Light is a dynamic element of any space. When correct lighting elements are used effectively, the productivity and well-being of inhabitants in a space increase. Efficient and effective lighting, or the lack thereof, can have a great impact on the inhabitants of a space, especially as various tasks are performed throughout the day.

This research project focused on how the combination of various elements impact the form and function of a lighting fixture. There are numerous decisions to consider during the design, construction, and implementation of a lighting fixture. In order to more fully understand the influence of these decisions, research was conducted in the following areas:

1. The construction process of lighting fixtures: What considerations need to be made during the design and construction of a light fixture? How do all of the elements work together?
2. What is most important to the end result of a light fixture?
3. Various forms of lighting and types of fixtures: What quality of lighting is best for specific activities? How do lighting choices affect those in a space?

As a conclusion to this research process, the light fixture, Kinetix, was created. Kinetix implemented the research elements listed above through the design phase and into the eventual construction of a model. Kinetix embodied the main principles for effective lighting in order to create a light fixture that was both functional and aesthetically pleasing.

FINDINGS

Finding 1: The construction process of lighting fixtures.

There are many considerations that go into the design, and eventual implementation, of a lighting fixture. Those who design light fixtures must have a thorough understanding of how the physical properties of light work, as well as how those properties will come together with the mechanical aspects of the design. The most important factor to consider during the design process is what the light fixture will be used for. If the purpose of the light is not understood at the beginning of the design phase, it is highly unlikely that a successful lighting fixture will be created.

Finding 2: How to maximize efficiency in a light fixture.

There are countless materials that can be used to construct a lighting fixture. In “Illuminate: Contemporary Craft Lighting,” author Hannah Nunn explores a wide variety of these materials and shares some of the strengths and characteristics of each. Some of the more common materials include wood, metal, ceramics, and glass. But there are numerous others that can be used. Some non-conventional materials that have been utilized in lighting fixtures include cardboard, shoji paper, recycled materials, textiles, ribbon, and even velcro.

The materials chosen for the lighting fixture should reflect the desired outcome for the light. Some of the characteristics to keep in mind are the texture (smooth, rough, patterned), the finish (matte vs. glossy), the color (multi-shaded, single color, or even metallic), and the medium (transparent, opaque, pliable, durable, airy, etc.). All of these characteristics will influence the final look of the light fixture, and it is important to consider the various aspects of each material before including it in the design.

Finding 3: Various forms of lighting and types of fixtures.

There are two main types of lighting—direct and indirect. Direct is the natural light from the sun or the stars, while indirect light is reflected light from clouds as well as man-made lighting structures. A combination of direct and indirect lighting is often used for quality lighting in a space. There are many different types of lighting available, some of which include incandescent, halogen, fluorescent (or compact fluorescent), and LED’s.

Choosing the best type of lighting fixture will depend on the purpose of the space and what activities or functions will be performed there. In general, there are three categories that lighting fixtures will fall under—general lighting, task lighting, and accent lighting. For general lighting fixtures that provide a lot of overall illumination are best—those that have the capacity to spread light over a wide area. Task lighting is generally more focused—for example, a desk lamp is used for reading but would not serve its purpose well if used to illuminate an entire room. Accent lighting is often used to highlight specific features or important aspects of a space.

All of the researched information was helpful during the design process. It was decided that the primary purpose of the Kinetix fixture would be for general lighting, but it would be able to adapt for task lighting as well. The materials chosen would give it a streamlined, contemporary look.

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