

Light Up Your Cabinets

How to add a warm glow to fine casework

BY STEVE CASEY

No detail adds more visual impact to your cabinets and built-ins than lights. Lights bring drama and functionality to new designs; they also enhance existing pieces with minimal effort.

It wasn't always this way. Thirty years ago, when I started, there were few, if any, lighting products designed specifically for furniture and cabinets. The options then consisted of weak incandescents, big, fat fluorescents, or expensive halogen architectural units. Today's systems are more plentiful, more varied, less expensive, and easier to use.

I put lights in almost all of my large-scale furniture and cabinet jobs. There are several applications; the most common one for furniture makers is to illuminate objects inside a cabinet. Lights over counters and desktops can brighten spaces that architectural lighting cannot reach, making those spaces more attractive and easier to work in. Finally, when I'm after pure drama, I sometimes use back- or top-lighting. Nothing highlights a piece of furniture like backlighting it to pop it off the wall.

Design with lighting in mind

It's important to make lighting decisions early in the design phase. Choose the kind of lighting effect you want to create and select the specific bulbs and fixtures to achieve it. You have to do this early because some construction decisions will be driven by these choices. For instance, you'll need to hide the source fixture and the wiring while still providing access to them. You also may be dealing with some intense heat from the fixture itself and the light that it produces.

You can and should model the lighting to see if it will achieve the effects you want. It's a good idea to do this in low light conditions or even in the dark so you can see



the true effects. Enlist a helper to hold up the lights and move them around while you look from a distance. You also can temporarily mount the lights in the case using double-sided tape, hot glue, or even screws (provided the holes won't matter when you're done); then add, subtract, or move the fixtures to suit your needs. When you are happy with the results, mark the placement so you can permanently install the lights when you are ready.

If you are lighting through several glass shelves, have the shelving in place and see if the light intensity is what you want on the lowest section. If you are using the most intense light available, like 20-watt halogen or xenon, and it seems weak, you can always double up the fixtures to double the light output. Model the placement again for the best dispersion in the space you are working with.

One case-construction detail to consider is leaving some room for the wire on the back of the piece. On both built-in work and freestanding pieces, I want the back recessed at least $\frac{1}{2}$ in. to $\frac{3}{4}$ in. from the sides. This allows me to push the cases tight against the wall while leaving a place to let the wire hang freely so I can replace a fixture if it fails in the future.

Lights inside a cabinet—The only case pieces I wouldn't light from within are bookshelves. Ultraviolet light especially can harm books and artwork, and all light fixtures produce some level of ultraviolet light from minimal (fluorescent) to extreme (halogen). Make sure that the fixtures you are using have UV-filtering lenses to minimize exposure and damage from this type of light. Lighting books with ceiling-mounted fixtures is usually more efficient.

In display cabinets, the lighting usually is placed high and out of view. Locate the top of the crown molding or create a frame reveal in contemporary styled work a few inches above the display-case top. This creates a hidden space in which to conceal the wires and the tops of the fixtures. You can leave all of the wire exposed for ease of service and good ventilation, or you can hide it with a removable



Inside and out

Lights in cabinets like these by Charles Shackleton (facing page) and Michael Fortune (left) can offer general illumination or highlight individual spaces. Casey also mounts fixtures below a cabinet to light a work surface or behind a piece to add drama.



Buyer's guide

The market offers a wide variety of bulbs and fixtures. Start by deciding on the brightness and color of the bulbs, based on whether you'll be lighting display space or work space. Think about where you want to install the lights, and whether you want to use a line-voltage or low-voltage system, as this will affect your planning for heat dissipation, wires, and, if needed, transformers.



FLUORESCENT

These bulbs generate very little heat and cast an even light that is ideal for work surfaces such as desks or kitchen counters. They also serve well as accent or mood lighting. Choose warm white bulbs instead of cool white to render colors more naturally. The fixtures are slim enough to hide easily behind a cabinet face frame, and they come in varying lengths, from roughly 10 in. to nearly 4 ft. The systems are line voltage, and many allow fixtures to be linked either directly or through short extension cords.



