

LIGHT! LIGHT! GIVE ME SOME LIGHT!

By Art Aldrich, AACT Spotlight, February 2005

On the AACT technical theatre forum, a question was raised about the appropriate lighting for a church, where, presumably, some theatre performance was going to be held. The same question has been asked many times by groups with which I work.

Fortunately a whole category of relatively inexpensive lighting equipment is available which is suited for small groups that either travel to different venues or need portable lighting in the space where they perform.

The first time I was confronted by the challenge of designing an inexpensive lighting system I turned to the people who use these systems regularly – DJs and lighting designers who work with trade shows and industrial shows. They need professional lighting that is easy to rig under a variety of conditions that is relatively unobtrusive. And they need to be able to strike everything quickly, pack it up, and move on to the next gig or the next show. Small theatre companies can readily adopt the equipment and techniques that the DJs and trade show designers use.

A group that performs drama and comedy in a traditional theater space needs the heavy-duty lighting gear that is usually found in these venues – ellipsoidal spotlights, floods, and fresnels. These instruments are capable of providing sufficient illumination at distance of 20 feet or more. Most theatre spaces have dimmers installed or at least have the electrical current capacity to handle rental dimmers. But theatre groups that work in churches, retail space, malls, auditoriums, ballrooms, basements and coffee houses, as well as those who have to, literally, take their shows on the road, need a more flexible lighting setup.

The first question is what kind of shows does the group perform?

Comedy and cabaret demand simpler lighting than does serious drama. Comedy and cabaret are brightly lit and require few lighting changes except for blackouts. A follow spot can be used to advantage in musical comedy and cabaret. This versatile lighting instrument can project a circular beam in a variety of colors and can follow actors around the stage. New lightweight, high-intensity follow spots cost less than \$500.

Overall illumination of 100-120 foot candles is appropriate for comedy and cabaret. A foot-candle is a theoretical standard of measuring light based on the amount of illumination one candle will provide at a distance of one foot. Because the laws of physics apply to light, the distance from the lighting instrument to the actor's face will determine how many foot-candles any particular instrument will project. Light intensity diminished with the square of the distance. Short distances make economy possible – low power, low cost instruments will provide sufficient light levels for most productions.

If your group performs comedy, musicals, or cabaret, and work from a distance of 10-15 feet or so, low cost DJ lighting may work fine. DJ packages that include PAR cans, towers, a DMX dimmer board, cables and stands sell for \$400-\$900. It is truly a lighting system in a box-portable and easy to use. Easy to set and easy to strike.

PAR cans are floodlights with parabolic aluminized reflector lamps similar to the sealed beam headlights used on automobiles. Since floodlights are basically uncontrollable, lacking lenses and focal adjustments, the PAR does one job well – it throws lots of light. They are available with wide, medium and narrow reflectors; also ultra wide and ultra narrow and even pencil thin beams for special effects. I buy mine used for \$60 each, complete with lamp, clamp and color frame. New PARS aren't that much more expensive. When budgets are tight and control of the beam is not critical, I have used PAR cans to light entire shows. Mini PARS are available for \$29 each new. I have used these in industrial shows, but they are only useful for short distance throws. Buy your PARS by the numbers – the higher the number, the more light they produce. PAR 16 is the smallest instrument; the PAR 64 the largest. I have used 1000 watt PAR 64's for backlighting concert performers, a common application. PARS are sold in chrome or black finish; the DJs love chrome for a flashy look.

A variation on the PAR can is the old standby, the R-40 reflector flood lamp. They screw into standard sockets, such as track lighting heads, and are available in wattages ranging from 60 to 300. They come in spot and flood versions, and are also available by special order in colors, such as pink and blue. I recall building enough tin can lighting using paint cans, ceramic sockets and R-40 lamps to light an entire show in the 1950's because nothing else was available. But such homemade lighting violates every known fire or safety code; buying professional, UL-certified equipment second-hand is a much better alternative.

Electronic Theater Controls makes a "PAR Fresnel" which uses a lamp and reflector and comes with an assortment of lenses. These are very versatile instruments. Four of them can light a 24-foot wide stage. I buy them used for \$95 each.

Track lighting is another low cost solution for a small performance venue. Fixtures can be slid anywhere along the track. But control of individual instruments is difficult if not impossible.

Lighting control is achieved with dimmer packs, also commonly used by DJs. Typically each pack provides six circuits that can be individually controlled by a small DMX dimmer board. The dimmer packs can be daisy chained, so one board can control all the lighting. An eight-channel board can be bought for \$125-\$250. Dimmer packs sell for \$250-\$400, depending on the current capacity. Dimmer packs do not require a company switch or any special wiring. Just plug them into any convenient outlet. A 15 amp AC outlet provides 1650 watts of lighting; any number of dimmer packs can be used as each is plugged into separate circuits with sufficient capacity.

For really low budget lighting, X-10 modules can sometimes be utilized. The modules allow individual control of any light plugged into one, up to 300 watts per module. They turn off, on and dim up or down through a wireless controller that can be plugged anywhere. The lights can also be plugged into any outlet, eliminating the need for special wiring or a dimmer board. Software and an interface are available for Windows-based computers that allow the cues – known as "looks" – to be pre-programmed. X-10 lighting is coming into wider use in architectural applications, which means more sophisticated controls are available. Modules and controller are available at Radio Shack or home centers ranging in price from \$4.95 to \$9.95. Control is somewhat primitive since the rate of fade up or down is preset. Modules can be triggered by false signals from the AC line. And the X-10's cannot be used on three-phase circuits.

Smaller, cheaper more powerful lighting instruments and more economical control systems are the wave of the future. If your group performs on the road or does not have a permanent home, take advantage of the new technology to brighten your shows.