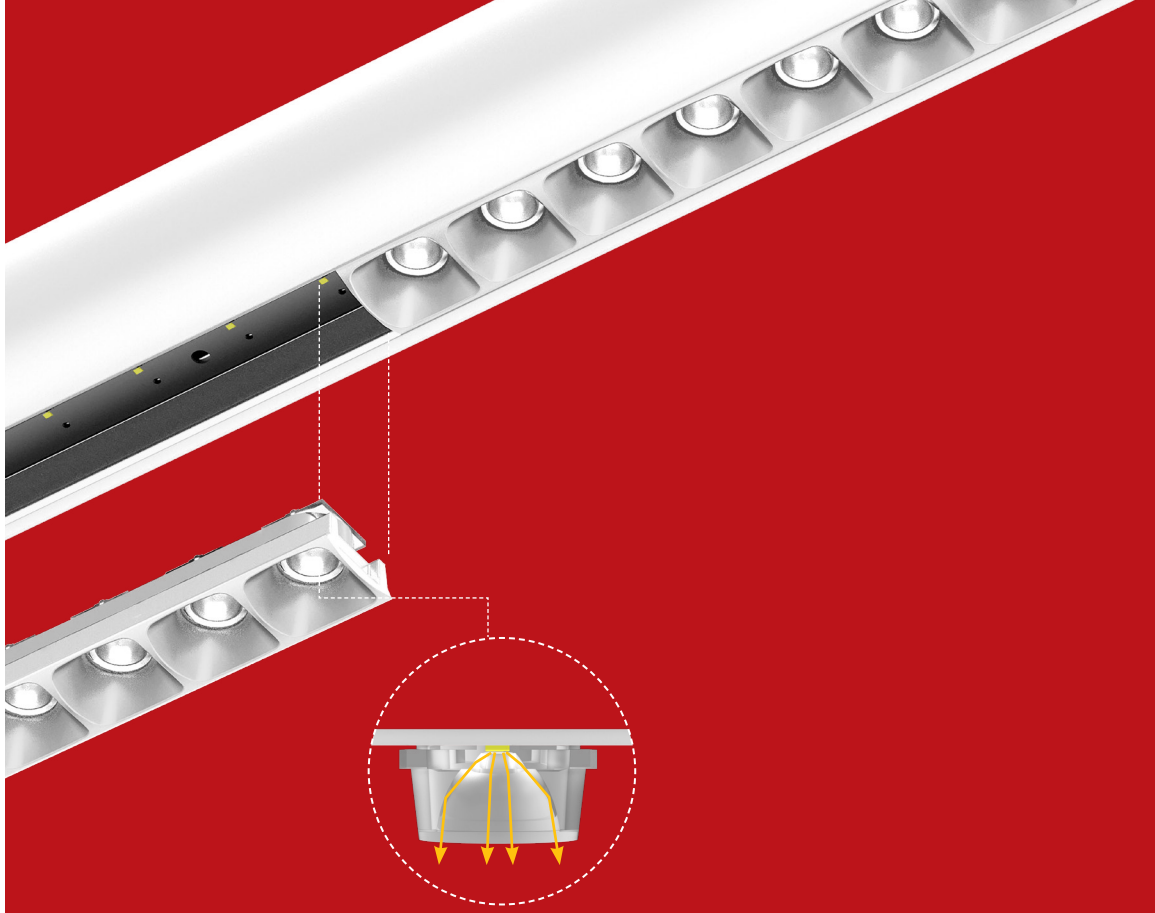
OpticWerx

The compact size of LED sources generates high luminous density and presents serious issues for glare control and brightness uniformity. LumenWerx takes up the challenge with the fresh ideas and considerable technical expertise of our design and engineering team. The following examples illustrate our approach. Each has been developed on a proprietary basis, using internal and external resources, each finding its optimal application in different luminaires.

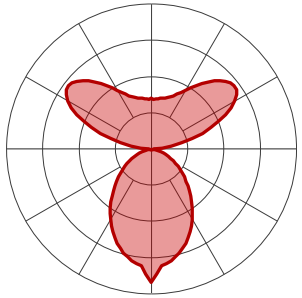


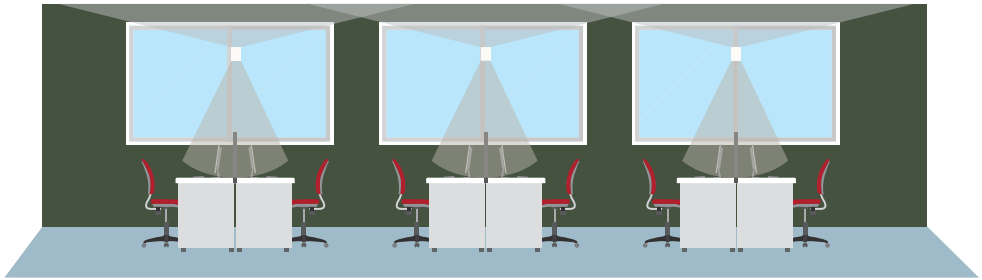
Miniature Reflector Optic - MRO

The LumenWerx Miniature Reflector Optic (MRO) locates an individual, precisely molded TIR elements over each LED emitter, and further shield the source with precise parabolic reflectors. The result, developed specifically for the new Revo pendant, is a comfortable, fresh looking luminaire with intriguing visual texture.

