NXT Level Lighting Training

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NXT LEVEL

Training Overview:

- Includes 6 courses, each with its own exam
- Completely available online
- Free
- Designations at individual and company level

Level 1 Course Topics:
- Lighting Concepts & Technologies (2)
- The Value of Lighting
- Sales Techniques
- Energy Codes
- Understanding Utility Efficiency Programs

Lighting Energy Codes

Course Introduction

This course provides “general” information on lighting energy codes in the Northwest. **It is not meant to replace a careful reading of the energy code of your own state or municipality.**

It is not comprehensive in scope and does not review every requirement or exception to the code for each locality in the Northwest.

This course is meant to improve your general understanding of lighting energy codes, their requirements, and how they apply to the work that you do.

Regulation

- The federal government requires that states or municipalities adopt an energy code at least as stringent as the prevailing federal energy code requirements.

- Some states and localities choose to adopt energy codes that are more strict than the minimum federal requirements, and therefore, energy codes often differ from state to state or, in some cases, city to city.

Energy Codes

Lighting Energy Codes in the Northwest

- In the Northwest, lighting energy codes are based primarily on either the IECC (International Energy Conservation Code) or ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers).

- Some states have adopted the IECC with no changes or revisions. While others have adopted their own versions of energy codes. Seattle has similarly made revisions to the IECC and has adopted its own code for its municipality.

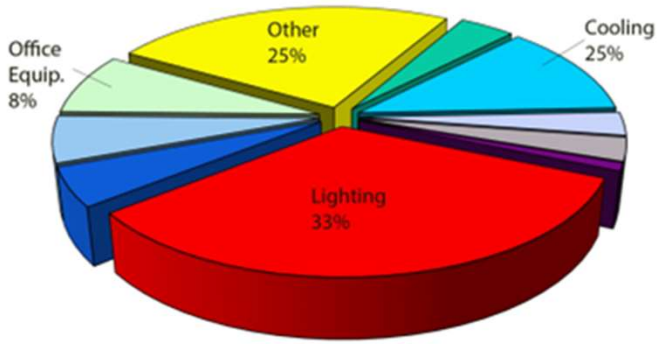
Lighting Power & Energy Limits

Lighting Energy Code

The lighting energy code has two types of requirements:

- One that places a **limit on total lighting power** or connected load

- One that requires the use of manual and automatic controls to try to **limit lighting energy use** over time



Lighting is a large percentage of the energy used in commercial buildings. Control requirements in energy codes attempt to limit the use of power over time, thus reducing energy use.

Lighting Power & Energy Limits

Limiting Lighting Power

- The energy code places a **maximum** on the total connected load that can be used for lighting in a building or space.

- This is generally referred to as a **lighting power density (LPD) limit** or a **lighting power allowance (LPA).**

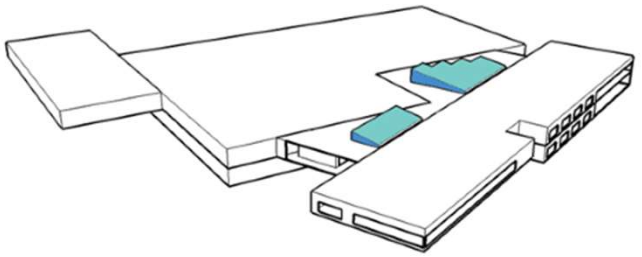
- This is provided in a measure called **watts per square foot (W/ft^2).**

- If you are designing or replacing the lighting in a warehouse for example, the total amount of power required for the lighting system cannot exceed 0.48 W/ft^2.

Determining When Energy Code Applies

Your first step in the energy code compliance process is to determine if the energy code applies to your project.

- **Lighting energy codes apply to all new commercial construction.** If a building is being newly built, there is no question; it must comply with the lighting energy codes.



