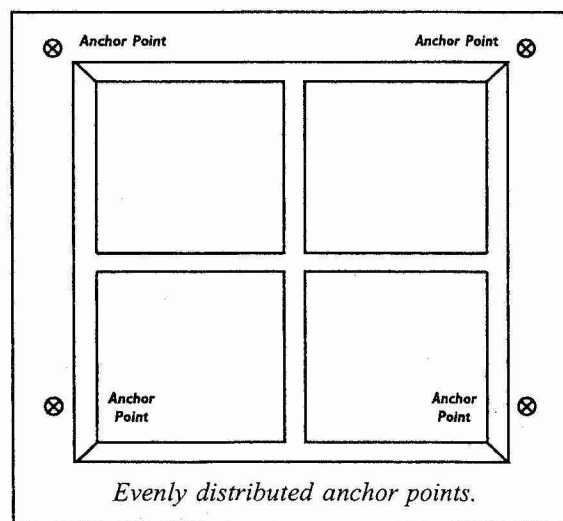
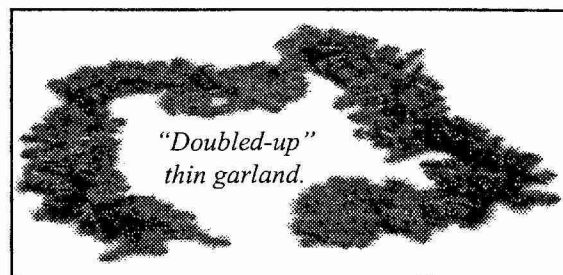


look resembles a plush, expensive style. Wrap the garland with a lot of **clear mini lights** (at least 10 per foot). After the lights are wrapped around it, take time to fluff it so that it does not look crudely bundled or "hog tied." **The most popular way to hang garland is to let it casually swag just a little across the top then come down the sides of a window or door about two-thirds of the way down.** Six-yard bows of #40 ribbon at the top two corners finish out the window or door and give an impressive designer look. If you want to go a little further upscale, add small pieces of **artificial holly** and **pine cones** along the swag and to the ends for a truly special door arrangement.

Garland around doors and windows can be attached with **specialty clips like utility hooks**, screws or small nails. Small plastic anchors and screws work well in the mortar joints of brick if necessary; and of course, don't forget the possibility of using **brick clips** and wiring the garland to the extended flanges.

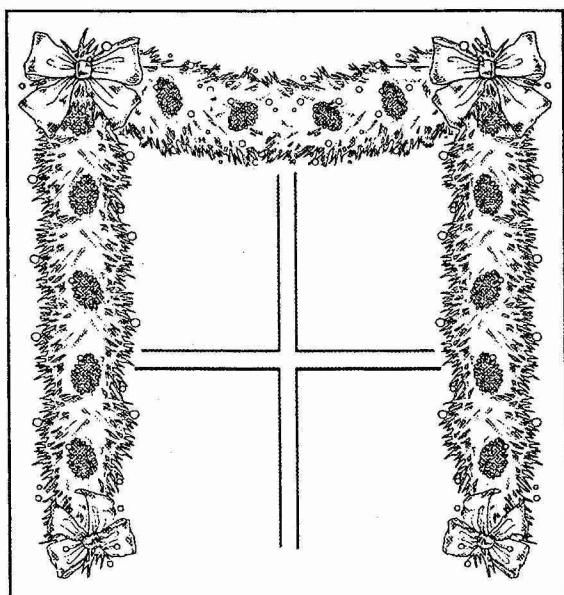
If you use small screws or nails, a timesaving suggestion for attaching the greenery is to take a **3-ft. piece of 22-gauge wire**, **double it over** and attach it to the screws or nails; then, **position the garland so it is centered at the top.** Proceed to attach the top two corners while **leaving a slight swag** in the center. Pull the sides of the garland straight down and wrap the secured wires around the greenery to secure it at the four anchor points shown in the illustration at right.



Working With Fresh Greenery

An alternative you may want to check into is **"live" or fresh garland swags**. Some customers may specifically request the real thing. If so, it's usually available in pre-cut lengths at local nurseries or garden centers. **It may be available in either pine, fir, cedar, or mixed combinations.** Some customers prefer fresh garland because of the aroma and the natural look and feel of "the real thing." A note of caution, however: If you plan to use **cedar**, make sure the customer is okay with it because many people are allergic to it. Additionally, as you might expect, the downside of using fresh garland is that by the end of the season it's usually dried out and beginning to shed its needles if touched and **naturally it has to be replaced every year...as opposed to the artificial or "permanent" greenery.** If you decorate with fresh greenery, put the

lights, pinecones, ribbon, etc. in it and hang it the same way you would the artificial style.



▲ Garland and bows after anchoring around window.

