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THE POOL

During the day, your swimming pool is a cheerful, sunny playground. By lighting the area at night, you extend the use of the pool, and with the special lighting effects available today, you can create a magical, lit-up oasis in the middle of a dark desert. Even with just a standard underwater spotlight, a pool glimmers like an opal or moonstone. There is something enchanting about a garden and swimming pool lit at night. Outdoor lighting creates a welcoming atmosphere that enhances the unique features of your landscape, home, and pool. Just as on a stage, you can use lights to create almost any effect you like - from dramatic and theatrical to romantic, mysterious, subtle, or subdued. You can opt for decorative fixtures that are a feature in themselves or hidden lights placed unobtrusively on the ground or up in trees, working their magic from a seeminaly invisible source. In the "old days," landscape lighting was 120 volts.

Cables and wires had to be buried in waterproof pipes, and the complicated and involved installation generally required an experienced electrician. Because of the buried wires, the lights needed to be in permanent positions, leaving little flexibility for any changes in the layout or lighting needs as the landscape evolved.

Today, all that has changed. Low-voltage systems are easy to install and designed to create the same illuminating effects as their predecessors. They are inexpensive to operate as well. One homeowner in Maryland estimates that it costs him \$150 a year to run the lights for his one-acre garden. Such systems are also flexible. Because the electrical wires do not need to be buried, it is easy to move the fixtures, a feature that is particularly useful in an ever-changing garden setting where plants grow. Eventually, a light fixture may be covered by the foliage of a nearby shrub or no longer be in the best position to show off a now-enlarged plant's features. When that happens, you simply upstake the fixture and move it to a better position.

well-illumined pool in the middle of a dud landscape means nothing. The primary characteristic of a pool is its reflective qualities. It's not uncommon for homeowners to leave the pool unlit, and to let it reflect the surrounding garden lights."

Skip Phillips, Owner of Questar Pools and Spas in Escondido, California





Principles of Design

esigning with lights is an art form akin to painting or sculpture; however, instead of paint or clay, you use light as your medium. The same elements of design and composition apply to lighting as they do to any other art. The qualities you want to achieve for the most visually pleasing results are harmony and unity; proportion and scale; mass and space; and pattern, texture, and color.

ighting is an enhancement and should not make a bold statement. Our design is successful if you are not sure that the lighting is there — until you miss it when it is turned off."

Mark Oxley, Outdoor Illumination, Inc., Washington, D.C.

HARMONY AND UNITY

A successful composition, whether a painting or a garden design, must be in balance, so the entire picture hargs together as a cohesive whole. When balance is successfully achieved, the composition feels harmonious. The same is true for designing effective lighting for your landscape. You want to create a harmonious whole. If the lighting design is spotty, say with brightly lit areas broken up by dark holes that don't lead the eye to a focal or resting point, the result is jarring and inharmonious. A design is more cohesive if there are soft layers of light between brightly lit areas. This soft "transcriptions are constituted in the soft of the s

sition" light helps the eye move smoothly through the composition to the different points of interest rather than leapfrogging unassisted over dark gaps to the next bright spot.

Balance can be either symmetrical or asymmetrical. Symmetrical compositions tend to be more formal, offering visual stability. If a daytime landscape is strongly symmetrical, you probably want to reflect that in your nighttime illumination. For example, if your garden features a pair of trees as a focal point, you may want to give equal weight to lighting both trees at night. To achieve symmetry in lighting design, you generally need to create equal brightness from one side of the composition to the other.

Asymmetrical designs are less visually stable. Done well, they can be exciting and dynamic because they encourage the eye to move through the picture, evoking a series of emotional responses as the eye settles on an object and then moves on. Generally, asymmetrical designs will be more harmonious if you feature odd numbers. One, three, or five points of interest are more stable — more unified — than two or four focal points that are given equal weight. In the case of even numbers, the eye tends to bounce back and forth between the objects, never knowing where it's meant to rest. Because the eye is drawn to bright light, it will skip back and forth between two lit-up areas.

