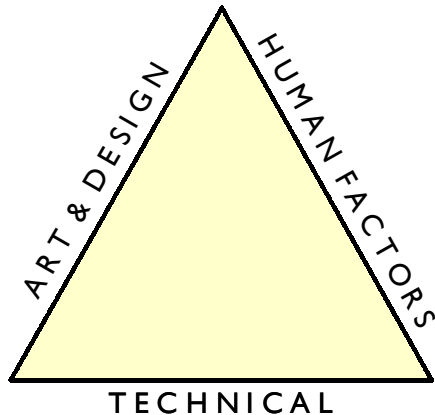


THE LIGHTING DESIGN TRIANGLE

The Lighting Design Triangle was developed as a design model to graphically express the three areas of inquiry that comprise a complete lighting design.



BACKGROUND

A prevailing theory of the structure and working of the brain suggests that different sides control different “modes” of thinking; and that we all have a preference for one or the other of these modes. Experimentation has demonstrated that the two hemispheres of the brain are divided as shown below:

LEFT BRAIN

Logical
Sequential
Rational
Analyzes
Objective
Parts

RIGHT BRAIN

Random
Intuitive
Holistic
Synthesizes
Subjective
Wholes

Most people have a habitual preference for one of these styles of thinking. Left brain people excel at logical thinking, analysis and accuracy. Right-brained people are more adept at aesthetics, feeling, and creativity. A few people are more ‘whole brained’ and are equally adept at both modes.

Lighting design is a discipline where the creative, right brain functions and the logical, left brain functions are equally important. This “whole brain” thinking comes naturally for some, and can be learned by others.

Lighting design teams must be assembled to provide an appropriate balance between creative and technical abilities. Each project requires a different balance of abilities within the team to respond to the project's needs. A lighting design team tailored to the project leads to creative, appropriate, and architecturally integrated solutions that are technically sound and constructible.

THE LIGHTING DESIGN TRIANGLE: HOW IT WORKS

The lighting design triangle is a design model that incorporates the three areas of lighting design inquiry: Technical, Art and Design, and Human Factors. Each area has an influence in every design. Any lighting design effort that does not incorporate all of the areas is incomplete.

The Technical leg of the triangle is the “engineering” aspect of lighting. It is defined by having numerical criteria, which usually exist as a published standard. The lighting is designed to that criteria, and confirmed by calculations.

The Art and Design leg deals with the contextual aspects of the lighting design. Lighting design does not exist in a vacuum. Lighting as a design element, springs from and reinforces the subject to which it is applied. That subject may be architecture, art, natural elements - anything with form and substance. In architectural lighting systems, graphic content, architectural reinforcement and the establishment of visual hierarchy are all vital elements. These and other aspects are considered in the area of Art and Design.

The Human Factors leg of the triangle incorporates the human being into the lighting design. With areas of physiology, psychology and perception as a part of the total design effort, the designer takes into account how the human being will react to the design. Human Factors consider how the eye and brain work to produce sight and perception, how the space feels and how the occupants will react to it.

Each of the legs of the triangle provides multiple feedback loops back into the other areas. All of these areas are interrelated, as represented by the triangle as a whole. Each project requires a different balance of each of the factors.

THE USE OF THE TRIANGLE

In some cases, a right brain, intuitive, creative approach is most appropriate while for others a more technically dominated process is required to satisfy the project goals. The Lighting Design Triangle model lets the project planner graphically portray these relationships

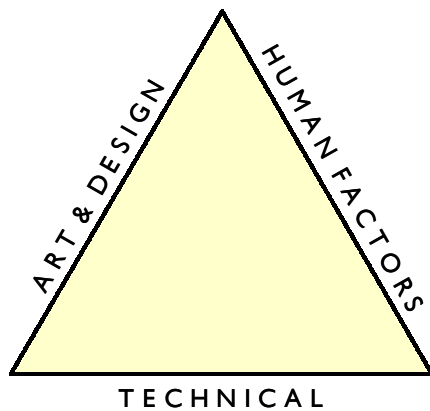
In most projects, one or more of the areas of inquiry have more importance than the others. The greater the importance of an area, the longer that leg of the triangle becomes. Conversely, if an area is less important, that leg becomes shorter. In all cases, each area of inquiry, represented by a leg of the triangle, is present.

As a project becomes more weighted toward one area of inquiry, weighting one factor over the others, the area of the triangle becomes smaller. If weighted towards one factor in the extreme, that leg of the triangle becomes so long in relationship to the other two that the triangle cannot be closed. When a corner of the Triangle is left open, the project requirements should be carefully evaluated to assure that all program requirements are being met.