Lighting Tips for Un-lit Greenery

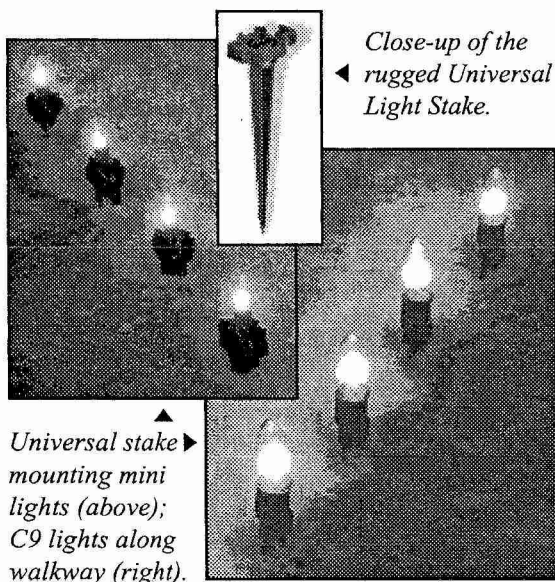
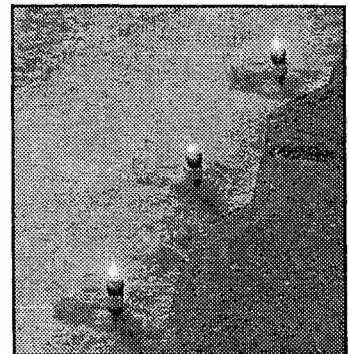
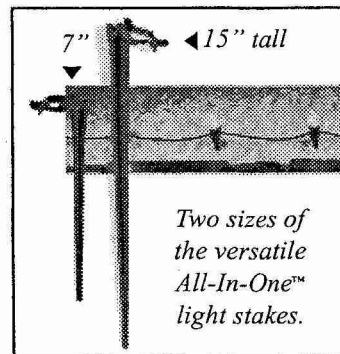
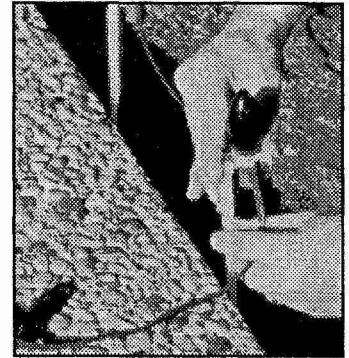
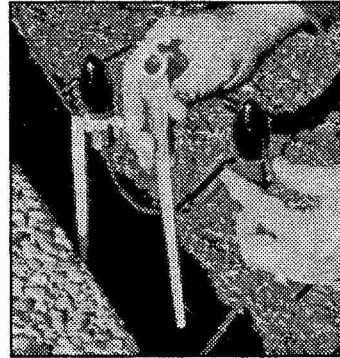
If are adding lights to either fresh-cut or artificial unlit greenery, keep in mind **the maximum number of light strings you can connect end-to-end.** Arrange the lights beside the garland or wreath in a loose approximation of how they will wrap within the greenery so you will come out even at the end.

For garland placed around doors and porches, you can make it a **little extra special by adding one string of C7 lights.** Spaced 12" apart, the contrast in size and brightness beside the mini lights provides an impressive design element. (*This works well on medium-size trees, too.*) For power concerns, keep in mind that a **25-ft. string of C7 lights pulls the same wattage as six (6) 35-lite or 50-light strings of mini lights: about 1 amp.**

OUTLINING SIDEWALKS, DRIVEWAYS AND PATIOS WITH LIGHT STAKES

Another notable type of product ideal for making a spectacular display of lights along the ground are the various forms of **light stakes**. There are several different styles, sizes and materials available on the market and each have their respective merits. For instance, there are 7" and 15" styles of a product called the **All-In-One Light Stake**. These stakes are made of green, injection molded plastic and are generally what you would call economy-style for the simple fact that they are relatively inexpensive yet not as rigid as some of the others. Keep in mind that the all-in-one styles offer additional "flexibility" in the area of lighting options: As the name suggests, these particular stakes will accommodate **miniature lights, C7s or C9s**.

The two different available sizes allow users to choose between a **shorter or higher elevated stake** as well as giving those in the "winter weather" states the benefit of the **taller, 15" stake to account for the likelihood of snow**. Installation-wise, you simply snap the respective style of light into the "arms" of the upper portion of the stake and then gently snap it down into the locked position and insert the stake into the ground. Softer ground like tilled flower beds or grass make for relatively easy installation; **harder ground may require a pre-puncture with a screwdriver or other sharp tool** to allow the semi-round tip of the All-In-One Stake to actually penetrate the surface and sufficiently hold.



Close-up of the rugged Universal Light Stake.

Universal stake mounting mini lights (above); C9 lights along walkway (right).

Another option for those interested in a more **rigid**, albeit **shorter** light stake product, is a versatile product called the **Universal Light Stake**. This stake is made of hard, almost unbreakable nylon material and measures roughly **5" tall**.

The top, circular portion of the stake allows insertion of a **miniature, C7 or C9 light socket**. After positioning the socket in place, simply "lace" the strings under the two extended arms to secure the socket in place. This durable stake tapers to a **sharp point** that allows it to be **hammered into the ground** if necessary. After installation, the lights will rest just above the surface. This stake is ideal for mounting lights in a straight and **precise fashion** for an exciting outlined appearance.

Universal light stake shown mounting mini lights along the ground.

