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Outdoor Lighting for Home Grounds

Michigan State University

Cooperative Extension Service

Home and Family Series

Former Misc. Series Circular

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December 1964

16 pages

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EXTENSION BULLETIN 494
Home and Family Series
(Former Misc. Series Circular E-4)

Outdoor Lighting

For Home Grounds



MICHIGAN STATE UNIVERSITY of Agriculture and Applied Science

Cooperative Extension Service • East Lansing

Why limit the
beauty and use
of your garden
and other outdoor
areas to the
daylight hours?

Outdoor Lighting For Home Grounds

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and Urban Planning

LANDSCAPE ARCHITECTS: Unless otherwise credited, the author of this publication is the landscape architect for the various projects illustrated. M.S.U. landscape architects, when credited, include: Harold W. Lautner, head; and Milton Baron, assistant.

PHOTOGRAPHER: All photographs are by James L. Tarr, Michigan State University photographic laboratory.

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Cooperative extension work in agriculture and home economics. Michigan State University and the U. S. Department of Agriculture cooperating. N. P. Balston, Director, Cooperative Extension Service, Michigan State University, East Lansing. Printed and distributed under Acts of Congress, May 8 and June 30, 1914.

2F-12.64-15M-SH





(M.S.U. landscape architects)

A single fixture effectively features a small group of flowers.

Why use *Outdoor Lighting?*

Lighting can make the outdoor areas around your home safer, more useful, and more attractive. The cost is relatively small. A number of manufacturers produce a variety of fixtures for outdoor use. Every homeowner can now enjoy the benefits of outdoor lighting.

With proper lighting, areas and scenes which usually are not visible after dark become useful and attractive. A flick of a switch can produce a charming garden scene out of a sea of darkness.

Interest in outdoor living is increasing, and your whole family will welcome the longer hours in the open air that outdoor lighting can bring. Members

of the family who are away from home during the daytime especially appreciate outdoor night lighting.

You can enjoy almost every outdoor activity that takes place in the daytime just as much at night — if you provide lighting. Certain activities, such as dining and relaxing, may be even more enjoyable in the cool air after dark.

Homeowners can light many different types of outdoor areas to advantage — walks, paths, steps, driveways, parking areas, gardens, porches, terraces, patios, work areas, play areas, pools, sculpture, fences, walls, gates, passageways, trees, shrubs, and flowers.



Lighting for Beauty

Artificial lighting makes nighttime scenes completely different from daylight effects. Outdoor lighting helps create many artistic compositions at all seasons of the year. Interesting objects such as fences, fountains, sculpture, and specimen plants can be accented; flower borders can be outlined; and pools can be lighted either from below or above the water level.

Although several sources of light besides electricity are available — such as lanterns, torches, and candles — their use is limited. They are useful mainly where electricity is not available, where a flickering light is desirable, or to destroy insects by attracting them into a flame. Electric lights are much handier and more versatile for outdoor living.

Lighting for Work

You can do a number of jobs outdoors after sundown if light is available. In fact, the cool of the evening is often the best time to mow the lawn or weed the garden. Work of this type normally does not require equal light over the entire area. Portable lights will do. Such jobs as painting the shutters or assembling do-it-yourself items, however, require more uniform light.

Lighting for Play

Light outdoor areas devoted to play in a general, uniform manner. Be sure to keep direct light out of the players' eyes. A light source well above eye level on a building or pole is usually best.

Lights are often needed in more than one location and are usually located in a permanent position, although portable fixtures may do. Lighting for play includes areas for such activities as croquet, badminton, tennis, horseshoes, ping pong, and dancing.

Daytime picture provides distant view with many objects uniformly lit.

Nighttime picture creates a dramatic effect with considerable contrast between the light and dark areas. Notice how much of the daytime scene is concealed at night.



Lighting for Entertaining and Family Enjoyment

Outdoor entertaining is becoming much more popular and informal. During the spring, summer, and fall, it is often more pleasant to entertain outdoors in the cool air amid pleasant surroundings than to stay indoors.

