Lighting a Deck

by Scott Gibson

Attractive, well-placed lighting makes decks safer as well as more inviting. The variety of fixtures suited for railings, posts, and stair risers keeps expanding, providing a wide range of options for customizing outdoor spaces for after-dark use. Some new products are even designed by decking and railing manufacturers specifically for builders to install while putting in the corresponding decking and railing. As many deck-lighting selections aren't overly complicated to wire, notably the low-voltage systems, there's little or no reason for deck builders not to add lighting to their repertoire.

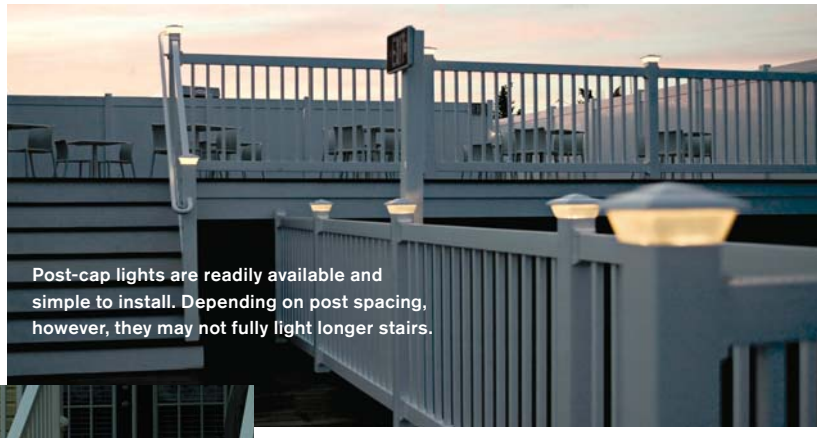
Safety Sells

Michael Glassman, a California landscape designer and author, says deck lighting serves several purposes that should be easy to sell to new deck owners. "Safety is the first and foremost. Number two is accent and number three is aesthetics," he says. "The number one thing you're going to stress to your client is safety. You want to make sure that someone (a) doesn't fall over the rail, (b) doesn't fall down a flight of stairs, and (c) is able to see where he or she is going."

Unlit or poorly illuminated stairs are an obvious hazard that can be made safer in a number of different ways (**see photos below**). Best are downward lights that won't shine in someone's eyes as he or she climbs the stairs, and directional lights that provide concentrated light on treads for positive footing. For a discussion of code requirements, see "Lighting for Exterior Stairs" (*Question & Answer,* July/August 2007; free online at deckmagazine.com).

Placing fixtures on railings and at deck perimeters marks boundaries and keeps people from wandering where it isn't safe. Post-cap fixtures broadcast light in all directions, helping people see where they're going — but they're also a potential glare problem. Jonathan Davis, the owner of Highpoint Deck Lighting in Colorado, points out that most post-cap fixtures spread light at eye level, making it unpleasant for anyone sitting nearby. To prevent glare, several manufacturers offer lights that are shaded above.

The conversation about safety can then lead into a discussion of other types of deck and landscape lighting. If clients have ever grilled after dark, for example, they may value lights for

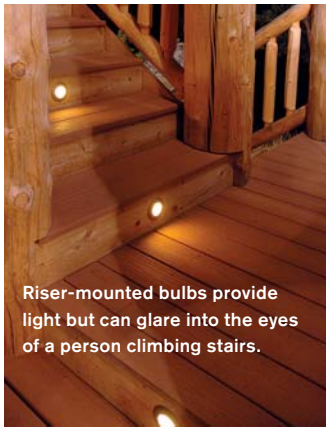


Post-cap lights are readily available and simple to install. Depending on post spacing, however, they may not fully light longer stairs.

STALLION FENCE ACCESSORIES

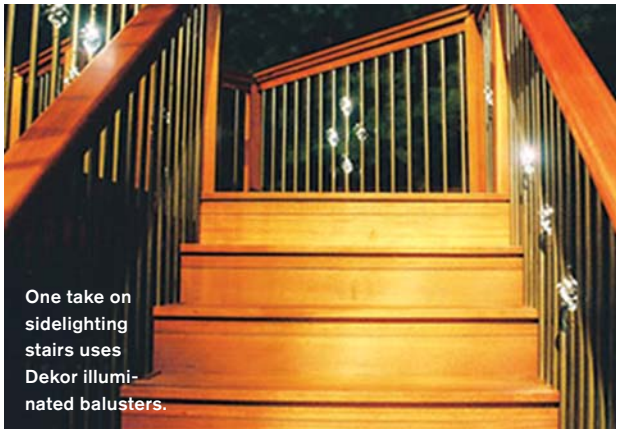
Backyard America's cut-out risers decorate as they illuminate.