- If an addition is being built onto an existing building, **lighting energy codes also generally apply to the addition but not to the existing building**, as long as the lighting within the existing structure is not altered in any way. *Local municipality codes my apply

Select the Method for Code Compliance

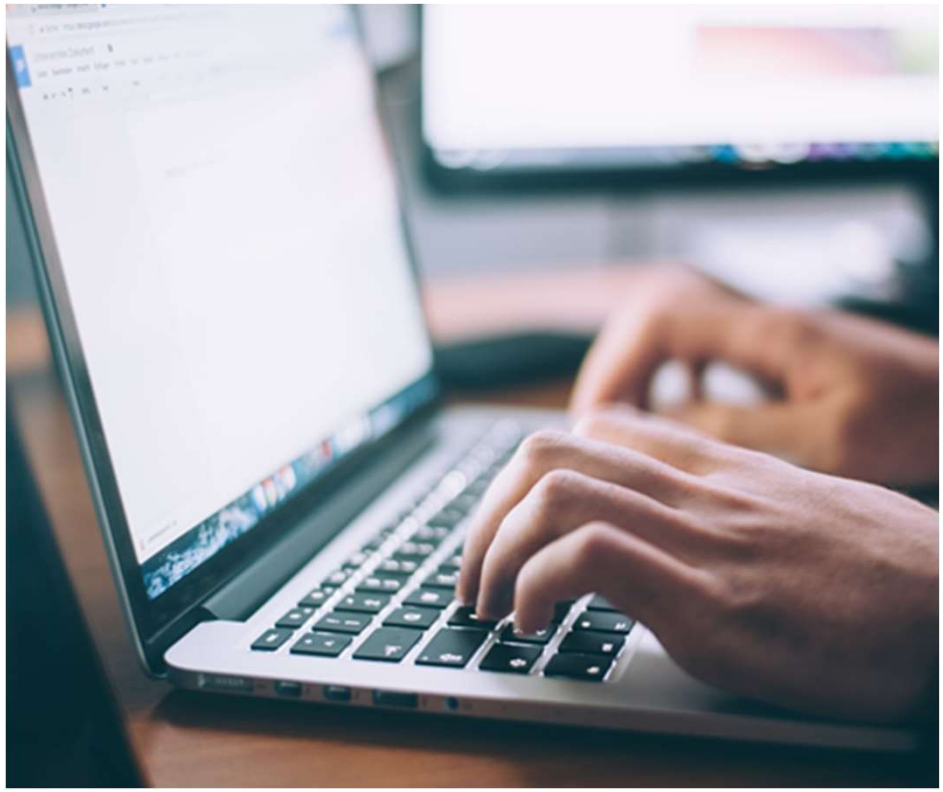
After you have determined that your job requires that you comply with lighting energy codes, you need to consider which method to use to show code compliance for your project.

The energy code can be applied in two ways:

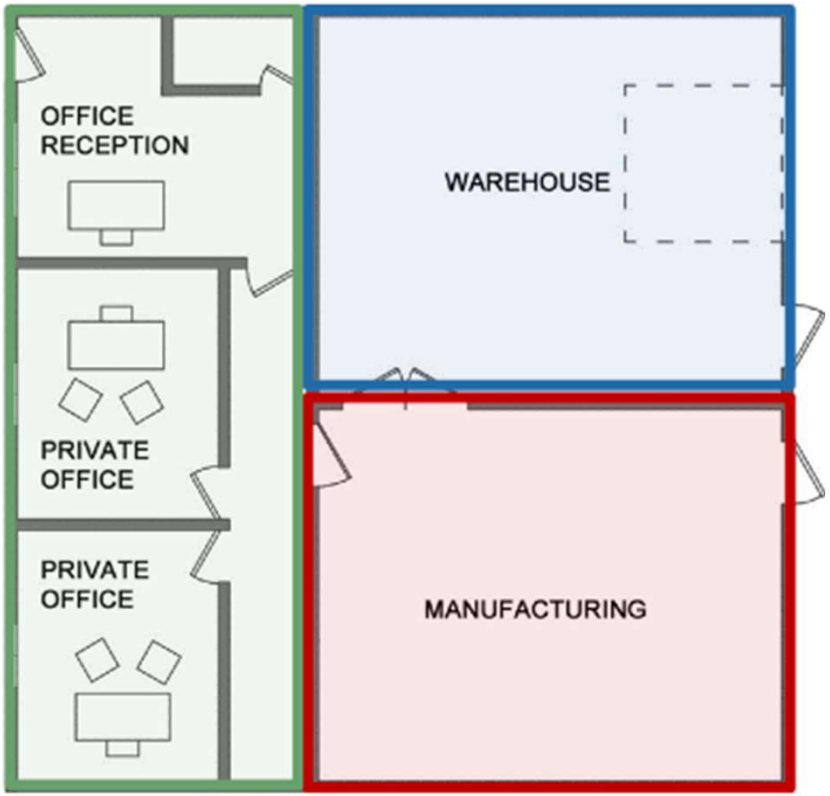
- Using the **building area method**
- Using the **space-by-space method**

- Each method has its pros and cons.

