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ADDITIONAL INFORMATION: Lighting

Understanding the types of energy efficient lighting relevant to different parts of your property

A wide range of energy efficient lighting and lighting controls are available. This table will help you to identify the most appropriate options for different parts of your property. When selecting energy saving lamps, you may wish to select those recommended by the Energy Saving Trust and it is usually worth your while talking to an energy efficient lighting specialist/consultant before investing heavily (this will ensure that the quality of lighting you select is equivalent to or better than your existing lighting). Lamps listed on the Energy Saving Trust web site conform to rigorous standards of performance, and have a guaranteed lifespan. For a copy of Energy Saving Trust approved lamps, visit their web site (http://www.est.org.uk) or call them on 0207 222 0101.

If you require further information about lighting terminology, contact us on 020 8772 7400 – we may also be able to arrange a visit from a special adviser.

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AREA	LUX REQUIRED[1]	TYPE OF ENERGY EFFICIENT LIGHTING/LIGHTING CONTROLS RECOMMENDED
Back of house		
Kitchen	500	26mm fluorescent tubes (preferably with high frequency ballast) (select varieties with good colour rendering, or triphosphor colour lamps especially for food preparation areas.) Install motion detectors or switch off notices on walk in refrigeration units and other infrequently used food storage areas (motion detectors cannot be used with some CFLs)
Laundry	500	26mm fluorescent tubes (preferably with high frequency ballast) Install timing devices to ensure lights are switched off when the laundry is not in use.
Storage rooms	150	26mm fluorescent tubes. Include high frequency ballast when use is prolonged. Leave filament lamps where use is infrequent and short, but install motion detectors to ensure lights are switched off when storage rooms are not in use (these cannot be used with some CFLs).
Offices	500	26mm fluorescent tubes or compact fluorescents. Consider installing task lamps on desks (preferably using CFLs or halogen bulbs) to encourage selective lighting. Train staff to use local task lighting where relevant (especially in large offices to avoid lighting the whole space for one individual) and to turn lights off when they leave office areas.
Staff canteen	100 – 200	26mm fluorescent tubes or compact fluorescents (using triphosphor lamps near food areas). Timing devices may be used to reduce lighting costs where canteen hours are standardised.
Front of house		
Entrance zone from street	300 – 600 (day) 100 – 200 (night)	26mm fluorescent tubes or CFLs Use low voltage halogen lights or CFL down-lights to highlight specific features. In areas receiving a high level of natural light, install photosensors to switch lighting on when daylight falls below a specified level.

[1] A certain level of "light" is required by health and safety procedures. This level of light is described as "lux" (lumens per square metre) and compliance can be simply measured by a light meter (available through most good electrical stores).

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Reception areas	Min 300	Where they fit existing fixtures, CFLs and CFL down lights or low voltage halogen lights to highlight specific features
Cloakrooms	100 – 500	Where they fit existing fixtures, CFLs and CFL down lights or low voltage halogen lights to highlight specific features
Hallways and lobby areas	100 – 200 lux	Where they fit existing fixtures, CFLs – enhance specific features with CFL down-lights or low voltage halogen lights. Use timing devices to reduce light intensity by switching of a proportion of the lights over –night
Lounge areas	50 (night) – 200 (day)	Where they fit existing fixtures, CFLs (especially for chandeliers) including various speciality lighting such as table lamps and ceiling illumination. Avoid using down lights for general lighting purposes. Install photosensors to switch lighting on when daylight falls below a specified level.
Bar/cafés	50 – 200	Where they fit existing fixtures, CFL lamps including speciality lighting and low voltage halogen lamps to highlight specific features – ensure lighting makes the area a focal point. Consider the use of coloured lamps or filters. Install photosensors where appropriate to switch lights on/off as daylight levels change
Traditional restaurant	50 – 100 (night), 150 – 200 (day)	Where they fit existing fixtures, CFLs, including speciality lighting Conventional CFLs cannot be used in conjunction with dimmer switches. If dimmers are required, leave filament bulbs and implement a switch off policy. Upgrade to CFLs during next refurbishment. Avoid using down lights for general lighting purposes. Consider the potential to adjust lighting levels to suit trading times and conditions.
Fast food unit, ice cream parlour	300 – 500	Where they fit existing fixtures, CFLs
Coffee bar, grill room	100 – 300	Where they fit existing fixtures, CFLs (leave filaments if dimmer switch is desired, but enforce a switch off policy). Use warm colour rendering to make these areas look welcoming.
Food display counters		On cold food display counters use fluorescent tubes with a good colour rendering index Hot displays usually gain local light from infrared (heat) lamps
Corridors and stairs	100	CFLs as priority - Light fittings above steps should be mounted where they provide good contrast in appearance between treads and risers
Lifts, escalators, travelators	150 – 200	CFLs - Avoid bright reflections from treads
Meeting rooms	300 – 500	26mm fluorescent tubes or compact fluorescents. Consider installing CFL or low voltage halogen lamps on desks to encourage selective lighting. Train staff to use local task lights and to turn lights off when they leave office areas. Consider installing motion detectors on filament lights to turn them off when these areas are not in use.