If you want to feature more than one focal point in an asymmetrical lighting design, consider how each will interact with the entire composition. It helps to assign degrees of importance to each feature. A star item should be more brightly lit than lesser features. Bear in mind that you do

not have to include all the daytime focal points in your nighttime composition. For the sake of your design, you may decide to leave an object dark that is a major feature during daylight. A pool is transformed at night, so you can make the most of that fact by creating a space that feels completely different from its midday self.

The exception to preferring odd numbers in clusters to even groupings is when you want to create a sense of rhythm by repeating a series of lighting effects, perhaps to link two focal points. You can create rhythm with garden lights by illuminating a row of trees, each with its own spotlight, or by highlighting each support post of a vine-covered pergola next to the pool. A row of equally spaced lights grazing the wall of the pool house or cabana is another example of rhythm.

PROPORTION AND SCALE

To achieve a sense of pleasing proportions, make sure objects properly relate to each other by size. Some people have an instinct for pleasing proportions, always knowing the perfect-size couch to combine with two side chairs so they all fit comfortably in a room or the right shrub to fill a space without being too dominant. Others will find assistance from objective standards of proportion established by mathematicians in the thirteenth century.

The Italian mathematician Leonardo Fibonacci discovered a series of numbers that represent visually pleasing combinations. The series is created by adding together the two numbers that precede the next. For example, add 1 and 2 to get 3; 3 plus 2 (the previous number) equals 5, which is the next number in the series. You can continue this series (1, 2, 3, 5, 8, 13, 21) forever. Interestingly, the Fibonacci sequence is found in many plants and animals, including the spiral of



the chambered nautilus, the seed cones of fir trees, and the arrangement of seeds in a sunflower. To find pleasing proportions for a space, use adjacent numbers as the dimensions. For instance, a room that is 8 feet by 13 feet feels right, as does one that's 13 feet by 21 feet.

Proportion comes into play when lighting a swimming pool area because it is an outdoor room where you play and entertain. You create the "walls" of your room with garden lights, which visually define the perimeter of the space. On a lot with plenty of trees, you can use them to create the illusion of walls by focusing some spotlights up at trees growing near the pool area and hanging other lights to shine down through the branches. At night, if you want your pool area to feel larger, you can make it so by lighting a plant or feature that's beyond the property line, thus borrowing from the surrounding view.

▲ The chambered nautilus is a classic example of the proportion revealed in the number series discovered by the Italian mathematician Leonardo Fibonacci. The area of each successive chamber is the sum of the two immediately preceding it.

▼ Discreet light fixtures built into a stone wall illumine the decking at the end of the pool and shine in reflection on the still, dark water. You'll also want to achieve pleasing proportions among the plants, structures, and garden ornaments you plan to illuminate. Think in terms of relationships among objects — their comparative sizes, shapes, and densities — and look at them as units, with an eye to how their proportions interact with each other. For example, if you highlight too many diminutive features, you risk making the lighting scheme appear busy and lacking in focus.

MASS AND SPACE

In the language of garden lighting, mass is evoked by areas left dark and space is evoked by regions that are lit. If you leave too much dark, a nighttime pool will feel unwelcoming and unsafe. If everything is flooded with light, the harsh glare and lack of contrast also will be unappealing. The goal is to strike a balance between features and areas that are lit and those left in darkness. See "Designing



with Photographs" on page 128 to help you visualize how different combinations of dark and light, mass and space, will work in your proposed lighting scheme.

Even when well lit, a large, bulky plant also projects a sense of mass in a design. In contrast, an uninterrupted area of pool decking and the pool itself are swaths of open space. Trees with an open, lacy canopy have less visual mass — even if they are extremely tall and large in diameter — than a short, tubby white spruce. Plants with dark foliage appear more massive than do plants with pale leaves. Use lighting to make a pleasing picture that includes a sense of mass from plants and pool structures, as well as a sense of space from open areas and lacy plants.

