

Light Intrusion

■ OBJECTIVE

To ensure that the effects of sky glow, light trespass and glare are minimised in lighting proposals.

■ POLICY CONTEXT

Local plan policies generally seek to safeguard the amenity of residential areas and promote long term sustainability. For example, policy CD18 of the Central Edinburgh Local Plan states:

‘All development will be expected to contribute to an environment which is ... sustainable in the long term.’

■ SCOPE OF GUIDANCE

This guideline applies city-wide to applications for planning permission and for listed building consent involving the erection of light fittings.

■ STATUTORY REQUIREMENTS

Planning permission is required for the installation of light units, where they will materially affect the external appearance of properties. The installation of light units on single dwelling houses will only require planning permission in cases where an Article 4 Direction Order restricting permitted development in terms of Class 1 of the Town and Country Planning (General Permitted Development) (Scotland) Order 1992 is in force. Listed building consent is required where they will affect the historic or architectural character of a listed building.

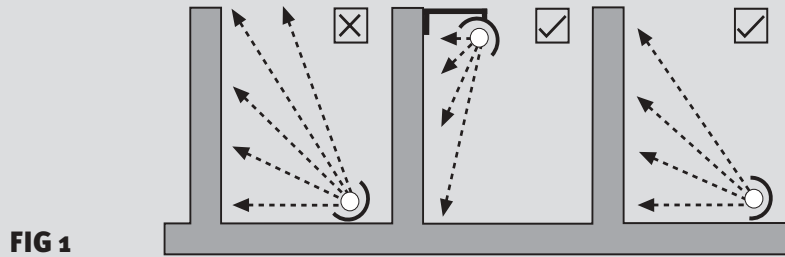
In all cases it is the size, location and/or appearance of the units that determines whether or not planning permission and/or listed building consent is required - not the pattern, intensity or colour of the light produced. This guideline relates to the control of the pattern, intensity and colour of the light produced in cases where consent is required for the light fittings. Formal consent will not normally be required for light fittings on the in-facing walls of basements.

The Town and Country Planning (General Permitted Development) (Scotland) Order 1992 specifies that the construction of building, operations, and use of buildings or land which will affect residential property by reasons of artificial lighting is a bad neighbour development in terms of Article 12 (5) (b).

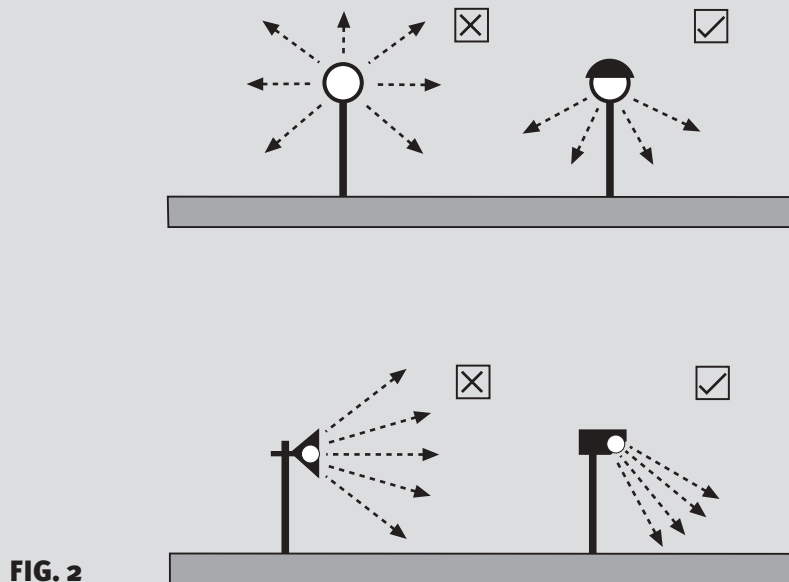
POLICYGUIDANCE

1. CAR PARK, COMMERCIAL, INDUSTRIAL AND SPORTS FLOODLIGHTING,

- a) Light should be directed downwards wherever possible to illuminate its target, not upwards. If there is no alternative to up-lighting, then the use of shields and baffles will help reduce spill light to a minimum (see FIG. 1).



- b) Specifically designed lighting equipment that minimises the spread of light near to or above the horizontal should be used (see FIG. 2).



- c) The main beam angle of all lights directed towards any potential observer should be kept below 70° to keep glare to a minimum. The higher the mounting height, the lower the main beam angle required. In places with low ambient light, glare can be very obtrusive and extra care should be taken in positioning and aiming (see FIG. 3).

