

- A. FIXTURE TO BENCH DISTANCE
- B. WALL SPACING: DIVIDE FIXTURE TO BENCH BY THREE.
- C. MAXIMUM LIGHT SPACING: MULTIPLY FIXTURE TO BENCH DISTANCE BY 1½.

# Getting the Light Right

Good shop lighting makes for accurate work without straining your eyes.

■ For me, good lighting is one of the most important tools in my shop. It helps you avoid eye strain and makes it easier to work more accurately. Even more importantly, good lighting makes working in

the shop a whole lot safer.

To get all these benefits, there are a few things you'll need to consider. The first of these is selecting the best light source to use.

## FLUORESCENT LIGHTS

For most woodworkers, fluorescent fixtures are a common choice. They're relatively easy to install, inexpensive to operate, and provide good light over a sizable area.

However, some of the drawbacks to this type of lighting are that the lights can sometimes be slow to start, make a humming noise, or flicker a bit. But most of these problems can be solved with a few simple steps. The box at left can help you troubleshoot some of these common problems.

But even the best fluorescent system can't give you the light you need if it's not able to focus the light correctly. So you'll want to be sure you use the right fixture.

**Brighten the Shop.** Choosing a fixture that's best suited to your

needs has a lot to do with the room you're working in. So the first thing you'll need to do is take a good look at your work area.

I always try to make sure the light falls onto my work area and doesn't get absorbed by the walls, ceiling, and other materials in the shop. The best way to do this is to have a flat surface behind the fixture and then paint the surface a light color, preferably white. You'll also find painting the walls a light color improves the lighting.

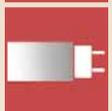
**Reflectors.** It's always tempting to buy the inexpensive fixtures without reflectors, like in the inset photo on the next page. These kind of fixtures rely on the ceiling to reflect the light back down. So the only time you'll want to use this

## Troubleshooting



### Tube blinks on and off

- Time to replace tube



### Black at the end of tube

- Will need to replace the tube soon



### Tube hesitates or starts slow

- Needs new starter (if fixture has one)
- Replace ballast
- Cold - Will come on after a few minutes



### Orange glow at ends

- Need new starter



### Loud humming

- Tighten all fixture screws
- Replace the ballast if tightening screws doesn't solve the problem

type of fixture is when your ceiling is flat and light in color.

In my shop, I have an open ceiling with exposed joists. So I chose to use a fixture that has reflectors, like the one you see in the top photo at right. These reflectors bounce the light down toward the work surface. You'll also want to use these fixtures if your ceiling surface is dark or the fixtures are suspended from the ceiling.

### LOCATING THE LIGHT

If your workbench is against the wall, it's always a good idea to try to position the fixture directly over worksurface. That way the light is not behind you causing shadows.

**Distance From The Wall.** There's a simple rule of thumb I like to use for locating a fixture over a workbench. And it requires taking only one measurement. I just measure the distance from my benchtop to the fixture (see illustration on opposite page). Then I simply divide that distance by three ( $\frac{1}{3}$  the distance). This tells me how far away from the wall to mount the fixture.

The ceiling in my shop is 8' high and the distance from my bench to the fixture is 5'. So I mounted the fixture on the ceiling a distance of 20" away from the wall.

**More Than One Fixture.** In most shops, one fixture won't be enough to supply adequate light. You'll need to install a number of fixtures to evenly light the space. So the next thing you'll need to determine is the farthest distance you can space the fixtures apart.

**How Far Apart?** Again, I return to my initial measurement of the workbench to the fixture. Then you can simply multiply that distance by  $1\frac{1}{2}$  to find the maximum distance to leave between fixtures.

That means if the distance from the workbench to the fixture is 5', the farthest apart my fixtures could be is  $7\frac{1}{2}'$  ( $5 \times 1\frac{1}{2} = 7\frac{1}{2}$ ). If possible, I like to place them a little closer together because this lights the room even better. I also try to line up the fixtures so they run the length of the entire room.

Now that you know how far apart to space them, it's easy to figure out how many rows of fixtures you'll need to cover the room. Just determine the number of additional fixtures you'll need in each row. You'll find fluorescent fixtures come in 4' and 8' lengths. So it's easy to configure a set of fixtures to get the light you want right where you need it.

There's one final thing you'll need to think about if you're going



▲ **Reflectors.** Winged reflectors help to direct the light downward toward the worksurface.



▲ **Strip Fixture.** A fixture without reflectors depends on the surface directly above it to reflect the light.

to be using fluorescent lighting. And that's to make sure the fixture you're using is also right for the environment that exists in your workshop. This means making sure you get the right ballast. The box below has the information needed to help you with this.

As you can see, properly lighting your shop requires the same kind of preparation and setup as installing a new power tool. You'll want the right fixture positioned in the just the right place. 🛠️

## Choose the Right Ballast

One thing you'll find about fluorescent lights that differs from other types of lighting is they require a ballast to operate. The ballast is located in the fixture (photo at right). It provides both a high voltage jolt to start the lamp and the low voltage stream needed for normal operation. You'll want to be sure you have the right ballast for the temperature in your shop.

So, when you choose a fluorescent lighting system, make sure you check the starting temperature of the ballast. If the temperature in

your work area is likely to drop below 50°, you'll want to use fixtures with ballasts that start at these lower temperatures. This is easy to determine. You'll find the minimum starting temperature and other information printed directly on the ballast.

This information will also tell you whether the ballast is a magnetic or electronic type. Electronic ballasts are a little bit more expensive but they tend to flicker less, run somewhat quieter, and work at lower temperatures.



You'll find the noise rating printed on the ballast as well. A rating system of A, B, or C is most commonly used, with "A" offering the quietest operation.