- Decisions about which methods to use are usually part of the lighting design process.



Select the Method for Code Compliance

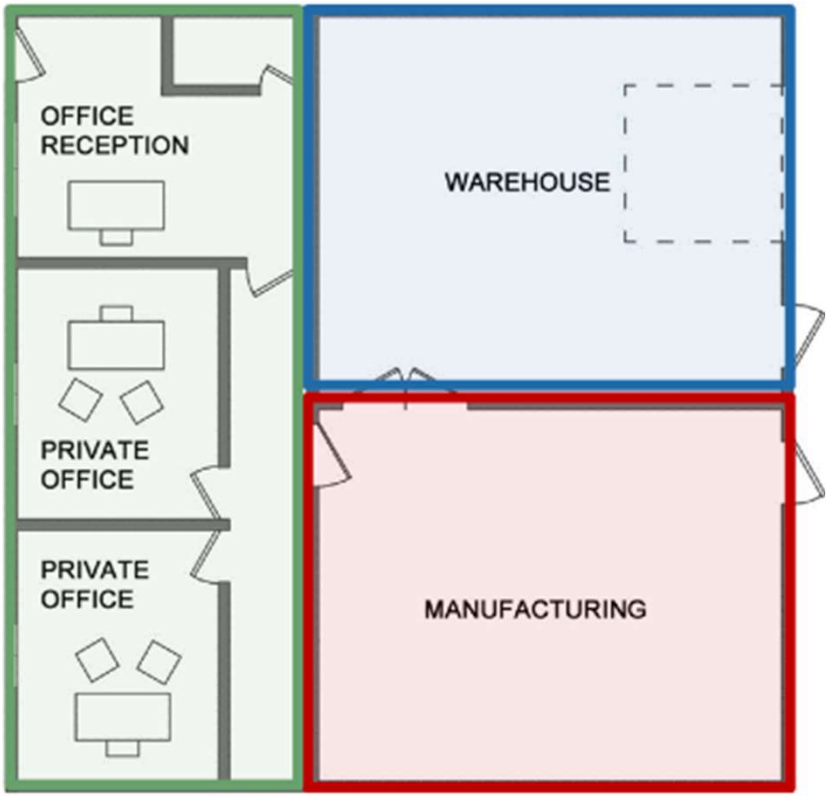


Building Area Method

- This is the simpler of the two methods to apply. With this method, you have a limit on the total lighting power for each area in the building, or for the entire building if it has one primary use.

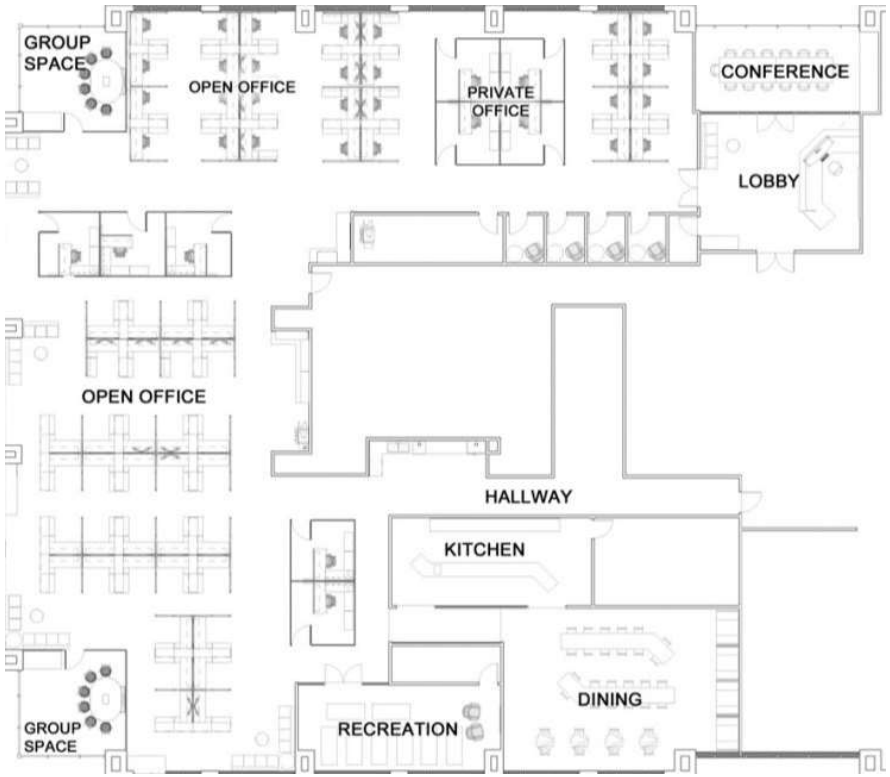
- For example, if a building has industrial floor space, a warehouse, and offices, the lighting in each area of the building needs to meet the lighting power density limits set for each area type.

