



The Clarence Environment Centre.

Working together with local government.

The Clarence Environment Centre is represented on the Clarence Valley Council's Climate Change Advisory Committee by Steve Fletcher.

Steve is also a member of the Clarence Valley Astronomical Society and has, as a result, a passion for 'dark skies', and is a strong campaigner for more efficient, less intrusive, lighting that will not only reduce light pollution, but save ratepayers money as well.

As a member of the Climate Change Advisory Committee, he has lobbied for an outdoor lighting plan to be added to Council's Development Control Plan, and was asked by the former Mayor to put together a draft plan for consideration.

Having completed and presented the draft lighting plan to council Steve, and the rest of the committee, were told that it could not immediately be enacted because the state government's Department of Planning was developing guidelines that would need to be complied with.

It would appear that this advice was not completely accurate, and the real reason for council's stalling is still unclear. However, as an interim measure Steve developed the following "Planning and Design Framework for Proper Outdoor Lighting Practice". This was accepted by the Climate Change Committee, and Council's Director Environment, Planning and Economic agreed to post it on Council's web site as a guide to developers, home owners, electricians and builders.

A copy of the guide is below

Planning and Design Framework

for

Proper Outdoor Lighting Practice

Poorly designed and aimed lighting fixtures produce waste light. This therefore wastes energy, resulting in higher operating costs. Well-designed lighting fixtures control the beam, intensity and illuminate only the target area. In the long term, this will reduce energy use and save money. Also, this improves night time visibility, safety and amenity.

Lighting that produces 'glare' does not increase safety and can create a motoring hazard, especially for older drivers. 'Light trespass' onto properties can disturb peoples sleep and surprisingly, in many cases increase the ease of criminal activity.

Business and Security Lighting

The Australian Standard [AS4282-1997](#)

'The Control of the Obtrusive Effects of Outdoor Lighting' was gazetted in 1997.

- The 'Standard' provides an explanation for the correct choice, fitting and aiming of outdoor lighting fixtures. This is to minimise the obtrusive effects of 'glare' and 'light trespass' onto nearby residences, properties and natural reserves. To expedite this, light fixtures need to be fully shielded.
- The 'Standard' is also in place to help minimise 'Urban Sky-Glow' and the negative impact it has over cities and towns.
- The intensity of the luminaire is crucial, great care should be taken into account when choosing a light fitting so as to not over illuminate an area.
- Upwardly and horizontally directed floodlights are not acceptable. Lighting fixtures should be elevated with the light beam directed downwards.
- The 'Standard' is also in place to help reduce the negative impact on wild life and nocturnal animals.
- Clarence Valley Council maintains that the efficient use of energy is an environmental imperative.



Incorrect

For example, two Car Dealerships are shown above. On the left are cheap, inefficient and glary metal halide lights. These lights are aimed almost horizontally spilling light upwards and dazzling motorists.



Correct

On the right, the car yard uses quality 'Full Cut-Off' box lights that reduce glare and up-light. This creates a visually ambient environment that enhances the look of the sales stock. The bonus is that they are much cheaper to operate.



Inefficient

This double-fluoro luminaire at a warehouse has no shielding. A large proportion of the light is emitted sideways and upward.



Efficient

By contrast, this warehouse has installed a 'Full Cut-Off' luminaire that efficiently directs all of its light downward to the property below, where it is required.

Outdoor Lighting Can Be Dark Sky Friendly

- Light what you need
- When you need it
- No brighter than necessary
- Fully shielded to point downward



INCORRECT

Above Left: This unshielded flood light at a corner car sales yard emits light far beyond the confines of the business premises, wasting light and money.

Above Right: This has forced residents across the road to install heavy duty window shutters. This kind of lighting detracts from the amenity of an area and can easily be remedied with properly aimed, quality 'Full-Cut Off' lighting fixtures.



Negative effect on neighbours



Unacceptable

No consideration was given to the aiming of this Full-Cut-Off, 'forward-throw' flood light, mounted over a car park. The light is incorrectly aimed so that most of the light is wastefully beamed into the sky!



Acceptable

Here is the correct positioning of 'forward throw' flood lights. They are mounted horizontally as prescribed and throw the light forward and towards the ground.



Unacceptable - Billboard illuminated from below loses light skyward causing glare and increased running costs.



