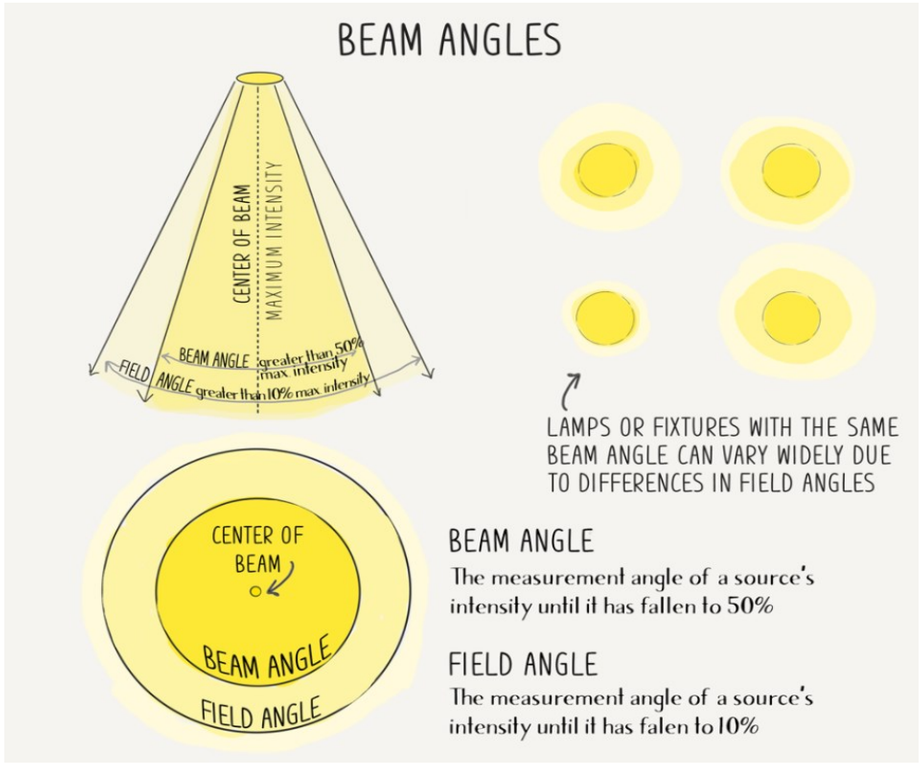
Downlighting – Understanding Beam Angles