Select the Method for Code Compliance



- In this building, there are three areas, each having a different lighting power allowance.
- The green area (office) would have an allowance of 0.79 w/ft^2; the blue area (warehouse) would have an allowance of 0.48 W/ft^2; and the red area (manufacturing) would have an allowance of .90 W/ft^2.
- Using the building area method, each area would need to meet its lighting power limits, with no trade-offs allowed between areas.

Select the Method for Code Compliance



Space-by-Space Method

- The space-by-space method allows for greater flexibility in using lighting power allowances than the building area method.

- As the name implies, in the space-by-space method, the lighting power density in each room or space is considered separately.

- The total lighting power (watts per SQ/FT) designed for the building must be no greater than the sum of the individual space allowances multiplied by the area of that space type in the building.

Code Required Energy Controls

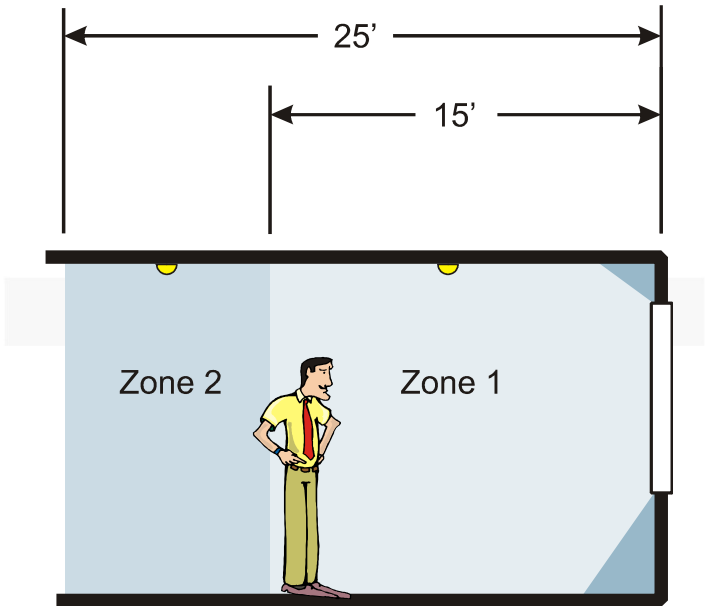
Vacancy/occupancy sensors are typically required by Energy Codes in:

- Private Offices
- Break Rooms
- Conference Rooms
- Classrooms
- Training Rooms
- Restrooms
- Warehouses

Code Required Energy Controls

Daylight Control Zones

- Code requirements
- Windows
  - Zone 1: Up to 15 feet
  - Zone 2: 15 to 25 feet

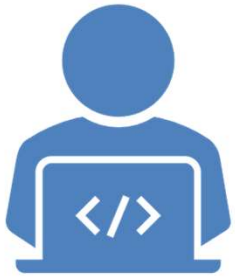


LLLC Capabilities & Code Compliance

- Occupancy sensing
- Daylight harvesting
- Continuous dimming
- High-end trim/Task Tuning
- Controls persistence

Now being written into lighting codes!

Next Steps



Log into your existing account

Take remaining modules to complete designation!

New to NXT Level? We will send you an email if you want to enroll!

Questions?

Thank you!

NXT LEVEL