DESIGNING WITH LIGHT AN INTRODUCTION TO STAGE LIGHTING pdf

1: Stagecraft - Stage lighting | www.enganchecubano.com

Designing with Light is a comprehensive survey of the practical and aesthetic aspects of stage lighting design. The authors approach stage lighting design as an art that integrates the vision of director.

However lighting instruments group into families and it is convenient to consider our requirements in terms of what each family offers in terms of beam size, beam shape, and beam quality. Floods Floodlights are the simplest of all theatre luminaires, comprising of little more than a lamp and reflector in a box that can be panned from side to side and tilted up and down. As they have no lenses, the output characteristics of the floodlight are determined solely by the reflector and lamp type. The light is therefore suitable for lighting skies and cloths, it is not selective enough for lighting actors. Most modern theatre floodlights use linear quartz halogen lamps with a symmetrical half-pipe shaped reflector. The light is distributed equally above and below the horizontal axis of the lamp and, to a much lesser extent, equally to each side of the lamp. They use a specially shaped asymmetric reflector in order to produce a light beam that spreads much further in one direction than the other relative to the horizontal axis of the lamp. This allows for a more even spread of light down the cyc cloth or back drop, or up the cloth if the cyc light is used as a groundrow. Like floodlights, there is also some light distributed to the sides of the lamp. Floodlights may be single units, or grouped into 3s or 4s to produce a batten, used for colour mixing. The fresnel lens is named after its inventor Augustin Fresnel who developed the lens for use in lighthouses to solve the problems presented by the basic plano-convex lens which was less efficient, too heavy and prone to cracking. The fresnel lens has since become one of the most popular lenses used in luminaires for stage lighting, largely for the same reasons. The fresnel luminaire is easily identified by looking at the lens from the outside of the luminaire where the concentric rings are easily seen. Fresnel luminaires produce a soft edged beam of light that is brightest in the centre and gradually darkens toward the edges. This characteristic makes blending the light beams between adjacent fresnel luminaires into a continuous pool of light of even brightness quite easy. The fresnel luminaire is the workhorse of all theatre luminaires. Fresnels are very versatile luminaires that are often used for stage colour washes, as well as for selective highlighting. The ease of blending the light beam from one fresnel with that of an adjacent fresnel makes them quick to point and focus onto the stage ready for use. The glass may be completely clear or the flat side may have a textured surface, the latter sometimes being called pebble-convex lenses. The textured surface softens the beam a little to improve the overall beam quality. Older PC lenses tended to produce a rainbow around the edge of the light beam and project the filament outline in the centre of the light beam. Their glass was also prone to cracking. Modern PC lenses have largely eliminated these problems. The light beam characteristics of the PC spotlight make it ideal for dramatic highlights when focused to a narrow spot or for more general colour washes when focused as a wider flood. Adding a light diffuser, such as Rosco Hamburg Frost, changes the light beam to make it soft much like the light beam of a fresnel. PC luminaires are ideal for use as tightly focused specials for highlights such as when you want to pick out a single performer for dramatic effect. They are also suitable for use in front of house positions. Plano-Convex PC and Fresnel luminaires belong to the same family of "focus spots" with the only difference between the two being the type of lens that is fitted. Both types use a spherical reflector which, in conjunction with the single lens, provides a low cost optical system albeit a little less efficient than the more complex optical systems used in profile luminaires. The beam angle of focus spots is adjustable over a wide range, typically from a narrow spot of degrees to a flood of degrees. This adjustment is achieved by moving the lamp and reflector relative to the lens which is fixed in position on the body of the luminaire. Moving the lamp closer to the lens increases beam width towards its widest flood setting while moving it away from the lens reduces the beam width towards its narrowest spot setting. An accessory called a barndoor is usually fitted to the front of focus spots to provide a means of controlling the edges of the beam. Profile Spots Fixed beam profile spots In a profile spot, the lamp and the reflector remain stationary while the lens is movable whereas in the focus spot, the lens is stationary and it is the lamp and reflector that move. The lens movement in a profile spot controls the beam quality; the lenses are capable of producing a very hard precise edge which can

