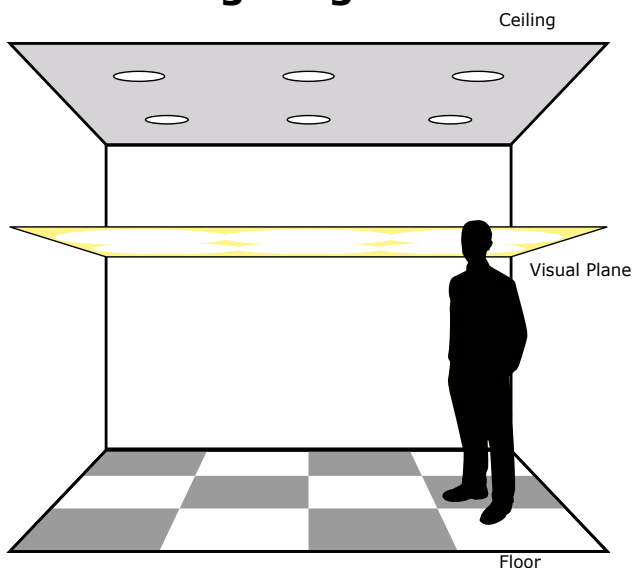


General Lighting



USING DOWNLIGHTS AS THE MAIN SOURCE OF ILLUMINATION

General Lighting is the use of one or a group of fixtures to provide a modest amount of illumination over a large area. Recessed downlights are currently the most desirable source of General Lighting in residential spaces for their architectural appeal and even light distribution. While one downlight may be all that is needed in a shower stall, in pathways and other public areas, multiple downlights may be required to evenly light the floors without shadows.

Room Type

Different rooms require different levels of illumination.

Rooms and Recommended Light Levels:

Living Room – up to 35 Footcandles

Kitchen – up to 50 Footcandles

Bedroom – up to 25 Footcandles

Office – up to 50 Footcandles

A Footcandle is the standard measurement of light on one square foot in the space. As shown above, twice the amount of light is typically needed in a kitchen as is needed in a bedroom.

Room dimensions

Although there are a great number of factors impacting the placement of downlights, determining the length, width and height of the space to be illuminated helps in selecting the quantity and wattage of the downlights to use. To obtain uniform lighting in a room using flood lamps, a rough rule of thumb to use is:

Each downlight may cover an area up to 4 times its mounting height.

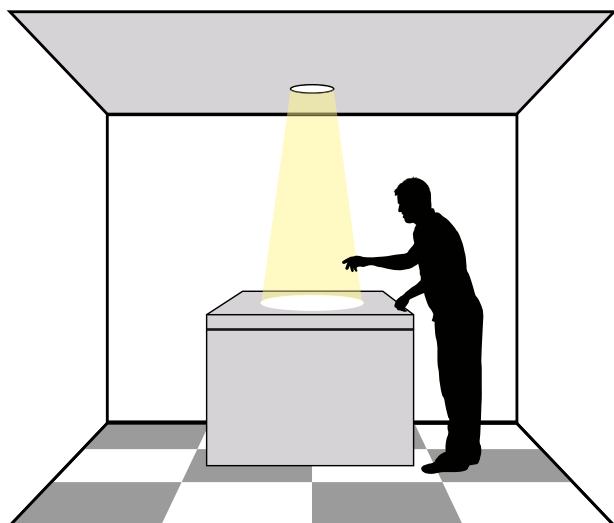
Example: 10' ceiling, a single downlight should cover 40sq. feet of space on the floor (i.e. 5' x 8')

Drawing out the dimensions of a room on a piece of paper will allow you to sketch out a lighting plan consisting of symmetrical rows and columns of downlights that will provide the proper uniformity.

Downlight Selection

General area illumination is accomplished using open reflector or baffle trims. Energy savings can be found using CFL downlights, while a more traditional recessed lighting plan uses low voltage or line voltage units. As a general rule, you can start your selection with a downlight style commonly used for that room type and then make a change to another style if a compatible wattage and performance is available from an alternate selection.

Task Lighting



USING DOWNLIGHTS FOR ILLUMINATING ACTIVE AREAS

Task lighting is an energy-efficient way to place extra light where you need it most. By improving the light on the surfaces you work, read, or eat on, you can maximize safety and comfort without increasing the total amount of fixtures needed to light the space.

Choose Downlight

Task areas should have two times the amount of light as the general use areas. This is most often accomplished with downlights using reflector lamps, like MR (multifaceted reflector), P (Parabolic), or R (Reflector) lamps. High-wattage CFL lamps can also provide the sufficient amount of light if properly directed with a reflector trim.