There are also different versions on the market (often in very limited distribution and availability) which consist of a **thick metal wire** which has been bent around at the top to form a half-loop to hold the light socket. After inserting the socket of the bulb into the wire prongs, you simply push the sharp end into the ground. **Keep in mind that these simple types of stakes are limited by the fact that they are specifically designed to hold only one style of light.** For example, a mini light wire stake is a thinner, obviously more tightly crimped wire designed to hold the skinny socket of a miniature light and offers no chance of holding a C7 or C9 light socket. Additionally, these wire light stakes are more costly to make and ship because of their sheer weight so they will most likely cost considerably more to use.

Other Considerations When Working With Light Stakes

As with other C7 and C9 lights used in outlining roofs and buildings, there may be some extra power considerations that you may need to plan for before installing a long run of light stakes. You want to be creative in how you allocate what power you have to work with along the roof and/or porch area but you don't want to exceed your limits by pushing it with the maximum run of and you must remember the breaker tolerance. For example, if the outline of a particular area forms a rectangle (as in the perimeter of a front yard) **don't try to feed the power from only one end and make it all the way back around if you are anywhere close to pushing the limits of your light line or the breaker capacity itself.** One option might be to bring power to one of the corners and feed it in both directions using a plug splitter so you can end with both ends at the opposite corner of the yard. **If you have the luxury of multiple outside outlets, you might run power to opposite sides of the yard and simply run each side separately.** Of course, since you will most likely be working with C7/C9 lights when using light stakes, if you have extra lights left over—just cut the excess amount off and separate and tape the ends of the wire or terminate with wire nuts.

One notable thing to mention in regard to moisture: Since the lights are pointing up in the light stakes, there may be more of a susceptibility of moisture getting into the socket and causing GFI (ground fault interrupter) plugs to trip. Most of the newer light sockets are near moisture-proof and eliminate a lot of these problems.

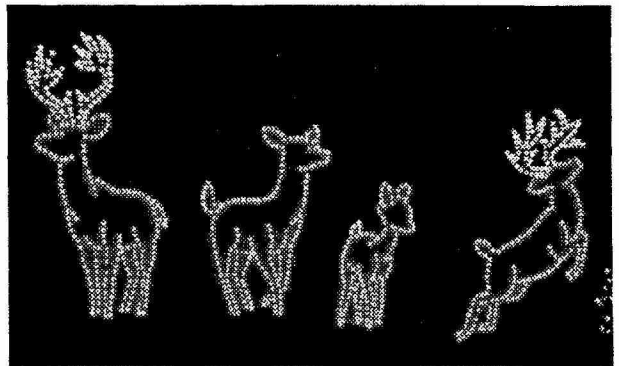
From an aesthetic point of view, it's important to **keep the light lines and stakes straight** so your finished job is neat and consistent. The straight edge of the sidewalk gives you an obvious point of reference so this should be easy to accomplish. And lastly, sometimes lights along the edge of the sidewalk can be targets for mischievous kids...it generally depends on the neighborhood. **Problems with vandalism or bulb breakage are a rarity...**but you might want to keep this in mind and make the customer aware of the possibility of breakage and let them be the judge of whether or not they wish to include stake installation in their overall lighting package.

IMPORTANT TIP: When lights are removed after the season, be sure to **label them precisely** so they will fit in the same configuration the following year. To make things even more convenient, spend a few minutes (since the rush of the season is obviously over) and **draw a simple diagram of the total layout of the lights you've installed and the positioning of the various power points.** Pack this drawing away with the products so it's handy the following season. Better still, make time to make a copy of the drawing and keep it in your permanent file for easy reference in the future...especially if the original should get lost or damaged. This simple idea should save you lots of planning time down the road and reduce subsequent installation times for the same customer dramatically.

Other Products You May Want to Offer

Other products customers may be interested in include **wooden cutouts; wire figures outlined in mini lights; the newer, brightly lit plastic neon motifs** (metal frames outlined with "rope lighting"); **large wreaths; lighted snowflakes; hanging light spheres** for trees; **cascade or cluster lights;** and perhaps the **giant roof toppers** (which contrary to their name) actually look even better when attached to a large, flat wall. A couple of other items you may wish to offer include **icicle lights** and **swag or "drape" lights.** These particular variations of mini lights work especially well along the roofline. For a different look, **try combining icicles or drape sets just below a run of C7 or C9 lights** along a roofline...in either a residential or commercial application. The effect is visually superior to simply installing one or the other and makes for an **impressive display of light** in addition to providing a great contrast between miniature lights and larger bulbs.

For our recommended wholesale specialists who carry most of the products mentioned, see SOURCES, page 32.