You can buy fixtures and light bulbs which give you the various kinds of light you need for different uses. For example, you will want a reasonable amount of light where people are eating, while subdued light is best to accent beautiful surroundings. Spotlights emphasize specific objects of interest such as sculpture, water features, or flowers; floodlights cover a broad area.

Intimate night pictures are possible on almost every residential property.

(Landscape architect: Milton Baron)

Space used for entertaining can also serve as a place for family relaxation—lounging, reading, barbecuing, or playing cards and other games.

Lighting for Safety

Most homegrounds have areas that, if lighted, would be safer for the family and guests—such as steps, walks, driveways, pools, and slopes. Light fixtures are made especially for such areas.

Lighting for Protection

Intruders are less likely to enter lighted areas. Place switches in bedrooms or other convenient locations to turn on outdoor lights quickly.



Planning and Installing Outdoor Lighting

Planning for Beauty

Plan your lighting carefully — it takes time and patience to achieve best effects from outdoor lighting. Create attractive nighttime pictures by trying your lights at night in different places; use various sizes, colors, and numbers before you install your circuits and fixtures permanently.

Accent the most interesting features of your garden — sculpture, pools, fountains, fences, buildings, trees, and plants. Hide less attractive areas by leaving them dark.

Side or back lighting can be dramatic; front lighting produces flat, uninteresting effects.

Remember that outdoor areas often look better at night than in the daytime — they are more unusual. Intimate night pictures are possible on almost every residential property.

Plan for year-round effect. Every season provides interesting material for outdoor lighting:

Spring—everyone is eager to see the first signs of spring — spring bulbs, new leaves, flowering shrubs. Even rain is attractive when floodlighted.

Summer—luxurious foliage, flowers, and water make excellent subjects.

Fall—autumn foliage is beautiful when lighted.

Winter—evergreens, snow, sculpture, decorative fences and baffles, and the many patterns made by bare branches offer unusual lighting opportunities.

Create interesting patterns with light.

Watch shadows. When carefully controlled, they are charming; out of control, they produce weird effects.

Reflections in water highlight any outdoor scene. With proper lighting, they are particularly dramatic at night.

Light trees and shrubs to accent light-colored bark, unusual foliage, or interesting shapes. Select open, artistic forms instead of uniform or solid masses of foliage.

Use indirect lighting whenever possible, but use it well. Light reflected from smooth, light-colored surfaces such as water, paving, and structures produces very attractive, subdued effects.

Vary the strength of your light (size of bulb) according to its distance from the object being lighted



Indirect lighting is best for playing cards. The underside of this umbrella reflects light from a single bulb mounted on the umbrella support.



Unusual details make good subjects for lighting.
These steps are enameled red, yellow, and blue.

and type of light distribution — spotlight, floodlight, or wide-angle reflector.

Also, plan variations in the degree of light from one point to another. An evenly lighted area seldom creates an interesting picture.

Remember, an artistic effect is more important than efficiency in outdoor lighting. This usually means using several small light bulbs rather than one large one.

Restrain the amount of light used. Do not try to produce a daytime appearance. Too little light is better than too much; a soft glow is better than glare.

Conceal wires. Hide light bulbs with plants, louvers, baffles, or shields — you want to see the results of the light but not the light bulbs themselves. Because people move around outdoors, it is hard to conceal the light source from all angles. Choose the

most important angles for lighting and use fixtures which project beyond the bulb. For general coverage, install lights high up on trees or buildings.

Control insects around outdoor lights with:

- Yellow light bulbs (usually 100-watt insect-repellent bulbs).
- Insect-repellent candles.
- Insecticides sprayed around the area.
- Insect traps and open flame from candles or kerosene torches.
- White lights placed well away from the area you wish to use.

Consider your neighbors. Carelessly located lights can be very annoying. Place or shield your lights so they will not disturb other people by shining on their property.

Use Light to
Direct Attention



Distant lighting increases the depth of a composition.



Autumn colors make plants good subjects for special lighting.

Accent plants when they are in bloom.



Flowers are particularly effective when lighted.



