this has been reduced quite significantly – by over 90% from 10,560 lumens to only 780 lumens. This means that for the installation as a whole, the direct upward light (ULR) is 3.5% only marginally above the ILE/CIE Guidance figure of 2.5% and considerable better than the 15% of the existing installation. It also allows for some balance to the needs for some slight extra uplight in line with the "Secure by Design" criteria required for a sheltered housing scheme of this kind.

3 CONCLUSIONS

3.1 The Council's Planning Policy with regard to lighting is clearly laid out as a Development Control Policy DPD in July 2007 as:
POLICY NE/14 Lighting Proposals, which states that:

1. Development proposals which include external lighting should ensure that:

a. The proposed lighting scheme is the minimum required for reasons of public safety and security;

b. There is no light spillage above the horizontal;

c. There is no unacceptable adverse impact on neighbouring or nearby properties or on the surrounding countryside;

d. There is no dazzling or distraction to road users including cyclists, equestrians and pedestrians;

e. Road and footway lighting meets the District and County Councils' adopted standards.

It also states that:
7.53 Artificial lighting is essential for reasons of safety and security. In some cases it can also add to the amenity of the built environment by highlighting buildings and open spaces of character. However, insensitive lighting can cause what is termed as light pollution. South Cambridgeshire, as a predominantly rural area, is sensitive to light pollution through sky glow which can affect the tranquillity of the countryside. Light pollution can have a negative impact upon biodiversity by affecting the normal diurnal patterns of plants and animals.

> 7.54 External lighting is needed for commercial use and for some community and sports facilities such as floodlit sports pitches. Whilst the lighting has to be adequate for the purpose, it is important that there is no significant nuisance to the amenity of surrounding properties. This may require the use of planning conditions to limit the times when lighting is used to minimise the disturbance.

3.2 The Development is one of Sheltered Housing and needs to have a responsible degree of exterior lighting for safely, security and amenity. In this respect, the newly proposed installation appears acceptable and shows due regard for its environment and the above Policy requirements.

3.3 With regard to its possible light nuisance, as noted in Table 2 the current new proposals are a major modification to that existing and the comment from one of the objectors of them being "very slight" are clearly misinformed as can be noted from Para. 2.3 and 2.4.

3.4 With regard to the installation meeting the general Guidance of the ILP/CIE, while the Upward Light Ratio is marginally above the recommended limit, the total direct upward light value of only 780 lumens will have no effect on sky glow.

3.5 In respect of light trespass and source intensity values, while the *Thorn* Spill Lighting plan is not very helpful, with the reduction of overall lamp lumens together with the refined optics of the new luminaires, the values should be well within the ILP/CIE Guidelines for both pre- and post-curfew and considerably lower than those measured previously in the *WSP* Report of July 2010.

3.5 In addition, while the safety and security of the residents of the home is obviously of prime important, there should be no reason why the majority of the lighting should not still be switched off overnight between times agreed between the parties hence bringing the post-curfew values close to zero.