

## Focus: Landscape Lighting



periodic maintenance attention to ensure it continues to function at its full potential year after year. Choose a company that offers this service. The typical services may include, but are not limited to, the following:

**Overall System Review:** While on site, a thorough system review should be performed to ensure the entire system is functioning as originally intended and adjustments made where appropriate.

**Pruning:** Your illuminated landscape is alive, growing and ever changing, so occasional selective pruning is required. Pruning is done only when necessary and with proper techniques.

**Cleaning:** Throughout the season, mulch, insects and other debris may build up on the fixtures, which can affect the appearance or impede the ability of the light to illuminate properly through the lenses. It is recommended that the fixtures be cleaned at least once a year.

**Adjusting:** Any fixtures, transformers, time clocks or other equipment may need to be adjusted due to time changes, storm damage, pets, children, etc.

**Lamp Replacement:** As lamps go out, they will need to be replaced. This can be done as needed, or all at once whether or not they have burned out. ☘



*About the author: Dean MacMorris is vice president of Night Light, Inc., a landscape illumination company based in Lombard, IL. He is a registered landscape architect with a Bachelor's degree in landscape architecture and an Associate's degree in ornamental horticulture. Before joining Night Light, Inc. in January of 1998, he spent nearly 20 years in the landscape industry and was the sales and project manager for three of the largest design/build landscape companies in the Chicagoland area.*



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*• Planning to Illuminate*  
*Communicating Effectively*  
*Huecheras for any Landscape*  
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# “I wish someone would have told me *Before* I put in all my

by Dean MacMorris

**Most landscapes** are designed and installed without landscape illumination in mind. More than 50% of those who invest in professional illumination have had their landscapes professionally done as well. Even though the client has not mentioned the need or interest in landscape illumination early in the process, once the project is completed and they begin to live with it, they soon realize that it can be greatly enhanced and enjoyed in the evening with quality illumination.

With all the other hardscape and

planting issues involved in a project, the landscape lighting often is forgotten, never discussed, or purposely left out of the equation for budgetary reasons. Failure to plan may cause hardships and added costs due to duplication of efforts, disruption of the landscape at a later date, limited or no access to power because sleeves were not installed under driveways, patios, walks, or pool decks. It is unfortunate for the client to find out, after the fact, that the landscape can not be lit as desired, or will cost significantly more — when this could have

been avoided if attention was given to it earlier.

The owner relies on the landscape professional to be aware of the entire process, which includes those things that affect the landscape or hardscape in the future. None of us wants to hear, “I wish I would have known this before I spent all this money on a new driveway, walkways, patio and landscaping.” The only sound choice is to deal with these possibilities at the design stage.

Since landscape lighting should enhance and reflect the original land-

## Controlling The System

A time clock or photocell can control the illumination system. If individual areas are to be controlled differently, each area would require its own transformer. The client may also want the illumination in the front of the home to be on longer than the back landscape. If a barbecue grill area is to be downlit, this could be on a separate flip switch if wired properly, without affecting the transformer situation.

## Installation Issues

Prior to beginning the installation, it is wise to acquire necessary permits, obtain Architectural Review Committee approval, meet all codes, requirements, guidelines and covenants imposed by cities, villages and homeowners associations to ensure timely completion. The illumination should be considered, planned for and under contract prior to landscape installation for many reasons. But the actual installation should take place near or at the end of the landscape construction process.

To judge when to actually begin the illumination, decide who and how it will

be installed. If equipment such as pipe pullers and trenchers will be used, you will need to prepare your client for existing tree, new plant material, and lawn damage.

Installation by hand after the landscape has been completed is by far the best solution provided the crew is horticulturally oriented. If done properly, it will not be necessary for the landscape contractor to return to fix anything. If the illumination installation is done early in the process, it is very likely the wires will be damaged several times unknowingly by the irrigation, invisible fence, hardscape or landscape contractor. The hand installation allows the crew to carefully work around previous construction areas. Care should be taken to avoid damage to existing large tree roots by going over, under or around them, rather than straight through them in the case of trenchers and pullers.

## Scheduling

A reliable illumination contractor should be chosen who can coordinate closely with the landscape installation. If too much time elapses after the landscape installation, the new plant materi-

als will take hold and not tolerate disruption as well as when freshly planted.

## Fixtures Mounted to the Trees

Fixtures that are to be placed in trees for uplighting the canopy and moonlighting the ground should be addressed very carefully so no permanent damage is done to the tree. The mounting device should be arborist approved. Strapping of fixtures to the trunk or limbs is very detrimental to the tree once it begins to grow. The amount of wire placed in the tree should be minimal and should be put on the least visible side of the tree, attached with approved staples that won't damage the cambium layer of the tree. In order to mount the fixture in the tree, the trunk or limb must be at least 3" caliper to withstand the weight of the fixture. The fixtures should not be placed so high that the effect on the ground is compromised.

