

Access Fixtures

Watts v. Lumens

Some fixtures produce more light for the same input power than others. The input power is measured in watts. The light output is measured in lumens. The wattage used is not directly related to the lumen output. Some fixtures have a higher efficacy. This means that the technology used generates more lumens per watt. An efficient fixture will put out more lumens per watt (LPW) than an inefficient fixture.

This is really relevant for any organization. Lighting typically accounts for nearly 40% of a commercial building's power bill. Also, a higher LPW ratio reduces the heat generated to produce the light. HVAC loads are affected by lighting loads. Every watt of power used by your lighting system generates 3.414 BTUs. Wattage means heat and the HVAC must compensate for that heat.

While LPW is important, it is not the only consideration. Maintenance of the lighting, light quality and how the lighting will be used must be taken into consideration too. Still, an efficient lighting system can quickly payback your organization. If you are not sure what your organization should select, the staff at Access Fixtures will be glad to discuss your lighting needs with you and help you select the right lighting fixtures.

Wattage

Light fixtures and collectively lighting systems require electricity in order to produce light. The amount of electricity is measured in Watts (W). Watts expressed as kilowatts (1000 watts = 1 Kilo Watt) is how the utility companies measure and then calculate monthly electrical bills. Reducing the wattage used for lighting reduces energy use and consequently the power bill.

When measuring wattage it is important to look at the entire lighting fixture and not just the bulb. Fluorescent and High Intensity Discharge (HID) fixtures have ballasts which also use power. The wattage used by the fixture must include the lamp and ballast. For instance a HID 400W Metal Halide (MH) high bay way will use 400 watts for the bulb and usually about 58W for the ballast totaling 458W. All calculations should include the entire fixture.

Lumens

Different fixtures produce different amounts of light. The quantity of light is measured in lumens. Watts for the lamp and lumen ratings are specified on the packing of the lamps. As some fixtures are more efficient than others, different types of fixtures will produce more light per watt than others. In some types of technology the ballast can affect the lumen output. Additionally some lamps are more efficient than others. Again it is important to look at the performance of the entire fixture.

Lumens per Watt

Lumens per Watt is an expression of how many lumens we get from a light source compared to how much energy or wattage is being input. The more lumens per one watt of energy produced by a fixture, the more efficient the fixture is. The performance difference is material. For instance, incandescent fixtures generate about 17-20 LPW, while some fluorescent fixtures put out over 90 LPW. In other words the fluorescent fixture costs about 80% less to operate while putting out the same amount of lumens. The more efficient the fixture is, the lower the operating cost and the fixture is more environmentally friendly too.

LPW is easily calculated by taking the lamp lumens and dividing it by the total wattage required to operate the fixture. In the case of fluorescent and HID fixtures, there is lumen depreciation. As the lamp ages of the lamp will have reduced lumen output. In these instances the lumen output is measured when the lamp is new and again at the average of the lamp life. The terms used to indicate the lumen output at these points are initial lumens and mean lumens. It should be noted that manufacturer's packaging typically rates the lamp in initial lumens. The mean lumen rating may only be available in the lamp manufacturer's catalog. Even with all that, once again the ballast must be taken into consideration.

Regulation

In many states there are regulations that limit the watts used per square foot. Requirements vary from state to state and may even vary based on if the project is new construction v. renovation and in the case of renovation, the project's scope. Be sure to check if your project is regulated and if yes, the limits of energy usage for your purpose.

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