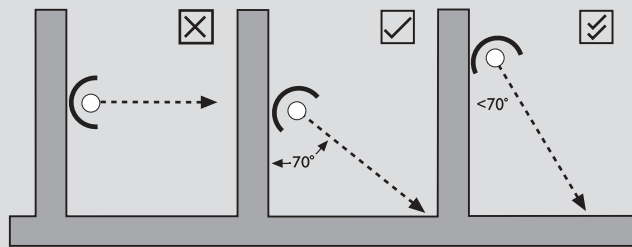


FIG. 3

- d) Floodlights with asymmetric beams that permit the front glazing to be kept at or near parallel to the horizon should be used wherever possible (see FIG. 4).

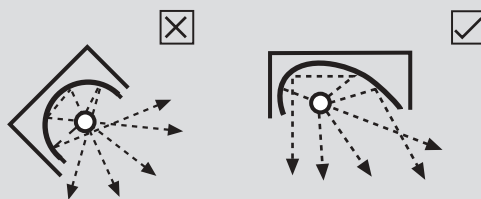


FIG. 4

2. DOMESTIC SECURITY LIGHTS

- a) The minimum wattage of lamp should be used for the particular circumstances. A 150W (2000 lumen) tungsten halogen lamp is more than adequate in most cases. 300/500W lamps create too much light, more glare and darker shadows.
- b) The light should be sufficiently high to illuminate the appropriate area and to be safe from tampering. A minimum of 2.45m (8ft) is recommended. However, the height should be kept to a minimum to avoid light 'spill' (see FIG. 5).

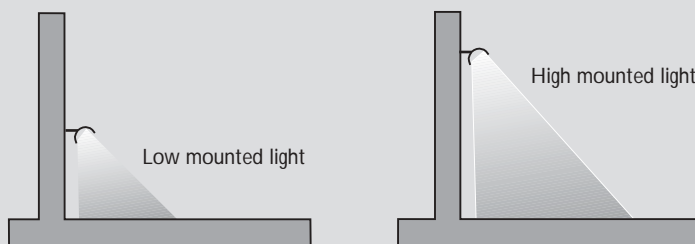
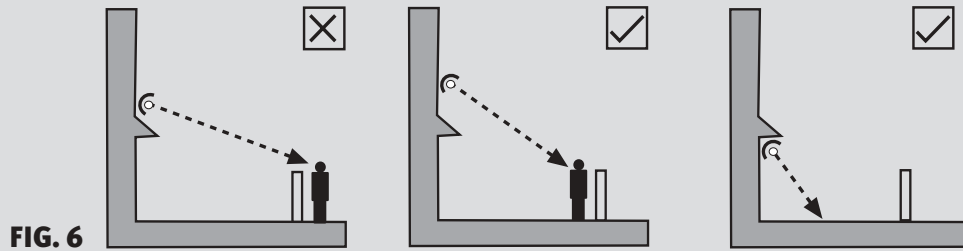
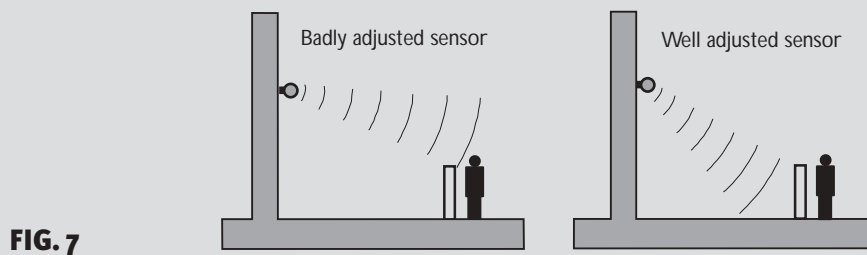


FIG. 5

- c) The light should be adjusted to ensure that it does not 'spill' onto neighbouring property. In cases where neighbouring properties are very close it may be necessary to fit a hood to the security light to make the light more directional and limit the amount of 'spill'. (see FIG. 6).



- d) Passive infra-red detectors can be effective if correctly aligned and installed. (FIG. 7).



- e) All-night lighting at low brightness is generally acceptable. For a porch light a 9W (600 lumen) compact fluorescent lamp is more than adequate in most locations.

3. LIGHT SWITCH-OFF

Lights should be switched off when not required for safety, security or enhancement of the night-time scene. The hours of operation may be limited as a condition of planning permission, dependent on the character of the immediate surroundings and the security requirements.

4. CONDITIONS

Consent for acceptable light units will normally be subject to the following conditions:

- a) The floodlighting system being so controlled that there is no direct illumination of neighbouring land and that any light spillage onto neighbouring land shall not exceed 2.5 lux.
- b) The floodlights being fitted with louvres to control light spillage and glare.

