
Featured Lighting Designer: Jeff Brown, IALD on Residential Lighting



Lighting designer Jeff Brown, IALD of Colorlume Inc., located in Carrboro/Chapel Hill, NC, considers residential spaces as the ultimate multi-use environments and appropriately, a unique challenge to properly light, room-by-room and house-by-house rather than a blanket "one size fits all" method of downlights, track and ceiling mounted luminaires. He feels strongly that homeowners need to be educated in energy efficiency, sustainability and controls prior to designing their home so that the usual "sell" of relatively higher initial cost equipment doesn't become an issue during design development. He believes that each home's architecture is distinctive and therefore the lighting deserves careful and thoughtful planning and design, as well as administration during installation to assure compliance with the design intent.

While spaces used for day-to-day living in residential settings are, to a large extent, different than those used for working, shopping, entertainment and the like, the same design approach can be used in providing illumination for a variety activities in a home environment. One major difference, however, is that lighting a space to a certain criteria (i.e., illuminance level) should only be carried out when specific tasks are being performed. Ambient lighting in a residential setting should evoke a mood or provide a sense of relaxation and spaciousness rather than being simply a defined level of illuminance. Let's be clear though - Illuminance levels are important, especially in those spaces where tasks are being performed, such as food preparation, grooming, home office work, cleaning, etc. In these instances, IESNA recommended guidelines as well as the designer's own experience should be followed for setting criteria for specific tasks. Overall, in designing lighting for residential spaces, the designer needs to develop some general lighting guidelines that work throughout the house and then work on a space by space basis to determine specific lighting design criteria with enough latitude for a personal artistic touch. Since space is limited for this article and I can't go into detail on "how to" for various space types, I will list some general lighting guidelines that I have found to work in my experience designing for residential spaces.

Light Sources

Electric light sources used in the home should be in the 2700K-3000K color temperature range with high color rendering qualities in the 80 or better CRI range. If possible, all lamp types should be similar (e.g., IR Halogen, Capsylite™, WISO™, etc.) and provided from the same manufacturer to minimize inherent color, beam shape and output differences that are visually apparent between manufacturers. Additionally, suggest to the interior designer and/or architect that the surface finishes and fabrics be selected under the source in which they will be seen.

The introduction of daylight into spaces is energy efficient and allows the homeowner a valuable connection to the outside. Daylight does, however, have a significant impact on interior spaces, hence, the size, shape, type and placement of windows and skylights should be a part of the lighting design as well as the architectural design. Note that with daylight, there is a significant difference between "warm" direct sunlight and "cool" skylight. Both have ultraviolet (UV) components that can be damaging to sensitive artwork, woods, some fabrics and pigments, however, UV can be controlled via appropriate glass selection which filters out the harmful wavelengths. Additionally, direct sunlight has an infrared (IR) component that is harmful to artwork, fabrics, and finishes as well as having an impact on the HVAC system. The use of shades, curtains, blinds and other diffusing media is recommended to control direct sunlight.

Luminaires

When using recessed equipment, try to select a “family” of luminaires – that is, downlights, adjustable accents and wallwashers should match in aperture size and trim finish. When adding smaller aperture low voltage equipment, match the trim finish of the larger “cousins”. Recessed adjustable accent luminaires used for highlighting artwork, architectural elements, etc., need to be the type that have a fully recessed PAR lamp, either with a pivoting yoke/socket or gimbal – NOT the “eyeball” type that have a protruding spherical lamp trim. By recessing the lamp up into the housing, glare is controlled and a more finished appearance is realized. If possible, when designing with low-voltage equipment, use a remote transformer running several luminaires instead of those integral to the unit – this will eliminate any potential noise issues at the luminaire locations. Further, remote low-voltage transformers should be torroidal type with multiple taps and integral secondary circuit breakers.