be gradually softened by progressive movement of the lens tube. Control of beam size and shape in standard profile spots is achieved by adjustments at the central point of the optical system known as the gate. At this point, all profile spots have four shutters which can be used to make any size of four sided shape. There is a slot with runners which accept either an iris diaphragm to give a full range of circular beam sizes, or a metal mask to produce any required beam shape. A mask for use in the gate is known as a GOBO and because of the intense heat at this point in the lantern, gobos must be made from heat resistant material. This is faster than softening with lenses, and makes more efficient use of the spotlights optics. Most profile spots also have an adjustement allowing subtle changes to be made to the positioning of the lamp within the reflector. This allows the beam to be finely tuned between peak, where the centre of the beam is more intense, or flat where the beam has an even intensity. The shuttering and masking devices in profile spots convert a lot of the unused light to heat and so shutters should be used to trim the beam edge rather than cut it down to size. This means selecting an instrument with the appropriate lens for the throw distance from the stage. Modern fixed beam profiles are available in beam angles such as: In a zoomspot two lenses are adjustable in relation to the lamp and to each other to enable the beam width and focus to be adjusted. The beam width is at its widest when the lenses are closest together and at its narrowest when they are at their furthest apart. Fixed beam profile spots usually have only one lens, although some designs use two lenses, but in either case only the beam focus is adjustable and the lenses are optimised for the specified beam width. To maximise their efficiency zoom profiles are designed to be used within a certain range of beam angles typical ranges are degrees or degrees. Zoom Profiles vs Fixed Beam Profiles Zoom profiles allow the size of the light beam to be readily set to the size needed for any particular purpose, minimising the light and energy wastage that may otherwise result from large shutter cuts. This also eliminates the need for lighting designers to calculate the exact beam angles required for each luminaire so the appropriate luminaires can be rigged for each show. The down-side is that the extra lenses and variable beam width makes zoom profiles a little less efficient. The wider the zoom range the less optimal the optical system becomes. This is why manufacturers make a series of zoom lens systems with limited zoom ranges rather than a single lens system that zooms all the way from pin spot to wide flood. When luminaires are routinely moved to different positions within a theatre, or toured to different theatres, the versatility of zoom profiles makes them the obvious and popular choice for multi-purpose venues and schools. Fixed beam luminaires allow the manufacturer to optimise the optical system to achieve the best performance from the luminaire, at the specified beam width, to provide a more efficient luminaire with superior light beam characteristics that is simpler to use. When the luminaires are permanently rigged at the same positions in a theatre the need to calculate beam angles from one show to another is largely eliminated making it practical to select luminaires based more on efficiency and light quality than versatility. Compact filament lamps such as the HPL used in conjunction with a coated glass reflector that can remove much of the infra-red energy from the beam, produces a highly efficient spotlight. The efficient heat management from the glass reflector, provides a cooler gate temperature, providing increased life to shutters, iris and gobos. Beamlights and Parcans Most lighting instruments produce a conical beam so that the spread widens as the throw increases. Beamlights use a parabolic reflector to produce a near parallel beam which is more intense than a lens spotlight of the same wattage. In the parcan the optics are fully contained within the glass envelope of the lamp. Various Lamps providing angles of a squashed near-parallel beam are available. The intensity produces a depth-enhancing haze in the air, so intense that it is effective even with deep colours. The basis of most rock lighting today. LED Technologies The lighting families that we have already discussed floods, focus spots, profile spots and beamlights have assumed the use of traditional incandescent lamps as the source of illumination. LED lights used for stage lighting all fall into the same families as their traditional incandescent counterparts, the only signigicant difference been changes to the light source and reflector design. To what extent will face and body be modelled or flattened? What area of stage will be selected and what will be the size and direction of shadows cast on floor and scenery? A vertical beam is the most selective light possible. The lit area of stage, and the shadow cast upon it, need be no wider than the widest part of the actor. If the light comes from a little forward of the actor, it will start to reach the eyes and mouth provided that she keeps her chin up and is not defeated by a hat brim! However, the lit area, and shadow cast, starts to extend upstage

