

The Good, the Bad and the Ugly

(Guidelines and Common Mistakes in Residential Outdoor Lighting)



One of the great benefits of exterior lighting is that it can visually expand the interior rooms of a residence. When there is no illumination outside, windows become highly reflective at night. This is known as the "black hole" effect. The windows end up reflecting the lights in the room, so that all the clients can see at night is their own reflection instead of the view beyond.

- Randall Whitehead, IALD

Outdoor Residential Lighting

Step one: Start by looking from the house through the windows

One of the great benefits of exterior lighting is that it can visually expand the interior rooms of a residence. When there is no illumination outside, windows become highly reflective at night. This is known as the "black hole" effect. The windows end up reflecting the lights in the room, so that all the clients can see at night is their own reflection instead of the view beyond.



White House. That type of illumination would come under the heading of security lighting.

Security Lighting is not pretty

Security lighting and

landscape lighting are two different things and people should not use the same lights to perform both functions. A source of light that immediately floods the yard with a good punch of illumination, turned on by the clients when they hear a noise outside, will serve as security lighting. They do not need to be glaring and confrontational; the main objective is to provide enough light so that homeowners can see what is causing the disturbance outside.

Lighting designed to give an

People often feel boxed-in at night when they are surrounded by these "black holes". The rooms can seem smaller than they actually are. The rule of thumb is to try and balance the amount of light inside and outside the house allowing the windows to become more transparent, as they are during the day.

Psychologically, too, people feel safer when they can see the yard area around them. They feel more visible inside the house when there is no lighting outside. You don't have to light up the exterior like the



Outdoor Residential Lighting



almost subliminal. Attention should be drawn to the plantings, sculpture and out-buildings, not the luminaires (this is the industry term for light fixtures). Decorative exterior luminaires such as lanterns can't do the job by themselves. They can easily overpower the facade of the house and the yard area if they are the only source of illumination.

Lanterns as architectural jewelry

Typically you will see two lanterns flanking the front door and maybe a post light at the end of the driveway. These just become disturbing hot spots that leave everything else in silhouette.

Still, they can play an important role in the overall lighting design. Their job is to create the illusion that

instant flood of light outside, is optimally controlled by a panic switch located next to the bed in the master bedroom and in the bedroom of another responsible person in the household, such as the grandparent, au pair, or oldest child. These lights can also be controlled by a "motion sensor".

Security lights are to be used for safety and should not come on as part of the landscape lighting. There is nothing worse than driving up to someone's home, only to be assaulted by glaring lights mounted on the corner of the house. As a guest you may feel like you've been caught in the middle of a prison break.

Landscape Lighting should be subtle

Landscape lighting needs to be



Outdoor Residential Lighting



they are providing all of the exterior lighting, when, in reality, they should have no more than 25-watts to 45-watts worth of illumination. They should serve the same purpose as interior decorative luminaires. That function is just an alluring glow instead of a glare bomb.

Another aspect to consider when selecting an exterior lantern is the glass.

Too often, they are chosen with a clear or beveled glass. The result is that at night people only see the lamps inside, instead of the luminaire itself. If you choose a luminaire that has a frosted glass, an iridescent stained glass, or a sandblasted seedy glass, then the volume of the lantern is seen instead of just the light bulb.

If the lanterns are

existing on the project, it is possible to have the glass in them sandblasted. Often, mirror companies also do sandblasting as a side line. Remember to have only the inside sandblasted, a sandblasted exterior finish will show fingerprints because of the oil in our skin.

Correct sizing of exterior fixtures can be tricky. Lanterns displayed in lighting showrooms

Another aspect to consider when selecting an exterior lantern is the glass.



Outdoor Residential Lighting

appear about 25% larger than they do when installed on a home. The eye tends to make a visual room out of the surrounding fixtures so the lantern is viewed in a very small space. If you are unsure of the right size lantern for the house or gate then cut out a piece of cardboard the size of the prospective lantern. Hang it on the house or column and then back away. View it from the street or driveway to help you get the scale right.