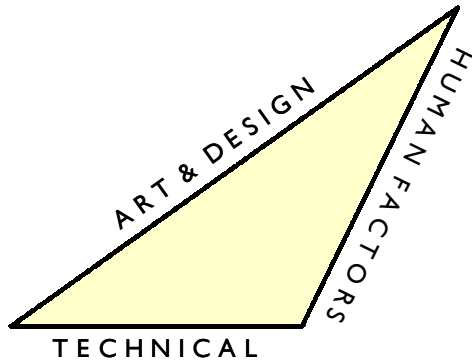


EXAMPLES

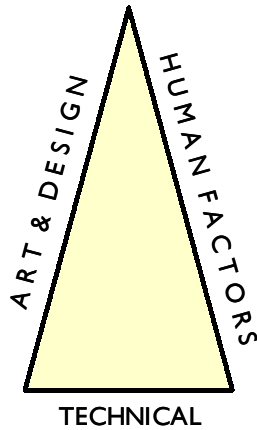
A working office space needs a balanced approach to lighting design, with equal consideration to all three areas of inquiry. This design effort is represented by a balanced Triangle:



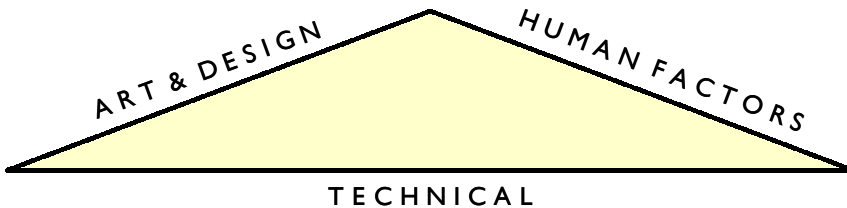
An art installation may emphasize the area of Art and Design, with attention to the Human Factors area. The technical area would be explored to assure that safety and code issues are being addressed. This design effort is represented by a very short Technical leg, a long Art and Design leg and a Medium Human Factors leg. The Triangle would look like this:



A corporate headquarters lobby may stress the Art & Design and the Human Factors legs nearly equally, with a shorter Technical leg to deal with the practical issues of egress and elevator code requirements for illumination.



A parking garage will have a high degree of Technical input, with consideration of both the Art and Design and the Human Factors areas. This triangle consists of a longer Technical leg with two, equal, shorter legs for the other areas.



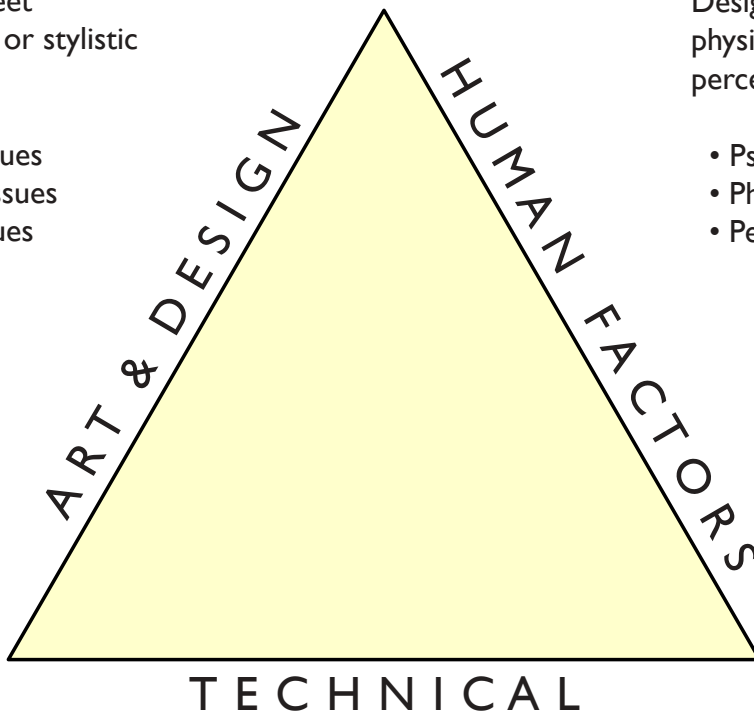
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THE LIGHTING DESIGN TRIANGLE

The Lighting Design Triangle is a design model for use in developing the importance of each area of lighting design inquiry. By giving consideration to each of the areas of the lighting design process: Technical, Art and Design, and Human Factors, the Lighting Design Triangle is an effective tool for planning the design process. It assists in defining the focus needed in each area. It also assists in developing a picture of the ideal team for each project or area of a project.

Design to meet architectural or stylistic criteria

- Design Issues
- Graphic Issues
- Visual Issues



Design for psychological, physiological and perceptual issues

- Psychology
- Physiology
- Perception

Design to meet numerical criteria

- Illumination Engineering
- Calculations
- Code Compliance

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