LIGHTING WATER FEATURES

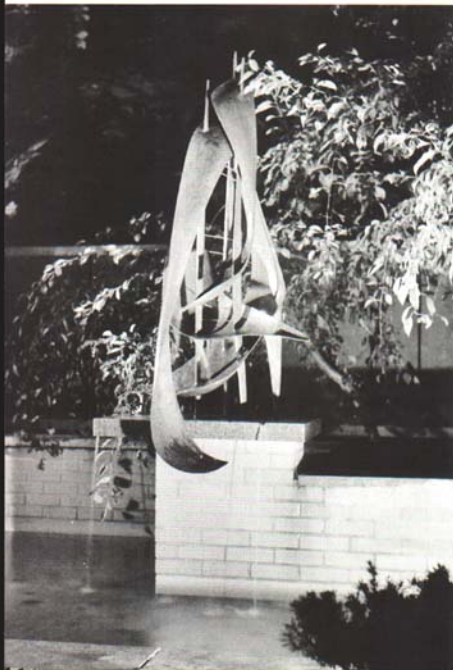
Garden Pools

Pools are especially attractive when illuminated. You can light them from:

- **above the water surface**—This gives a flat, dark appearance to the pool which, when the water surface is quiet, makes excellent reflections possible. It does not, however, create an attractive setting for goldfish, aquatic plants, or other underwater objects.
- **below the water surface**—This creates interesting and artistic effects and lights underwater objects most effectively. Fixtures, installed when the pool is built, are usually recessed into the sides or bottom. This is the most durable and satisfactory form of underwater lighting. Submerged light bulbs in waterproof sockets may also do.

Accent the most interesting features of your garden. Sculpture is an excellent subject.

(Sculptor: Lindsay Decker)



Jets and Small Fountains

- Moving water is beautiful when lighted at night because each drop sparkles. Jets, sprays, and fountains are best when lighted from beneath.

Swimming Pools

- Underwater lights illuminate the whole pool to produce a beautiful sparkling appearance.
- One light is usually enough.
- Underwater lighting increases safety because swimmers can be seen clearly anywhere in the pool.
- Additional lights, placed and shielded so they will not shine or reflect in people's eyes, are needed for the areas around the pool.

COLORED LIGHT

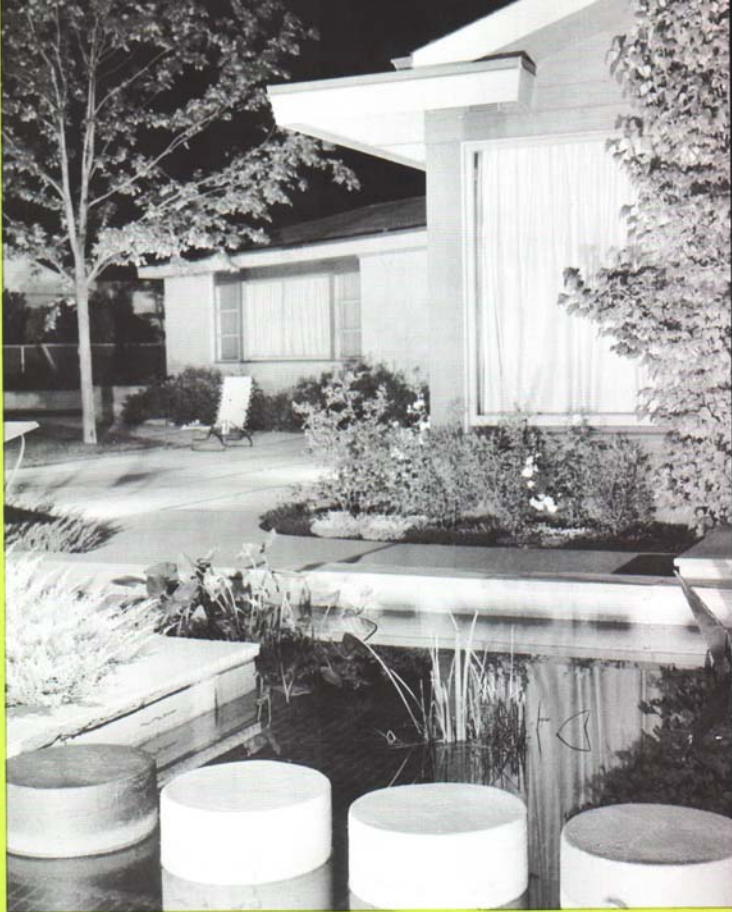
Limit your use of colored lights — they produce artificial effects by distorting the existing colors. However, colored light produces dramatic effects. Use it to accent small, very interesting objects rather than for large areas. Tints are usually better than deep colors.