▲ *Lighted frames are a great way to "create a scene."*

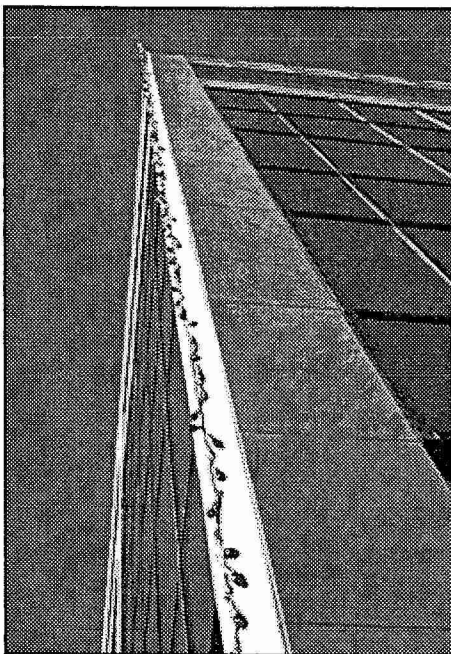
LIGHTING TALLER COMMERCIAL BUILDINGS

Taller buildings present their own, unique set of challenges, particularly if you want to do vertical lights **down the side of the building for a structural outline**. Naturally there is a limit to what you can do without a crane or sling similar to window washing scaffolds, but for a medium-size building (four to seven stories) there is a practical way to do vertical light runs down each side. **The key is to secure the lights away from the corner of the building.** This prevents the wind from blowing the lights into the building and smashing the lamps. It involves **mounting some sort of brace or arm at the top of the building**. This attachment can either be welded, bolted, or held in place with bags of concrete or sand. At the **bottom of the building**



there will have to be a similar device for which to attach the lights. It should also be secured by an anchor set in concrete, a brace arm held in place by sand bags or concrete bags. In dirt, you can utilize screw-in auger anchors similar to those used for anchoring trailer homes down. **The brace arms will allow a section of aircraft cable (with turnbuckles to adjust the tension) to be stretched between them.** Once this cable has been sized and tried in place so that you know it will support the tension necessary to keep lights from hitting the side of the building in a good wind—**lower the cable down from the top with a rope, and attach the string of lights to the cable with wire ties or strong tape, and pull the lights back up to the top of the building.** Then, attach the cable and light assembly to the top and bottom brace arms and adjust the top and bottom turnbuckles for proper tension. You will naturally want to check on them during the first wind storm to see if they need to be anchored better. You will find that this cable-mounting method works very well for moderate heights.

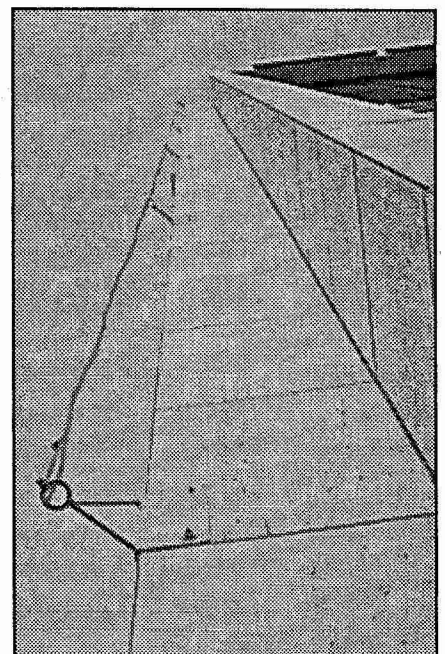
Another alternative for outlining buildings is to use rope lights anchored to the cables down the edges and/or around the top edge of the building (*see pictures below*).



▲ C9s attached vertically using cable.



▲ Removable ground anchor.



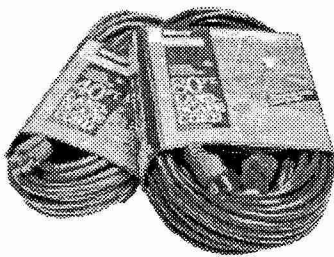
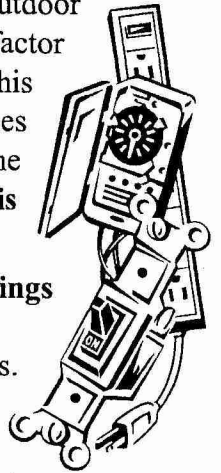
▲ Custom anchors attaching rope light.

ELECTRICAL CONSIDERATIONS

The basis to keep from overloading wires and breakers is to understand how to accurately figure the number of amps a string or multiple strings of lights will pull. Wire is sized according to how much current or amperage can flow through it. Pulling more current than the wire is rated for will result in the wire heating up, melting and possibly causing fire. Ironically, the one thing that saves a lot of outdoor holiday wiring from burning up is the fact that it's cold in the winter in most places and this factor allows the wires will carry more current (amps) than normal without overheating...but this generality doesn't mean you can or should push electrical concerns to the limit. When it comes to electrical configurations, most of the "do-it-your-selves" don't have a clue how to figure the load. Learn how — the basics are simple — **don't take chances with electricity as this is THE MOST IMPORTANT aspect of all the issues you will encounter.**

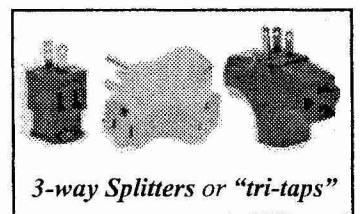
For mini light strings allow 1/5 amp per set of 35 lights; for example, five (5) 35-lite strings will draw 1 amp.

C7 and C9 lamps are rated in watts so they are figured a little different than mini lights. **Don't confuse watts with amps.** To convert watts to amps take the total watts (number of lamps multiplied by the wattage per lamp); then divide the total wattage by 120. This mathematical process will produce the number of amps in that particular lighted tree or string.



