ASHRAE 90.1–2013
nLight® Applications Guide

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ACUITY CONTROLS

It’s not just smarter. It’s easier.

Acuity Controls is advanced lighting controls technology, service and support from a single expert source. We offer one of the industry’s most extensive product portfolios for indoor and outdoor applications; single rooms to campuses to municipalities. Our product solutions include occupancy and photosensors, centralized and distributed systems, panels, fixture-integrated, wired and wireless controls that simply work.
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About ASHRAE 90.1
ASHRAE 90.1 is an energy code designed to reduce energy consumption. The ASHRAE 90.1–2013 energy code has specific requirements for lighting controls. The use of advanced lighting controls to synchronize light levels with daylight, occupancy, and multi-level control capability are required in order to be compliant.

About this Guide
Acuity Controls offers the nLight® Applications Guide to facilitate quicker and easier lighting controls solutions to aid in complying with the requirements of ASHRAE 90.1. Use this guide as a quick reference of typical nLight layouts that can help get your project on the path towards compliance. The Acuity Controls Design Services Team is also available to support engineers and contractors with detailed design, submittal, and installation. For additional information, please contact your Acuity Brands® Sales Representative.

About nLight
The nLight networked digital lighting control system is easy-to-use, easy-to-install and saves energy. Using only standard CAT5e cable, nLight networks together occupancy sensors, wall stations, and digital LED luminaires to create a digital lighting system with unmatched flexibility! nLight easily scales from one room to an entire campus. Create a lighting control solution that’s perfect for your space and need.
The chart below is an overview of the Code Requirements for Common Building Spaces. Please use this information as a guide. For specific ASHRAE code requirements please refer to the ASHRAE 90.1–2013 code.

<table>
<thead>
<tr>
<th>Control Requirement*</th>
<th>Code Provision</th>
<th>Code Summary*</th>
<th>Space Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Private Office</td>
</tr>
<tr>
<td>Local (i.e., Switch) Control</td>
<td>9.4.1.1[a]</td>
<td>There shall be one or more readily accessible manual lighting controls in the space that controls all lighting in the space. Note: Remote locations permitted for reasons of safety or security.</td>
<td>✓</td>
</tr>
<tr>
<td>Manual ON</td>
<td>9.4.1.1[b]</td>
<td>None of the lighting in the space shall be automatically turned on.</td>
<td>✓</td>
</tr>
<tr>
<td>Partial Automatic ON</td>
<td>9.4.1.1[c]</td>
<td>The general lighting shall be allowed to be turned on automatically to 50% of the lighting power.</td>
<td>✓</td>
</tr>
<tr>
<td>Full Automatic ON</td>
<td>9.4.1.1</td>
<td>Automatically controlled spaces are allowed to turn on to full.</td>
<td>✓</td>
</tr>
<tr>
<td>Automatic Partial OFF Via Occupancy Sensor</td>
<td>9.4.1.1[g]</td>
<td>The general lighting power shall be automatically reduced by at least 50% within 20 minutes of all occupants leaving the space. Note: Full Off also complies.</td>
<td></td>
</tr>
<tr>
<td>Automatic Full OFF Via Occupancy Sensor</td>
<td>9.4.1.1[h]</td>
<td>All lighting shall be automatically shut off within 20 minutes of all occupants leaving the space.</td>
<td>✓</td>
</tr>
<tr>
<td>Scheduled Shutoff (i.e. Timeclock)</td>
<td>9.4.1.1[i]</td>
<td>All lighting shall be automatically shut off during periods when the space is scheduled to be unoccupied using a time-of-day operated control. Note: A signal from another automatic control device or alarm/security system complies.</td>
<td></td>
</tr>
<tr>
<td>Bi-Level Lighting Control</td>
<td>9.4.1.1[d]</td>
<td>Controlled lighting shall have at least one control step between 30% and 70%, or continuous dimming, in addition to full on and full off.</td>
<td>✓</td>
</tr>
<tr>
<td>Automatic Daylight Responsive Controls for Sidelighting/Toplighting</td>
<td>9.4.1.1[e]</td>
<td>If the general lighting load is 150W or greater in the primary sidelighted or toplighted areas, or 300W or greater in the primary &amp; secondary sidelighted areas, the general lighting in these areas shall be controlled by multi-step or continuous dimming photocontrols.</td>
<td>✓</td>
</tr>
<tr>
<td>Additional Controls</td>
<td>8.4.2</td>
<td>50% of all receptacles, and 25% of branch circuit feeders installed for modular furniture, shall be automatically turned off by an occupant sensor within 20 minutes of all occupants leaving the space. Note: A time-of-day schedule or a signal from another automatic control device or alarm/security system complies.</td>
<td>✓</td>
</tr>
</tbody>
</table>

*Note: This summary is for general information purposes only and is provided without any warranty as to accuracy, completeness, or otherwise. The user should read the applicable code sections for more complete and detailed descriptions of code requirements and exceptions and should consult with a professional engineering or other competent advisor before making any decision or taking any action based on this summary.

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PRIVATE OFFICE: Windows, nLight Enabled Fixtures

Supports the Following Requirements:
- Local Switch (Section 9.4.1.2)
- Multi-Level/Dimming Control (Section 9.4.1.2a)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.2b)
- Multi-Level Daylight Control (Section 9.4.1.4/5)
- Plug Load Control (Section 8.4.2)

Bill of Materials

<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td>4</td>
<td>See Appendix A</td>
<td>nLight Enabled Fixture</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>nPP20 PL</td>
<td>Plug Load Relay Pack</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>nPODM DX</td>
<td>On/Off &amp; Raise/Lower WallPod</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>nCM PDT 9 (RJB)</td>
<td>Dual Technology Occupancy Sensor</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>nCM ADCX (RJB)</td>
<td>Automatic Dimming Photocell — If area from sidelighting is &gt;250 ft²</td>
</tr>
</tbody>
</table>

Optional:

- On/Off & control of lights
- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone for network control including time-based controls and integration with building management systems
- For emergency lighting control, order fixtures with -n80EMG or -n100EMG option

Operational details describe the functionality provided by the equipment specified in the solution.