Step Two: Choosing the right type of lighting system

In designing the landscape lighting a decision must be made as to which voltage system will be used, 120-volt or 12-volt. If the landscaping has already been completed you should not consider the installation of a 120-volt system, it will be expensive and disruptive to the plants due to trenching as required by code. 120-volt systems require the wiring to be buried in conduit or the use of direct buried wire. Luminaires for 120-volt systems are often larger than those using 12-volt lamps. Check local codes for permit requirements. If it is a new landscape project then a 120-volt system can be considered.

12-volt lighting systems are less restrictive and installation is relatively easy. The low-voltage 12-gauge cable does not have to be buried, but hiding it under a layer of bark or a shallow layer of dirt is more visually appealing. Low-voltage systems can use much less power and may not require any additional circuits. The flexibility of a low-voltage system makes altering the original lighting design feasible and easy without costly rewiring.

When laying out a 12-volt system remember to include the transformer

locations. Voltage drop needs to be taken into consideration if it is necessary to have a run of over 100 feet. Numerous transformers offer multi-tap connections with various voltages to help keep the lights consistent in brightness.

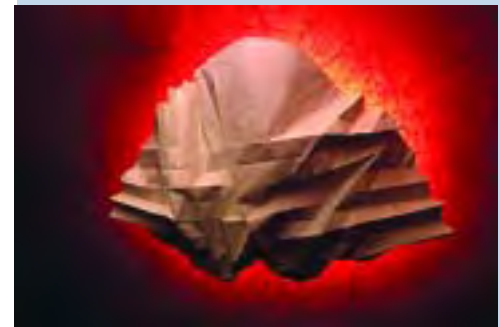
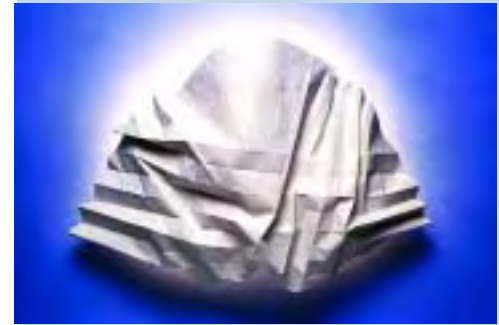
Voltage drop - a loss of electrical current due to overload or long length runs causing lamps at the end of the run to produce a dimmer light than those at the beginning of the run.

The best lighting design can combine both low voltage and line voltage sources. In most parts of the country the outside spaces can only be used at certain times of the year. The rest of the time we must be content with looking out the windows from inside the house. In order to see the outside spaces, the light level outside needs to be equal to or brighter than the indoor illumination.

This is where line voltage, mounted under the eaves of the house and directed out towards the yard, can be more effective than low voltage sources. Since the house is already 120 volt. The addition of line voltage directional fixtures is pretty straight forward. In the warmer months these fixtures can stay off, letting the low voltage landscape lighting which is integrated into the foliage become the main source of illumination.

Step Three: Figure out the best way to light

There are many techniques for landscape lighting from which to choose. When working with new construction it is a good idea to specify a number of exterior rated duplex GFI (ground fault interrupter) receptacles for future landscaping or



In order to see the outside spaces, the light level outside needs to be equal to or brighter than the indoor illumination.

Outdoor Residential Lighting



portable luminaires for parties.

Also, planning ahead for switching and transformer locations will save money when the

landscaping is started. Save time and money by having power lines or conduit installed under the driveway or patio before paving or bricking.

Small plants and trees grow, some slowly and some rapidly. Plan for maximum growth and install smaller wattage lamps that can be replaced with higher

Outdoor Residential Lighting

wattages as the foliage matures. Using a variety will keep the design interesting. Using only one technique may create a too commercial-looking design. Here are some options for you to consider:

Uplighting

This can be a very dramatic way of lighting trees that gives visual height to the landscaping at night. A house looks more dramatic and dimensional when tall trees can be seen illuminated above the roofline. The luminaires can be ground-mounted or actually installed below-grade. These buried luminaires are known as well lights. Well lights have little or no adjustability, so they work best for mature trees. Luminaires using CFL's (compact fluorescent lamps) for tall trees and LED's (light emitting diodes) for smaller trees such as Japanese maples are offering long life and energy efficient alternative to standard

incandescent sources.