When you know the total number of amps your lighting job will draw and you run extension cords from the power source to the respective places — make sure the cords themselves will handle the load. **The first cord will have to be the largest-gauge cord and as you split off to feed different trees, shrubs, and sections of roofline the cords will get smaller in size and gauge.** The last cord only has to feed the last section that needs power and the first cord has to supply power for everything - before it's split up by tri-tap (3-way) plugs (*pictured below*).

IMPORTANT TIP: Prior to starting an electrical installation, make a drawing of all the areas to which you need power. Then, figure the total number of amps for each area. Try to supply power to a central area and figure how to split the power to get to all the areas you need and determine the amount of current (amps) that will flow through each split-off cord. Buy cords close to the right length that will handle the amps necessary for that particular section. The package will tell you how many amps the cord can safely handle. **If the cord is rated in watts, simply divide by 120 to get the number of amps.** Also, be sure to buy cords rated for outdoor use. When you need to split off to go to one or more areas, use a tri-tap splitter. It's a good idea to use electrical tape to cover unused outlets on cords and splitters to prevent moisture from getting in and causing a short or tripping a ground fault interrupter if one is on the outlet.



3-way Splitters or "tri-taps"

Wherever you put a splitter or plug cords together to feed a tree or other area, make sure all connections are kept from laying directly on the ground where they would easily get wet. **Supplying power to long sections of roofline should be done from a central point and fed in both directions from an extension cord or heavy-duty splitter.** This is because you can only go 100 feet from the cord or plug due to "voltage drop" which occurs over long distances where electrical power is used. By supplying power to the center you can go 100 feet in each direction; **exceed 200 feet and you'll have to supply power in more than one place.**

Understanding Wire Gauge Parameters

Remember that **the smaller the wire gauge, the larger the wire.** For example, a 14-gauge cord will handle more current (amps) than an 16-gauge. Extra-heavy 12-gauge cords will handle up to 16 amps, which is a full household circuit. (Lengths over 100 ft. will have derated capacity.) **An extension with a three-way outlet on one end will handle 8 amps if it is 16 gauge or 5 amps if it is 18 gauge.** These cords are great for splitting off to handle the smaller sections of trees, bushes and shrubs.

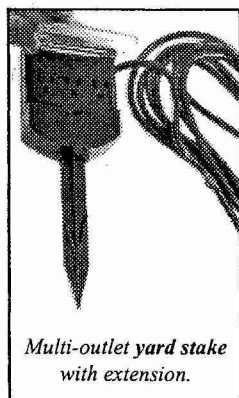
The Importance of Clean Electrical Connections

Brand new lights and cords have bright brass prongs on the male plug which make good electrical contact. After light sets and cords have been used and exposed to moisture you will notice that the plug ends have become **corroded** or have a **film** on them. It is important that these be cleaned using a piece of **emery cloth**. Corrosion can create **resistance in the plug** and produce enough heat to melt the plug, cord or possibly worse.

Circuits Found in Residential Homes

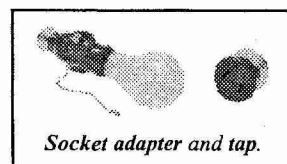
Most residential homes have only **one exterior plug** in both the front and back yards. In the front, this outlet is usually on the **front porch**. The problem with using it for holiday lighting is that there will most likely be other things in the house on the same circuit. This could include the entry hall lights and porch lights, and sometimes a bathroom close to that part of the house. **You can't assume that you have use of a full 16 amp circuit.** It may work fine during the day when you are testing the lights but at night when the customer turns on lights in the house the breaker may trip. Also, **newer houses require the outside plugs be connected to a GFI** as previously mentioned. This is a special breaker which may be at the panel or may be built into an outlet. GFI plugs sense a leakage of current and **trip to prevent electrocution or shock** with the assumption being that the leakage in current could go through a person. GFI plugs are in most new bathrooms and would prevent shock in case a hair dryer or other appliance was dropped in a sink or tub. They will also prevent shock when using tools outdoors.

Moisture getting in to outdoor lights will also cause GFI plugs to trip because there may be current leakage to the ground. This is why it's important to keep cords and connectors off the ground in case of rain, snow or sprinkler systems coming on. In case the GFI trips, **check for a reset on the outdoor plug or on a plug in the nearest bathroom in the home.** When outlining roofs, try to keep the lamps pointing down or sideways. This helps to keep moisture from running into the socket. A relatively new electrical product on the market is a **multi-outlet ground stake** (sometimes called a "tower of power") attached to a 16-gauge extension cord. This unit is multifunctional in that it provides **three (3) outlets as well as an extension cord while also holding plugged-in cords up off of the ground** so that the electrical connections are not laying in water or snow.



*Multi-outlet yard stake
with extension.*

When there is not enough power from a plug in the front of the house it may be necessary to find power in the back yard

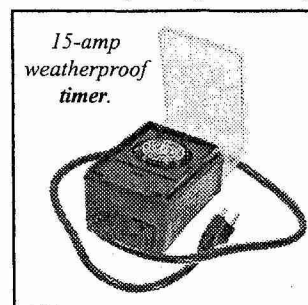


Socket adapter and tap.

and run a heavy duty cord to the front to handle part of the load. Another "hidden source" of power includes the front porch light socket which can be utilized by inserting a socket tap converter. Other possible sources include separate **landscape lighting** and **security lights**.

