**Programming or Pre-Design Phase**

In this phase, the designer will engage the owner and users to determine the application needs, educate them about opportunities with lighting controls, and identify opportunities specific to the project.

Information will be collected, such as applicable energy codes, building standards, energy and visual needs, maintenance needs, integration with other building systems, equipment preferences, and more. The end result is the Owner Project Requirements, a construction document.

**Basis of Design**

In this concept phase, the designer will express the design intent, or basis of design to provide a common roadmap for the intended functionality of the lighting control system. The concept is expressed in a design document called the controls narrative, which describes the control solution including a sequence of operations, or description of system outputs in response to various inputs for each control point.

Other information may include equipment preferences, references to related documents such as control zoning, field testing criteria, initial calibration settings, and more. Many energy codes require this documentation be delivered to the owner.

**Control Zoning**

A control zone (i.e., channel) is comprised of one or more light sources that are uniformly and simultaneously controlled. Multiple circuits may be included in a single zone; a given load may take part in multiple zones.

Control zoning is a critical decision in the design development phase because it expresses the relationship between the functionality of the control system and the lighting loads. Influenced by energy codes and available technology, the general trend is toward smaller zones, which supports control flexibility and accuracy.

Otherwise, control zones are defined by application characteristics such as available daylight, tasks, lighting schedules, and lighting design layers (general, task, accent). Zones are expressed on a design document called a control zone plan, which identifies control points, their location, their function, and what zones they are a part of in text, table, or graphical format.

**Design Development**

In this phase, the designer will produce a finished design supported by documentation, which may include a load schedule, single-line riser diagram, specifications, panel schedules, device settings, and functional testing and acceptance criteria.

Equipment is selected to satisfy desired functionality and zoning, necessitating decisions about system intelligence, architecture, protocols, and devices.