Acceptable - Down lights illuminate from above - very efficient, reducing energy waste and operating costs.

Sports Ground Lighting

P. 4

Night time 'Sports Ground' illumination is covered by 'Australian Standard 2560'.



On the **left** is a sports ground fitted with a battery of almost horizontal facing flood lights. A substantial amount (nearly 50%) of light shines uselessly skyward and beyond the sports ground area, affecting wide residential areas creating nuisance glare and light trespass.

These types of fixtures are very inefficient and expensive to operate.

On the **right** is a sports ground fitted with fully shielded 'forward throw' luminaires. All light is directed toward the playing field with little or no waste light. These types of fixtures are much more efficient and are less expensive to operate than the lights on the left.



EXPENSIVE TO OPERATE

Typical configuration of luminaires found at commercial car yards, sports grounds, warehouses and security lighting. Only the lower portion of the beam reaches the yard, while the remainder (about 40%) escapes sideways and upwards. This waste increases running costs, glare, 'urban sky-glow' and light trespass.

EFFICIENT TO OPERATE

Above is an example of sports ground flood light that is more economic to operate than the type shown in the photo on the left. All light emitted is directed toward the ground where it is useful. Usually, a less powerful lamp can be used because the light beam is concentrated onto the field below.

X

LIGHT TRESPASS

X



GOOD NEIGHBOUR

LIGHT TRESPASS



ACCEPTABLE WALL PACKS THAT PREVENT LIGHT TRESPASS



UNACCEPTABLE WALL PACKS THAT CAUSE LIGHT TRESPASS

BOLLARD LIGHTING



EXAMPLES OF UNACCEPTABLE BOLLARD LIGHT FIXTURES THAT CAUSE GLARE, LIGHT TRESPASS AND ARE EXPENSIVE TO OPERATE



EXAMPLES OF BOLLARD LIGHT FIXTURES THAT ARE ACCEPTABLE

Note that all light is directed down, where it is useful



In the photo above, the brightly illuminated night sky is a perfect example of wasted energy. This of course, translates into a major financial burden on governments and therefore the community. Businesses in general are also blissfully unaware that they contribute to this problem and are wasting huge amounts of money operating poorly designed and/or directed, outdoor lighting fixtures.



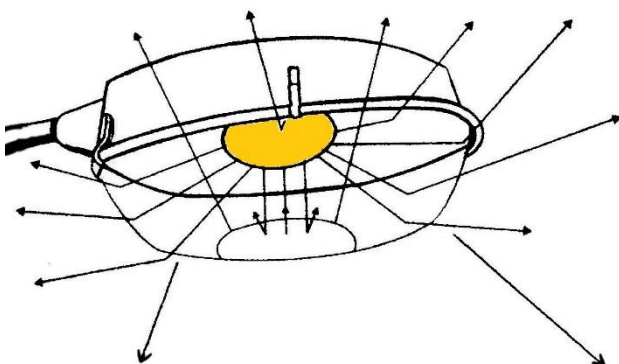
MORE EXAMPLES OF THE TYPES OF LIGHTING FIXTURES THAT ARE INEFFICIENT AND MAJOR CONTRIBUTORS TO 'URBAN SKY GLOW'. THE AVERAGE 'SEMI CUT-OFF' STREET LIGHT IS PARTICULARLY GUILTY WITH MUCH BETTER ALTERNATIVES AVAILABLE.



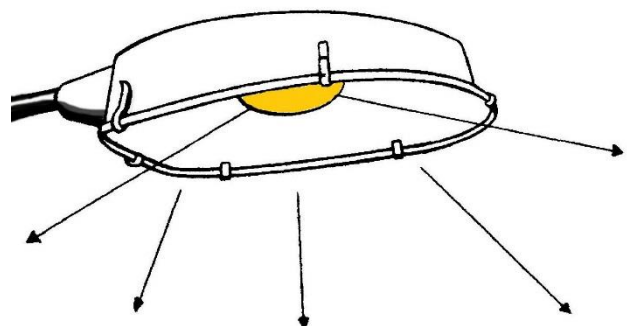
EXAMPLES OF QUALITY, 'FULL CUT-OFF' LUMINAIRES. ALL LIGHT IS DIRECTED DOWN WHERE IT IS MOST USEFUL, THEREFORE RENDERING THE FIXTURE MORE EFFICIENT AND CHEAPER TO OPERATE.