from the actor - i. Light from below projects an actor shadow that looms above the actor rising and falling as she moves towards and away from the light source. When this is the only lighting angle, the effect on the face is not at all natural. But a little from below, usually just reflected light can help to soften the harshness of light from above. Lighting from the back and side Now consider a light from behind. Then a light or lights from a series of side angles i. Once again the criteria is visibility, modelling, selectivity and shadows. A light source behind the actor does not illuminate the face, but it helps to give depth to the stage by separating the action from the scenery through creating a haze and highlighting head and shoulders. The shadow of the actor is cast forward, helping the selection of areas. Since the light does not fall on the face, strong colours can be used. If the light comes from a little to one side of the actor it will start to reach the eyes and mouth on that side. The area lit, and the shadows cast, will extend along the stage floor on the other side. Add a second light source from the other side, and both sides of the face will receive light. However, there is now a second shadow and the selected area of stage floor extends to both sides of the actor. As the side lighting comes from an increasingly lower angle, the shadows will lengthen to both sides of the actor and a larger corridor will be selected across the stage. As the light hits the face from a lower angle, it will light more into the eyes and teeth, although there will still be a tendency towards a central dark line where the beams meet down the centre of the face. This is particularly important in dance. When the light becomes horizontal there will be a lighting corridor across the whole stage. By focusing just clear of the floor, it is possible to lose shadows into the wings, and the light will only be apparent when an actor stands in it. Finding a compromise We normally seek to light an actor for maximum visibility and maximum modelling, with minimum shadow. Additionally in many productions, we need to select as tight an area as possible. Which combination of angles offers the optimum compromise? The basic compromise that has long been the standard approach is a pair of beams crossing on to the actor one for each side of the face from positions that are both forward and to the side of the actor. The suggested angle is often around 45 degrees in both directions - i. The actor is now It by three beams with a ? Although a single beam can be flat it can also be quite tight. For modelling, sidelights can be added and, although they will spread the lit area, they can be at quite steep angles since they do not need to make a major contribution to visibility.

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2: Reflected Colour in Stage Lighting Design - Stage Lighting Online Tutorials, Information and How To

Presents a survey of the practical and aesthetic aspects of basic lighting design that treats lighting design for the stage as both an art closely integrated with the director's, actor's, and playwright's vision, and a craft that provides practical solutions for the manipulation of stage space.

The larger Roman theatres were also outdoors, but the added luxury of a coloured awning stretched over the spectators softened the glare of the sun. Later, in the Middle Ages, miracle plays and mystery plays were primarily performed outdoors on the front steps of the church and the adjoining square, although the first dramatized biblical scenes were performed as part of, or following, mass inside the church. There is no record that these scenes were lighted any differently from the mass itself. In England the pageant wagon , complete with actors and properties, was drawn through the main street of a town. Until the 16th century, the theatre continued to be mainly an outdoor institution. Under the patronage of the aristocracy in Italy , private performances, pageants , and tableaux began to be given indoors. Sebastiano Serlio , an Italian architect, gave considerable attention to theatre design , and in a treatise written in he discussed theatre construction and the creation of lighting effects. He recommended placing candles and torches behind flasks filled with amber- and blue-coloured water. Artificial light, produced mainly by candles, was used in several indoor theatres to light the stage and the auditorium. In the early 17th century, Inigo Jones introduced several innovations in lighting and stagecraft, using reflectors to intensify the light sources and making use of colour on stage. He describes the use of oil lamps and candles set in a row along the front edge of the stage but out of sight of the audience, and he also mentions vertical rows of lamps behind each wing at the sides of the stage. The common method of lighting the stage and auditorium was by means of tallow candles. As seen in old prints, these candles were mounted in crude hoops or chandeliers, which were hoisted aloft on pulleys to hang in dripping splendour. Gold decorations applied to the interior of the auditorium caught the many reflections. The inconvenience of the lighting system was that candles were expensive and hard to control. The twisted wicks had to be constantly trimmed during the performance, and this was the duty of the snuff boy. A transformation from light to darkness was effected by the agile skill of the candle snuffers. When David Garrick used footlights at the Drury Lane Theatre in , he masked the candles with metal screens. By , when Richard Brinsley Sheridan managed the Drury Lane, all lights used to illuminate the stage were out of sight, hidden by the now familiar wings and borders. The floating oil wick lamp was replaced after by the Argand oil lamp, in which the cylindrical wick was enclosed in a glass chimney to steady the flame and provide a brighter, whiter, and cleaner light source. The chimneyed oil lamp eventually replaced the candle, but it was still hung in clusters above and bracketed to the walls. At the Haymarket Theatre in London , the oil lamps had chimneys of white and green glass that were controlled by levers, so that raising or lowering the chimneys could effect light changes. Stage design and stagecraft had now advanced as far as was technically possible under the limitations of low-intensity stage lighting. The first major advance in several centuries was the introduction of gas lighting. Near the end of the 18th century, the Scottish engineer William Murdock developed a practical method to distill gas from coal for illumination. The first successful adaptation of gas lighting for the stage was demonstrated in the Lyceum Theatre , London, in by a German, Frederick Winsor. The Chestnut Street Opera House in Philadelphia installed a gas lighting system in and supplied its own gas by installing a gas generator on the premises. Gas stations and city mains did not come into use before The advantages of gas lighting were immediately realized and exploited, despite the initial cost. No new methods of lighting, however, were devised for stage lighting. The conventions remained the same: Even without a chimney, an open gas jet flame was brighter than oil lamps or candles. The additional advantage was control; by varying the control valves from a central point, a smooth increase or decrease of light could be effected, and at variable speeds. For the first time, to add to the realism of the play , the auditorium lights could be darkened. Elaborate central control systems were devised, with a main regulator, branch mains, secondary regulators, and valves. But there were also disadvantages to gas: Protective codes were soon established that necessitated the use of guards, screens, and glass chimneys. In , after the introduction of electric lighting, the incandescent gas mantle