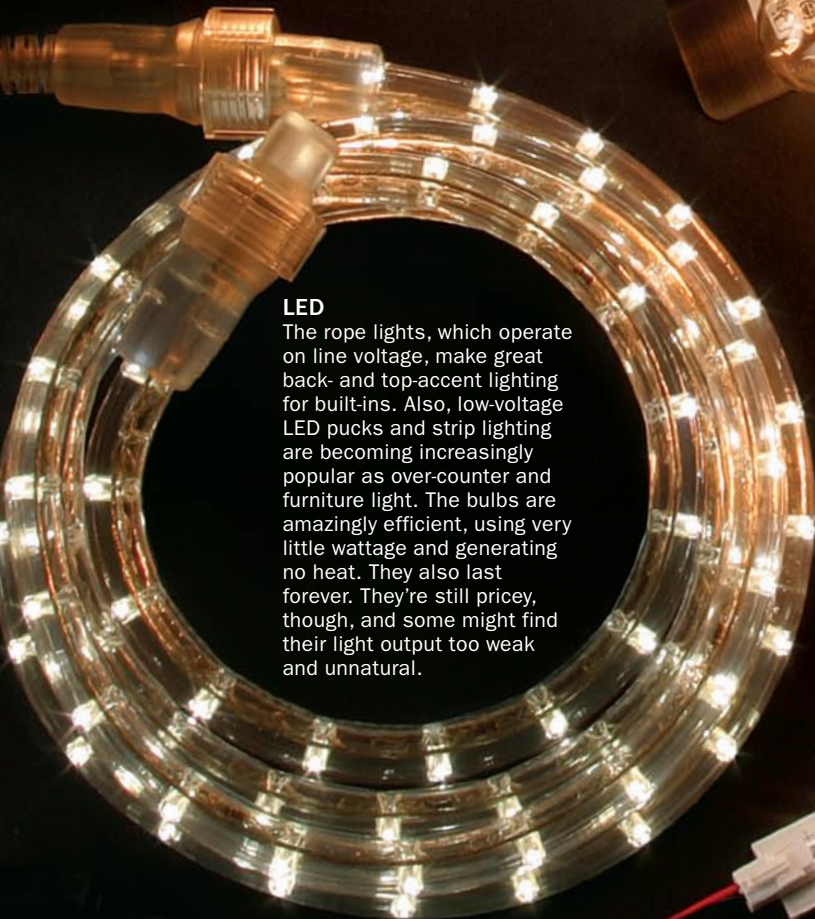
HALOGEN AND XENON

These are great for lighting display spaces because they produce a brilliant light that renders colors dramatically. When spaced closely enough, they also illuminate work surfaces well. The small puck fixtures can go practically anywhere—recessed in a case top or mounted under a shelf or cabinet bottom. Systems can be either line voltage or low voltage. The low-voltage systems burn cooler but require a transformer, which can complicate the wiring installation.



INCANDESCENT

These provide warm, soft light for general illumination inside a cabinet. Their light is not nearly as intense per watt as halogen or xenon bulbs, and they do not render color boldly or as well. They do, however, generate heat, and the can fixtures especially will need proper ventilation. Line-voltage fixtures can use common, inexpensive bulbs.



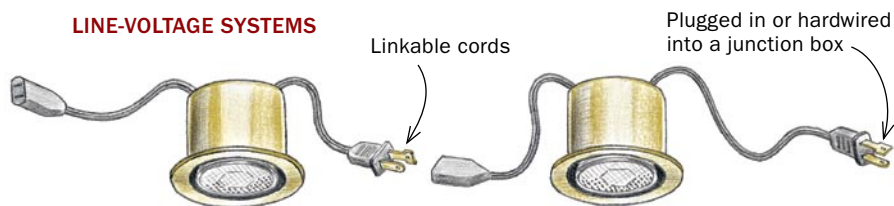
LED

The rope lights, which operate on line voltage, make great back- and top-accent lighting for built-ins. Also, low-voltage LED pucks and strip lighting are becoming increasingly popular as over-counter and furniture light. The bulbs are amazingly efficient, using very little wattage and generating no heat. They also last forever. They're still pricey, though, and some might find their light output too weak and unnatural.

