

Spot Versus Group Relamping

There are a variety of reasons to practice group relamping, in which a set of lamps is replaced at a scheduled time, rather than spot relamping, in which lamps are only replaced when they burn out. Most of these reasons apply to fluorescent and high-intensity discharge (HID) lamps rather than incandescents, which have much shorter lifetimes.

Why Practice Group Relamping?

There are four main reasons to practice group relamping—it:

- *Requires less labor per lamp than spot relamping.* A worker might take as long as a half hour to retrieve and install a single lamp. If all the materials were on hand for a large number of lamps, a worker could move systematically from fixture to fixture and cut the required time to about 3 minutes per lamp. The process would also be less disruptive, because group relamping is usually done outside working hours.
- *Easy to schedule and delegate.* The work can be done by outside contractors who have special equipment and training.
- *Provides brighter and more uniform lighting.* Because lamps are replaced before their output has fully depreciated, lighting remains consistent. Direct energy benefits result if the designer, anticipating group relamping, uses a smaller safety factor.
- *Increases control over replacements.* It's much more difficult to mix incompatible lamps—such as those with different color temperatures—when all of them are changed out at once.

Economic Comparisons

Economic comparisons typically show that group relamping has higher lamp costs but lower labor costs than spot relamping. One such comparison in Table 1 indicates a 31 percent overall savings from group relamping. This type of calculation is heavily dependent on the difference in labor costs between group and spot relamping. For example, if the group

relamping cost of \$1.50 per lamp jumps to \$3.50, the balance tips in favor of spot relamping. Remember, however, the noneconomic benefits of group relamping discussed above when deciding between the two methods.

Table 1: T8 lensed troffers

Group relamping has higher lamp costs but much lower labor costs, in this case providing a 31 percent overall savings. Group relamping also provides additional benefits in lighting quality and easier facility management.

	Relamp cycle (hours)	Average relamps per year	Average material cost per year	Average labor cost per year	Total average cost per year
Spot relamping on burnouta	20,000	525	\$1,391	\$3,150	\$4,541
Group relamping at 70% of rated life)b	14,000	750	\$1,988	\$1,125	\$3,133
Difference		225	\$597	-\$2,025	-\$1,428
					(31% savings)

Notes:

a. Assumes labor costs of \$6.00/lamp for relamping and cleaning, material cost of \$2.65/lamp, and 3,500 hours/y operation.

b. Assumes labor costs of \$1.50/lamp for relamping and cleaning, same material costs and operating hours as for spot relamping.

Source: U.S. Environmental Protection Agency

Source URL: https://tva.bizenergyadvisor.com/BEA1/OMA/OMA_Lighting/OMA-23