

commercial corner.

by Randal Smith LC



above.

Don't be fooled by the appearance of the screw-in medium base on a lamp. This lamp is metal halide and requires a ballast to operate.

A common lighting misconception is that if a lamp (aka 'lightbulb') will fit in a socket, it will work properly. We get a steady stream of calls from building operators who have discovered how dangerous that assumption can be.

In order for a lamp to work as designed, three things need to be in place. First, the base of the lamp must fit the socket. Next, sockets for discharge lamps (i.e., fluorescent, high pressure sodium, mercury vapor, metal halide, and low pressure sodium) must connect to a ballast. Last, the ballast must be of the correct type to run that particular lamp.

This is so basic that it seems that it does not need discussion. But we frequently help people who have big problems caused by overlooking the above three rules.

- **Medium Base Sockets.** Frequently a building operator is not aware that the building they are managing uses HID lamps. When the lamps burn out, they see a 'screw-in' socket, and replace them with incandescent lamps. The incandescent lamps may work but they use more watts and produce much less light than before. One building manager was puzzled because the new incandescent bulbs kept burning out in less than a week. (It was a fixture designed for HID lamps.) **Don't be fooled by the appearance of the socket as to which lamp to use.**

- **Ballasts.** Discharge lamps need a device to properly start them and regulate voltage while they operate. This device is the ballast. Astonished contractors have created "mega-flashbulbs" by wiring sockets for discharge lamps without using ballasts. Lamp-life is measured in milliseconds. **If you're using a fluorescent or high intensity discharge lamp, make sure you have a ballast connected to run it.**

- **Ballast Type.** Some people who understand the first two rules forget that the ballast must be designed to run the specific lamp that is in the socket. This is not a minor detail.

A residential grade ballast designed to run an F40T12 may be unsafe to use with the 34W version of that lamp. T-12 and T-8 lamps will not correctly run on each others' ballasts. Each lamp starts and operates at very different voltages.

Getting your money's worth from a lamp requires matching it with the correct ballast.

shop lights

Some people (I'm sure that doesn't include anyone reading this article!) base lighting decisions solely on the first cost of a product. Shame on them! Almost weekly we get calls from people who replaced a 4 foot F40T12 lamp with an 'shoplight' simply because they were cheap to buy. We even heard about a building owner who pulled out T-8's and replaced them with 'shoplights'.

Shoplights have little common official designation and rarely are found in a commercial lamp catalog. They usually are 4 foot long 25W T12 fluorescent lamps.¹

The truth is that the 'shoplight' is a very expensive lamp compared to almost everything else when you look at life-cycle costs! Let's run the numbers:

Lamp	Cost	Lumens	Life
Shoplight	< \$1.50	1900	12,000
F40T12ES	< \$2.00	2700	20,000
F40T12	< \$3.00	3000	20,000
F32T8	< \$3.00	3000	20,000

The bottom line is that with the 'shoplight' lamps you'll have to do almost twice as much maintenance, and get a little more than half as much light. Most 'shoplight' lamps have a Color Rendering Index (CRI) of about 60, compared to the standard CRI of 75 for T-8's. Add all that together, and it becomes clear that those 'bargain' lamps are no bargain at all.

¹ Note: GE makes an F25T12 that runs on F32T8 electronic ballasts. Do not consider this specialty retrofit product a 'shoplight'.