BACKYARD AMERICA



Riser-mounted bulbs provide light but can glare into the eyes of a person climbing stairs.

HIGHPOINT LIGHTING



One take on sidelighting stairs uses Dekor illuminated balusters.

MILE HIGH BALUSTERS/DEKOR

Even a basic system adds value for homeowners, profits for builders

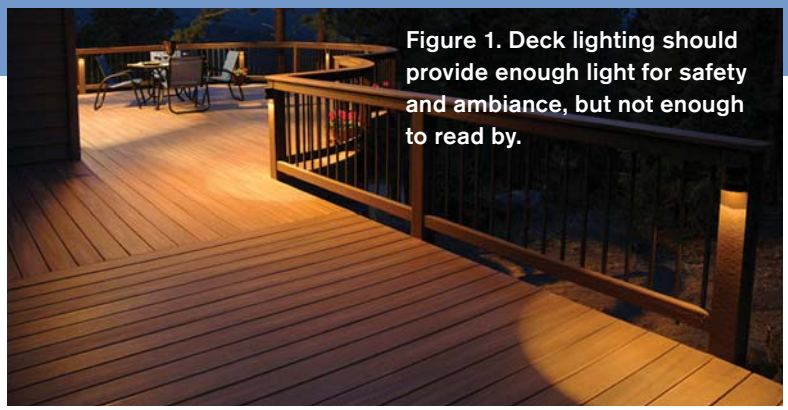


Figure 1. Deck lighting should provide enough light for safety and ambiance, but not enough to read by.

HIGHPOINT LIGHTING

their deck barbeque grills. Overhead fixtures attached to a trellis can provide attractive and directed light; alternatively, low-voltage gooseneck lights attach to the grill or its counter.

Davis says deck lighting should be artistic in design, not bright enough to read a newspaper by (**Figure 1**). Accent lighting is a great sell, particularly if a deck will be dressed up with design elements like planters, or if it winds around a specimen tree. Why should those features be enjoyed only in the daylight?

User-Friendly Low Voltage

Most deck and landscape lighting systems run on 12-volt current, not the 120-volt line current that household lighting fixtures typically use (for a detailed discussion of wiring, see "Wiring for Low-Voltage Lighting," March/April 2008; free online at deckmagazine.com). Low-voltage systems are safer, with a much lower potential for electrical shock (some installers would say no potential). It's relatively easy to add new fixtures to an existing system, and in most jurisdictions the installer — whether a homeowner or a deck builder — does not need an electrician's license. Light output isn't as robust as it would be for a 120-volt system, but then, electrical consumption is lower.

Solar-powered fixtures are another option (**Figure 2**). Their big advantage is convenience: Mount them on the rail or post and let sunlight do the rest. Solar cells recharge AA batteries inside the fixture, which power the light at night. There's no wiring to worry about. But solar deck lights have some disadvantages, too. The batteries have to be replaced after about 500 charge cycles or 18 months of operation. Solar fixtures don't throw as much light as low-voltage fixtures, and stretches of stormy weather make that problem worse.

Steve Hodes Jr. got into the light-fixture business several years ago after watching a hailstorm demolish some copper deck lights he'd just purchased. The experience prompted him to start making his own line of sturdy metal light fixtures — including some with solar panels — that he sells through his Kansas City–based business, Moonlight Decks.

Even if the housing itself is well made, Hodes says, the solar cells are guaranteed by his supplier for only one year, and the rechargeable batteries, which will have to be replaced periodically, are about $3 each. He says, "I usually tend to steer people to low voltage if they're willing to do the installation. It's going to take a little more effort to get those low-voltage ones in there, but in the end it's going to be less of a hassle."

Jason Paulk, a landscape-lighting contractor who owns a Nite Time Décor franchise in Atlanta, also encourages customers to look at low-voltage systems despite the convenience of solar-powered fixtures. "I highly discourage using solar lighting for any application at all where you want

GREG KINCH/MOONLIGHT DECKS

Figure 2. The easiest lighting to install is solar powered. Although the caps can look great, the light from the LED bulbs may seem cold.

functional output," he says. "I would say of the systems that we come in to repair or replace or evaluate, probably 75 percent have some component of solar lighting, and every consumer I've dealt with is unhappy and wants to have them changed."

