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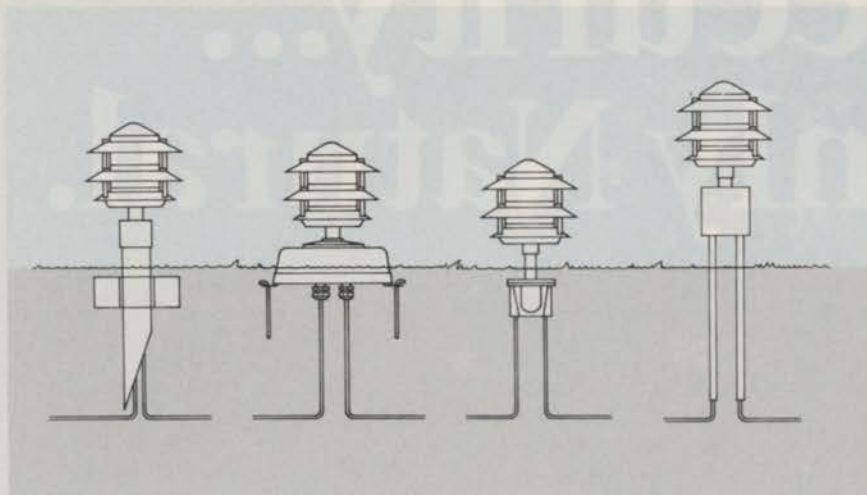
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The **Living Fence** grows successfully in a variety of climates, quickly forming a thick, virtually impenetrable hedge.

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New and conventional landscape lighting mounting accessories, shown installed. From left to right: PVC lighting standard or post, light block, buriable box and FS box.

More accessories are available now than ever before. As a result, it pays to become familiar with all the choices. A newer model may offer better corrosion resistance or easier installation than an old standby.

The selector chart in Fig. 1 outlines the most common mounting accessories: posts, light blocks, buriable boxes and standard FS boxes. It compares them in terms of construction material, installation/wiring, aesthetics, stability and application. Here's a closer look:

Post lighting quick, easy

The newest innovations in mounting accessories are corrosion-resistant permanent posts or lighting standards. Made of PVC, these posts will not corrode like conventional aluminum or steel mounting accessories. The reason is the risers are made of PVC as well.

Installation is quick, easy and neat.

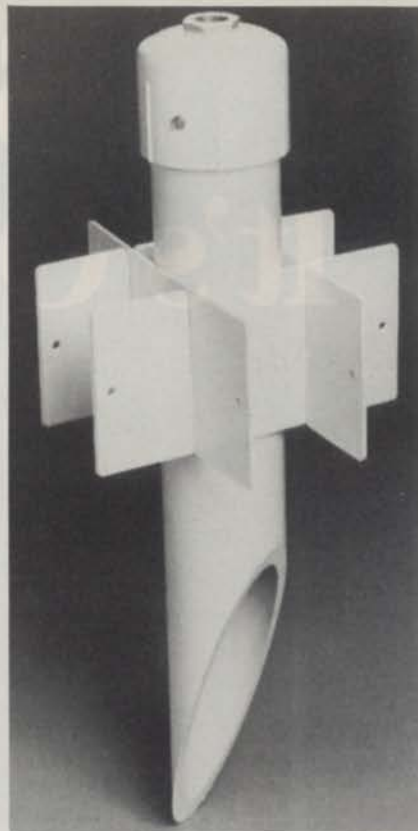
After trenching, you simply run UF cable into the post, then into the ground, and attach the fixture to the nipple at the top. There's no need to cut or bend pipe. This procedure reduces actual installation time dramatically. Some posts even have slanted bottoms to accept cable at different depths.

For stability, certain posts have built-in stabilizers, anchored to the posts with a couple of self-tapping screws. This makes these units less susceptible to vandals. For this reason, such posts can stay buried in the ground, risers and all, without ever needing replacement.

Studies have shown that these posts will be just as stable three years after they've been installed.

Light blocks

Another mounting possibility is the light block with an integral splice box. Although a light block is slightly more



The PVC lighting standard or post will not corrode as do steel or aluminum accessories because the risers are made of PVC.

expensive than a post, it's also more aesthetically pleasing. The light block is recessed into the ground, so a beautiful landscape is not distracted by mounting hardware.

As far as construction materials go, your best bet is a light block made of pre-cast concrete instead of poured concrete. This avoids waiting for concrete to set overnight, and also eliminates sloppy forms, time-consuming component assembly and box leveling.

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Figure 1.

Common Lighting Accessories					
	Construction Material	Installation/Wiring	Aesthetics	Stability	Application
Posts	PVC	Trench, run UF cable into post into ground, attach fixture to nipple	Good; only six inches, visible above ground	Recessed, built-in stabilizers	Landscape, sign, facade, accent lighting
Light Blocks	Pre-cast concrete	Drop in place, wire via access holes in bottom	Excellent: recessed into ground	Stakes used to support	Same as above
Buriable Boxes	Cast iron, with hot-dipped galvanized finish	Drop in place, wire through access holes in bottom	Excellent; flush with ground	Box recessed into ground	Same as above
FS Boxes	Die cast aluminum	Requires conduit connectors, cutting and bending conduit	Poor; bulky	Not generally stabilized	Same as above

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Contractors report that a pre-cast concrete block can save up to 24 hours in labor and installation time.