Above-ground directional luminaires have a much greater flexibility and therefore do a better job for younger trees as they mature. Use shrubbery to conceal the light source from view. A below-grade junction box will allow the luminaire to be closer to ground level.

Silhouetting or Backlighting

This is a good technique to consider for topiaries, bamboo that runs along a wall or for thick leafed trees like magnolias. Washing a stone or brick wall behind greenery lets the plantings become more sculptural. Fluorescent luminaires can do a good job of wall-washing, while consuming a small amount of power with a long lamp life. Remember to specify a ballast designed for low temperatures if your project is located in a cold part of the country

and use a color temperature that either compliments the plants (a cooler Kelvin rating of 4,000K-5,000K) or the wall surface behind the plants (a warmer Kelvin rating of 2,700K to 3,500K).

Spotlighting

Try and use this technique minimally. Statues, sculpture or specimen plants deserve to be highlighted but they will tend to dominate the view as people look outside unless other lighting techniques are layered with spotlights used only to accent the special objects. Spotlights should definitely be shielded with a deep snoot and louver to avoid glare. The main objective is to see what is being illuminated instead of the source of illumination.

Path lighting

This is one lighting technique that needs to be done correctly. Too often we see walkways or driveways flanked



Outdoor Residential Lighting



with rows of pagoda lights as the only source of exterior illumination. This tends to look like an airport runway at night. Also since they are so glary they draw way too much attention to themselves which takes focus away from the surrounding plantings.

When a pathway light is needed (and no trees or eaves are available for illumination from above) consider using an opaque mushroom-type luminaire that projects light down without drawing so much attention to the light source itself. The luminaires

should not exceed 1.5 feet in height and should be installed using stakes or mounting boxes that keep them vertical. There's nothing worse than a run of tilted path lights that look a little intoxicated. Spacing of path lights will depend on the style of the luminaire and lamp options. Again path lights alone are not enough. They should be used in combination with additional lighting sources will help create a more comfortable exterior environment.

Step or Stair Lighting

Fixtures can be recessed in the side walls of an exterior staircase or the steps themselves to illuminate the risers. This will provide safety as guests negotiate the stairs. There is also linear low voltage lighting (available in incandescent, fiberoptic and LED versions) that can be installed under the nosing of the steps to provide a more even glow of illumination along the entire width of the steps.

Moonlighting

This is the most naturalistic way of lighting an exterior space. The effect is as if the area were being illuminated by a full moon. A dappled pattern of light and shadow is created along pathways and over low-level plantings. This is accomplished by mounting luminaires in mature trees, some pointed down to create the

patterned effect and some pointed up to highlight the foliage canopy.