was developed see incandescent lamp. Although the mantle greatly improved the quality of lightâ€”which was brighter and whiterâ€”the hazards of fire still remained. Although Thomas Drummond , a British engineer, invented the limelight in , it did not come into general use until some 30 years later. A limelight produces light by directing a sharp point of oxyhydrogen flame against a cylindrical block of lime. The tiny area of lime becomes incandescent and emits a brilliant white light that is soft and mellow. As the block of lime is slowly consumed by burning, it has to be slowly and constantly turned by an operator to supply the flame with a fresh surface. Since the brilliant area was very small, the addition of a mirrored reflector was necessary to give accurate control. The intensity of the limelight permitted it to be directed onto the stage from the auditorium. Since it offered control as well as intensity, the limelight was quickly adapted to follow individual performers around the stage. The sharpness produced by the small point source made possible the creation of realistic effects, such as sunlight and moonlight, and moving effects, such as clouds, water, and fire. Electrification An advance of great importance was the introduction of the electric carbon- arc lamp , which was exhibited in experimental form in by Sir Humphry Davy. Most important, the company made the earliest spotlight , a carbon arc and reflector housed in a hood, which included a lens and a shutter. The next great advance in lighting was the development of the incandescent electric lamp, in which light is produced by a filament electrically heated to incandescence. The invention of a practical electric lamp by Thomas Edison in marked the beginning of the modern era of stage lighting. Two years later, at the Electrotechnical Exposition in Munich, a small theatre was erected that used electric lighting exclusively for both stage and auditorium. The success of the experiment received worldwide acclaim. In London the Savoy Theatre was the first to install the new lights; in Boston the Bijou Theatre followed the new trend in The following year the Landestheatre in Stuttgart, the Residenztheatre in Munich, and the Vienna State Opera were among the first completely electrified theatres. At the turn of the 20th century, incandescent lamps were in almost universal use for stage lighting, but no new methods or techniques of lighting appeared. The conventional footlights, borderlights, and striplights were merely electrified, and the arc light was used for concentrated light sources. Gradually, new improvements provided brighter lamps that were both more durable mechanically and available in larger wattages. Metallic filaments replaced carbon, and in drawn tungsten filament lamps appeared. The use of inert gas in place of a vacuum produced lamps of even higher efficiency and larger sizes. The introduction of concentrated coil filaments made practical the development of the incandescent spotlight. The refinement of the incandescent spotlight added an exciting new tool for the advancement of stage lighting and the further development of stagecraft. Gradually the arc spotlight was replaced by the new incandescent spotlight, which, in turn, gave way to the tungsten-halogen lamp. In his music dramas, German composer Richard Wagner suggested new possibilities for the use of light and design in a unified productionâ€”a lyrical synthesis. Adolphe Appia and Edward Gordon Craig gave tremendous impetus to the new plastic stagecraft. They conceived of the stage as a cubic volume of space bathed in a continuous play of functioning light. All the vast optical effects of Baroque design previously obtained with paint were now possible by means of light. Hoffman; in the Theatermuseum, Munich. Courtesy of Theatermuseum, Munich Wagner, Richard: The simulation of natural lighting was remarkable, but the entire mechanism was too bulky and intricate and required the construction of a special theatre. In the course of his experiments, Fortuny evolved a dome-shaped cyclorama , its rear wall surfaced in plaster. Flooded with light, it gave the illusion of infinite space and was the perfect means of simulating spectacular sky and background effects. Because it was dome-shaped, however, it occupied a large amount of stage space and tended to distort optical projections. In modified form, as a curved, hanging cyclorama, it became an indispensable tool of the new stagecraft. Earlier, Sir Henry Irving had used transparent coloured lacquers to coat lamps to produce colour effects, using separate circuits for each colour. Irving was also the first producer to introduce organized light rehearsals in his productions. David Belasco , with his electrician Louis Hartman , developed a standard of realism in stage lighting that anticipated the motion picture and went on to dominate the 20th century. In their lighting laboratory, Belasco and Hartman developed and refined many new lighting instruments. Individual sources were developed and used to light the acting areas from above the stage as well as from the auditorium. There are two methods used to control the flow of electrical current through a dimmer: Mechanically controlled

