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 fluorescents 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 delamping is less expansive 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, lambs and electrical supplies in the Treasure Valley
- Local business delivery and service
- Residential, Commercial and Industrial specialist

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