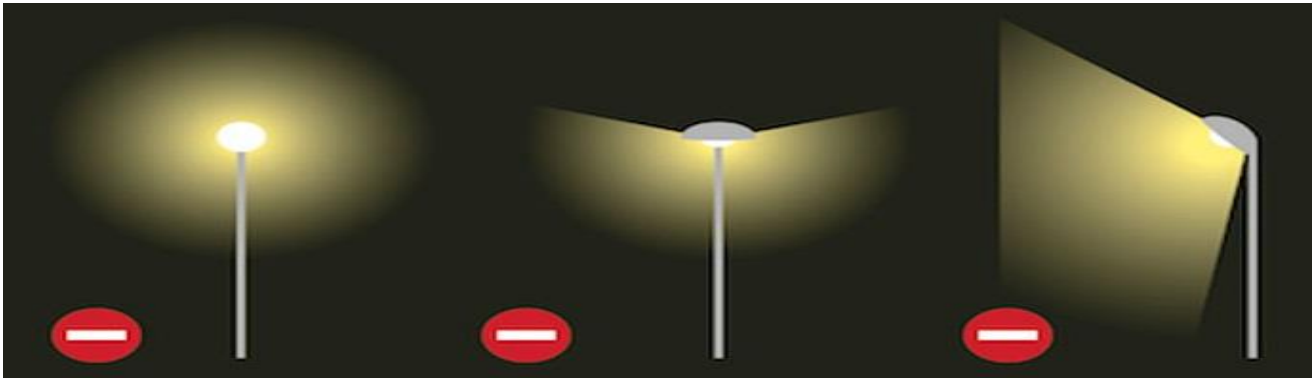
HIGH QUALITY RECESSED LIGHT FITTINGS FOR AWNINGS AND EAVES.



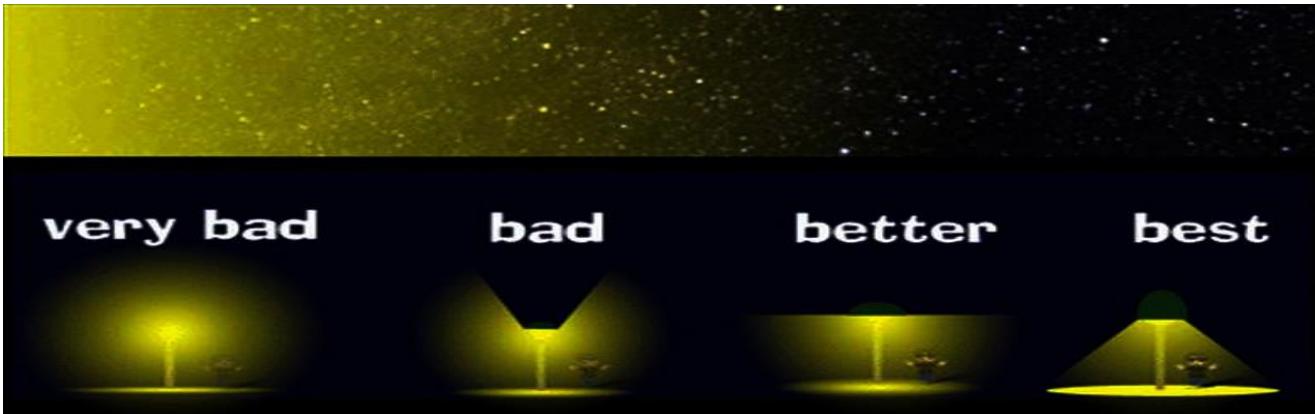
SEMI-CUTOFF STREET LIGHTS SCATTER LIGHT UP AND SIDWAYS MAKING THEM INNEFICIENT



FULL CUT-OFF FIXTURES CONCENTRATE LIGHT ONTO THE GROUND WHERE IT IS REQUIRED AND USEFUL



NONE OF THE DESIGN TYPES ABOVE ARE ACCEPTABLE



PREVENT GLARE



LIGHT TRESPASS



**DISRUPTION TO
NOCTURNAL ANIMALS**



ENERGY WASTE