dimmers require the physical manipulation of an axle running through the core of the dimmer to adjust current flow. An electronically controlled dimmer uses a low-voltage control system to adjust the current flow in the high-voltage load circuit. The advantage of electronic control is that it allows the dimmer to be controlled from a remote location. There are three basic types of mechanically controlled dimmers: The resistance dimmer was the first commercially successful theatrical dimmer. Developed in the late 19th century, it was portable, efficient, and extremely rugged, and, because it ran equally well on both alternating current AC and direct current DC power, the resistance dimmer survived for decades as the standard in commercial theatre throughout the world; its use was in general decline after the s. By the end of the 20th century, it was no longer being used. A saturable core dimmer uses a small DC current to magnetize an iron core through which AC current flows. As the level of magnetism increases, the conductivity of the core also increases; more AC load current is thus able to pass through it, and any lights connected to the dimmer will come on. Like the resistance dimmer, however, the saturable core dimmer is no longer used. The autotransformer dimmer controls current flow by varying the voltage in the circuit. It was rarely used to control stage lights, but at the turn of the 21st century it was still being used in some theatres to control house lights. The first electronically controlled dimmer was the thyratron tube dimmer, developed by George Izenour in It was the first dimmer to make use of gatingâ€”a rapid turning on and off of the current flowing through the load circuitâ€”to control light output and intensity. The thyratron vacuum tubes were large and noisy, and they required a considerable warm-up period before they worked properly. They also needed frequent maintenance, did not last very long, and were expensive. But the demonstration that the gating principle could be used for effective intensity control paved the way for silicon-controlled rectifier SCR dimmers. The magnetic amplifier dimmer, developed in the s, was in essence a saturable core dimmer that used electronic, rather than mechanical, control to vary the level of magnetism in its iron core. While it was an improvement over the saturable core dimmerâ€”because the electronic control allowed the dimmer to be remotely controlled â€”its control circuit needed almost daily maintenance to run properly.

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3: Designing With Light: An Introduction to Stage Lighting | eBay