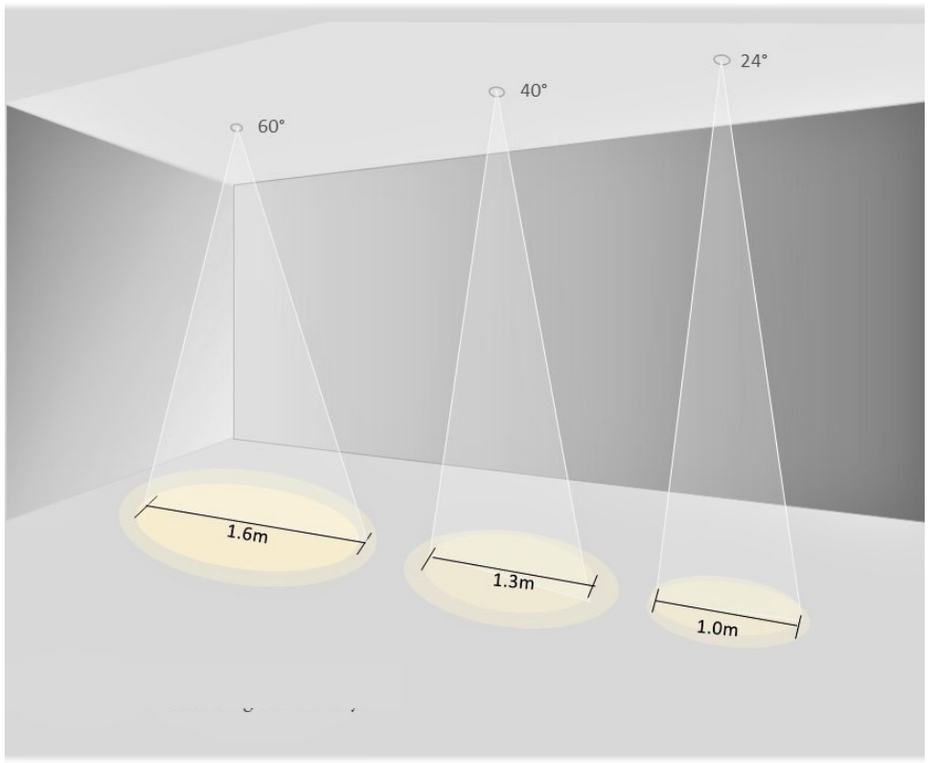


Understanding beam angles

With modern LED lighting, often the beam angles of the lamps are generated from the LED chip assembly (referred to as the LED engine) rather than the light fitting body.

For soft overall illumination use a wide beam LED lamp engine (>50 deg) that generates a wide field angle to create a soft edge to light beams.

For accent illumination use a narrow beam LED lamp engine (<30 deg) that generates a smaller added field angle to give a sharp, accent pool of light to highlight objects.

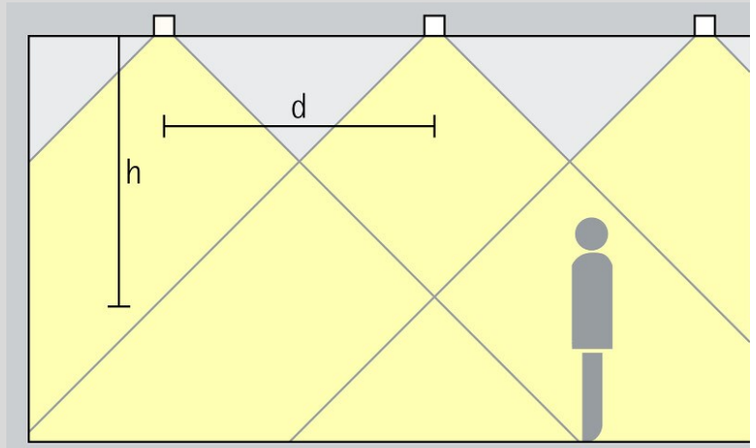


Common beam angles of LED engines

Wide beam LED lamp engines (>50 deg) yield a more even effect with lower overall light levels. Generally the spread of the beam angle is equal to the light throw distance.

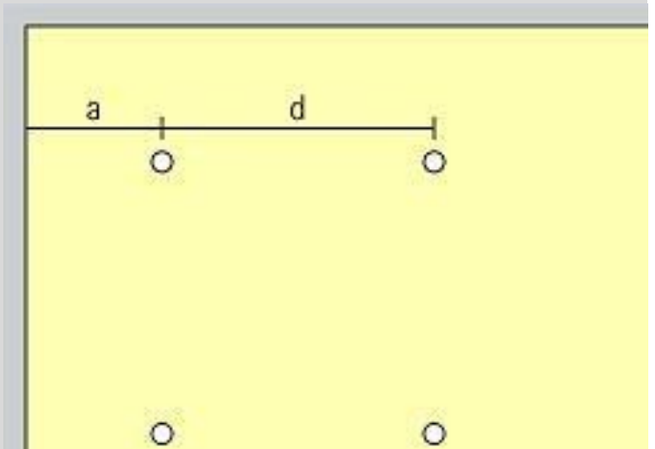
Narrow beam LED lamp engines (<30 deg) focus light in a small area. Therefore, the **light** intensity is brighter, and the surrounding **areas** are darker by contrast. Generally the spread of the beam angle is less than ½ of the light throw distance.

Downlighting – Spacing and Beam Angles



Ceiling Lights Spacings

To quickly calculate the spacing of downlights to give an even light effect use a height (h) to spacing (d) ration of no more than 1:1 using wide beam LED lamp engines (>50 deg).



Offset of Lights

Typically the distance lights are placed from walls should be determined by the use of the wall. An offset distance similar to the spacing distance lights will avoid distracting scallops of light the wall. An offset distance 4-600mm with a diffuse light source (>50 deg) will throw light on the wall and highlight any display (wash). A closer distance than 300mm will accent the texture and materiality of the wall surface (graze).