

Michaels Engineering LEED® Brief

SUPER T8 FLUORESCENT LIGHTING

SUGGESTIONS...

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DID YOU KNOW...

...The super T8 reduces operating costs without sacrificing lighting quality.

...By choosing a Super T8 lighting system, a building can significantly decrease its energy usage from not only lighting, but cooling as well.

MEET THE AUTHOR



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→ SUPER T8s

Meeting new energy code requirements, which are also used for determining energy savings for LEED® EA credit 1, has become difficult with standard T8 fluorescent technology and traditional lighting levels. Super T8 technology in combination with task lighting, or putting light where it is needed, is necessary to get separation from baseline code energy consumption.

→ STANDARD T8 OPTIONS

For the last 20 years, the standard 32-watt T8 fluorescent lamp with electronic ballast has been the longstanding system of choice for new buildings and retrofits. This seems like a long time for a lighting technology to stick around, especially in a world where technology can change overnight.

Improvements to the standard T8 technology have been made and are beginning to gain sufficient market penetration to bring costs down. The most notable improvement has been given the designation of "Super T8".

→ NOT YOUR AVERAGE T8

The Super T8 trumps the standard T8 in nearly every measurable lighting parameter, making it easy to understand why they're called Super T8s. With an increased efficacy, longer life, and lumen maintenance, the super T8 reduces operating costs without sacrificing lighting quality. The lamp has a rated output of 3100 lumens, resulting in more light output than a standard T8, which has a 2800 lumen rating. Also, with a surprising lamp life of 30,000 hours, the Super T8 leaves the 20,000-hour standard lamp in the dust.

→ USING THE SUPER T8 EFFECTIVELY

To get the most out of Super T8 technology, one must incorporate the proper ballast and lamp combination to maximize effectiveness. A ballast is a device that provides voltage to start the lamp and then regulates voltage during operation. Ballast specifications dictate how much energy is used, and the light output of the system. Super T8s can be used in conjunction with normal T8 ballasts, but are best utilized with low-ballast factor ballasts intended for use with Super T8 lamps. A low ballast factor of 0.71 is ideal for use with Super T8 lamps. Since the Super T8 would put out significantly more light than a standard T8 at a normal ballast factor of 0.88 the reduced ballast factor allows the Super T8 to consume roughly six watts less per lamp at a comparable light level.

→ POTENTIAL SAVINGS

If a facility with 200 three-lamp T8 fixtures were installed with super T8 lamps and ballasts instead of the standard T8 equipment, an annual energy savings of more than 8,000 kWh could be realized if the lamps were used an average of 10 hours a day for five days a week. With this amount of reduction in energy consumption the incremental cost of roughly \$1 per lamp can be recouped within a year.

→ LEED® CREDITS

In today's computer savvy world, workspaces typically require lower lighting levels. The key is to use an appropriate lamp and ballast configuration to avoid over-lighting the space and to maximize energy savings.

By choosing a Super T8 lighting system, a building can significantly decrease its energy usage from not only lighting, but cooling as well. Since LEED® EA credit 1 is determined on total facility energy consumption compared to a baseline facility, the lighting savings, along with the interacting cooling system savings, is a leveraged approach to saving energy.

