

Maximizing Visibility in your Shop John Beaver



Bob Rosand's lighting at the lathe includes both an overhead LED tube fixture and an adjustable task light.

Photo: Bob Rosand

One of the best ways to improve visibility and mitigate the impact of vision loss is to light your shop properly. Fortunately, lighting technology has improved dramatically over the past decade. The equipment you can buy today is much more efficient than in the past; it is brighter, uses less energy, lasts longer, is more durable, and in many cases even costs less. So if you haven't upgraded your shop lighting recently, now is a good time to consider it. There are two separate types of lighting you need for your workshop: ambient and task lighting.

Ambient lighting

Ambient light refers to the overall illumination that makes your entire shop bright. As noted in Rich Foa's preceding article, we require more light to continue seeing properly as we age, an important consideration as you choose a shop lighting strategy. I highly recommend LED lighting tubes for ambient light. These look like fluorescent tube bulbs but are brighter and much more efficient.

LED tube fixtures can be linked together for uninterrupted illumination. They also use lower amperage than fluorescent lights, so you can run more of them on a single circuit and still conserve energy.

A general rule of thumb is to space light fixtures evenly around the shop to give a consistent level of ambient light. I recommend being more specific and placing them over your primary machines and workbenches to enhance the areas where visual acuity is more critical. I installed two directly over my lathe and one over each of my other machines and workstations, as well as a few more to fill in the spaces in between.

Most LED shop lights are 5000k "daylight balanced," which provides a bluer light that matches daylight coming in through windows or an open garage door. "Warm," soft lights can appear yellow compared to

window light and might be preferable in a basement shop. Whichever units you choose, make sure the color temperatures are the same for all of them.

When positioning light fixtures, be aware that unwanted glare can result from light reflecting off work surfaces. To avoid glare, place fixtures as directly overhead as possible, keeping in mind that your head can cause a shadow if you lean into the light's path. It's a good idea to tack the lights up temporarily and test their effectiveness before mounting them permanently. It is also important to keep light fixtures clean, as an accumulation of dust can diminish their brightness and cause increased eyestrain.

While it is tempting to place your lathe in front of a window or garage door to utilize natural light, I don't recommend doing so if you are facing the outside light. This can result in a "backlit," glaring effect that causes your eyes to repeatedly adjust for the difference in brightness between the outside light and the work area. Such frequent adjustments could unnecessarily lead to eye fatigue and/or headaches. If you want to benefit from natural light, place your lathe at a 90-degree angle to the window or door.

How Much Ambient Light?

Here is a simple calculation to help determine the recommended minimum amount of ambient light:

Square footage of your space × 70 = recommended lumens

If you have a 20' × 20' shop, multiply 400 square feet by 70 to know you would need 28,000 lumens. A 42w LED tube puts out about 4,200 lumens, so you would need a minimum of seven LED tubes for your shop. This calculation is based on hanging the lights 8' off the ground. Very high ceilings would necessitate suspending the lights at the 8' height or using more fixtures to account for the increased distance. Also consider that white walls reflect more light than darker walls, and cavernous spaces absorb light, requiring additional fixtures to achieve adequate brightness.

Task lighting

Providing targeted illumination, task lights are meant to enhance ambient lighting and improve your ability to see fine details such as scribe lines and sanding marks. A key consideration is the ability to place task lighting in the right location, close to a given task. On a scroll saw, for example, focused light is needed only on one small spot, so a simple fixture will do. At the lathe, however, especially one with a sliding or rotating headstock, task lights have to accomplish more. You might want to

See sanding marks



A task light aimed at a low, raking angle illuminates imperfections on the wood surface.

Photo: John Beaver

Sliding task lights



Two options for sliding task lights mounted above the lathe.

Photos: (Left) John Beaver, (Right) Joshua Friend



illuminate the inside of deep bowls while hollowing, or highlight tool and sanding marks after turning. For this latter task, a light aimed at a low, raking angle can help you see the wood surface more clearly, allowing you to progress through the grits confidently. Consider the effectiveness of your ambient lighting, then decide what enhancements you will need to make specific tasks easier and safer.

Durable task lights are helpful because they might have to endure the rigors of being moved and handled frequently. There are myriad options available—from simple, inexpensive flex arm lights to super-bright, magnetic-base, LED lamps costing more than \$150. If you want to be frugal, buy a mid-priced light with a magnetic base and move it from tool to tool as needed. For greater efficiency, buy a few cheaper lights for the simple tools and more robust lights for units that will be moved around more.

I have a task light mounted above my lathe on a shopmade rail, so I can move it with my sliding headstock. I also sometimes “borrow” the magnetic light from my bandsaw when I need to see into a deep bowl. Most woodworking and woodturning supply stores carry a variety of options. You can also search online shopping sites to see even more choices. I recently came across a light

about the size of a car key, with three LEDs and magnets on the back. This can be mounted right on your toolrest or even near the end of a tool to improve visibility inside deep vessels.

Another consideration for task lighting is the power source. Some lights are designed to work off of USB power (plugged into a computer), while others require a small transformer, or plug directly into an outlet. Still others are battery powered, which can be convenient if you will be moving the light from tool to tool frequently. The new LED technology also allows greater versatility because, on some models, the width of the beam can be adjusted, they come in many sizes, and they are less prone to breaking from impact.

For a variety of reasons, it is almost inevitable that our vision will diminish as we age. Therefore, the more strategically you light your shop now, the easier it will be to maintain visibility into the future. Spending a few extra dollars on lighting now can help your vision last longer, too, so it's worthwhile to address your specific shop-lighting needs with appropriate solutions. ■

John Beaver spent more than thirty years as a photographer and motion picture cameraman, working with lights on a daily basis. He always enjoys sharing his knowledge with the woodturning community. Visit his website at johnbeaver.net.

Mini task lights



Some task lights are extremely small and can be placed very strategically. This Microlight, made and sold by Cindy Drozda, is kept in place on the toolrest (left) and on a cutting tool (right) by magnets.

Photos: Cindy Drozda