Effects produced by different colored lights:

- Green or blue-green — valuable for lighting foliage to give a cool effect.
- Red — valuable for lighting foliage to give a warm effect. Pink light on snow with evergreens produces an interesting wintertime picture.
- Blue — hard to use. It does not beautify foliage or flowers, but it may create a moonlit effect.
- Yellow or amber — quite satisfactory, but it tends to bleach the color out of lawns and foliage.
- Mixed — two or more colors create unusual effects, especially in shadows, which will be composed of various colors.

Here are some ways to get colored light:

- Light bulbs are sold with built-in color lenses in at least a dozen different colors.
- Colored glass covers can be held over white bulbs by clips fastened to the bulb or fixture.
- Theatrical gelatins placed over a bulb may do for temporary use.
- Mercury lamps produce a blue-green light. This enhances foliage but makes people look colorless.



WHITE LIGHT

White light is very effective for outdoor lighting. Colors appear somewhat different than they do in sunlight:

- Foliage becomes a lighter, brighter green.
- Flowers and other colored objects are more vivid.

Terraces for entertaining guests and for family relaxation are especially easy to light.

Planning and Installing Circuits

LOCATION OF OUTDOOR CIRCUITS

Underground

Underground circuits are the most permanent and satisfactory but must be:

- Protected from insect and rodent damage.
- Capable of withstanding freezing and thawing weather.
- Protected against damage from digging.

Above ground

Circuits installed above ground:

- Are quite easy to install and maintain.
- May consist of overhead wires supported by posts, trees, or buildings, or of wires hidden on the back side of walls or fences.
- Are less permanent, less attractive, and in the way more than underground circuits.

Outdoor fixtures are either fixed in place or are portable. This photograph illustrates the use of both types.

TYPES OF OUTDOOR CIRCUITS

Temporary

Where you only want occasional lighting, temporary circuits may do. These usually are hidden extension cords lying on the ground or among plants. This method is not recommended because of the danger to people and equipment when wiring is exposed. Temporary circuits are also in the way.

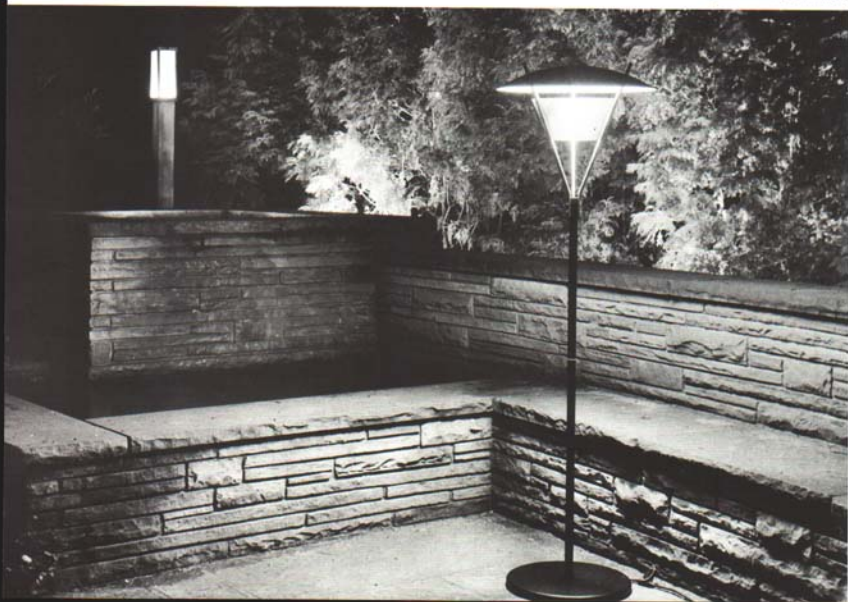
If you install temporary circuits, be sure to use a watertight cord and connections made especially for outdoor use. Several manufacturers make cords and portable fixtures which are easy to use.