5. FITTING OF LIGHT UNITS

The units required to provide effective floodlighting may adversely affect the appearance of the building. Some buildings can accommodate units more readily than others. Facades with little architectural detail provide much less scope for the concealment of fittings than more elaborately modelled elevations. It is, therefore, important to carefully consider both the size of the proposed fittings and the degree to which they will be concealed from view by day. Painting fittings to match the background colour may assist concealment but should not be used to camouflage problems created by inappropriate siting. Careful consideration should be given to minimising the visual impact of cable runs by following the natural lines and architectural features of the building. All fittings should be non-ferrous to avoid possible staining of the stonework. Any proposals which will significantly detract from the daytime appearance of the building will not be considered acceptable. New technology which allows for more sensitive lighting equipment, design and installation will be encouraged.

■ REASONED JUSTIFICATION

General

Outdoor lighting is provided for a variety of purposes. For work or recreation it enables people to see essential detail in order that they may undertake their activities at night. It facilitates the safety or security of persons or property, for example through lighting on pathways. It may be used to emphasise features of architectural or historical significance, and to light parks and gardens. It is used for advertising or display to promote products or services, or to call attention to commercial premises by means of area lighting or signs.

Inappropriate lighting systems can have adverse effects on the environment. The light intrusion which results can take several forms: sky glow, light trespass and glare. All of these forms of intrusion are undesirable. Additionally, light which causes intrusion is wasted along with the electrical energy which produced the light. This wasted energy costs money and also results in the unnecessary emission of greenhouse gases. These guidelines are intended to minimise these potential problems.

Car Park, Commercial, Industrial and Sports Floodlighting

The purpose of these types of installations may be to provide security, to allow vehicles and pedestrians to move about with ease, to enable work to be performed efficiently and to provide an attractive welcoming feature to the public. The need for adequate lighting for these purposes is recognised, but a balance needs to be reached to protect adjacent property occupiers from intrusive light. The increase in the number of large retail outlets away from the traditional shopping centres and frequently amongst residential surroundings has resulted in the need for the car park lighting associated with such developments to be carefully monitored at the planning stage. No matter how good the light control of such a lighting scheme a brightly lit area of ground will result.

The extensive areas often associated with both industrial and retail developments may require high mast lighting installations. These can result in the same intrusive light problems for adjacent residents as other types of lighting equipment and due to the height of the light source their presence may be obvious from some distance away. Normally, the greater the height of the light source, the greater the number of people potentially subjected to intrusive light. Lighting on the top deck of multi-storey car parks is often external and may result in five metre lighting columns being elevated to fifteen or more metres above ground level. Careful consideration of lighting systems will prevent the top deck lights being visible from considerable distances.

As the leisure industry expands and the nation's health awareness grows so the demand for improved sports facilities increases. The availability of exterior all weather pitches and the demands placed upon existing sporting clubs and centres, means that more of these facilities operate beyond the hours of natural daylight.

Major sports lighting installations can have a significant effect on the night scene. Hours of operation may be limited but they are often a very obvious source of wasted light. In addition, the high levels of illumination required for most sports in both the horizontal and vertical planes means that sports lighting can be a particularly troublesome source of glare to adjacent road users.

Smaller installations may also cause problems. Floodlighting of local sports facilities can change a pleasant open area into a source of annoyance for local residents if care is not taken to design the installation to avoid intrusive light. In comparison to highway lighting systems, relatively few people benefit from sports lighting and this is a factor when considering the potential intrusive light aspects of any installation.

Domestic Security Lights

Security lighting is part of the range of measures which may be adopted to deter vandalism and crime. However, intrusion from security lighting in both commercial and domestic situations can affect the residential amenity of neighbours.

■ **GLOSSARY**

Sky Glow: the effect created by man-made light projected through the atmosphere particularly upwards, and then reflected and scattered back to the surface of the earth through dust particles and droplets in the air creating an orange glow.

Glare: Normally the eye adapts to whatever it is viewing, but if the object or background are too bright or the contrast is too great, vision suffers either by the situation becoming visually uncomfortable (discomfort glare) or by the object becoming difficult to see (disability glare) or both.

Light Trespass : The failure to control light and direct it onto the area which it is intended to illuminate. However, with street lighting some spillage onto adjacent property may be considered advantageous, as it assists in the security of property.

For further details contact:
Head of Planning, The City of Edinburgh Council, 1 Cockburn Street, Edinburgh, EH1 1ZJ.
Tel: 0131 529 3956 Fax: 0131 529 7478