About Transformers

The heart of a low-voltage deck-lighting installation is a transformer, a device that steps 120-volt current down to 12 volts and distributes the power either to individual fixtures or to hubs that supply groups of fixtures. Transformers are rated by the maximum amount of electricity they can nominally carry.

Voltage drops as the distance to

UNIQUE LIGHTING SYSTEMS

Figure 3. Transformers aren't much to look at, but a good one is the heart of any low-voltage lighting system. Look for stout lugs, a replaceable fuse, and taps at multiple voltages to balance the lighting.

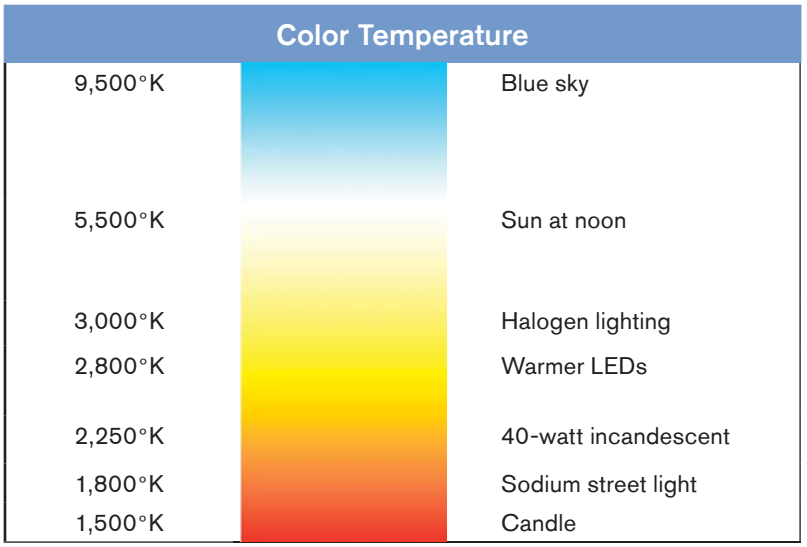


Figure 4. LEDs last a long time, consume little power, and work well in solar-powered fixtures. However, they typically have a blue cast — which some people find off-putting — because they have a high color temperature. Color temperature is counterintuitive: The lower the temperature, the warmer the light. Higher-end LEDs are available in warmer color temperatures.

the fixture increases. When it falls too far, light output is noticeably compromised. To compensate, use a transformer equipped with "taps" for different voltages. Output from a multi-tap transformer might range from 12 volts up to 22 volts; the installer selects the appropriate tap for the number of fixtures and the length of the run.

Unique Lighting Systems, which makes transformers as well as light fixtures for decks, advocates a hub wiring plan to minimize voltage drop (**Figure 3**). The transformer powers a hub, which in turn feeds electricity to individual fixtures, none of which is more than 25 feet away.

Kyle Trotter, the company's national sales manager, says choosing the right tap is important for performance. For incandescent halogen bulbs, for example, voltage should be no less than 90 percent of the bulb's rated capacity, or 10.8 volts for a 12-volt lamp. Checking the hub with a multi-meter while the lights are on should show whether the tap selected at the transformer is the right one. Unique Lighting is currently developing a 24-volt transformer for landscape and deck lighting systems that Trotter says will be able to power twice as many lamps on the same circuit because of lower amperage, with less voltage drop between fixtures.

Paulk compares the hub approach to a zoned irrigation system. By grouping sets of fixtures and feeding each hub separately, fixtures are guaranteed to get the right amount of power, whether they are 5 feet or 100 feet away from the transformer.

Good-quality transformers have an internal fuse that can be replaced and sturdy lug-style electrical connections. These features make high-end transformers considerably more expensive than economy brands ($350 to $400 vs. $80 for a 300-watt transformer), but installers say the improved reliability and performance make the higher price a bargain.

Incandescents vs. LEDs

Lights for deck fixtures are typically halogen or xenon lamps, which are both incandescent. Xenon bulbs aren't as bright as halogens, but they can last up to 20,000 hours and, unlike halogens, can be handled with bare hands without shortening bulb life. They don't produce as much heat as halogens, and the color temperature of the light is a little warmer (although still cooler than a standard incandescent bulb). Xenon lamps also are less likely to discolor plastic lenses in light fixtures.