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Stage lighting instrument In the context of lighting design, a lighting instrument also called a luminaire or lantern is a device that produces controlled lighting as part of the effects a lighting designer brings to a show. The term lighting instrument is preferred to light to avoid confusion between light and light sources. There are a variety of instruments frequently used in the theater. Although they vary in many ways they all have the following four basic components in one form or other: Additional features will vary depend on the exact type of fixture. Most theatrical light bulbs or lamps, the term usually preferred are tungsten-halogen or quartz-halogen , an improvement on the original incandescent design that uses a halogen gas instead of an inert gas to increase lamp life and output. Fluorescent lights are infrequently used other than as worklights because, although they are far more efficient, they are expensive to make dimmed run at less than full power without using specialised dimmer ballasts and only very expensive models will dim to very low levels. They also do not produce light from a single point or easily concentrated area, and usually have a warm-up period, during which they emit no light or do so intermittently. High-intensity discharge lamps or HID lamps , however, are now common where a very bright light output is requiredâ€”for example in large follow spots, hydrargyrum medium-arc iodide HMI floods, and modern automated fixtures. Over the last six years, LED-based luminares of all varieties and types have been introduced to the market. Some of these fixtures have become very popular, whereas others have not been able to match the output from incandescent and discharge sources that lighting designers prefer. LED fixtures are making a positive impact on the lighting market, and are becoming more popular when compared to the energy usage of current incandescent, halogen, and discharge sources. On the end of such, a clamp known as a hook-clamp, C-clamp, or pipe clampâ€”pipe referring to battens is normally fixed, made in a "C" configuration with a screw to lock the instrument onto the pipe or batten from which it is typically hung. Once secured, the fixture can be panned and tilted using tension adjustment knobs on the yoke and clamp. An adjustable c-wrench, ratchet US or spanner UK is often used to assist the technician in adjusting the fixture. In the event of failure, the cable would halt the fall of the fixture before it could cause serious damage or injury. Many venues place strict guidelines regarding the use of safety cables. Types of lighting fixture[edit] All lights are loosely classified as either floodlights wash lights or spotlights. The distinction has to do with the degree to which one is able to control the shape and quality of the light produced by the instrument, with spotlights being controllable, sometimes to an extremely precise degree, and floodlights being completely uncontrollable. Instruments that fall somewhere in the middle of the spectrum can be classified as either a spot or a flood, depending on the type of instrument and how it is used. In general, spotlights have lenses while floodlights are lensless, although this is not always the case. Within the groups of "wash" and "spot" light, there are other, more specific types of fixtures. This nomenclature also changes across the world depending on location and industry. Profile These fixtures feature a compound lens which allows the designer to place obstructions within the image path which are then projected. These obstructions could be "gobos" or shutters. A profile is a spot light, but allows for precise focusing. Fresnel A Fresnel is a type of wash light and is named as such due to the Fresnel lens it features as the final optical device within the chain. Traditionally theatre and stage lighting has been of the "generic" type. These are lights which are focussed, geled, and then simply dimmed to give the effect the designer wants. In recent years the emergence of moving lights or automated lights has had a substantial impact of theatre and stage lighting. Stage Lighting A typical moving light allows the designer to control the position, color, shape, and strobing of the light beam created. This can be used for exciting effects for the entertainment or dancefloor use. Moving lights are also often used instead of having a large number of "generic" lights. This is because one moving light can do the work of several generics. In the UK the nomenclature is slightly different from North America. This article primarily uses the North American terminology. A Spotlight in the UK often refers to a Followspot , or any lantern in general which has been focused tightly into a small area. The following

definitions are from a North American point of view. UK naming conventions are used in most of the world,[citation needed] in fact most North American theatres will also use the UK terms except when talking in a more general sense i. Heat will cause the portion of the lamp which has oil on it to expand when it is on creating the bubble, and causing the lamp to explode. That is why one should never directly touch the glass portion of a lamp. Cleaning with rubbing alcohol will remove the oil. Historically this has been done by the use of intensity control. Technological advancements have made intensity control relatively simple - solid state dimmers are controlled by one or more lighting controllers. Controllers are commonly lighting consoles designed for sophisticated control over very large numbers of dimmers or luminaires, but may be simpler devices which play back stored sequences of lighting states with minimal user interfaces. Consoles are also referred to as lighting desks or light-boards. The lighting controller is connected to the dimmers or directly to automated luminaires using a control cable or wireless link e. DMX or network, allowing the dimmers which are bulky, hot and sometimes noisy, to be positioned away from the stage and audience and allowing automated luminaires to be positioned wherever necessary. In addition to DMX, newer control connections include RDM remote device management which adds management and status feedback capabilities to devices which use it while maintaining compatibility with DMX; and Architecture for Control Networks ACN which is a fully featured multiple controller networking protocol. These allow the possibility of feedback of position, state or fault conditions from units, whilst allowing much more detailed control of them. Dimmer A pair of electronic 2. The brightness of a lamp depends on its electric current, which in turn depends on the applied lamp voltage. Conversely, a higher voltage will cause higher lamp current and increased brighter light output. Dimmers are frequently found in large enclosures called racks or dimmer racks that draw significant three-phase power. They are often removable modules that range from ampere, 2. In the case of incandescent lamps, some color changes occur as a lamp is dimmed, allowing for a limited amount of color control through a dimmer. Fades brightness transitions can be either UP or DOWN, meaning that the light output is increasing or decreasing during the transition. Most modern dimmers are solid state, though many mechanical dimmers are still in operation. CPMs are used to supply line voltage to non-dimming electrical devices such as smoke machines, chain winches, and scenic motors that require constant operating voltage. When a device is powered by a CPM, it is fully energized whenever the CPM is turned on, independent of lighting console levels. CPMs must be used in lieu of dimmers to power non-dimming devices that require specific line voltages e. Dimmers are seldom used to control non-dimming devices because even if a dimmer channel is trusted to always operate at full power, it may not be controlled when communications are disrupted by start up and shut down of the lighting control surface, noise interference, or DMX disconnects or failure. Such a loss of control might cause a dimmer to dim a circuit and thus potentially damage its non-dimming device. Devices like moving heads also require independent power, as they cannot function on a partially dimmed channel for power, on top of requiring several other channels in order to convey all of the data they require for their several features. In order to simplify the control of moving head lanterns, instead of assigning channels manually to the lantern, many desks also offer a fixtures section, where one can assign the lantern as a fixture, allowing the desk to organise the data being transferred to the lantern on a much simpler scale for the operator. Fixtures may also incorporate smoke machines, snow machines, haze machines etc. Increasingly, modern lighting instruments are available which allow remote control of effects other than light intensity, including direction, color, beam shape, projected image, and beam angle. The ability to move an instrument ever more quickly and quietly is an industry goal. Some automated lights have built-in dimming and so are connected directly to the control cable or network and are independent of external dimmers.

