

Built into the stage set and designed to look like raised street cobbles, are footlights comprising MR16 12v lamps, which along with a follow spot, provide the necessary 'cabaret' feel for musical numbers. Lighting control is by way of a Strand Gemini 2 driving 160 dimmers.

Apart from the lack of par-cans, *The Blue Angel* lighting rig is also without PC's. Chris admits, 'I have never used PC's. To be honest I have never become comfortable with them.'

Now a confirmed Californian, Chris is able to make the transition between lighting in the United States and Europe despite the noticeable gulf in lighting practices and terminology on both sides of the divide. For example, what in the UK is a gobo is a template or pattern in the USA. An ellipsoidal in the States is a profile in Britain, and so on.

He said, 'If I go to a regional Rep in the United States and ask for a fresnel, they think I'm completely insane. They have never had one in the building.'

'A lot of the differences are that lighting design education in the United States is largely carried out by academics who are non-working professionals and often using the teaching methods of 20 years ago.'

'I try to teach my students that the instruments we use are paintbrushes. It sounds a terrible cliché but it's true. You can't always use the same brush for everything you want to do.'

Whether or not his crusade amongst the earnest students



The stage set.

of California is paying-off, the professionals are taking notice. Chris has recently won a Los Angeles Dramalogue Award for *Search and Destroy* at California's South Coast Repertory, and for *Twelfth Night* at La Jolla Playhouse, California.

And the next stop? Hopefully, Broadway again with the musical *Elmer Gantry*, which is due to transfer to the East Coast in the near future. ■

Low voltage lighting may be buzz words of the industry at the moment but how much do we really know about the subject? Our 'guided tour' explains how it is developing.

SUCCESS FOR LOW VOLTAGE

Arguably one of the most successful light sources of the last decade has been the low voltage phenomenon.

A compact tungsten halogen lamp capsule is accurately combined with a precision-faceted glass dichroic-coated reflector to allow approximately 50 per cent of the heat to be transmitted through the reflector, permitting a controlled beam of light with reduced infra-red content to be projected forward on to a lit object or surface.



Low voltage lighting with Strand Minispots.

The compactness of the source, relative coolness of the beam (compared to equivalent tungsten display spot lamps) and light quality – an ambience of whiteness and crispness – are some of the reasons why low voltage lighting has enjoyed such universal popularity. Operating from 12-volt supplies, these lamps provide energy-efficient, longer life alternatives to much higher wattage PAR 38 spots, a cooler operation and the opportunity for smaller and more efficient luminaries.

The beam produced by a low voltage lamp is similar in quality to the soft edge focus from a fresnel spotlight but without the ability to vary from flood to spot. This is only achieved by changing to lamps of different beam angles. Light sources are available in a range of beam spreads from narrow through medium to wide angles.

Expanding this theatrical analogy the Strand Lighting Minispot range harnesses the performance of dichroic lamps to achieve a useful control of the beam and provide the full range of facilities and effects found in larger professional luminaries.

For use in museums, galleries, restaurants, hotels and a whole gamut of venues, Minispot cleverly allows the lighting designer to use stage lighting principles at a scale appropriate to the building.

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No. 4) may recall an earlier incarnation of Minispot with Patt, 100 profile Patt, 103 fresnel spot references, which enjoyed popularity a quarter of a century ago. About 400 were in use at Madame Tussaud's London exhibition and several hundred more in their Amsterdam venue.

The advent of the 12-volt dichroic lamps (referred to as MR 16) removed the need for an optical system in the lamp housing, by using the lamp's own integral reflector to focus on the gate and with a pair of exposed lenses on front runners, gives a 30° to 50° variable zoom profile spotlight. Add four adjustable shutters and we have a fully operational framing spot which can project images using miniature 'E' size gobos (patterns) or colour by selecting from a variety of hues of dichroic filters.

The minispot enables designers to direct and lead the eye in a way familiar in the world of theatre but seldom exploited in architectural applications. One effect is the recessed picture spot application where, apart from a minimal ceiling aperture, there is no indication of the illuminating source, whilst the 'framed' picture itself appears to exhibit a lustre of its own. Careful planning for positioning is recommended to achieve maximum effect, together with dimming control of the ambient illuminance.

For applications where the aim is to draw attention selectively without revealing the source of illumination or introducing unwanted glare, Minispots could usefully be combined with Strand Darklights to add a strong, verticle statement, creating pools of light and areas of focus.

Darklights use dichroic lamps in association with a specular black truncated cone, designed to transmit downward light, whilst internally reflecting and containing spill light without glare or revealing the source - the effect being a dark aperture seen from normal angles.

Low voltage tungsten halogen lamps are perfectly suitable for dimming but it is wise to ensure the combination of transformer and dimmer is compatible. Transformers of the conventional wire-wound type can be dimmed through application of the dimmer output to the primary side, and it is prudent to down-rate from maximum dimmer capacity to allow for surge currents associated with an inductive load.

Asymmetry protection insures against potential transformer damage from any spurious DC. Also, some Strand dimmers have been purpose designed for transformer-fed loads and incorporate a 'soft start' feature to switch lamps on gently by reducing thermal shock to the lamp filaments and include an automatic top set, as an aid to extending lamp life. Following an exponential law, lamp life can double with a five per cent reduction in voltage.

Low voltage lighting has now come of age. The system comprising lamp, luminaire, transformer and dimming, used sensitively, can enable theatrical lighting principles to be applied to a variety of spaces within the built environment, expanding the opportunities for creative lighting design. ■

A fact-sheet on low voltage lighting is available from The Marketing Department, Strand Lighting Limited, England.