Widespread Indirect Optics - WIO

To achieve widespread indirect light distribution from an attractively narrow luminaire presents a serious optical challenge. The LumenWerx Widespread Indirect Optic (WIO) uses two vertically oriented LED arrays that couple light into the edges of a linear light guide. A specially designed TIR/microstructure extracts light into the desired “batwing” distribution. Peak intensity hits at 120° while suppressing direct uplight. Peak-to-zenith intensity ratio is 2:1, outstanding for a narrow luminaire. The Widespread Indirect Optic produces noticeably smoother ceiling brightness than a typical lambertian uplight distribution, permitting generally wider spacing as well.

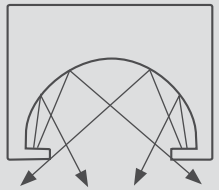




Reduced Luminance Optics - RLO

The LumenWerx Reduced Luminance Optic consists of indirectly mounted LED's illuminating a vaulted reflector with a matte white finish of high reflectivity. Taking advantage of the small light source, the LED arrays are completely concealed from view.

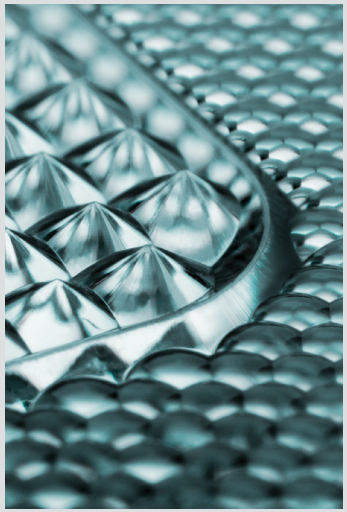
Since light is spread over a reflecting surface larger than the aperture, both visual comfort and source uniformity are better than from a directly illuminated diffuser sized to the aperture.



Equally important, the open aperture creates a luminaire with a distinctive and slightly mysterious appearance.

Precision Micro Prism Optics - PMO

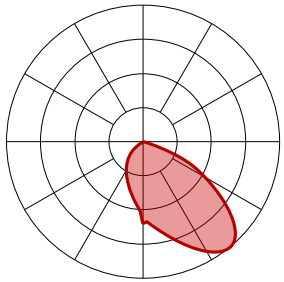
Micro Prism Optics apply catadioptric principles, which combine refraction and internal reflection, on a scale appropriate to the size of the LED source. This offers a much better optical control than lenses designed around much larger conventional sources. High purity acrylic with 94% transmission is formed into square-based prisms, just 0.04" on each side. For direct light distributions, in both recessed and pendant luminaires, this results in a highly efficient lens that also assures outstanding visual comfort.



Lighting for Vertical Surfaces

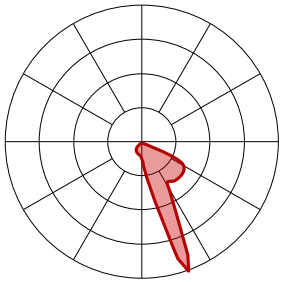
Creating bright and pleasant working spaces has never been more important than it is today. Paradoxically, ever-tighter energy codes make the lighting of vertical surfaces both more critical and more difficult. Thus, we see a clear need for a kit of energy efficient, attractive, and flexible tools for lighting walls. The LumenWerx Via family can show the way with four distinctive linear systems for wall washing, perimeter lighting, and wall grazing.

Via Asymmetric



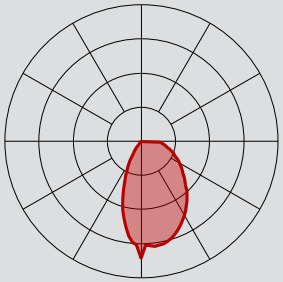
Via Asymmetric is designed to fine tune illumination across horizontal or vertical surfaces. The Asymmetric Reflector Optic (ARO) provides a split light distribution: a modified lambertian downlight with peak intensity at nadir on one side and a batwing with peak intensity at 40° on the other. A "visor" shields the luminaire hardware from lateral viewing angles. An indirect version is also available.

Via Wall Wash

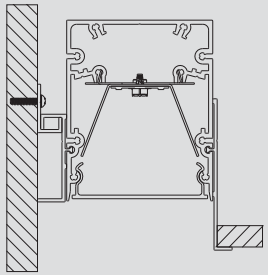


The LumenWerx Wallwash Refractive Optic (WRO) delivers smooth vertical illumination with a gentle gradient and soft visual cut off. With peak intensity at 22° above nadir, the precise WRO lens creates a strong downward component without shadows or hot spots. No external shielding is required. Microstructure material applied to the snap-in lens provides the precise refractive power and visual comfort, while achieving high luminous efficacy of 110 lumens per watt.