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4: Fueling Imagination: A Conversation on Lighting Design - Church Production Magazine

PepsiCo Pakistan has joined hands with Liter of Light Pakistan to start Lighting.

Understanding shadow, the lighting designer can control it, avoiding unwanted shadows while creating others for effect. Light travels in straight lines until it hits something, then it does something else simple. Like bounce off in another straight line. I like this kind of predictability in an otherwise hap-hazard life. We can plan shadows using simple technical drawings and control them just as easily as light. The Basics of Shadows Each light source creates one shadow per object. This adds light to the dark areas, flattening the visual contrast and making the shadow less obvious. The extra light source also, of course, adds a shadow itself. Area A in the first sketch shows where a shadow has been filled in by another light source As light travels in straight lines, the area that a shadow will be cast can easily be calculated using a straight line from light source, via the subject, to the next surface behind. As lighting the human form is a pretty big part of the job, reading a human shadow is ideal. The shadow can tell us other things: Where the light is coming from? You might have several light sources â€" how do you know which one is causing that spill over there? Follow a straight line from the shadow, though the subject and back to the source of the spill. At what horizontal angle is this source hitting the stage? A short shadow indicates a light source high over head, a long one shows up a much shallower angle. You get the idea. Blue and green light sources from either side will create a Cyan mix on a floor. Stick something in the way and you will also get one blue and one green shadow shown in simplified form below. This kind of shadow interaction that can make a colourful scene even more vibrant. There are times when you want to use shadow for a specific lighting effect. Some shadows are just not wanted. Shadows on a musicians score make it difficult to read the dots, shadows on a painted backcloth that depicts a landscape can ruin the illusion of perspective. In the case of a backcloth, the answer is usually to light the cloth well enough from close up and overhead, washing out any stray shadows from frontlight further down stage. Light from a tiny point source such as a lamp filament travel from one place as very structured, straight lines that create hard edged shadows. Stick a bit of frost into a lantern and you have a more diffused, area source of light, creating lots of individual shadows near each other. The softest of all shadows come from larger, area light sources â€" the largest on being a daylight sky. Higher up and further away, the shadow players get shorter. We also know that if we want a hard edged shadow, we need a small point source of light. Shadow puppetteers use this to alter the size of their projected images, actors can do the same. The image shows a backlit shadow scene projected onto a cyc with the light source in different positions and the resulting shadow heights. Moving the actor in relation to the the source can have a similar effect. The traditional theatre method to do a projected shadow scene is to take the lens out of a large fresnel, so that there is nothing between the filament and the subject. Pushing the lamp tray as far forward as it will go, gives us the largest possible beam width for our shadow acting area. A bit of mesh in the colour frame or whatever. Have you hugged your shadow today? The fact that Messrs.

5: Light: The Shape of Space: Designing with Space and Light - Lou Michel - Google Books

"Designing with Light" is a comprehensive survey of the practical and aesthetic aspects of stage lighting design. The authors approach stage lighting design as an art that integrates the vision of director, actor, and playwright, and as a craft that provides practical solutions for the manipulation.

6: The Stage Lighting Guide

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