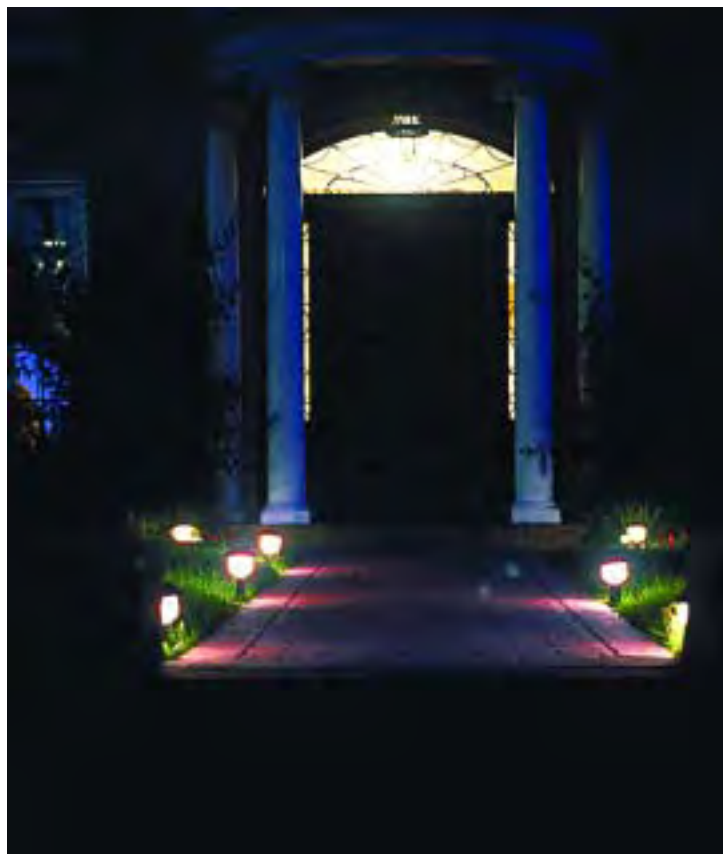
Step Four: Control issues

It's best not to dim exterior lighting. Many outdoor luminaires use incandescent sources. When incandescent lamps are dimmed, the light becomes more amber. The yellow cast makes the plantings look sickly. The whiter the light, the more healthy the plants look.

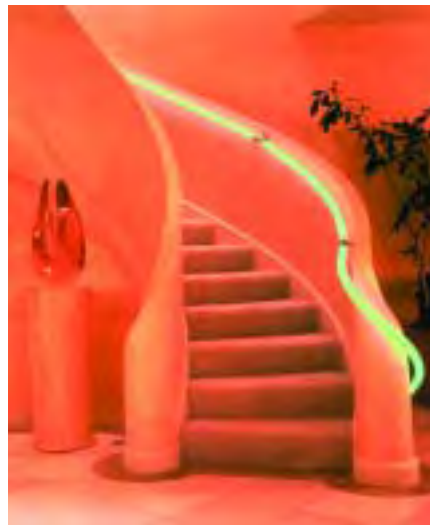
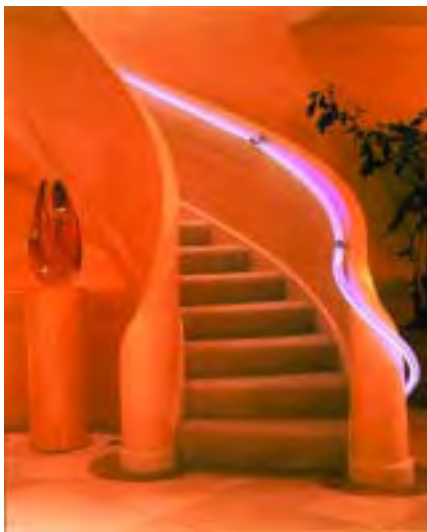
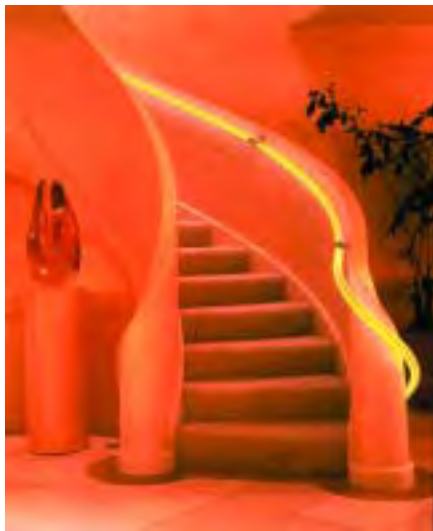
You can divide the lights into different switching groups. A typical arrangement would be to have the decorative exterior lights on one switching group, possibly on a timer that would come on and go off even if your clients aren't home. The second group could be the accent lighting throughout the yard, and the third would be the security lighting.