Permanent

Permanent installations are usually the safest and most satisfactory. The circuits can be above ground, but underground wiring is better.

- Overhead wiring should be well above eye level and as inconspicuous as possible.
- Underground wiring is safe and inconspicuous. Although more expensive than overhead wiring, it can now be done at reasonable cost.

(M.S.U. landscape architects)



FEATURES OF A GOOD CIRCUIT

A good outdoor system has:

- Well-anchored outlets.
- Underground conduit that is protected from cutting with a shovel or spade. To do this, bury it at least 18 inches deep, cover it with 2 or 3 inches of sand or fine gravel, and protect it with a narrow board, treated with preservative, buried just above the conduit. If possible, install this conduit before paving or other construction in the area is finished.
- Its own 15- or 20-ampere circuits from the main fuse box at the house.
- Overhead wiring that is firmly anchored well above eye level.
- A few extra outlets for electrical appliances — radio, rotisserie, portable TV, and others.
- Weatherproof outlet boxes.
- Some fixed and some portable lights.

DO IT YOURSELF?

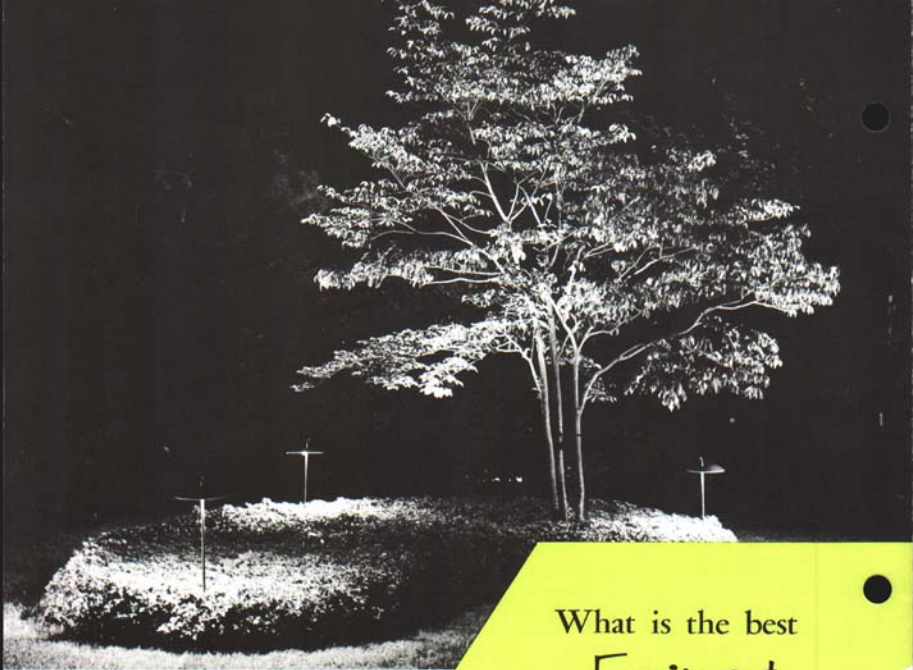
If you need a simple, temporary installation which involves only a few lights, you can probably connect it yourself without much trouble. When you need several lights, however, hire an electrician, especially if the installation is permanent.

