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HEAT GAIN REDUCTION FORMULA

The Light Edge, in consultation with mechanical engineering consultants, has arrived at the following formula (based on ASHRAE data) to estimate reduction in heat gain when converting HID highbay lighting to T5HO highbay lighting:

HID to T5HO High Bay Fluorescent Lighting Conversion

We spoke with our mechanical engineering associates, and they came up with the following formula for determining BTU load reduction relative to retrofitting HID with our T5HO products:

- 1) Determine the delta between the total HID input Wattage load and the total T5HO input Wattage load for the space in question.
- 2) Multiply by 3.41 (ASHRAE Watts:BTU conversion factor).
- 3) Multiply by Allowance Factor (400WMH = 1.15; 400WHPS = 1.16) to cover heat production beyond ballast operation.
- 4) The results are **BTU/hour reduction**.

EXAMPLE:

- 245 each 400W MH existing highbays @ 465 input Watts = 113.93kW load
- 245 each 4 x T5HO RAPTOR™ replacements @ 220 input Watts = 53.9kW load
- Delta = 60.03kW
- Multiply by 3.41 = 204.7BTU/hour
- Multiply by 1.15 MH 'Allowance Factor' = **235.4 BTU/hour reduction**

This result can be used in determining load reduction on chillers, freezers, AC units, etc. Aside from studying a facility in detail, this "ballpark" estimate is actually pretty close; according to our sources, "a BTU is a BTU is a BTU, and a Watt is a Watt is a Watt. Doesn't matter if it's a freezer or an office, heat gain is heat gain". The result, as I indicated, will apply to any space's heat reduction system formula.

For a typical "big box" conditioned retail space, here's a basic formula for cooling load reduction:

For every **1,000W of HID lighting load reduction** by replacing 400W HID with 4 x T5HO RAPTOR™ luminaires, there will be a **savings of 0.28 tons of cooling per hour**. That's a ton for every sixteen fixture retrofits!

This is an important illustration of yet another of the many benefits of converting HID highbay lighting to RAPTOR™ T5HO lighting by The Light Edge. Now that's impressive!