Step Five: The color of light

Many times using colored filters can distort the color of plantings to



Outdoor Residential Lighting



an unrealistic color. One exception is when designing with incandescent sources; one filter you can consider is a daylight-blue filter. It filters out the amber hue of incandescent light to produce a blue-white light that is very complimentary to plants, making them look lush and green. This is great for areas of the country that have snow too. Nobody likes yellow snow.

Many manufacturers offer daylight-blue filters as an option, normally listed at the back of the catalogue. Sometimes they are called ice-blue or color correction filters. This small addition can make a huge difference in the overall look of the landscape lighting.

Also keep in mind that there are many more exterior luminaires using fluorescent, LED and HID (high intensity discharge) sources on the market suitable for residential installation. Mercury vapor and metal halide HID sources, as well as the cooler-colored fluorescent and LED sources, can do a wonderful job of

providing a crisp blue-white light without the need for a filter.

Step Six: In the heat of the night

When entertaining outside on colder nights having a source of heat to help take off the chill is an option worth considering. Infrared heaters made for exterior residential use are available in a variety of shapes and sizes. Two of the most popular are the umbrella-style and surface-mount versions. Both are available as portable or permanently installed units. Fire pits are also becoming very popular. These very quiet products use infrared quartz, propane gas or natural gas to produce an energy efficient, low cost, form of heating that can help extend the usability of the outdoor spaces as the nights get cooler.

The bottom line

When putting a landscape lighting design together it is best to layer different techniques of lighting so that the overall look is as natural as possible. Keep it understated. An effective lighting design does look

like a miniature golf course.

Sidebar

Randall Whitehead's Top Ten Lighting Tips for Outdoor Lighting

1. There is no single exterior light fixture that can perform all lighting needs in the garden. The moonlighting effect is a design method in which a number of light sources are blended together to create a natural looking design.
2. Put together a planting plan, outdoor furniture layout, and sculpture or water feature locations before attempting to create a lighting design. The lighting should relate to the way the outdoor spaces are going to be used.
3. Try to get all the players (homeowners, lighting designer, landscape designer and contractor) together. This is called team approach to design. The result is a

Outdoor Residential Lighting



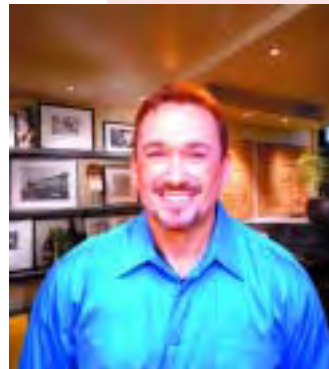
cohesive design where all the elements work with each other.

4. Create two levels of light. One for when you are inside looking out and one for when you are actually in the garden. Most of the time we look out into our gardens because it is just too cold much of the year to be out there.
5. Choose one style adjustable shielded exterior fixture that can serve as a downlight, accent light or wall wash. Don't mix fixture types. It draws too much attention to the fixtures themselves. Only the decorative fixtures, such as the lanterns flanking the doors should be seen.
6. Always try to include some exterior lighting in the over all design even if you are working on the lighting inside of your house first. It not only keeps windows from becoming black mirrors at night, but it also visually expands the interior spaces.
7. Do not put exterior lights on dimmers. Standard incandescent light, when

Outdoor Residential Lighting

dimmed, becomes even more amber in color. Green plants look sickly under yellow light.

8. Locate a panic switch for security lights in the master bedroom. It's no fun running to the front door in the middle of the night to turn on the outside lights.
9. Don't just locate light switches for the main rooms and landscaping at the front door. Most people enter their homes from the garage. This is where a second set of switches should be installed.
10. Use a daylight blue, color correcting filter on the outdoor lights, which will eliminate the amber quality of incandescent light. This will keep the plants looking healthy. ■



Randall Whitehead has written seven books on lighting including Residential Lighting, A Practical Guide (John Wiley & Sons). He has appeared as a guest expert on HGTV, The Discovery Channel and CNN.