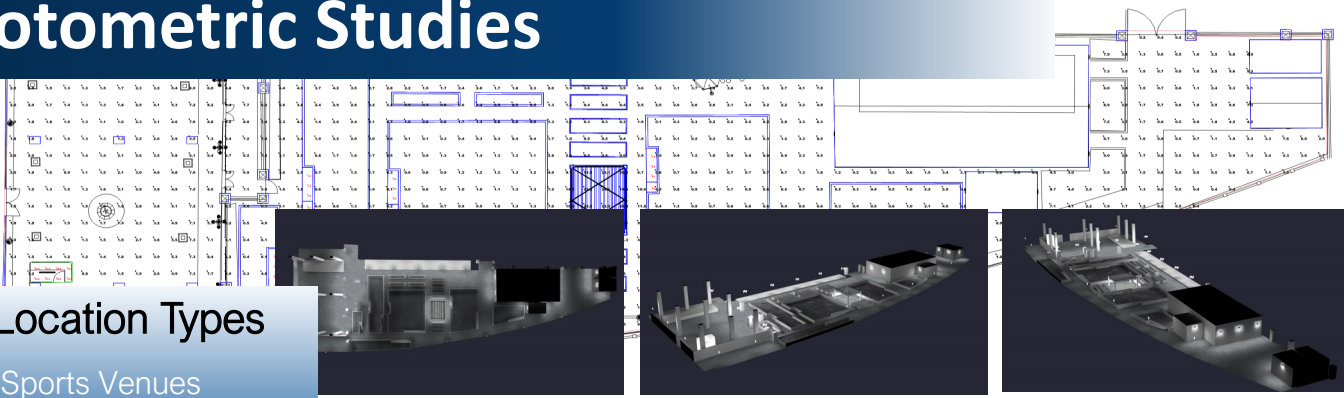


Photometric Studies

All Location Types

- Sports Venues
- Parking Facilities
- College Campuses
- Site Development
- Building Interiors



HISTORICAL PERSPECTIVE

The Illuminating Engineering Society was established in 1906 with the mission to improve the lighted environment by translating the collective knowledge into actions to benefit the public.

Awareness of "light pollution" began in the latter half of the 19th century. After images from early aviation night flying and subsequent space exploration it became apparent that illuminating the night effectively needed help. Efforts to address the issue didn't begin in earnest until the mid 20th century.

With the advent of computers and the accuracy in modeling they provide, uniformly distributing light efficiently has been made possible.

Besides the obvious reasons of safety and security, optimizing lighting designs can greatly affect the overall operating costs of a facility. As we move away from a fossil fuel powered grid, it will become increasingly important to optimize any lighting design.

PHOTOMETRY The electromagnetic spectrum is the range of all types of electromagnetic radiation. Separated by their frequencies, or wavelengths, the spectrum runs from radio waves (low frequency) to gamma rays (high frequency). Certain materials are good at absorbing certain wavelengths and other materials are good at reflecting certain wavelengths. Visible light is the part of the electromagnetic spectrum that the human eye can detect, and ranges in wavelength from 400 to 700 nanometers. Photometric Analysis, often shortened to photometry, is the science of the measurement of light, in terms of its perceived quantity to the human eye.

PHOTOMETRIC STUDIES Photometric Analysis studies both interior and exterior, taking the data provided by luminaire manufacturers along with the number, location, mounting height and aiming of those luminaires, and builds a model of the lighting system. As everything the emitted light encounters will absorb and/or reflect that light, it is important to include that in the model. A black asphalt parking lot will absorb more light than a concrete surface, the type and finish of interior or exterior walls can impact lighting. Then there are objects that can shadow areas being illuminated. A photometric study's accuracy is dependent on the level or degree to which all surfaces and objects are represented and documented in the model. Additionally, daylight studies can be executed over a variety of meaningful dates such as daylight savings time transitions, and under varying sky conditions and combinations of electric lighting.

STUDY RESULTS Computer modeling allows the engineer to document how many foot-candles (or lux) of light exist in any given place in the model at any given time throughout the duration the lighting is planned to be energized. This can include at night under varying moonlight and lighting conditions, or during daylight under varying sky and lighting conditions. Temperature changes that may impact absorption or reflection of the emitted light, can also be represented in the results.

REPORTS /PLANS A report or plan as a result of a photometric study will provide computer imaging of the range of foot candles of light across locations and at various elevations. Suggestions to relocate lighting or add lighting to improve uniformity of the foot candles across the area are also included. The design requirement for uniformity, intensity, and max-to-min ratios of the lighting system can impact the level of detail and accuracy required in a study, which also impacts cost and overall time to complete.



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Call to discuss your photometric study needs and we can provide a fixed price written proposal.

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