## Maintenance

If shortcuts are taken during the illumination installation phase, then frequent callbacks are a certainty. Any illumination system should receive minor



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sleeved and with flexible, but not ribbed, PVC pipe that does not have elbows that would impede access for wire. This applies to all patios, pool decks and walks. Otherwise, the client will incur time, effort and additional cost later. Some areas will not be accessible if the sleeves are not in because they are too wide to put sleeves under them later. In this case, the client may not get the lighting they want.

### Power Source

Most landscapes only require a good low-voltage (12 volt) illumination system, since the existing or newly planted trees are under 10-inch caliper and less than 20 foot tall. Line voltage (110 volt) would be necessary if the trees are very large and need to be lit higher than 30' into the tree, or if large areas need to be moonlit from tall trees.

Low-voltage illumination requires a transformer to transform the existing power at an outlet from 110 volt to 12 volt. The choice of transformers depends on the amount of total power required by the system or if phases

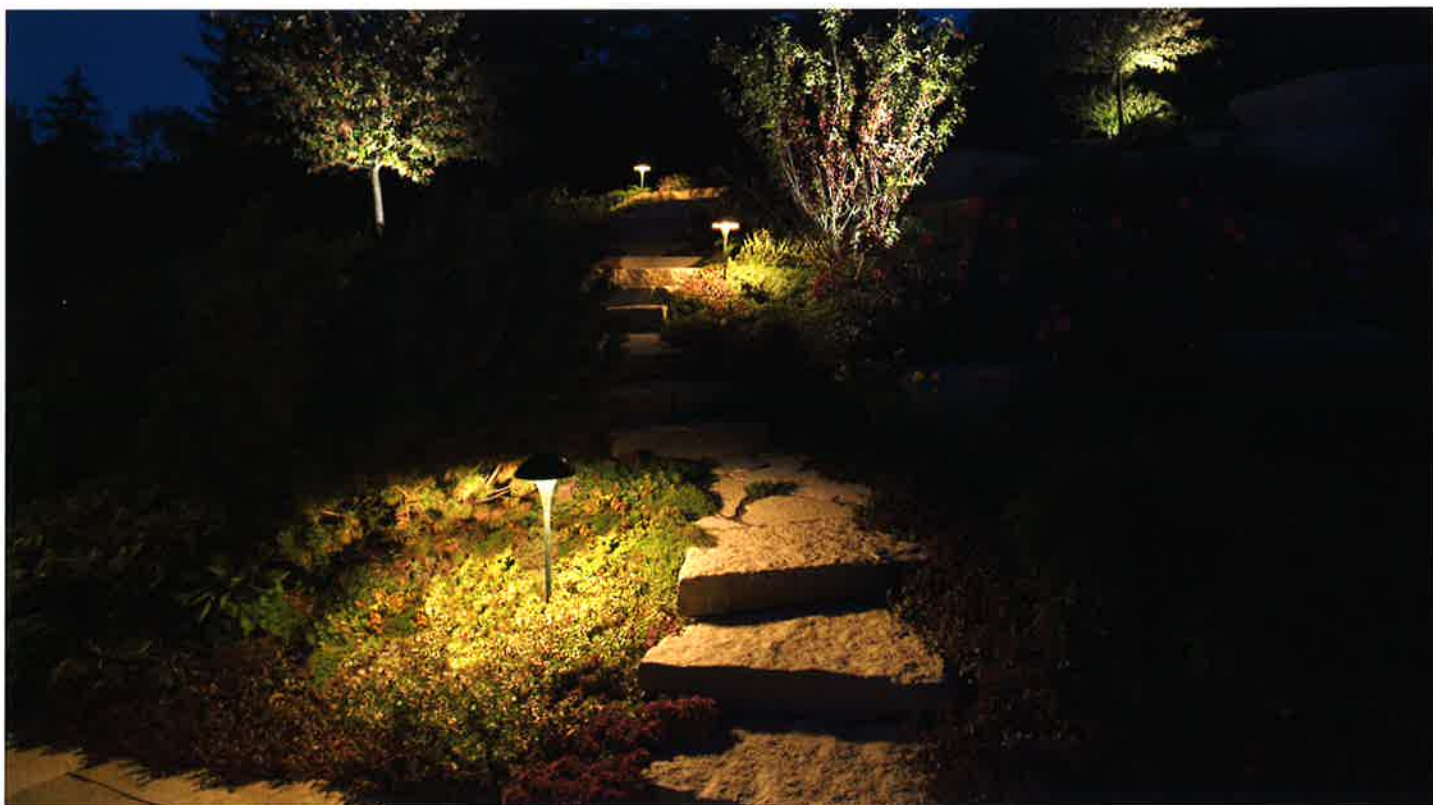
would be added later. A licensed electrician must provide an outlet with sufficient amperage, if one is not already available.