Downlight Placement

The actual spacing of downlights will depend on the type of fixture and lamp used, however a quick rule of thumb calculation to estimate is:

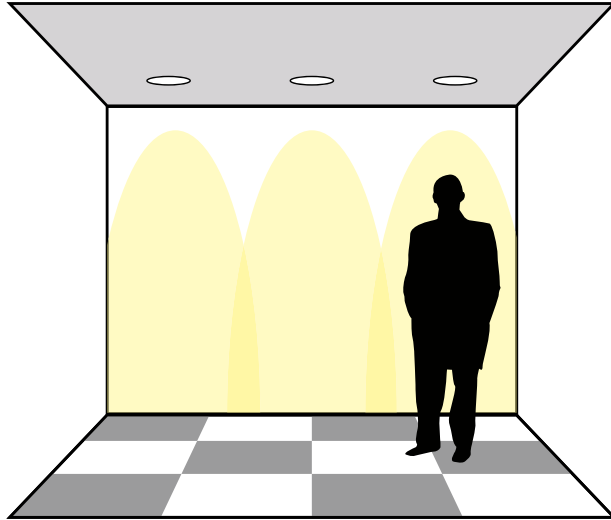
Using a lamp with a 30° beam spread, each downlight should not cover a maximum area exceeding 3x its mounting height over the work area.

Example: 10' ceiling with a 3' table, the maximum surface area a single downlight should cover is 21 sq. feet (i.e. a 3'x7" kitchen island)

Design Factors

Visually intensive tasks require both quantity and quality illumination. Therefore, downlights should be oriented directly over the work area in front of the person. Downlights placed above or behind the person casts undesirable shadows on the person and over the work area.

Wall Wash



USING DOWNLIGHTS FOR ILLUMINATING A VERTICAL PLANE

Wall washing is a technique used to light vertical surfaces evenly. When done properly, it can make a room appear larger and more inviting. Wall washing is also helpful to reduce the appearance of textured surfaces by diminishing shadows from the ridges.

Determine setback from wall

Always measuring to the center of the downlight, use 18"-36" from the wall as a general rule for placing wall wash downlights. Fixed trims should be placed closer to the wall while adjustable trims may be placed farther away.

Spacing between each downlight

Wall wash downlights should be spaced apart the same distance as the setback from the wall.

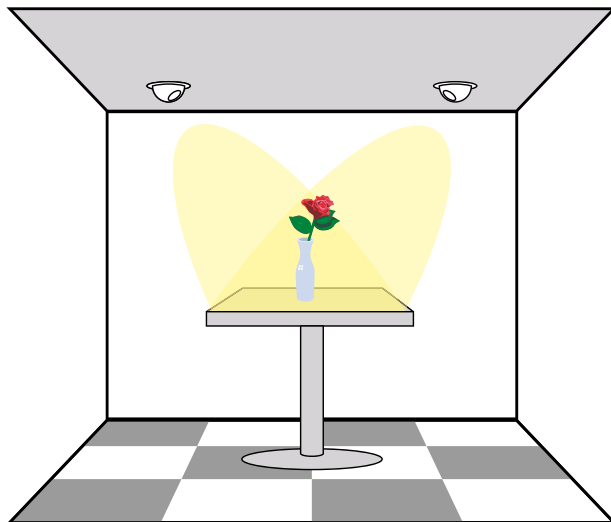
Properly Designed Light Level

In order to stand out, the wall should have at least 50% more light than the ambient lighting in the room. Use double the watts per square foot to illuminate the wall that you are using to illuminate the general space.

Downlight Selection

The wall wash units should be the same aperture size used in the rest of the room to maintain a clean appearance on the ceiling. Wall wash trims provide maximum uniformity without glare and scalloping. Eyeballs and other adjustable trims are also popular choices for their general versatility.

Accent Lighting



USING DOWNLIGHTS TO HIGHLIGHTING ROOM FEATURES

Accent lighting is a technique used to highlight certain features within a room, such as artwork, sculptures, and floral arrangements. Accent downlight trims direct light to create drama and increase the perceived value of the design.

Choosing Downlight

Accent lighting is most often used for highlighting pictures, trophies, displays, and artwork. Using a single downlight directly above a small statue can often provide an intense dose of light and dramatic contrasting shadows. When illuminating a larger object or when even illumination without shadows is desired, then two or three offset downlights works best.

Determining Quantity and Locations

Accent lighting is most often used for highlighting pictures, trophies, displays, and artwork. Using a single downlight above a small statue or picture can often provide an intense "punch" of light and dramatic shadows. When illuminating a larger object or when even illumination without shadows is desired, then two or even three downlights offset around the object works best.

The optimum angle to light an object is 30°. The mounting distance from the object or picture can be calculated as follows:

1. Measure the distance from the ceiling to the center of the object to be illuminated.
2. Divide this distance in half and multiply by 1.1 to determine the horizontal distance from the object to install the fixture.

Example: The center of a picture is 36 inches from ceiling. One half of 36 equals 18 inches multiplied by 1.1 is approximately 20 inches. Thus, to properly light this picture the downlight should be installed 20 inches from the picture wall.

Note: This does not apply to slope ceiling applications.