But the future will probably be lit by light-emitting diodes, or LEDs, which last far longer and use less electricity than incandescent lamps (**Figure 4**). An LED may last 50,000 hours before the light falls gradually below an acceptable level, and the most efficient white LEDs produce about the same lumens per watt of electricity as compact fluorescents.

LEDs are already used in some deck fixtures, but their significantly higher cost, lower light output, and

off-putting blueish color have been obstacles to wide acceptance. "There are people pushing these LEDs," Paulk says, "but from what normal people are used to seeing on landscape lighting, if you were to take them to an all-LED job, people are going to say, 'Wow, that's not what I was expecting.'"

That, however, is changing. For example, Kichler Lighting now offers half a dozen LED fixtures, including lights for deck posts and steps. The company says the fixtures use about 75 percent less power than incandescent bulbs with similar light output, while the color temperature of the LED-generated light is about 2,800 degrees Kelvin, slightly warmer than a halogen lamp.

Highpoint Deck Lighting also sells a wedge-base replacement LED for between $7 and $8 that draws only about ¾ watt, compared with the 5-watt to 7-watt incandescent lamps it can replace (**Figure 5**).

Better appearance and energy efficiency will make a difference with consumers. Lower costs would give this technology another boost.

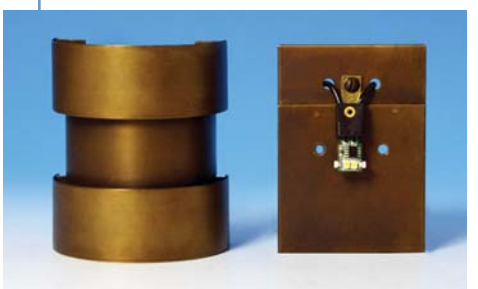


Figure 5. Highpoint Deck Lighting offers LEDs that fit in standard incandescent sockets and reduce power consumption by about 75 percent. To counter the cool color temperature, some of the fixtures warm the light by bouncing it off a brass reflector.

Controlling the Light

Controls are often overlooked when considering outdoor lighting. Typically, individual lights aren't switched — entire circuits are. Of course there are exceptions, such as task lighting at a grill, or standalone solar-powered lighting. How you control lighting depends on the purpose of the lighting. For example, a customer might prefer that safety lighting at a stair come on whenever it's dark. Such circuits can be controlled with a photosensor that switches on and off at dusk and dawn.

One approach to varying the level of light is to set up several lighting circuits. You can maintain symmetry by alternating the lights on railing posts so every other one is on a different circuit. When the clients want more light, they turn on both. For a romantic mood, maybe just one circuit is all that's called for.

Putting accent lighting on its own circuit is another good plan, as there may be times when it's pleasant to view an artfully lit Japanese maple, for example, without the rest of the deck lighting on.

Profitability

The increasing variety of lighting may be encouraging more deck builders to give installation a try. After finding that over half its best contractor customers were already installing deck lights, TimberTech last year launched a line of low-voltage deck lights for post caps, stair risers, balusters, and post sides to complement its decking and railing. Some are intended for use only with the company's products, but others can be used with all brands of decking and railing.

"Lighting is an essential part of the decking category," says Paul Bizzarri, TimberTech's vice president for innovation. He says that lighting adds value for the customer — because the deck is more attractive and more useful — and also provides more income for the deck builder.

Installing deck lighting has the potential for high hourly earnings, says Davis, who started Highpoint Deck Lighting a few years ago as a sideline to his deck-building company. He notes that crews are already on the site and don't need any additional permits to do the work. "It's the most profitable part of the job," he says. ❖

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Sources of Supply

Aurora Deck Lighting
800/603-3520
auroradecklighting.com

Backyard America
877/489-8064
backyardamerica.com

Copper Moon
800/727-5483
coppermoon.com

Dekor
800/258-0344
de-kor.com

Highpoint Deck Lighting
888/582-5850
hpdlighting.com

Kichler Lighting
866/558-5706
kichler.com

Maine Ornamental (Division of Universal Forest Products)
800/598-9663
ufpi.com

Moonlight Decks
913/638-1685
moonlightdecks.com

TimberTech
800/307-7780
timbertech.com

Stallion Fence Accessories
877/703-3412
stallionfence.com

Unique Lighting Systems
800/955-4831
uniquelighting.com