The location of the power source should be central to where the illumination will be placed. This allows for efficient wiring and to reduce voltage drop. The transformer must be accessible from all areas that need to be illuminated. This is where the lack of sleeves becomes a problem. Existing outlets are usually available on the outside of the house or in the garage to power the transformer. Holiday lights, refrigerator/freezers, heavy-duty power equipment can all draw significant power rendering an existing outlet unusable. To use the circuit containing these items would most likely result in a tripped breaker once the lights go on and the equipment is used.

If a home is under construction, a plan should be made to determine the power needs of the illumination system prior to closing up the walls of the house. It is much easier and less costly to have the general contractor do the work while on site rather than to have

someone else do it later. When the illumination is going to be controlled by an integrated computer system, this should be determined well in advance to ensure the circuits and outlets are available and can be controlled properly. If a swimming pool is being proposed or installed, the pool company or their electrician can easily add additional circuits and outlets while on site. If plugging into an existing outlet is all that is required, a permit is usually not necessary and the lighting contractor does not have to be a licensed electrician.

When determining power and transformer needs, phasing and future additions should be considered. Occasionally, the client may want to control the system with a switch inside the house, therefore requiring additional electrical work. It is also possible to add a 110-volt time clock and photo cell if necessary. It is best to know this upfront. The transformers are designed to be mounted indoors or outdoors but the latter is recommended, when possible to allow for easy access for maintenance. This also would eliminate the need to drill holes in the foundation.



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# this... landscaping.”



scape intent, a customer-focused professional approach to lighting design and budgets should be included up front with landscape budgets. This is most accurately done when a landscape illuminator has reviewed the site, the landscape plans and the desire of the client to accurately assess how to best meet the needs.

Once lighting has been considered, many issues must be addressed to achieve the overall illumination concept. Some that may cause adjustments to the landscape plans or installation are:

### The location of trees

Key placement of larger trees can create a dynamic nighttime effect. Uplighting these trees can add depth to the landscape, dramatic appeal when entering a property, or balance and complete a foundation planting. If trees are being considered, it is important to leave enough room for the placement of the fixture. Evergreen trees, for instance, need to be illuminated from outside the tree; therefore more space is needed around the tree to allow for light to reach the top without interference from

the lower limbs. Often, trees are too close to a patio, walk, driveway, or wall to adequately illuminate them.

Shade trees can be uplit to feature them and add shadows and light on a house facade or architectural wall.

If the tree is large enough (minimum three-inch caliper at 15 feet in height), it could be a candidate for downlighting or moonlighting. This type of lighting casts attractive patterns through the branches and leaves of the trees. Ponds and patios benefit from this type of

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illumination. Due to location, growth habit, texture, size and color, each tree should be considered individually for illumination.

### The Location of Shrubs

Most shrubs are not candidates for uplighting unless they are a very large or specimens. They can be detrimental to an illumination design if they are located in the wrong place. As mentioned earlier, the fixture location is very important. If shrubs are planted where a fixture should be, it is not usually possible to relocate the fixture because it would destroy the effect. Room should be left for the

proper placement of the fixture without competition from the planting. (The fixtures do not belong, however, in lawn areas because maintenance equipment could damage them, plus they are much too conspicuous.)

### Perennial Beds and Border Gardens

Uplighting, downlighting, and tall pathlighting can be used to accent certain textures, colors, and feature plantings to add depth and drama to a perennial garden. The fixture should be placed where the surrounding plants will not swallow it up when full grown. If it were possible to moonlight the garden from a nearby tree or structure, this would wash large areas with light and highlight many of its features at once.

### Sculpture, Fountain and Amenity Placement

A comprehensive illumination system tells the landscape story by providing a visual harmony between the key architectural and landscape elements, while focusing attention on special features. However, if the lighting of an amenity is not properly woven into the overall design, there can be a lack of cohesion

from one element to the other. Amenities that are highlighted by themselves create a major focal point, but this approach



may disrupt the effect when viewed from a distance.

By lighting an amenity in balance with, rather than starkly separate from a properly illuminated landscape or pedestrian area, it is possible to create an environment which transitions easily from element to element. This will allow the eye to travel naturally throughout the space, without searching for somewhere to go.

Since the amenities are often a focal point in the garden, they usually deserve to be highlighted with uplight from below or downlight from above. But they must be positioned properly for this to occur. Silhouetting can be accomplished by illuminating the feature from behind, and mirror lighting by reflecting it into a pool of water. Care should be taken not to obscure it by hedges or other plantings, so fixture space should be allotted for. If a fountain, sculpture or waterfall is to be illuminated from within the water source, this should usually be done by the one installing the water feature (not the landscape illumination contractor) so as not to compromise the integrity of the pool or pond.