Planning for Safety

- Connect your circuit to its source of electricity only after all fixtures and bulbs are installed.
- Arrange outdoor lighting fixtures only when the area is dry. Wet ground and foliage conduct electricity and may give a shock.
- For maximum safety, ground all outdoor wiring with three-wire cord, a three-prong plug, and a grounded electrical outlet box.
- Install separate circuits for outdoor use; do not overload existing house circuits by adding a number of outdoor lights. Most circuits will carry only about 1,500 watts. Do not place your home in danger of fire by using inadequate wiring.
- Follow your local electrical code.



Light trees and shrubs to accent light-colored bark, unusual foliage, or interesting shapes.



(M.S.U. landscape architects)

Plants with open, artistic forms are particularly beautiful when lighted.

What is the best Equipment

Use Outdoor Equipment for Outdoor Lighting

Equipment for outdoor lighting should be heavy, durable, moistureproof, rustproof, and preferably grounded to prevent electrical shock. An electrical supply house can provide you with the proper equipment. Indoor fixtures and extension cords are unsatisfactory, except for temporary use, and can be dangerous.

All parts of an outdoor electrical system must be weatherproof. These include switches, sockets, outlet boxes, splice boxes, etc. Use a waterproof gasket at the base of each bulb for a watertight seal.

Use only outdoor types of cable and wire. They are usually coated with rubber or plastic for waterproofing. Install them so they cannot be accidentally broken or cut.

Bulb Sizes

Sizes of bulbs (called "lamps" by electricians) vary from Christmas tree lights to powerful floodlights. Try out different bulb sizes to determine the best size for each location.

Outdoor Fixtures

You can buy fixtures in many different forms, materials, and colors.

If you wish to light different objects at different times, movable fixtures are very convenient. You can get fixtures on pointed stakes for easy moving. Plug them into a permanently located outlet box.

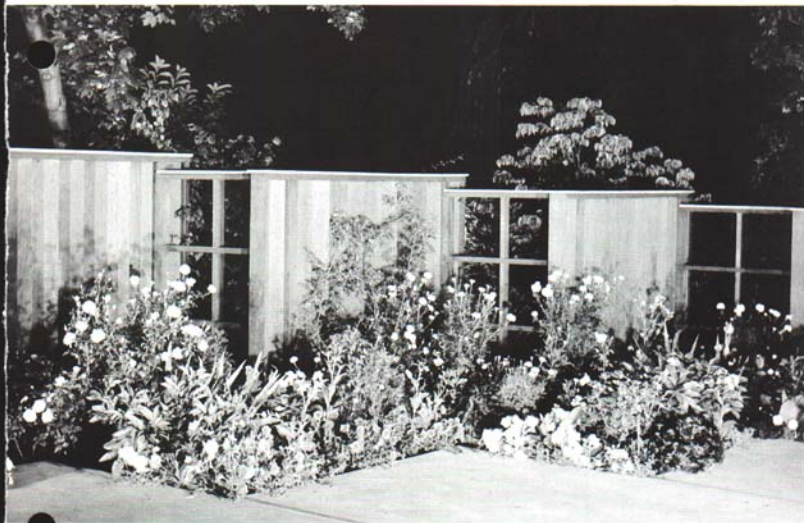
Fixtures that are firmly set in one position are best where you will always want light in the same general location.

Good fixtures for outdoor use should be:

- Weather-resistant for year-round exposure to rain, snow, and sun.
- Well-built and well-anchored to withstand storms.

- Tamperproof and rustproof for permanence and attractiveness. Aluminum, brass, copper, and stainless steel are the most durable materials.
- Neutral in color — gray or gray-green — so they will not detract from the objects being lighted or be conspicuous during the day. Sometimes, however, you can use attractive, brightly colored fixtures for decoration.
- Highly reflective on their inside surfaces.
- Self-draining so rain and melting snow will drain out promptly.
- Easy to install.
- Easy to maintain.
- Shielded so the light bulb is not visible.
- Movable to light different objects at different times of the year.

Gardens are especially attractive when lighted at night.



Outdoor Lighting

Offers you

GREATER SAFETY

MORE BEAUTY

**PROTECTION AGAINST
PROWLERS**

**EXTENDED USE OF ALL
OUTDOOR AREAS**

(M.S.U. landscape architects)