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Bedrooms	50 – 100 (bed-head), 300 (desk)	CFLs, where they fit existing fixtures and fittings, including various speciality lighting such as table lamps. Ballast will be required if dimmer switches are required and should be installed when you next refurbish. If possible, install motion detectors linked to photosensors or electronic controls (linked to door keys or a centralised building management system if desired) to turn lights – especially filaments - off in vacated rooms.
Bathrooms	150	CFLs, including additional lighting at the mirror.
Exterior		
General amenity areas	10 – 30	High pressure sodium, or metal halide lamps. Install daylight detectors to avoid wasting electricity. In areas where low levels of lighting are required (and where light quality is not crucial to safety) consider installing solar lights for which the energy is free.

Lighting terminology

Ballast – electrical equipment required to "start" and control fluorescent lightbulbs and to ensure that they emit an even quality of light.

Colour rendering index (CRI) – a term used by designers to indicate the colour properties of light. CRI's are particularly important for energy-efficient lighting and lamps with a CRI of 80 or above ensure that colours are rendered accurately and improve the feeling of well being

Colour temperature (CT) – a term reflecting the warmth or temperature of a light source. Incandescent lamps typically have a CT of 2700K and CFLs are also available to the same specification. As a general rule, the higher the CT number, the cooler the light will look.

Compact fluorescent lighting (CFL) –A good quality energy efficient light-bulb which is commonly used as a replacement for filament lamps. CFL's come in two formats. It is most widely available as a single light bulb with a bulky base (which incorporates its ballast) which is widely available through most major retailers. In some cases, these may not be used in conjunction with dimmer switches and motion sensors.
Less common are CFLs that come with separate ballast (either to screw in or for fitting on the light fixture). These lamps will not fit into conventional light fittings but they are more economical (because the ballast lasts for longer than the tube) and can – in some cases – be used in conjunction with dimmer switches and motion sensors.

Control gear/electronic ballast – Light output from fluorescent and other discharge lamps requires control gear to strike and maintain light output. On modern lamps, these are known as electronic ballast.

Diffusers or louvres – light fittings designed to provide a good distribution of light

Filament, tungsten or incandescent lamps – these lamps are cheap and emit a good quality of light, but are relatively inefficient (transferring up to 90% of energy into heat)

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Fluorescent tubes – a type of energy efficient strip lighting suitable for back of house areas

Halogen quartz lamps – Have a longer life and are 40% to 60% brighter than filament lamps. This means they use less power to produce more light.

Low energy lamps– Light-bulbs described as low energy are more energy efficient than incandescent lamps. The wattage of a bulb illustrates the amount of electricity it consumes per operating hour. A 100 watt incandescent bulb uses 100 watts of electricity for every hour of operation and a 20 watt low energy light bulb uses 20 watts, but gives the same light output.

Lumens – The quantity of light

Lux – The number of lumens per square metre. This is usually the best indicator of the level of illumination provided in an area.

Metal halide and sodium discharge lamps – Types of energy efficient lamp which provide a more compact source than linear fluorescent lamps.

Motion detectors or occupancy sensors – These detect movement in a specified area and automatically turn lights on until no further motion is detected or for a pre-set duration. Different types of motion sensors are required for interior and exterior circumstances. Motion sensors can replace existing wall light switches, or may be purchased as a separate light fixture with a built in sensor. Most motion detectors cannot be used with CFLs.

Photosensors or photocells – These devices can be fitted to most lamps and which switch lights on or off according to daylight intensity.

Timing device – An electronic or mechanical device that can be used to switch lights on or off at pre-specified times. Electronic timers cannot be used with CFL's.

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