Sculptures, fountains, trellises, per-

golas or art amenities are personal expressions of the property owner. They should be given serious consideration without overemphasizing them. It should always be the goal of the lighting designer to discover the client's needs and desires to determine which areas and elements of the site and landscape should be addressed.

### Decks, Trellis' and Gazebos

If the design and construction of the deck, trellis or gazebo are done with the consideration of illumination, several details can be incorporated into the installation that will

make it much more attractive and cost effective when completed. For instance, rope lighting is a very good product for illumination beneath railings, and for steps, benches and gazebos. But, it is not intended to be visible, so it may need a channel routed in it prior to completion. This is either very difficult or impossible after the fact. Regardless of the lighting technique or fixture, wiring will be necessary and this can be incorporated within the construction attractively rather than added on afterwards.

Whether or not the structure will be washed with uplight, ropelit or moonlit from surrounding trees should be considered before construction begins. With prior planning, the structure can be a very attractive element within the landscape. Avoid the use of the house flood or security lights which usually produce far too much light for the space and the surrounding neighbors. Downlighting for barbecue areas can be accomplished effectively if they are part of the design process. Unique trellis features can be a major focal point in the evening with the appropriate placement of fixtures.

### Patios, Pool Decks and Walkways

A strong sense of outdoor space can be created by uplighting tall landscape elements surrounding a patio, pool deck, or walk. Since many of these areas are used extensively in the evening for entertainment, it is wise to provide safety and security while leading someone through a space. Moonlighting and pathlighting are the two most common ways to provide this type of illumination.

Moonlighting can usually take the place of several pathlights. It is important to select a fixture that will provide light without having the light source visible. Space should be allotted for illumination at all stairs, landings, and anywhere someone needs to make a change of direction while in the space. When illuminating a pool deck, the fixture spacing is usually slightly closer because the pavement gets wet and there is a stronger need for safety. The plantings should not impair the fixture from performing its function all season. If an area warrants a pathlight fixture, then allow room to offset it to include the landscape into the lit area, so it is not right on the pavement. Do not plant tall shrubs right nearby. The location of the lights should be staggered and spaced so someone can slalom down a walk rather than be flanked with fixtures (the runway effect). Since these fixtures do not belong in the lawn, it is important to design the planting beds to allow for the appropriate, even spacing of them wherever light is needed.

### House Façade and Wall Lighting

The fixture location is very important here to achieve the proper effect. It should be an even wash of light, so plantings and adjacent hardscapes must allow enough room for the fixtures. If the house façade is being illuminated, the unique architectural features, win-

dows, address # and the existing lights on the house should be considered. The



trees and shrubs should allow for the proper placement of the fixtures without the light shining directly into the windows. Once façade illumination is done, the areas that are not lit become very obvious, so it must be complete. This should be figured with the existing house lights on (except for the security floodlights).

### Driveways and Motor Courts

An enjoyable experience can be created by highlighting key features, trees, color, and textures around the drive and motor court. Avoid the runway look if at all possible. When using path lights, stagger them unless the design calls for it to be formal. Areas that receive snow accumulation during snow removal should be avoided. The fixtures should be set back into the landscape to reduce the chance of them being hit by a vehicle.

The illumination effect should be welcoming, not overpowering. If the tree locations are right, moonlighting can be very effective here. Uplighting trees within a driveway island can achieve depth and excitement, so allow for plenty of sleeves under the drive. The driveway illumination should be

transitioned into the front walk and front house entry illumination. The same issues of plant placement apply as with the patio areas. The quality of the fixtures must be extremely good and durable. These fixtures do not belong in the lawn areas for all the previous reasons.

### Landscape Illumination For Security

First of all, it has been proven and documented that a well illuminated home and property is the best deterrent against intruders and crime. That does not mean it has to be bright floodlights on motion detectors, but could instead be attrac-

tive landscape illumination done tastefully. In the design, trees could be placed and illuminated in areas where it otherwise would be dark.

### Sleeving

Plenty of sleeves should be provided to allow for easy access for the illumination after the hardscape and landscape have been completed. Earlier, it was mentioned that the illumination should be one of the very last things to be installed, so these sleeves should be noted on a plan and permanently marked in the field (possibly a small notch on both edges of the pavement) to alleviate the need to unnecessarily disturb adjacent landscaped areas. The contractor who installs the hardscaped area should also install the sleeves in the gravel base during construction, placing them where planting or lawn areas are cut off from each other by pavement.

When providing sleeves for each area, there should be at least two 2" PVC sleeves or at least one 4" sleeve. (The 4" has a higher likelihood of heaving under the pavement). Walls and multi-level terraces should also be