

# Foot-candle

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A **foot-candle** (sometimes **foot candle**; abbreviated *fc*, *lm/ft<sup>2</sup>*, or sometimes *ft-c*) is a non-SI unit of illuminance or light intensity. The name "foot-candle" conveys "the illuminance cast on a surface by a one-candela source one foot away". This unit is commonly used in lighting layouts in parts of the world where SAE units are used.

The unit foot-candle is defined as the amount of illumination the inside surface of a one-foot-radius sphere would be receiving if there were a uniform point source of one candela in the exact center of the sphere. Alternatively, it can be defined as the illuminance on a one-square foot surface of which there is a uniformly distributed flux of one lumen.

Thus one foot-candle is equal to one lumen per square foot or approximately 10.764 lux.<sup>[note 1]</sup> In practical applications, as when measuring room illumination, it is very difficult to measure illuminance more accurately than ±10%, and for many purposes it is quite sufficient to think of one foot-candle as about ten lux as is typically done in the lighting industry.

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## Use

In the lighting industry, foot-candles are a common unit of measurement used to calculate adequate lighting levels of workspaces in buildings or outdoor spaces. Foot-candles are also commonly used in the museum and gallery fields, where lighting levels must be carefully controlled to conserve light-sensitive objects such as prints, photographs, and paintings, the colors of which fade when exposed to bright light for a lengthy period.

In the motion picture cinematography field, incident light meters are used to measure the number of foot-candles present, which are used to calculate the intensity of motion picture lights, allowing cinematographers to set up proper lighting-contrast ratios when filming.

Since light intensity is the primary factor in the photosynthesis of plants, horticulturalists often measure and discuss optimum intensity for various plants in foot-candles. Full, unobstructed sunlight has an intensity of approximately 10,000 fc. An overcast day will produce an intensity of around 100 fc. The intensity of light near a window can range from 100 to 5,000 fc, depending on the orientation of the window, time of year and latitude.

## Notes

- One lumen per square foot is equal to 0.3048<sup>−2</sup> lumens per square meter. Since illuminance follows the inverse-square law a source that is farther away casts less illumination than one that is close, so one lux is less illuminance than one foot-candle.

## See also

- Photometry (optics) for more on the measurement of light.

## External links

- Example chart of foot-candles and corresponding activities (<https://docs.google.com/viewer? a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxhc3NpZ25tZW50MWJlYWxkaW5ncHJvZ3JhbXxneDo3NTRIMGMxYzk5MjJlZW50>)

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Categories: Imperial units | Units of illuminance | Photometry | Customary units of measurement in the United States



General Electric Light Meter used in photography to measure light values in foot candles.

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