PATTERN, TEXTURE, AND COLOR

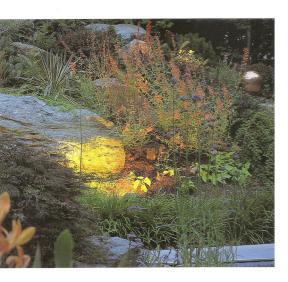
You'll find patterns, textures, and colors (even different shades of green) throughout the pool and garden. Look for the branching pattern on a tree or the trunks of multistemmed specimens, such as crape myrtles. A spray of palm fronds and the spiky leaves of dracaena have both pattern and texture. Tree bark, foliage, and the surfaces of structures all have texture that you can highlight or minimize with your lighting design. Large-leaved plants are bold in texture, creating a strong, assertive look. Small-leaved plants have a finer texture that gives them a more delicate appearance. You might use a spotlight to create the silhouette of a spiky-leafed plant against the pool house wall or the fence surrounding the pool, or use downlighting to capture the dancing shadow pattern of fine-textured tree foliage on the lawn or pool decking.

At night, the eye tends to see things in black and white, but lights bring back the color. Nevertheless, each color, depending on how dark or pale it is, reacts differently to being lit. Certain



colors come alive under artificial light. Salmon-colored flowers, such as azaleas and impatiens, look more brilliant at night than during the day. Shiny or pale colors reflect light; dark colors tend to absorb it. Silver maples (Acer saccarinum) and some of the poplar and birch species have silvery undersides that almost sparkle when lit from below. In contrast, the tan-colored woolly underleaf of some Southern magnolias (Magnolia grandiflora) make the plant look dead if it is uplit. Some leaves are thick and opaque, while others are translucent and look fantastic when light shines up through them. To brighten your nighttime poolside plantings, use garden lights to illuminate a large pot or tub with salmon-colored impatiens, and uplight nearby trees, especially if the foliage has pale undersides, so you can enjoy the magical effect of the light while you float on your back in the water.

▲ Uplighting from a spotlight tucked into hostas shows off the beautiful mottled bark and multiple stems of a crape myrtle tree.



- ▲ The salmon-colored flowers of giant hyssop (Agastache rupestris) are particularly effective when lit at night.
- The "floating fire" created by pool designer
 Skip Phillips, is a dramatic feature of this
 La Jolla, California,
 pool. Such features
 provide warmth, light,
 and pretty reflections.

MOOD MAKERS

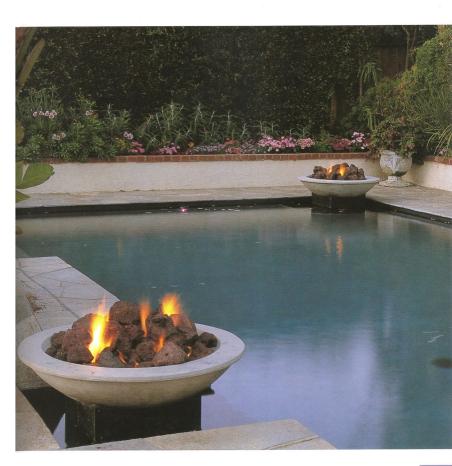
In addition to touching our visual sensibilities, pool and garden lighting evokes various moods or atmospheres. Bright lights are exciting. That's why amusement parks, especially the midway, are so brightly lit. There you'll see white lights, colored lights, and many that blink on and off. The result is a charged atmosphere where exciting things are bound to happen. Fairy lights strung through a tree add sparkle to a scene, another dynamic, upbeat mood inducer.

For drama, design with high contrast. A single sculpture spotlit in the middle of a dark area is dramatic. There it is — a visual POW! — in the middle of a void. On the other hand, that kind of

high-contrast lighting isn't suitable for a space where people will be moving around, as it's too dangerous (the eye cannot adjust quickly enough to extremes of light and dark), but it's great for a set-apart feature viewed from a distance. If you have a specimen plant or sculpture visible from the pool but set apart, you could leave all around it dark with just a single spotlight focused on the feature. Alternatively, during the winter months when you're looking at the pool from the house but not worried about safety issues stemming from people walking around the space, you can use a light to pick out one stunning feature of the pool, leaving the rest of the area dark.