The Icing on the Cake - Using Timers to Control Your Lighting Job

Most of your lighting customers would love for their lighting to be "automatic" and the **finishing touch on any lighting installation is the simple addition of timers.** Be sure to use a good weatherproof, outdoor timer to withstand outdoor conditions. You'll usually find light-use **8-amp capacity** and **heavy-duty 15-amp** styles. Some have protective covers which add to their appeal for protection from water. **Don't rely on small, indoor timers used for light-duty appliances...**they won't cut it. You may have to use more than one timer especially if you are running power from several places. New **digital timers** allow more precise settings but manual styles aren't quite as easy to synchronize. As a general rule, set multiple timers to come on while it is still light outside so all the lights will be on when it gets completely dark. **Set timers to go off after the customers are typically in bed so they won't know that they don't necessarily go off at the same exact time.**



Addressing The Need For Additional Power

If customers want more lights than the existing plugs can handle it may be necessary for them to have an electrician install more outlets and/or power by adding or expanding the circuit breakers. **The electrician will depend on you to tell him how many total amps the lights will draw so have it figured out ahead of time.** An electrician can also install a heavy duty timer to handle all the lights from one point for added convenience and synchronized on and off capability. Professional electrical work for residential installations should be the responsibility of the homeowner and they should expect to pay for this one-time cost.

For commercial buildings such as shopping centers, having extra power installed can routinely cost more than the lights themselves simply because of the possibility that it can involve re-configuring the power of multiple tenants. Again, this would be a one-time expense for the property owner since the upgrade could, and most likely will be, used year after year. You will need to give the concerned parties instructions as to where the plugs need to be located and how much power will be needed to complete the entire installation.



A "Real World" Electrical Example for a Residential Installation

Suppose that you have a house on which you want to light the roofline, two trees in front and some garland around the front door. **You've used shingle tabs to install 200 feet of light line using C7 bulbs with 5-watt lamps around the roofline.** Knowing that you shouldn't run 200 continuous feet in one long run because of voltage drop, you should start at the center point and plug the two male plugs of your 100-ft. cords or bulk spool stringers into a tri-tap splitter and run each 100-ft. segment in opposite directions. In this scenario, the **total amount of power the roofline will require** uses these figures: **200 feet x 5-watt bulbs = 1000 watts.** To convert this into amps you divide the 1000 watts by 125 (which is the standard voltage amount) and come up with **8 amps** in this case. The extension cord which runs up to the middle of the roofline splitter will have to be large enough to handle 8 amps **or** 1000 watts...however you want to look at it. Sometimes cords and plugs are rated in amps as opposed to watts so this example covers both possibilities.

How would you figure the math for the two trees which you are decorating with mini lights? Let's say that each one of the medium-size trees uses **five (5) sets of 100-lite miniature light strings.** Most 100-lite strings draw 50 watts per set. **Divide 50 watts by 125 volts** and you will arrive at **.4 amps per set.** Next, multiply the **five (5) strings x .4 amps** and you see that **each tree** draws a total of **2 amps or 250 watts.**

Finally, in this particular case, the extra plush garland that you are working around the front door takes **three (3) strings** of the same 100-lite miniature light sets so the power for the garland on the door is **1.2 amps or 150 watts.** Adding the power for all three areas we come up with:

Roof line	8.0 amps
Tree 1	2.0 amps
Tree 2	2.0 amps
Lighted Garland	1.2 amps
GRAND TOTAL	13.2 amps

This means that the main (first) extension cord coming out of the outlet on the wall has to handle a total of 13.2 amps. **For this example, we'd suggest running a heavy-duty power cord to the first tree where you should go up the trunk about a foot or so and mount a heavy-duty plug splitter so it stays above the ground without the possibility of laying in water.** From there, you'll want to "branch off" and run your power cords to the rest of the locations. Using the 3-way splitter, run the first tree off one plug outlet; then,

plug the cord leading to the roofline into the second outlet; and run the third extension cord out of the last outlet to handle the second tree and (after using another splitter from the second tree) run an extension to the garland around the door. **In this example, notice that the cord which is being used to power the second tree and the garland around the door only has to handle 3.2 amps, since the very first power cord is directly handling the roof line and the first tree.**

TAKE-DOWN AND STORAGE OF LIGHTS AFTER THE SEASON ENDS

The big advantage of storing lights for customers is that it gives you the **inside track to their business the following year**. After you remove the lights and decorations from the premises, make sure you mark and label each storage box clearly to make the installation process easy the next time around. **Leave your wiring and light location diagram in the box** showing how they were wired and what kind of lights went where. Your diagram should be detailed enough that it shows where the male and female ends started, how power was split and what outlets were used. **The more detailed you are the first time around will make it that much easier in the seasons that follow!**

RECOMMENDED SOURCES FOR BUYING SUGGESTED PRODUCTS

Ordering in **case quantities** from lighting wholesalers is the best way to get quality lights at a good price. In situations where you only need a small amount of product you can go to the home improvement stores and specialty Christmas shops in your area and tell them what you're doing and approach them about extending some price breaks in exchange for working with them on your seasonal purchases. These types of stores will normally carry higher quality lights than the discount chains and can also be a **good source for customers...especially after they know that you're doing good work**. A lot of people come to these stores looking for someone to help them with their lights.

