

LED Lighting Retrofits Start with a Plan



RCP enables the placement, spacing and number of a given luminaire in a space to optimally meet code and desired luminance without over/under lighting.

What is a RCP and Why is it Needed?

What is a Reflected Ceiling Plan (RCP)?

A Reflected Ceiling Plan (RCP) is a computer-generated plan, which depicts the type and location of luminaires in a given area of a building layout. It is called a RCP because it is a mirror image (reflected) view of the floor plan. You are looking up at the ceiling and will see the lights and various ceiling elements in the view. The RCP will also include other objects that are located in or on the ceiling such as:

- Sprinklers
- Smoke detectors and alarm devices
- Occupancy sensors
- Ambient light sensors
- Speakers
- Emergency lighting and exit signs
- Security cameras
- Mechanical air diffusers and grills
- Skylights

Additional information contained in the RCP that affects luminance includes:

- The construction of the ceiling (gypsum board, acoustical tile, etc.)
- A specification and/or finish (paint, stucco, brick, etc.) of the ceiling material
- The height of the ceiling above the finished floor
- Space dimensions
- Seismic information
- Structural information such as an expansion joint
- An explanation of any ceiling features such as bulkheads, soffits, raised or vaulted areas, trim or decorative applications



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What is the RCP used for?

An RCP is used to:

- Assist in the positioning of a luminaire during installation,
- Define what type of luminaires are to be installed, and
- Define which luminaires are to be used for emergency lighting.
- Some RCPs even depict the lighting zones for controls and lighting branch circuit layout.

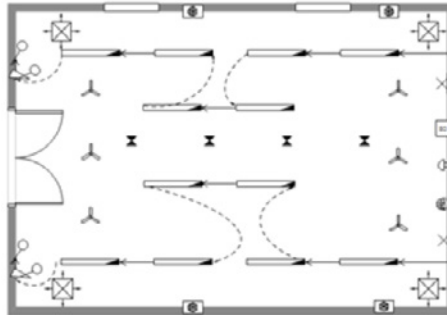
How is the RCP created?

Lighting designers create a RCP using specialized software. The RCP is based off of a luminaire's luminous intensity data. This data is in the form of a file, which is generated from a luminaire manufacturer and / or a LED lamp manufacturer. It is presented in a photometric file (.IES file). Based off of the lighting designer's light output calculations utilizing the .IES file, the amount of candlepower (cp) or candelas (cd) can be predicted for any given area on a floor plan. This information is utilized for code compliance during new construction and remodel to ensure safe light levels are established once the area of work is occupied upon completion.

Why is a RCP needed?

The RCP is the blueprint for a lighting installer, whether for a retrofit or new construction. It's a tool used to verify that the selected luminaires, the number to be installed and their placement will provide desired luminance

in the space, given the size and composition of the space. Without a RCP, a space may be under-lit and fails to meet code, or more commonly, over-lit, which wastes energy and increases the retrofit upfront cost in labor and materials.



Creating a Lighting Layout for a Retrofit Project

Universal can provide you with a lighting layout based on the products you are considering for your retrofit (whether lamps, kits or luminaires). Universal's specifications include information on delivered lumens from the luminaire, beam angle and recommended spacing, plus the .IES files that the RCP software needs to run the simulation and create a plan are available. The other characteristics of the space come from the facility.

If you have the right data fed into the RCP software, the resulting plan will determine your expected delivered lumens and luminance at

the work surface. From that adjustments can be made to the type, number, spacing and placement of luminaires.

RCPs and Controls

Controls are becoming commonplace, if not mandatory, in retrofits. They make sense to maximize the payback and return on investment. An up-to-date RCP can be critical to optimizing the placement of sensors and components of a controls solution deployment.

To request a retrofit lighting layout:

- Contact us at marketing@unvlt.com

For specific questions about planning your retrofit:

- Contact your Field Application Engineer
- Send your questions to Technical Engineering Services at tes@unvlt.com
- Contact your local Universal Lighting representative