Everyone knows that soft light evokes a romantic or mysterious mood. Moonlight filtered through trees or reflected on still water is calming. You can create the same effect by mounting downward-facing spotlights in trees or on buildings. Soft lighting is flattering; years drop from faces when the lights are low. Dim lights also add a pleasing air of mystery because everything cannot be seen at once. For example, a no-nonsense garden path that runs straight and true takes on a mysterious aspect at night when the far end of the path is left unlit so it gradually disappears from view as the eye follows it into the darkness. At night, no one knows where it goes or what lies at the other end.

Around the pool, you may want some areas of decking lit more brightly than others. The corners that are dimmer become private — perhaps romantic — retreats, while the brightly lit spaces may be where people gather for lively conversation, poolside barbecuing, and other festivities. Perhaps there is a path that leads away from the pool to an unlit part of the garden where you don't want people going at night. If the path disappears into darkness, people are unlikely to venture down it, but they will enjoy the sense of mystery it provokes.





WATERFALLS AND FOUNTAINS

Water in motion has an indisputable allure. The splashing, guraling sound is a balm to the spirits, and watching water, whether it bubbles up in a mass, spills and spreads evenly over objects in its way, or sprays into millions of fine, lightcatching particles, can happily occupy people for hours. Once you have a swimming pool, adding a watery accessory, be it a fountain, water slide, waterfall, or combination of them all, is a natural direction in which to go. Water features add drama and beauty to a pool design, and they mask intrusive noise from nearby traffic or neighbors. In addition, a water slide or a waterfall you can swim through enhances the play value of a pool. There are numerous ways to add water features to a swimming pool. Whatever approach you take, make sure the design is in harmony with the overall style of your house and the rest of the pool setting.

Waterfalls

aterfalls are a natural adjunct to swimming pools, not only because they add to the watery theme of the setting, but also because, in most cases, they can be attached to the existing pool circulation system. From the completely natural to totally stylized, waterfalls come in all sorts of guises, with a wide range of styles and effects you can achieve. For example, when water spills over a smooth surface, it makes an uninterrupted, glistening ribbon. Put an obstacle in its path, and the ribbon is divided into sections. If water drops onto a hard surface from a great height, it will splash into tiny droplets of mist that will catch the sun to form rainbows. For a "falling cloth" waterfall, run a large volume of water over a high ledge so it spreads out like a curtain. It is very special to be able to walk behind these sheets of water and to look back at the world through the watery screen while keeping relatively dry in the cool recesses.

In Asian landscape design, a delicate, slender stream of falling water is known by the poetic name "silver thread." Some designers who specialize in water features that evoke the Far East are masters at directing the course of water so that every part of its journey is an intended, studied picture. Sound is also orchestrated by guiding the water to ripple over pebbles, crash from a great height, or move slowly around obstacles, such as rocks and logs.

Of course, you can combine different effects. An upper fall might split into two where a rock blocks its path or gush between narrow boulders as a white, frothy spume, while a lower fall might glide over a smooth edge in a clear sheet of water. The common denominator for all waterfalls is a change in level, so the water has a place from which to fall. Properties with a swimming pool at the bottom of a slope have a ready-made opportunity for a waterfall, but there are also ways to create a waterfall on a level lot. Often a spa is built on a level above a swimming pool, so you could install a spillway or waterfall to drop from the spa and circulate warm water into the larger pool. You also can create a natural-looking waterfall by building up an area with soil to make a berm. If your waterfall will be constructed at the same time as your pool, you can use earth excavated from the pool site. Any stones unearthed from the site are ideal to use for the water feature, as they are native to the region and will give the landscape a sense of locality.

It's not easy to replicate nature so that it looks unstudied and spontaneous. A lot of thought and planning goes into designing a mountain-style waterfall that looks completely at home in its setting. Marjorie Casey of La Jolla, California, knew exactly how she wanted her proposed tropical mountain stream to tumble over stones and into the swimming pool, but she needed a way to convey that vision to the builders. She made small stones out of clay and created a model of the waterfall she envisioned. When the model looked exactly as she wanted, the builders located the right stones and constructed the actual waterfall. As Casey planned, the water bubbles out the top, settles in eddies and small ponds, then spills over and around rocks to the next level. Plants tucked among the stones and overhanging the falls add to the illusion of a tropical mountain setting.

