

1.2 ELECTRIC LIGHTING

The three main categories of electric lights are incandescent lamps, which produce light by a filament heated white-hot by electric current, gas-discharge lamps, which produce light by means of an electric arc through a gas, such as fluorescent lamps, and LED lamps, which produce light by a flow of electrons across

Domestic Lighting

The requirement of illumination varies from place to place such as study rooms, drawing room, verandah, bedrooms, and toilets, Incandescent lamps, fluorescent lamps, and compact fluorescent lamps (CFL) are well suited for domestic lighting. It should be remembered that, it is economical to have white walls, as it increases the reflection rather than colored walls.

Industrial Lighting

Sufficient light in factories increases production, and quality of work and reduces accidents. Investigations have been carried out in several industries to determine the influence of lighting on production; results indicate that with an illumination of about 200 lux, the production is equal to that obtainable in good daylight.

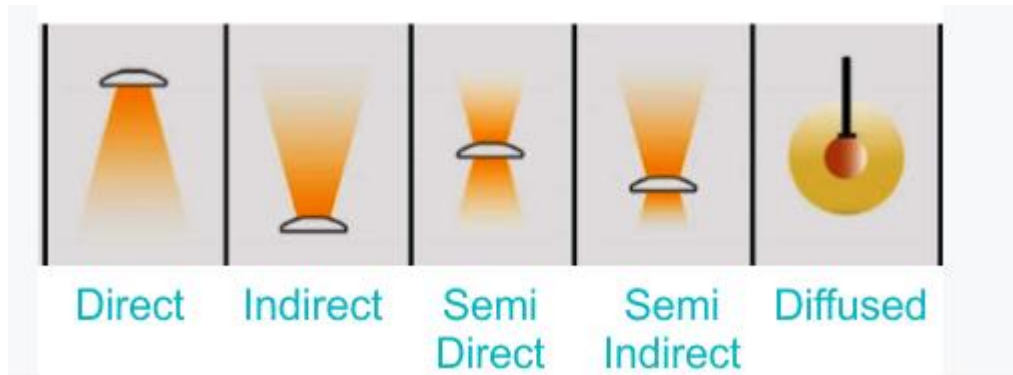
Advertisement Lighting

This type of lighting is used to attract the public and to increase sales. Dress materials, domestic appliances, sign boards, automobiles, cosmetics, etc. come under this category and are illuminated at road junctions, public places, etc. Almost all types of lamps with reflectors are used for advertisement lighting.

Street Lighting

The purpose of street lighting is to promote safety and convenience to pedestrians, vehicles, police supervision, and other purposes. The level of illumination required for streets will vary depending upon a traffic road or other type of road. High illumination should be provided on traffic roads and shopping centers. The most important factors to be considered in street lighting are visibility, the ease of erection, and maintenance. Less importance will be given to color rendering.

Types of Lighting Schemes



- Direct lighting
- Semi-direct lighting
- Indirect lighting
- Semi-indirect lighting
- General lighting

Direct Lighting

In this method of the scheme, about 90 to 100% of the light from the source is directed towards the working plane or object or surface to be illuminated. The remaining about 10% of the total flux goes to the other direction or the upper hemisphere. Light may be directed on the working plane by the use of suitable reflectors or bracket lamps or by additional pendant fittings.



Direct light is cut off at an angle of 30° below the horizontal line. The height of the lamp from the working plane should be two-thirds of the lamp spacing. When the lamps are to be mounted at considerable heights from the working plane, the angle of cut-off may be 45° . The below figure shows the fitting. A trough reflector may be of steel stove-enameled or anodic aluminum or vitreous-enameled. However,

this direct lighting produces hard shadows.

Advantages of Direct Lighting

- Mounting of lamps is easy
- The light emanating from the lamp is fully utilized on a working plane
- The objects are clearly visible
- Domestic and industrialists prefer direct lighting
- It is cheap (fittings and lamps)
- Extra fittings are not required

Applications of Direct Lighting

- Houses, offices, etc.,
- Industrial lighting