Installation involves dropping such a light block in place and wiring up through access holes at the bottom. Stakes driven through tabs keep the mounting accessory firmly in the ground, so it can withstand abuse from lawnmowers and edgers.

Underground boxes

Topped with any single-gang FS cover, a pre-cast light block can hold a wide range of landscape lighting fixtures and floodlights for sign or building lighting.

Even less visible in a landscape than light blocks are buried boxes. They are flush with the ground, so only the fixture sticks up from the soil. Typical construction material is cast iron. Some are available with a hot-dipped galvanized finish to resist the corrosion that occurs when metals interact with soil over time.

After the box is set in the ground, the contractor can wire up through access holes at the bottom. If the cover has a 1/2-inch hole—as most do today—the contractor can then attach any fixture with a 1/2-inch arm. This differs from conventional FS boxes where ground level installation re-

quires conduit connectors and all electrical connections are made inside the box itself.

Selection guidelines

After you've familiarized yourself with all the options, select mounting accessories. The following tips should help you with that task:

● **Choose mounting accessories that accommodate 1/2-inch arms.** This will facilitate installation of landscape lighting fixtures as well as incandescent and low-wattage flood lights. Nowadays, most of these fixtures come standard with 1/2-inch arms.

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Lighting provides security, beauty and savings

by Kathi Haskell, Watergrove Apartments

The Watergrove Apartments in Memphis, Tenn., is a rental community of 1002 one- and two-bedroom units. Developed in 1984 by Fogelman Properties, Inc. (FPI), of Memphis, Watergrove was little more than a swamp which had long been considered unbuildable. Relying on effective landscape architecture, FPI has turned Watergrove into a spectacular award-winning project. At night, Watergrove becomes particularly extraordinary thanks to the lighting system created by Fogelman/Byrnes & Doggett.

It was our objective to install effective street lighting. We wanted people to obtain a strong sense of security. We also wanted the lighting to contribute positively to the appearance of the community, and to otherwise contribute to the development's success.

Working with Memphis Light, Gas & Water, Watergrove developed the street lighting plan relying on traditional pole-mounted luminaires employing high-pressure sodium (HPS) lamps. First, the lamps' "golden white" color is distinctive, permitting us to better define circulations throughout the project. In addition, HPS lamps are among the most efficient lamps available and have a rated life of more than 24,000 hours. In other areas, we used more traditional "white light" sources. Thus, metal halide and incandescent lighting is used to highlight the bridges, pools, and clubhouse, and quartz lighting is used to illuminate six "floating fountains" installed in natural pools. Using different types



Lighting at the Watergrove Apartments has enhanced the development's reputation as a safe place to live.

of lighting in this manner creates a tremendous amount of variation which enhances the beauty of the overall scheme, while also improving functionality.

Safety always first

Safety is one of the most important benefits we wanted to derive from our lighting system. We designed the lighting to help prevent slipping or tripping accidents such as those that can occur in a parking lot or on a walkway at night.

Security was another attribute

we wanted to design into the system. In addition to providing safety, lighting in parking lots also helps prevent auto break-ins. Also, our surveys showed that many residents would be young women. Their needs have been realized, and it is obvious to them as they approach Watergrove at night.

Added value is impressive

The value added to the development by landscape lighting can be impressive.

The lighting we designed for Watergrove has helped enhance the development's reputation and public recognition. Now, management does not need to employ the extensive media advertising that otherwise be required to achieve the desired occupancy.

More prospective renters are looking for apartments at night. This gives us an opportunity to demonstrate our landscape lighting. This has also given Watergrove an advantage during the winter months, when darkness falls earlier in the evening.

Longer tenant retention

Research shows that the average tenancy in Memphis is about one year. At Watergrove, the average stay is 25 percent longer. While some of this can be attributed to certain amenities which other communities may not have, surely the community's most unique element is the lighting and its nighttime appearance. The lighting makes people feel safer at night, encouraging them to use the community more. □

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● **If possible, select mounting accessories made of corrosion resistant materials, instead of conventional steel or aluminum.** Preferred materials include PVC, cast iron with a hot-dipped galvanized finish or pre-cast concrete. They'll prevent the interaction with soil that causes corrosion. As a result, the accessories will last longer. If you choose a PVC accessory, make sure the unit itself is UL listed for wet locations. Some

accessories available today are constructed from UL-listed materials, but the units themselves are not UL listed as splice chambers.

● **Look for mounting accessories with inground stabilizers, to keep them secure in the ground.** Such stabilizers prevent shifting, tilting and damage from lawnmowers, harsh environmental conditions and/or vandals.