Skip Phillips, of Questar Pools and Spas, Inc., took a radically different approach to a waterfall for a swimming pool in La Jolla, California.



Phillips conceived a "rainfall" waterfall. The feature is a monumental vertical rectangle along the far side of the pool. Individual drops of water stream down the face of the box, looking and sounding like a heavy downpour. At night, underwater spotlights fitted with rotating colored filters shine up at the falls, catching the drops and turning them alternately pink, blue, and white.

The bold, geometric design of the rainfall waterfall complements the rest of the poolscape, which comprises a series of repeated geometric forms. The rectangle of the vertical waterfall echoes the proportions of the rectangular pool and spa. Six large, square stepping-stones appear to float in front of the waterfall and match a set of he thing that thrills me about the waterfall is that even though we didn't know anything about constructing it, it turned out so well. Everyone told us we were out of our minds because waterfalls can be so tricky, but we haven't had any problems. It's worked perfectly from the first day."

Marjorie Casey, La Jolla, California



The "rainfall" waterfall designed by Skip Phillips for a La Jolla, California, client is an arresting focal point as well as a practical solution for screening a plain fence and distracting from the proximity of neighbors.

stepping-stones in the lawn on the opposite side of the pool. Nearby, a raised bed planted with giant bird of paradise (Strelitzia nicolai) repeats the square motif.

In addition to being a striking element and an important focal point in the overall poolscape design, the rainfall waterfall serves a practical function. It screens much of the view from the neighbor's house, distracts from the close presence of the boundary fence, and creates white noise that blocks sound coming from both sides. It is a brilliant, harmonious blend of design and function.

Another example of an innovative, contemporary waterfall was designed by Arabella Lennox-Boyd. She created a garden featuring a series of three waterfalls spilling down a wide flight of concrete stairs. A modern metal sculpture at the rear of the garden is the source of the sleeklooking waterfall; the water then flows through a narrow channel between perennial beds, spreads out into a rectangular holding pool, then spills by steps into a water lily pond. Instead of a pond, the stepped waterfall could just as well have flowed into a swimming pool.

The narrow channel in Lennox-Boyd's design is evocative of the waterways created by the ancient Moors who conquered Spain in the eighth century. At the famous Alhambra Palace in Granada, Spain, visitors can see beautiful courtyards and gardens that feature Moorish fountains and ponds. Particularly characteristic are the long, narrow runnels that look as streamlined and up-to-date today as they

did when they were built between 1248 and 1354. If you have a patio at a higher level than the swiming pool, consider building a narrow, Moorish waterway running perpendicular to the pool, with a waterfall at the end spilling into the pool below.

Some pool owners prefer to build a waterfall that looks more like a natural setting, with water tumbling and bouncing down a rock face to a swimming pool below. The rocks lining the waterfall can be excavated from the property when the pool is built, providing a native feel. If the stones for the waterfall are uneven, with some protruding more than others, the water will bounce from stone to stone and be churned into frothy white foam.

Another great waterfall design features a stone lintel strategically placed above a swimming pool. When water rushes over the lintel, it plunges in a wide, smooth sheet into the pool below. This is a perfect setting for the front of an entrance to a stone grotto with a cool, recessed cave inside. Swimmers must pass through the curtain of water to enter the cave; from inside, they can look back at the scene through the watery film. Needless to say, some of these projects require a generous budget, but homeowners with more modest means can take these ideas from well-known designers and implement them on a less extravagant scale.

Building a waterfall, whether to look like part of a mountain stream or to stand out as a stylized creation, is a special skill that requires not just artistic but also technical expertise. For example, if the soil is mounded high to provide for the fall, it must be properly compacted to avoid any shifting or settling that can crack the concrete holding it together. Leaks are not uncommon, and they are often hard to find and difficult to fix. Unless you have a lot of do-it-yourself experience, particularly working with concrete, electrical equipment, and pipe fittings and routings, you may be better off turning to an expert to design and install your waterfall.

■ Although this modern waterfall, created by English landscape designer Arabella Lennox-Boyd, spills into a lily pond, it would work equally well with a swimming pool. Lennox-Boyd used elements of Moorish styling to create a stimulating blend of ancient and contemporary design.

