

## Learning Activity #3 Lighting Levels

### Instructor Directions:

Prior to the class, ask students to download a free light meter application such as Lux Light Meter. Explain the exercise to the students and ask them to measure the light levels in various spaces wherever they are (office, home, etc.).

Estimated time for students in group: 15 minutes

Overall estimated time for activity: 30 minutes

### Participant Directions

#### Step 1. Measure Lighting Levels

Download a light meter application. Consider free applications such as Lux Light Meter. Open the light meter application you downloaded onto your device. Make sure you have foot candles selected.

Visit different spaces in your facility and measure the light levels. Take measurement at task surface:

- 30" for desks, benches, tabletops
- at floor level for corridors & halls (under one fixture and between adjacent fixtures)
- at landing (max) & halfway downstairs (min) in stairwells.

#### Step 2. Review Data

1. Calculate the average from maximum & minimum readings.
2. Compare the readings you found to the values on the Recommended Light Levels chart.
  - a. Were any readings higher or lower than recommended values?
  - b. In which areas should light levels be adjusted?
  - c. What actions would you take to address these areas?
3. What effects do you think daylight has on lighting levels? In which areas could you replace artificial lighting with daylight?

# Fundamentals of Energy Efficient Building Operations



| Space Type | Location of Measurement | Readings (FC) |  | Average Reading (FC) |
|------------|-------------------------|---------------|--|----------------------|
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# Fundamentals of Energy Efficient Building Operations



## Recommended Lighting Levels

| Space Use                                 | IES Recommended Level (fc) |
|---|----------------------------|
| Auditorium (assembly)                     | 3-10                       |
| Classrooms/Lecture Rooms                  |                            |
| Regular desk work, study halls            | 30-50                      |
| Lecture rooms (audience)                  | 100                        |
| Marker boards (white boards)              | 5                          |
| Chalk boards, demonstration areas         | 100-200                    |
| Corridors, Lobbies and Stairways          | 10-40                      |
| Food preparation task areas               | 50-100                     |
| Gymnasiums                                |                            |
| General                                   | 30                         |
| Competition and events                    | 50-150                     |
| Libraries (reading)                       | 20-50                      |
| Lounge and Waiting Areas                  | 0-30                       |
| Offices                                   |                            |
| Paper work (#2 pencil; 8pt or 10pt print) | 30                         |
| Computer use (vertical fc)                | 5                          |
| Accounting, bookkeeping (on paper)        | 50-100                     |
| Conference areas                          | 20-70                      |
| Rest Rooms                                | 7.5-30                     |
| Storage Areas                             | 10-30                      |