

Natural White Technology - (FAQ)

Q. What is it?

A. It is a new variation of Metal Halide lamp, which can save energy, create a better lighting solution, and will last longer.

Q. What makes Natural White Different?

A. Natural White has some additional rare earth elements inside the arc tube which create a different spectrum of light. This light has a color temperature of 5000K, which is higher in quality compared to current Metal Halide technology. This light also has a CRI, or color rendition index, of 90+ which is a way of saying that colors can be seen very well in this spectrum of light.

Q. So it's just a light bulb I can replace?

A. In the lighting industry we call them lamps, and in order to use the newer technology both the ballast and lamp has to be replaced. Also the only system available at this time is a lamp that is in a vertical, base up configuration.

Q. My shopping center has fixtures which are vertical, so I can reuse those and retrofit the lamp and ballast?

A. Correct.

Q. So these lamps use less energy?

A. The Natural White 775 watt system is designed to replace a typical 1000w system. This is how the energy saving are realized. The quality of the light enables us to use less energy, while still producing a superior lighting solution. Other Natural White system wattages are available to customize the individual project, for example a 320w system could replace a conventional 400w system.

Q. This is a bit difficult to believe, how does using less energy give you a better lighting solution?

A. Because the light is more suitable for the eye, more of the light being created is used, therefore less light is required to create the solution.

Q. (Actually a Statement) You might have to just show me.

A. We have done just that. Consider the picture below. This is a shopping center that was using 1000 watt High Pressure Sodium systems in semi-cutoff fixtures. On the left you have the 775 watt Natural White Metal Halide in full-cutoff fixtures.



If you measured the HPS light with a typical photometer, you may get a foot-candle reading of 6 or 7, and in the section with the superior Natural White light, you may get a reading of only a 3 or 4. Clearly the area on the left seems twice as bright, but reads much less on a light meter. Again, less light is being created, but the eye is using more of it.

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Q. So measuring this new light photopically, it reads less in light levels? What if I need photopics to submit to a municipality or tenant in order to show the light levels comply with their requirements?

A. What we would do is model the solution scotopically, using Scotopic light theory, and explain the comparison between the two.

Q. Now I am really confused. What is Scotopic light theory.

A. This is the concept that you measure light in relation to how usable it is to the human eye. The eye uses light differently during the day than it does at night, and it uses different spectrums of light as light levels increase and decrease. The physiological details are not important, the main concept is simple: it is not the amount of light energy that is important, it is the type and how the eye uses it.

Q. Can you give me a basic example?

A. Imagine you have a 60w incandescent "light bulb" in your walk in closet. In the morning you cannot tell the difference between a dark blue sock or pair of pants, and a black sock or suit coat. After being embarrassed at work a few times, you remove the incandescent "light bulb", and replace it with a 26w compact fluorescent "squiggly" lamp. Suddenly you can see so much better!

Now you are using less than half the energy, and have improved the "light" dramatically. You just proved Scotopic theory without ever having heard of it.

Q. Okay, you mentioned earlier that it lasts longer?

A. Correct, the Lamp Life of the new Natural White technology is a considerable improvement. Where a probe start system may have a 12,000 hour Lamp Life, the Natural White pulse start system has a 20,000+ Lamp Life.

Q. That is a big difference, what does the "+" signify.

A. Essentially, the way manufacturers typically determine Lamp Life is by actually burning many lamps until half of them fail. The period of time measured in hours to the 50% survival mark is then called Lamp Life. With Natural White technology, at 20,000 hours only 30% of the lamps had failed, that was good enough.

Q. So they burn longer, do they burn brightly all that time too?

A. The lighting industry answers that question by characterizing a lamp and ballast system with a figure called a "Light Loss Factor" (LLF), or "Maintenance Factor" (MF). This is a factor which indicates the amount of light leaving a lamp at 40% of lamp life in relation to its initial lumen output when new.

So an older technology probe start system with a 12,000 hour lamp life, which has a MF of 0.70, indicates a light output of 70% compared to a new lamp, when that lamp has reached 4,800 hours.

Natural White technology has a 20,000 lamp life and a MF of 0.90; therefore at 8,000 hours into the life of the lamp, it's still burning at 90% of initial lumen output!

Q. So how much does it cost?

A. Typically the cost premium for the Natural White technology is an ROI of less than a half a year. In the case of using a 775w Natural White system vs. a 1000w standard system, the extra cost is about thirty dollars. At \$0.10 per Kilowatt/Hour cost of energy, and an average of eight hour per night illumination time, the energy savings amount to about \$75.00 annually per fixture.

Q. Is there a warranty?

A. Yes, two years on the lamp, and five years on the ballast.

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