After you have built up a solid customer base and have the opportunity to possibly do some large, commercial jobs that expand your product needs, then you will be able to make your case easier with suppliers and take advantage of bulk purchasing and deeper price breaks from wholesalers based on quantity. If you get to the point where you are moving a lot of product, you may start thinking in terms of **placing a "booking" earlier in the year** so your supplier(s) can adequately have what you will need for your growing operation planned into their yearly purchasing as well. Most wholesale suppliers actually order product in the spring and early summer months for late summer and early fall delivery...so when you call in the fall, there's a good chance you may occasionally find that a product or category is already sold out for the year. The holiday lighting business is difficult to predict from year to year and new product introductions and the general trendiness of the market often makes for interesting product fluctuations in the marketplace and you will find that what works one year (popularity-wise) may be totally passé the following year. Making the most of planning and preparation techniques will become easier for you as your business grows. Learn to work within the parameters of your buying capabilities and product usage early on while you concentrate on perfecting your craft and the sources you rely on for product.

SUMMARY OF FREQUENTLY ASKED QUESTIONS

Q: How many sets of 35-lite or 50-lite miniature light strings can be plugged end-to-end?

A: Usually six (6) sets...depending on style and manufacturer's suggestion.

Q: How many sets of 100-lite miniature light strings can be plugged end to end?

A: Three (3) for standard sets; six (6) if heavy-duty, commercial style featuring 20-gauge wire.

Q: Why should you replace burned-out lamps in miniature light strings even if the string is still working?

A: The current that was used by the burned-out bulbs is now having to be absorbed by the remaining lights.

Q: How many series and respective lights are found in those series for 100-lite miniature light strings?

A: Usually two (2) series of 50 lights in a 100-lite string; rarely, a set may feature five (5) series of 20 lights.

Q: What if only half of the lights in a 100-lite mini light string are burning?

A: One or more lamps in the opposite circuit are burned-out or not making proper contact in the socket.

Q: What voltage of replacement is needed for burned-out lamps in a particular SERIES of a mini light set?

A: Divide 125v by the number of lamps in the series. Ex: $125\text{v}/35 \text{ lights} = 3.5 \text{ volts}$; $125\text{v}/50 = 2.5 \text{ volts}$

Q: How many amps does a typical 35-lite or 50-lite mini light set draw?

A: Approximately 1/5 of a single amp or .2 amps.

Q: How many amps does a standard residential (household) circuit draw and what is the load limit?

A: Most wiring and breakers in houses are set up for 20 amps but should only be loaded up to 16 amps.

Q: How many 25-ft. strings of C7 or C9 can be plugged end-to-end on cords that use a 5-amp fuse?

A: Three (3) sets of C7 using 5-watt bulbs or two (2) sets using 7-watt; For C9, two (2) sets if using 7-watt.

Q: Why do commercial-style strings of C7 and C9 go up to 100 feet and do not have a 5-amp fuse?

A: The 18-gauge wire size is capable of handling more current, but you can't plug them end to end.

Q: How do you figure the number of amps a C7 or C9 string is going to draw?

A: Number of lamps times the wattage of each divided by 125 volts. Ex: $100 \text{ bulbs} \times 5\text{W} / 125\text{V} = 4 \text{ amps}$.

Q: How can you run 200 feet of C7 or C9 lamps if you can't plug them end-to-end?

A: Place a power cord in the center, add a heavy-duty plug splitter and run 100 feet in opposite directions.

Q: What if there's not enough power from an outlet on the front of the house to run all the lights?

A: Run an extension to another circuit in the backyard, utilize light sockets and/or arrange for an electrician.

Q: After outlining a home or commercial building what do I do with excess footage of C7 or C9 stringer?

A: Cut off the extra wire, separate the two conductors and tape them or use wire nuts so they can't short out.

Q: What if I'm outlining a structure with C7 or C9 lights and I'm just a few lights short of finishing?

A: You can add a few (up to 10) by carefully splicing on to the end of the string without overloading the wire or blowing a fuse. *You can not cut or splice-in lights on miniature light strings due to series wiring.*

Q: How can I tastefully make lights change colors in a fading or dissolving pattern?

A: Light the tree twice (with 2 different colors) and connect the sets into a 2-channel fading adapter.

PRICING AND BIDDING INSTALLATION JOBS

The price you give the customer will include the following:

1. **Providing and installing all lights, cords, timers, clips and/or accessories and labor** the first year.
2. **Taking down the lights, labeling, boxing, and storing** until next year (if the customer desires).
3. **Maintenance during the season** (from the time the lights are up until the 2nd of January usually).
4. **Repairs** caused by small electrical problems or possible small acts of vandalism (unless excessive).

