

# COMPARISON OF DIFFERENT BULBS



Incandescent bulb.

## **Incandescent Bulbs:**

- do not require a ballast
- have a warm color appearance with a low color temperature and excellent color rendering (CRI 100)
- are a compact light source
- require simple maintenance due to screw-in Edison base
- are a less efficacy light source
- have a shorter service life than other light sources in most cases
- have a filament that is sensitive to vibrations and jarring
- can get very hot during operation
- must be properly shielded because incandescent lamps can produce direct glare as a point source

- require proper line voltage as line voltage variations can severely affect light output and service life



A fluorescent Bulb.

### **Fluorescent Bulbs:**

- require a ballast
- have a range of color temperatures and color rendering capabilities
- have low surface brightness compared to point sources
- have a cooler operation
- are more efficacious compared to incandescent
- ambient temperatures and convection currents can affect light output and life
- all fixtures installed indoors must use a Class P ballast that disconnects the ballast in the event it begins to overheat; high ballast operating temperatures can shorten ballast life
- have options for starting methods and lamp current loadings
- require compatibility with ballast
- low temperatures can affect starting unless a "cold weather" ballast is specified.



A High Intensity Discharge (HID)bulb.

### **High Intensity Discharge (HID) Bulbs:**

- require a ballast
- ambient temperature does not affect light output, although low ambient temperatures can affect starting, requiring a special ballast
- are a compact light source
- are high lumen packages
- are a point light source
- have a range of color temperatures and color rendering abilities depending on the lamp type
- have a long service life
- are highly efficacious in many cases
- have line voltage variations, possible line voltage drops, and circuits sized for high starting current requirements which must be considered.

Source: <https://www.e-education.psu.edu/egee102/node/2050>