The EL panel is made up of the following components.

The *lower conductor* carries one side of the electrical supply into the light source. In older types of panel this conductor may have been a sheet of metal, but in the newer flexible panels it is generally some type of foil.

The *phosphor* layer contains the phosphor used to generate the light together with a medium, usually some form of plastic resin, used to keep the grains of phosphor apart from one another.

The *top conductor* is a made of a transparent material that conducts electricity to the top surface of the phosphor layer.

The top layer of the device is a transparent medium. In older devices this layer is usually made of glass, but in more modern units it is likely to be a flexible transparent film.

EL panels are not a particularly efficient light source. Typically they have efficacies of a few lumens per watt. The light output of an EL panel is not that great, typically less than 300 lumens per square metre. There are many applications for EL panels as it is relatively easy to cut them to shape and size so they can be used for signage and to backlight displays in electronic equipment.

3.4 Electric light source characteristics

There are a number of key properties of lamps that need to be considered when choosing which lamp is right for a particular application. The following sections list these properties.

3.4.1 Luminous flux

In any lighting application the amount of light that is needed is a key decision that has to be made. From this it is then possible to work out how many lamps of given rating are needed. There are lamps with lumen outputs less than 1 lumen through to lamps with outputs in excess of 200,000 lumens. In most applications, it is the average maintained illuminance that is important so it is important to consider the lumen maintenance through life at the same time as the initial luminous flux.

3.4.2 Power demand

It is important in any lighting scheme to know what the total power demand is going to be so that the electrical infrastructure can be correctly designed. The power consumed by the lamp is important. However with many lamp types it is important also to consider the impact of the control gear as well. In most cases it will be the total circuit watts that is important rather than the lamp wattage.

One further complication with some lamp types is that the voltage and current waveforms are not exactly in phase with one another. Thus the volts multiplied by the amps in the circuit may be higher than the watts. The power factor of the circuit is defined by the following equation:

$$\text{power factor} = \frac{\text{watts}}{\text{volts} \times \text{amps}}$$