

Understanding Lighting

Alloway Lighting



Lighting Solutions for Business

Types of Lights

- ❖ Incandescent
- ❖ Halogen
- ❖ Fluorescent
- ❖ High Intensity Discharge (HID)
- ❖ Xeon
- ❖ LED

Lighting Elements

- ❖ Lighting has three basic elements
 1. Lumens - Amount of light
 2. CRI – Color of the light
 3. Kelvin (K) – Intensity of the light

- ❖ These three elements contribute to a persons perception of the light

Wattage (power consumption)

- ❖ Watts – A watt is a measure of power consumption. It is NOT a function of the amount of light.
- ❖ Example: A 7 watt Compact Fluorescent (CFL's) uses 7 watts of power to provide 1200 lumens while a incandescent lamp uses 40 watts of power for the same 1200 lumens

Kelvin (K) – color temperature

- ❖ Kelvin – used to measure the intensity of the light. The higher the kelvin, the brighter the light appears even though the lumen output is the same.
- ❖ If you increase the kelvin, the same watt or lumen lamp will look brighter – warm vs cool white
- ❖ Many people confuse kelvin with lumens. Lumen is amount of light, kelvin is intensity of the light and color temperature

Color References

- ❖ Cool White – brighter whiter color (SP41)
- ❖ Warm White - more yellow warm color. Most common in offices, similar to incandescent light color (SP 35)
- ❖ Full Spectrum – whiter light but not as bright as cool white. Closest color to outdoor sunlight on overcast day. Many offices moving towards full spectrum – 55k +
- ❖ CRI - Ability of the light to show the true color of the object being illuminated. Most lamps are 70 – 86 CRI

LED's – Light Emitting Diode

- ❖ Very low power usage, but expensive compared to other lighting types and limited formats. Starting to see in recessed cans, street lighting and now available in T8 tube.
- ❖ The longest lasting lamp
- ❖ LED's are not light bulbs but a diode that emits light as it is heated
- ❖ There are a lot of low quality LED's currently on the market

Energy Conservation

- ❖ Various lamp options can save energy
- ❖ It is important to consider natural light. Too much artificial light is often used
- ❖ Fluorescent and compact fluorescents are the only true energy saving lamps with practical application today. They are long lasting and conserve energy
- ❖ Fluorescents come in a variety of shapes and applications – multiple CRI, twist, floods, & globes
- ❖ Occupancy control sensors can further reduce energy usage

Types of Fluorescents

- ❖ Many new form factors and colors – gloves, reflector floods, Par, twists
- ❖ Different wattages and lumens in same form factor – T8 4' 32, 28 watts, high lumen, low mercury, etc
- ❖ More efficient systems that provide better light – high bay fluorescent fixtures are replacing traditional Metal Halide fixtures
- ❖ Fluorescents can be dimmed but it is stepped dimming

Fluorescent Lamp Ballasts - timelines

New Efficiency Level Requirements will eliminate:

Electromagnetic Ballasts that Operate most 4' and 8' lamps

Effective Dates:

- ❖ January 1, 2009 – Can't manufacture Ballasts for new fixtures
- ❖ October 1, 2009 – Can't sell Ballasts for use in new fixtures
- ❖ July 20, 2010 – replacement ballasts no longer can be sold unless marked as replacement only
- ❖ We are beginning to see the impact of these rules

Market Impact:

- ❖ Future Fixtures to incorporate Electronic Ballasts Only
- ❖ Currently shifting to T8 lamps and Electronic Ballasts
- ❖ Capitalizing on Idaho Power incentives

Retrofits – T12 to T8 systems

- ❖ 30% or more energy savings
- ❖ One of few capital improvements that provides a return. Savings start immediately
- ❖ Idaho Power incentive generally cover 30% - 60% of cost. Four lamp trouffer and HID fixtures offer some of best incentives
- ❖ The more you can delamp, the better the incentives. Generally go from 4 lamp to 3 or 2 lamps.

Disposal

- ❖ All fluorescent lamps contain small amounts of mercury and should be recycled
- ❖ Older T12 ballasts may contain PCP's if ballast is from the 1970's (still fairly common)

Proper Lighting Maintenance

Group relamping

- ❖ Replacing all lamps as once is a wise investment from both a lamp performance and financial perspective
- ❖ As lamps age, the cost of replacing individual lamps increases and lighting performance decreases. The cost of replacing individual failures is high
- ❖ The per cost lamp replacement by group relamping is less expensive than replacing spot failures
- ❖ Replacing aged lamps gives a site a very visible face lift. The lamps are brighter and have better color and lumen uniformity
- ❖ Color differences between manufactures is minimal or not an issue. Differences are seen when installing a new lamp next to an aged lamp

Alloway Lighting



- ❖ Experienced and knowledgeable staff
- ❖ Lighting and design consultation
- ❖ Energy efficient lighting
- ❖ Largest selection of fixtures, lamps and electrical supplies in the Treasure Valley
- ❖ Local business delivery and service
- ❖ Residential, Commercial and Industrial specialist

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