Energy Efficiency

Since most spaces in the home aren't typically used in a lighted mode for extended periods of time, the long-term payback from relatively higher initial cost sources isn't applicable. There are those spaces, however, where the lighting is operating during the day and/or well into the evening, such as kitchens, home offices, exterior landscape and/or security lighting, etc. For these areas, the use of premium fluorescent, standard or IR halogen incandescent and (in the case of exterior lighting) ceramic metal halide sources is recommended. The higher cost for these lamps can usually be recouped with long-term energy savings when used in these extended operation applications.

Controls

In most living spaces, there is usually a need to adjust the light levels for varying tasks, provide different moods, lower the color temperature (incandescent), increase or reduce contrast on objects, or simply provide a reduced level of illumination. For these and other reasons, some type of dimming control is recommended. This is true not only for incandescent sources, but fluorescent lamps as well. High quality electronic dimming ballasts are available for T8, T5 and compact fluorescent lamps for areas where dimming these lamps is appropriate. Additionally, 3-wire or 0-10V dimming ballasts are best for consistency and reliability. For dimming low voltage incandescent sources, make sure the dimming controls are appropriate for the type of transformer used – magnetic or electronic – since premature lamp failure can happen if the incorrect dimmer type is used.

Lighting controls can vary from relatively low-cost simple wallbox dimmers to remote panel dimming systems which use one-touch preset buttons and interface with other home automation systems. The type of control to use will depend on budget and the client's level of technological sophistication. Most clients are willing to accept a combination of wallbox controls for the majority of spaces with certain key areas, such as dining rooms, great rooms and master suites using preset wallbox control systems. In any event, a well thought out control system must be an integral part of the overall lighting design scheme in any residence.

Layering the Light

By using a multi-layered design approach involving *task*, *ambient* (general) and *accent* lighting a balanced, three-dimensional lighted environment is created which allows for a variety of settings/moods. Even in a residential environment there is always some type of task involved in each type of space, therefore the lighting needs to be geared towards that end. In some cases the task lighting illumination requirements can be satisfied by either the ambient or accenting lighting layer. The best methodology is to begin by providing for the task lighting requirements, then, determine what ambient lighting, if any, is required to supplement this layer. Finally, provide appropriate accenting/highlighting to enhance artwork, architectural elements and the like.

Project Photographs



For this dining room/living room space the owners wanted to create a sense of intimacy over the table, so an inverse cove was designed to mimic the table below. The element has three separately controlled lighted elements; a suspended pendant, recessed deco trim MR16 accents and side mounted T8 strips in the cove filtered with a blue sleeve. These three lighting zones, along with three others; the wall sconces, the pinspots over the buffet and the art accents, are controlled with a 6-zone preset wallbox system.
Photo Credit: Robert Eovaldi



This soaring great room has several layers of lighting that combine to provide a complete lighted effect. Floor recessed uplights, ceiling recessed slope adapted downlights, ceiling recessed adjustable accents, table luminaires and upper niche indirect uplights are wired on separate zones and controlled via a wallbox mounted preset scene control. By varying the different zones, a multitude of lighted impressions can be achieved.
Photo Credit: Robert Eovaldi



The use of T8 and compact fluorescent sources provides this kitchen with an energy efficient, maintenance-friendly lighting system. Side mount T8 strips are mounted above the wall cabinets providing shadow-free, indirect general illuminance while the T8 undercabinet luminaires add additional task illuminance on the worksurfaces. The compact fluorescent downlights are fitted with a decorative cobalt blue "deco" disc to enhance the space and blend with the overall color scheme.
Photo Credit: Robert Eovaldi

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JEFF'S PROFILE

As Design Principal of the architectural lighting design firm Colorlume Inc., Jeff Brown, IALD has over 20 years of lighting design experience with a variety of project types. He has provided the design, in whole or assisting as part of a team, for more than twenty million square feet of interior space as well as several thousand acres of exterior space. In addition to his lighting design practice, Jeff has also designed and holds patents for several lighting fixtures that are currently available on the market. His work has been featured in and he has written articles for LD&A, Architectural Lighting, Residential Lighting and Professional Lighting Design Magazines.