



The background of the page is a photograph of a modern ceiling. It features several recessed circular lights of varying sizes, some of which are illuminated, casting a warm glow. The ceiling has a light-colored, possibly white or off-white, finish. There are also some curved architectural elements, possibly part of a chandelier or a decorative structure, that are visible in the foreground, creating a sense of depth and perspective. The overall lighting is soft and ambient.

LIGHTING TECHNOLOGIES

Enhancing Aesthetics, Functionality, and Sustainability on Campus

by David Vinson, PhD

A devoted cinephile likely knows Charles Laughton's riveting and unforgettable *The Night of the Hunter* (1955), a film that manages to defy common sense by combining seemingly incompatible genres. The movie is similar to neo-noir inspired by German expressionism, with elements of the fairytale, the pastoral, and the musical. This story is deeply invested in light and dark, both of which surface literally in the film's aesthetics as well as figuratively in thematic depictions of good and evil, of innocence and corruption.



Take, for instance, Robert Mitchum's role as Reverend Harry Powell, a psychopathic snake-oil scripturalist who adorns the tattooed letters of "LOVE" on the fingers of his right hand and "HATE" on his left. Powell travels along the Ohio River and preys upon unsuspecting widows with hefty savings—in one instance, Willa Harper, played by Shelley Winters—each of whom is baited by his rugged good looks and seasoned affectations as a serious, god-fearing man. Powell murders poor Willa, and the director Laughton stages the scene with light that floods down as if from the triangular steeple of a church. Aesthetics and theme work in harmony: Willa's face is illuminated, the innocent that she is, and nearly imperceptible in the shadows is the lurking figure of Powell, waiting to strike.

Art reminds us of the power of light and dark to evoke mood and even to transform—in cinema, lighting techniques represent a kind of grammar, a form of speech. In architecture, the use of light is not so different: it influences how we feel, just as it informs how we navigate and understand our physical surroundings. In college settings, the use of lighting in interior spaces may prove the difference between college-bound students feeling at ease and at home or their feeling confined and unsettled. The right lighting can set the tone for how students feel as they rest, study, exercise, or socialize.

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Lighting brings an emotional value to architecture, and whether it's daylighting or light supplied artificially, light allows us to take in the beauty and functionality of the buildings we explore. Lighting draws attention to textures, color, and the variety of ways in which a space may be used. To strike a balance between lighting and architecture, it's useful to prioritize three key components of architectural lighting: aesthetics, functionality, and sustainability.

The Aesthetics of Daylighting

The aesthetic value of lighting impacts the emotional experiences that our students may have as they occupy interior spaces on campus. Designers and architects labor to create these experiences, and they prioritize the manner by which exterior lighting can draw students in; further, they capitalize upon the variety of ways that interior lighting can create an atmosphere of warmth and comfort.

Daylighting adds a calming effect to interior spaces, and another benefit is that it minimizes the need for artificial lighting, which can in

turn decrease lighting energy use in buildings by 50-70%. Effective daylighting ideally uses soft, diffuse sky light as well as reflected light rather than direct sunlight, especially during warmer months. The placement of windows makes a major difference, too. For instance, south-facing windows with overhangs provide indirect light in the summer. Windows facing east or west let in light during the morning and evening, although they may cause glare and absorb heat during the summer. North-facing windows are useful for daylighting because they admit comparatively even, glare-free light and practically no additional heat during the summer months. The number, size, and glass type of north-facing windows should be carefully considered, however, as they do lose more heat than insulated walls.

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deeper into rooms than windows set a standard height, especially when used in combination with light-colored overhangs or ceilings. Another strategy for contributing to the aesthetics of a space is to consider reflecting light to reduce glare and allow light to reach areas that otherwise lack natural light. Painting interior walls and ceilings can enhance reflected light, and light shelves can provide shade for south-facing windows.

The Functionality and Sustainability of Artificial Lighting

Along with aesthetics, other key components of architectural lighting include functionality and sustainability. We want lighting to be presented as advertised and its appeal to be obvious and true. But we also must be confident that lighting serves its most immediate purpose: to help us see clearly. Spaces should be illuminated so occupants feel safe as they navigate a room or entire building, and this illumination should include the floors and walls, as well. Additionally, lighting should be long-lasting and save energy.

One such strategy for enhancing both lighting functionality and sustainability is the use of a Light Emitting Diode (LED), which is among the most efficient lighting technologies. LEDs use 25% of the electricity of incandescent bulbs and last up to twenty-five times longer, proving to be ideal for enduring sustainability. They also emit almost no energy as heat, whereas incandescent bulbs release 90% of their energy as heat, and compact fluorescent lights (CFLs) release nearly as much. Ambient lighting with LEDs helps set the tone for any room and is most commonly found in overhead fixtures in addition to floor and table lamps, most of which also function as task lighting. And because LEDs are an energy-efficient lighting option, they are ideal for general lighting purposes that are used frequently in public restrooms, offices, study nooks, classrooms, laboratories, and many other on-campus spaces.

LEDs offer the added benefit of impressive versatility. For instance, LED strips can transform a dorm room, not to mention the display shelves of campus-based shopping centers or the walls of student activity centers. Color remotes can be used to satisfy the desired mood of users or to set the tone of a campus-based event—and because LEDs use fewer watts, they are better for the environment but remain brighter and longer lasting than other options. LEDs used for accent lighting are also a great way to amplify design elements inside a campus welcome center or in buildings that stage cultural events. Since they emit no UV light and minimal heat, LEDs are great for safely lighting artwork or adding picture lighting. Accent lighting also helps to produce added dimension in combination with ambient and task lighting. To draw attention to the item or feature being highlighted rather than the lighting itself, effective accent lighting can be angled or directed to create a spotlight. Common options include recessed lighting, track lighting, and wall-mounted light fixtures.

Another option for lighting, and one congruent with the ethos of green buildings and the sustainability movement, is called High Intensity Discharge (HID). HID lamps, for example, are the most efficient lighting available and can save up to 75%-90% of lighting energy when replacing incandescent bulbs. HID lamps take up to ten minutes to produce light when first turned on, and for that reason—and due to the intense light they produce—HIDs are best suited to outdoor lighting and large indoor areas where lights remain on for at least an hour.

Lighting and Green Construction

The concept of a green building is constantly evolving, but it can be generally defined as one that has minimal impact on the environment. Also known as green construction, sustainable building refers to both a structure and the use of environmentally responsible and resource-efficient processes throughout the life cycle of the building: from siting to design, construction, operation, maintenance, renovation, and even demolition. Lighting remains a vital component of sustainable design, and lighting technologies have understandably shaped how we think about ergonomics, human health and comfort, and energy consumption. As prospective and current students explore and enjoy our campuses, let us offer them lighting technologies that are sustainable, beautiful, and beneficial to their emotional well-being.



ABOUT THE AUTHOR: Dr. David Vinson has a PhD in English with specializations in transatlantic literature and cultural studies. He is a committed scholar, teacher, and dad. If you ever meet David, avoid the subject of soccer. His fandom borders on the truly obnoxious.



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