



# LIGHT Education

## Cinematography

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**Topic:** Educational Lighting Site

On the film scene the lighting design aims at creating special effects, which determine a “vision surplus” for the eyes of the spectators.

Lights, contraptions and devices all contribute to create a simulation and imply an increased perception of the space of the scene. If cinema is image, then light matter is obviously its primary factor.

In fact, a film is written with light and thus becomes style, narration, atmosphere and stresses, emphasizes, alludes, it creates transparencies, it bestows dream-like and tale components on reality, it shows the relationship between things and people. A properly directed reflector can uncover, on a poor scene, enchanted prospects, and its beams of light become like small brushes that create the film, which is indeed a mixture of lights and shadows.

Light and shadow are thus the basis of cinema, the possibility of its existence.

Approximately two thirds of a film are shot in a studio.

In addition to natural light, artificial light is also used for external shots, either to enhance or to reduce the contrast between light and shade, and to focus one’s attention on an important detail.

The basic principles described in the photography section also apply to film-making. The method is similar to the one used for television, with the difference that film shooting considers only one cinecamera. This ensures a considerable advantage as regards accuracy and lights, compared to TV shooting with more telecameras.

In film-making, the basic light and the supplementary key light are not necessary as, as already mentioned, only one cinecamera is required and the use of lights remains the same as in a TV studio.

The sensitivity of the film determines what Watt power to employ. For instance, a 25 ASA colour print film will require twice as much light as is needed by a telecamera.

In this case it will suffice to increase the dimension of the beacons: a 2 to 5 Kw projector with Fresnel lens; a 2 a to 4 Kw soft-light, etc. The ratio between the sensitivity of the ASA film, the values of the lens aperture (f-stop) and the exposition time establishes the quantity of light (lux) necessary for film shooting.

The following table shows such ratio:

f-stop	f/2	f/2,8	f/4	f/5,6	f/8
lux	400	800	1600	3200	6400

In film-making the key-light is produced almost exclusively by projectors with Fresnel lens. Daylight projectors are similar as regards dimension and lens, but they differ in relation to type of lamp; in normal projectors 2 to 12 Kw halogen lamps, with a colour temperature of 3200K, are installed.

In Daylight projectors the lamps are 575 to 12000 watt discharge lamps, which can emit a light with 6500K and plus colour temperature. The filling light is usually produced by softlight diffusers or by devices called “bruto”.

Since only one shooting at a time is taken into consideration, the beacons are generally installed on mobile tripods in order to be able to easily position them for each shooting.

When shootings are realized in a studio, the beacons are positioned by means of American trusses, galleries, parts of the scenography that are not framed, dollies etc.

The control of light intensity rarely requires a regulation system (dimmer + mixer).

The beacons are normally positioned and pointed towards a specific direction by means of gauzes, tulle, and diffusers with different light transmission characteristics.

Light sources that are typically used for film-making, and also for television, can originate from a back or lateral position with a low angle (shoulder height); their task is to reinforce the outline of the face.

In order to add sparkling to the eyes it is necessary to position an eye-light or basher as near as possible to the cinecamera.

Beside these “special” projectors, there are other devices that alter the characteristics of light when they are placed in front of a beacon.

Light shades, french flags, drums, are structures made of opaque material (blackened sheets) that when placed in front of a light source control its ray, generally “masking” areas of unwanted light. Gobos are heat-resistant models made of alloy, which reproduce varied patterns on backdrops, scenographies, people, and which are used together with projectors equipped with an optical system with which it is possible to focus (beamshapers, followspots): the nosecone is a usually black funnel made of metal or heat-resistant fibre, which is placed in front of a Fresnel beacon on the “flood” position in order to reduce the ray of light without increasing its intensity; in other beacons the nosecone has the function of eliminating false light.

For external shootings, but sometimes even inside a studio, variously dimensioned screens with different kinds of reflecting surface are used: slightly mirrored, granular or matted surfaces.

The function of such screens is to fill shadowed areas with light. The filters are mostly conversion or neutral density filters. o It is advisable to avoid white backdrops or spaces that are set too close to the face of the subject to be filmed.

o A dark dress against a dark backdrop reveals neither any colour nor any form. o Beware of the glitter of highly reflecting material on the scene.

o Luminous or silver objects require a reflected and diffused lighting, possibly by employing white screens.

o Antiglare spray is used to soften unwanted glitters.

o In order to make a scene with rain more visible, a strong false light and a consistent cutting light is required; the same applies to snow, by slightly diminishing light intensity.

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