Wiring 101

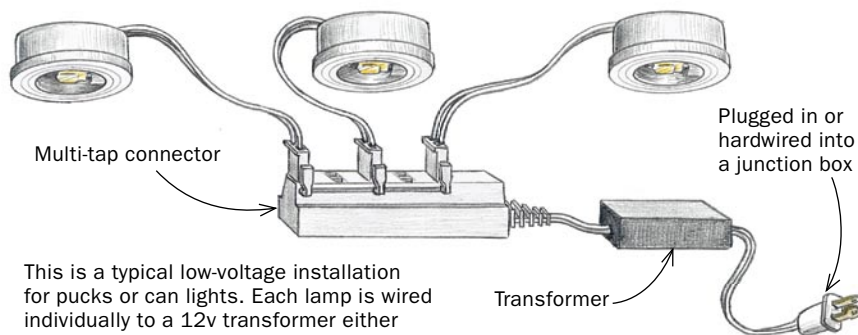
Many systems sold at home and lighting centers are easy to wire, especially if you'll be plugging them into a wall socket. Most also can be hardwired directly into the home's wiring, though you may need to consult an electrician.

LINE-VOLTAGE SYSTEMS



Many line-voltage systems are sold as kits in which the fixtures can be connected to one another via linkable extension cords. The first lamp in the string is either plugged into the wall or hardwired into a junction box.

LOW-VOLTAGE SYSTEMS



This is a typical low-voltage installation for pucks or can lights. Each lamp is wired individually to a 12v transformer either directly or through a multi-tap connector. The transformer can then be plugged into a wall receptacle or tied into the household wiring. In either case, a switch or dimmer can be installed between the transformer and the power source. A 60-watt transformer can power a maximum of three 20-watt bulbs. If you want more lights, you'll need a second transformer.

¼-in.-thick top. I do the latter when the top of a piece is in view from a second story looking down.

You'll want to center each fixture, front to back, and then determine how many fixtures are necessary to properly light across your space. In general, 18 in. on center will work for incandescent, halogen, or xenon cans and pucks. With glass shelves, one lamp can illuminate a case from top to bottom. I set my glass shelves in rabbeted frames made from stock that matches the case construction.

Very often this kind of lighting is done using puck lights with halogen or xenon bulbs. Most puck-light kits come with mounting brackets that let you attach the fixture directly to the underside of a shelf or cabinet top. This approach is more obtrusive but easier to install, especially in retrofit jobs. Most fixtures also can be recessed so that only the trim is

How to hide it

Be creative. In this spare display case, Michael Fortune hid the transformer and switches under the base. Wiring runs up one vertical frame member, in a groove covered by an unobtrusive cap (matched ebony wood grain).



Built-ins offer plenty of cover. Transformers can be placed either on top of a cabinet system or inside it. For this bookcase, builder John Tetreault used the corner cavity where the two cases meet to drop the wiring down to the power source. A removable panel in the bottom shelving unit allows access to the transformers and connections.



Switches

For systems not controlled by a wall switch, a variety of in-line switches can be mounted in a convenient but unobtrusive place such as behind a face frame or under a shelf or top.



Turn out the lights. Or just turn them down a little. In-line switch varieties include a simple roller switch, very small rocker switches, and dimmers that operate in steps. For low-voltage systems, be sure the dimmer and transformer are compatible with one another.

One light, two looks

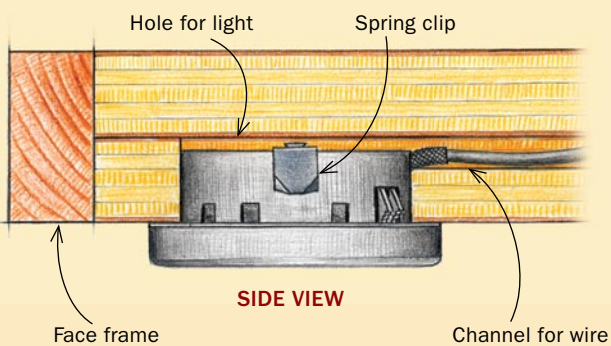


Most puck lights come with a detachable housing that allows them to be either recessed or surface mounted. The lamp at left, with the housing removed, is recessed into the shelf bottom. On some models, spring clips help hold the fixture in the recess. The wiring is concealed inside the shelf itself and the fixture hides behind trim on the front. The lamp at right is surface mounted, with its wiring concealed by wooden trim. The face frame extends below the shelf and conceals the puck at eye level.