How you price the job to be able to provide all of this is relatively simple though our advice is based on years of experience and knowing what to factor into the overall process. Figure the cost of **all the lights, cords, timers, etc.** and the **labor**—then, **multiply the total by 3** and you come up with **the first year price**. You may also have to add sales tax depending on your state or local tax codes. This may seem like a lot to include...but you need to consider all that you are offering your customer and make your price high enough to handle all that the job entails while remaining reasonable. Most customers would rather pay the higher price and know that everything is going to be taken care of rather than to be nicked and dined by asking them to compensate you for little corrections or adjustments that you may be called back later to handle.

Second year and subsequent years' prices should be quoted at **2/3 of the first year**. In the following years you will be expected to repair or replace any of the lights, cords, timers, etc. to bring everything up to full scale and deliver consistent, quality service in the process.

Coming up with the cost of cords, lights and timers is fairly simple. You may have to experiment with the **cost of labor** because it depends on several factors including regional **costs of living**, federal **minimum wage** requirements, etc. It can also be quite dependant on the **equipment** involved in some specific jobs; i.e. whether you're working off short ladders, tall ladders or a **rented bucket truck**.

Basic rules of thumb in coming up with the different **categorical costs** prior to using the 3x multiplier:

1. **Lights with shingle tabs** inserted under shingles or flashing—price at **\$2.00 to \$2.50 per foot the first year** (this includes total cost of bulbs, cord, and clip).
2. **Lights with shingle tabs and parapet clips** where the clips have to be screwed or glued down price at **\$3.50 per foot the first year and \$1.50 the second year**. All you will have to do is snap the lights in place and change bad lamps the second time around. Do not use multiplier.
3. Where you have to use **plastic anchors and screws and wire tie the lights** the price should be **\$2.50 per foot** the first year (which includes the bulbs and cords used). Do not use multiplier.
4. As a general rule for **labor for lights in trees** use **\$10.00 for each 3 strings of 35-lite or 50-lite mini lights or 25 feet C7 or C9 lights** (equal to about **\$3.50 per string**). Add the cost of the bulbs and cords themselves (the first part of the equation is labor cost only) and **multiply by 3 for total tree cost**.
5. **You don't necessarily have to use the multiplier for cords and timers** since they don't require maintenance or replacement in following years.
6. Lights in trees where you have to work off a **tall ladder will require 1.5 times the labor**.
7. Lights in areas where you have to use a **bucket truck will take 1.5 times the labor plus the cost of the bucket truck per hour**. Multiply the **cost of the bucket truck by 2.25** to allow for travel time (which you will be charged for), **taking the lights down**, and the fact that **you may have to call them back for repairs**.
8. **If in doubt—go high**. You can lose money sitting at home; be paid for your services and expertise.
9. The **3x multiplier** should allow you to not have to skimp on lights in case you have figured short and have to add more. Customers don't like it when you come back later asking for money because you mis-figured the quote in the beginning. With the multiplier, you're covered and know if you have to add lights you're still making money and above all, keeping the customer happy.
10. On average, your cost for installing a 35- or 50-lite miniature string should be priced around **\$3.50**; a 100-lite string would be **twice** that much. **Lights installed off of tall ladders** using a pole will cost about **50% more**. **Multiply the cost of labor plus the cost of the lights by 3** and you have a pretty safe price to account for installing, removing, storing, and any repairs along the way.

JOB MATERIALS/LABOR LIST AND CUSTOMER ESTIMATE SHEETS

To assist you in estimating materials and labor costs, we have provided the following sheets entitled “**Job Materials/Labor List**” which will enable you to determine all the materials necessary to do each job and what prices you will need to charge for the various aspects of the project. Most, if not all, of the things that you will need to itemize are listed on the sheets along with some blank spaces for additional or custom items you may wish to add. These worksheets will allow you to list the various quantities as well as the prices for the items required to complete a job so you can then transfer the totals to a sheet simply entitled “**Customer Estimate**.”

Note that we’ve provided **one original** (white copy) for making additional copies along with some additional colored copies for use on your first few jobs. Also included is a sampling of grid paper on which you may wish to sketch the house and landscaping layout to aid you in design or for later reference when installing. You may wish to get a sketch of what the customer wants and work on the estimate that night; then get back with the customer the next day with the estimated price. **Keep in mind: The “Job Materials/Labor List” is *not* to be shown to the customer.** It is for *your use* in determining the prices you’ll need to charge to do the total job.

One of the most important things to point out in regard to the use of these worksheets are the built-in “**multipliers**” (or factoring guidelines) that will allow you to adequately figure your materials and labor costs as well as cover for any minor misfiguring or incidentals if you find that you have underestimated lights or cords in some areas.

Once you have determined the price to charge for the job, you will **transfer the “Job Materials/Labor List” totals to the “Customer Estimate” sheets** to present to the customer for their approval. **Note that individual prices for lights, cords, labor, etc., will NOT be itemized on the “Customer Estimate” sheet.** This sheet will only contain a list of all materials you will be supplying along with the total price for the installation as a whole. Most of the time, you should also **enclose a copy of the sketch** showing what areas are lighted with what lights and materials. That way there is no misunderstanding between you and the customer as to what the job required and what items were approved in advance of beginning the project.

Like the materials worksheets, we have provided **one original** for you to make additional copies from and a few colored copies for you to use for your first jobs.