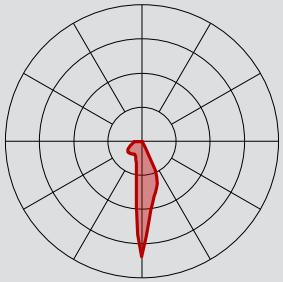
Via Perimeter



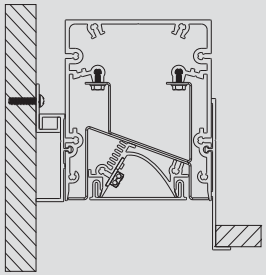
Via Perimeter creates a compact and continuously illuminated "slot" at the wall/ceiling intersection. Lighted corners with an adjustable end and mid sleeves are available. Via Perimeter installs in grid or drywall ceilings in a choice of three arrangements: level, shallow 1", and deep 3".



Via Skim



Via Skim is designed to illuminate textured or polished vertical surfaces with grazing light at the wall/intersection. Via Skim is not recommended to illuminate drywall surface applications. Via Skim provides continuous illumination across the wall surface, including fully luminous corners. However module lengths do not telescope. The intense grazing light distribution is achieved with our Grazing Reflector Optic (GRO) oriented to project light with maximum luminous intensity at 5 degrees from nadir.

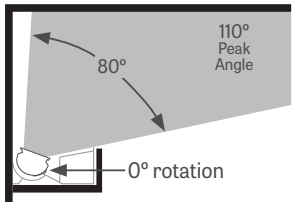


Lighting for Luminous Planes

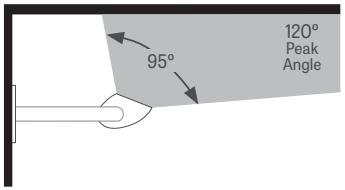
Lighting a ceiling from the edge of a room provides soft, pleasant brightness without the intrusion of pendant luminaires. Whether from a cove or a visible luminaire, this type of asymmetric illumination is particularly important in conference rooms, lobbies, circulation spaces, and other areas where a relaxing atmosphere is intended. LumenWerx offers three approaches using our high-performance Asymmetric Projecting Optic (APO).

ALCove – just 1 13⁄16" high by 3 7⁄8" deep – installs in site-built coves and other architectural enclosures, either as individual luminaires or in continuous runs with quick-connect wiring. Driver and LED boards are accessible without removing the luminaire. With our Asymmetric Projecting Optic, 350 to 1200 lumens per foot, and efficacy up to 122 LPW, ALCove can provide generous ceiling lighting across a wide ceiling expanse.

ALCove Ramp is a self-contained luminaire that includes its own enclosure, eliminating the need for a site-built cove. The sloping fascia with its knife-edge detail is designed for site finishing. ALCove Ramp can be installed as individual luminaires, in continuous runs, or patterns with inside and outside corners. Performance, adjustment, and serviceability match that of ALCove.

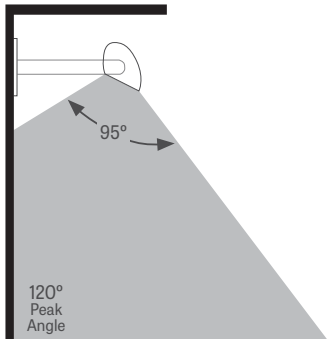


ALCove



Axle indirect

Axle provides asymmetric illumination from a compact and subtly curved luminaire. Axle can be pendant mounted from the ceiling or arm-mounted to the wall as individual luminaires or in continuous runs. The housing can be field rotated in 20° increments for precise aiming. With peak-to-zenith intensity of 5.2:1, light output up to 1200 lumens per foot, and efficacy up to 126 LPW, Axle delivers very effective illumination to graphics and artwork, as well as ceilings and walls.

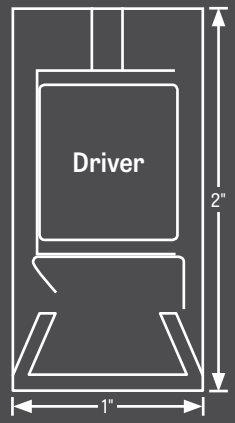


Axle direct

INTEGRATED™ MIKRODRIVE

Sometimes the most important aspect of luminaire appearance is itself invisible. LumenWerx new **Mikrodrive™** is a defining example. **Mikrodrive™** is the ultra-slim, fully integrated electronic package that permits the design of practical, small scale luminaires such as Mikro and Revo, without the need for the remote drivers typical of very small cross-section products.

A co-development project, LumenWerx set the specifications, found the right source, and vetted the result. With its 0.72" x 0.83" profile, **Mikrodrive™** is about half the size of the typical LED driver. **Mikrodrive™** features factory-adjustable drive current, universal (120-277V) and 347V input, and "dim to off" with 0-10V control. Thorough engineering and high quality components provide long life with over 100,000 hours Mean Time Between Failures (MTBF), high efficiency and high power quality.



Mikrodrive™ in a Mikro - actual size