● **Choose accessories with threaded metallic hubs, instead of**

plastic ones. Since most fixtures are constructed of metal, metal-to-metal contact facilitates grounding. It also simplifies installation by preventing cross-threading.

With landscape lighting expected to grow at 10 to 15 percent a year over the next five years, it pays to learn as much as you can about mounting accessories. Choosing the right ones can get you and keep you entrenched in this profitable business. **LM**

Bright ideas for landscape lighting

The key to good landscape lighting is expanding space after the sun goes down. "Landscape architecture is both a science and an art," says Rick Tomko of Site Illuminations, Cleveland, Ohio. "The goal is to create a useful and safe natural environment."

Tomko says it's important to provide just enough light so people can move safely through an area. Too much light makes surrounding areas even darker and more unsafe.

When designing lighting Tomko says to keep in mind that it's important to see the effect of light, not the source. "One has to start thinking of the designer as the perceiver," he says.

Tomko recommends following these steps in planning a lighting design:

● **Define the problem.** Don't go into the project with anything pre-determined.

● **Set your goals.** Select plants and objects within the space that will be highlighted. Provide spacial definition for people moving within the area.

● **Do an analysis of the existing situation.** Know where people will interact. Know what the future plans are for the space. How will it look in several years?

● **Be aware of light pollution.** What is happening



Let the client decide if they want colored lights, since colored lighting is subjective and emotional and brings out different patterns and textures.

off-site? Is light streaming into a neighbor's window? Is it affecting planes flying overhead? Check into any ordinances regulating light use.

● **Synthesize the information.** Pull together all information and make value judgements.

● **Determine the source the light.** What kind will you use? What color?

● **Determine the distribution and intensity of the light.** How much will accomplish your goals?

● **Evaluate the project.** This is the only way to determine if the project was a success.

Some other suggestions:

● Clear mercury vapor lights give off blue and green hues which make them ideal for landscape lighting. Be careful, however: they make people look bad. They also cause a loss in red tones and shouldn't be used on red annuals.

● High-pressure sodium lamps, while efficient, give off yellow and gold tones, making plant material look hot and dead. Palm trees are the exception to this.

● Sometimes putting signs like "Caution: 480 volts" on a temporary light display can deter vandalism.

● Lights do attract

bugs, which is an advantage for using a downlighting or moonlighting technique. That technique uses a fixture up in a tree, which will pull bugs away from a socializing area.

● Every two to three years the staples holding a fixture to a tree should be pulled out and re-fixed.

● Using colored lights is subjective and emotional. Different colors bring out different patterns and texture in buildings. Therefore, always let the client decide if you want to use color, since trees grow in diameter. □

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TOP REVENUE WITH GOLF CARS

A grab bag of ingredients influences a golf course's profitability: course layout and design, length of playing season, membership base and club patronage. But how about the golf car fleet?

by John Allison, Yamaha USA

Few factors are as important to the successful long-term profitability of a golf course as a reliable revenue-generating golf car fleet. The fleet is a course necessity, both as a profit-generator and as a necessity for players.

Golf car fleets needn't be seen as a forerunner of all the calamities associated with mechanized equipment, such as broken parts and long downtimes. It's important to realize that with routine care and a healthy dose of common sense, your fleet can make the course more profitable and become one of your most outstanding assets. To look at it another way, a fully operating fleet earns revenue that can compensate for other non-revenue-generating equipment like mowers, trenchers and tractors.

Impacting profits

So what can be done to impact course profitability with a golf car fleet?

The answers lie in the product of basic management and maintenance principles, with special consideration given to issues such as a fleet's re-

liability, durability and reputation during the purchasing or initial rental processes.

For instance, the superintendent influences which types of equipment are purchased or leased. With responsibilities that combine grounds maintenance along with vehicle service and operation, the superintendent obviously wants to acquire a fleet that delivers top performance, maximum up-time and meets the demands of golfers—without the hassles associated with breakage, parts replacement and long hours of labor.

As a key player in the purchasing and rental process, the superintendent must overcome the temptation to look at overall cash outlays, loan amounts or total leasing figures for a fleet. He or she must concentrate instead on long-term profitability and a fleet's ability to withstand the rigors of constant use.

Once superintendents realize that a fleet's earning potential far overshadows any reservations about initial purchase costs or yearly lease commitments, they can make edu-

cated decisions regarding style, manufacturer and whether to purchase gasoline or electric types.

Cost of down-time

Every superintendent knows the extreme value of a fleet's total up-time; or to illustrate another way, the cost and lost profit opportunity resulting from down-time. The value of any car lies in its ability to deliver revenue from its daily, routine operation. Its value substantially declines if it's broken or non-operable. A fleet plagued by costly down-time is the source of golfers' frustrations, management concerns and diminished profits.

To help guarantee a maximum and speedy return on a golf car fleet investment, key golf course staff should immediately enact a well-thought-out maintenance schedule. This obviously assures maximum fleet performance and revenue. Sound maintenance, especially preventive maintenance, can and will extend fleet life significantly. As the superintendent fully appreciates the fleet's revenue-