RECESSED

To recess a low-voltage puck under a cabinet, sandwich the wires in a double-thickness shelf. This is not recommended for line-voltage systems.



Layout for a recessed light. Casey starts by marking the shelf bottom for the location of the fixture.



Cut the hole. Casey uses a drill-mounted hole saw, cutting halfway from each direction to avoid damaging the face veneer.



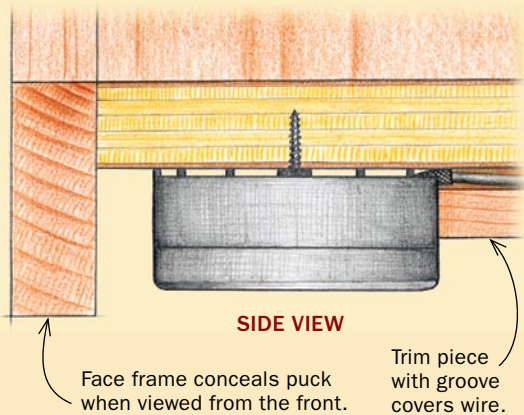
A dado creates a channel for the wiring. Use a chisel to soften the transitions and prevent sharp corners from damaging the wire.



A rabbet continues the path. A rabbet along the back of the shelf carries the wire to a corner, where it can be routed to a transformer or multi-tap connector.

SURFACE-MOUNTED

Surface mounting is quicker and easier. Casey uses a spindle sander to shape the end of the trim so that it butts snugly against the fixture.



Another way of hiding the power. A grooved piece of narrow trim fits over the wire (left) and is pinned in place (right). Make the trim wide enough to provide an adequate nailing surface on either side of the groove.

showing. For lights recessed in the top of a display cabinet, the holes for the fixtures can be drilled either before or after the case is assembled. The tops of the lighting fixtures and the wiring are concealed behind crown molding and can be run into a transformer or junction box also sitting on top of the piece

Lights over a counter—This is another simple and very common lighting installation. Typically, the lights are mounted underneath an upper cabinet.

In the case of over-counter lighting, it is typical for the upper cabinets to be around 12 in. deep, while the lower cabinets and countertops are 20 in. to 24 in. deep. If you want good dispersion of light, you should bring the fixture as far forward in the upper cabinet as possible. This will direct the light to the center of the counter you are lighting.

With surface-mounted lights, whether they are pucks or fluorescent tubes, I usually tuck the fixture behind a reveal. You can do this with a simple skirt or solid edge overhang or, if the upper cabinet is fitted with doors, you can make the doors and exposed sides overhang the bottom of the case. I measure the height of the fixture itself and then add 1/2 in. to 1 in. for the reveal space. If the fixture

(when mounted) is 1 in. tall, I'll make the reveal 1 1/2 in. to 2 in. deep.

Surface-mounted lights allow for surface-mounted wiring as well. I like to make simple grooved trim pieces of matching wood and cover the wiring for a more attractive installation. I pin them in place with a micro-pinner (no glue) so they are easily removed for service.

Recessed puck lights also can be installed under an upper cabinet (see photos, facing page). In this approach, the trim that conceals the fixtures need not be as wide.

Lights behind a cabinet—This concept is the same if you are using a rope light to backlight or top-light a piece. I usually make the reveal 2 in. by 2 in. and then tuck the rope into the corner of the reveal with the clips that come with the rope-light kit. For more intensity of light you can paint the faces of this reveal white to work as a reflector. □

Steve Casey designs and builds furniture near Los Angeles.



Glass shelves

With glass shelves, a single light can illuminate an entire cabinet. Mounting the shelves in rabbeted wood frames (below) keeps the design of a piece consistent.