Quick summary of applicable code sections:
- Local Switch (Section 9.4.1.2)
- Multi-Level/Dimming Control (Section 9.4.1.2a)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.2b)
- Multi-Level Daylight Control (Section 9.4.1.4/5)
- Plug Load Control (Section 8.4.2)

Room layout with devices & locations:

Room layout diagram with control, fixture, and wiring type detail:

Required list of devices in order to implement room layout design above:

Additional options that add control capacity beyond code requirements:
PRIVATE OFFICE: No Windows, nLight Enabled Fixtures

Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Manual/Partial Automatic On (Section 9.4.1.1b/c)
- Bi-Level Lighting Control (Section 9.4.1.1d)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)
- Plug-Load Control (Section 8.4.2)

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<td>2</td>
<td>See Appendix A</td>
<td>nLight Enabled Fixture</td>
</tr>
<tr>
<td><img src="image2" alt="Symbol" /></td>
<td>1</td>
<td>nPP20 PL</td>
<td>Plug Load Relay Pack</td>
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<tr>
<td><img src="image3" alt="Symbol" /></td>
<td>1</td>
<td>nPODM DX</td>
<td>On/Off &amp; Raise/Lower WallPod</td>
</tr>
<tr>
<td><img src="image4" alt="Symbol" /></td>
<td>1</td>
<td>nCM PDT 9 (RJB)</td>
<td>Dual Technology Occupancy Sensor (Small Motion)</td>
</tr>
</tbody>
</table>

OPERATION DETAILS:

Lights:
- All lights are dimmable
- All fixtures controlled together or independently
- Maximum level can be limited to 80%
- Optional automatic lumen compensation

Occupancy Control:
- Lights must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Plug-load turns on automatically
- Lights and plug-load turn off when room becomes vacant

Manual Control:
- On/off & raise/lower control of lights

ADDITIONAL OPTIONS:

- Recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control, order fixtures with -80EMG or -100EMG option

Note: For a wall mount switch and occupancy sensor, substitute the nPODM DX with a nWSX PDT LV DX and remove the nCM PDT 9 (RJB)
PRIVATE OFFICE: No Windows, 0-10V Dimming Fixtures

Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Manual/Partial Automatic On (Section 9.4.1.1b/c)
- Bi-Level Lighting Control (Section 9.4.1.1d)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)
- Plug-Load Control (Section 8.4.2)

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<tbody>
<tr>
<td></td>
<td>1</td>
<td>nPP16 D</td>
<td>Relay Pack with 0-10V Dimming Output</td>
</tr>
<tr>
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<td>1</td>
<td>nPP20 PL</td>
<td>Plug Load Relay Pack</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>nPODM DX</td>
<td>On/Off &amp; Raise/Lower WallPod</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>nCM PDT 9 (RJB)</td>
<td>Dual Technology Occupancy Sensor (Small Motion)</td>
</tr>
</tbody>
</table>

Operation Details:

- All lights are dimmable
- All fixtures controlled together
- Maximum level can be limited to 80%

Occupancy Control:

- Lights must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Plug-load turns on automatically
- Lights and plug-load turn off when room becomes vacant

Manual Control:

- On/off & raise/lower control of lights

Additional Options:

- Recessed mount sensors also available
- Substitute relay pack model nPP16 D SA for default manual-on configuration or nPP16 D PA for default auto-on to 50% configuration
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control add model nPP16 D ER

Note: For a wall mount switch and occupancy sensor, substitute the nPODM DX with a nWSX PDT LV DX and remove the nCM PDT 9 (RJB)
**PRIVATE OFFICE: Windows, nLight Enabled Fixtures**

**Supports the Following Requirements:**

- Local Control (Section 9.4.1.1a)
- Manual/Partial Automatic On (Section 9.4.1.1b/c)
- Bi-Level Lighting Control (Section 9.4.1.1d)
- Automatic Daylight Responsive Controls (Section 9.4.1.1e/f)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)
- Plug-Load Control (Section 8.4.2)

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<tr>
<td>![Symbol]</td>
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<td>nPP20 PL</td>
<td>Plug Load Relay Pack</td>
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<td>nPODM DX</td>
<td>On/Off &amp; Raise/Lower WallPod</td>
</tr>
<tr>
<td>![Symbol]</td>
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<td>nCM PDT 9 (RJB)</td>
<td>Dual Technology Occupancy Sensor</td>
</tr>
</tbody>
</table>

**Options**

| ![Symbol] | 1 | nCM ADCX (RJB) | Automatic Dimming Control Photocell |

**OPERATION DETAILS:**

**Occupancy Control:**
- All lights are dimmable
- All fixtures controlled together or independently
- Maximum level can be limited to 80%
- Optional automatic lumen compensation

**Daylight Control:**
- Smooth continuous dimming
- Custom grouping of fixtures into separate daylight zones (max. number zones = number of fixtures)
- Not required in spaces with primary sidelighted or toplighted areas with a load <150W

**Manual Control:**
- On/off & raise/lower control of lights

**ADDITIONAL OPTIONS:**
- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control, order fixtures with -n80EMG or -n100EMG option

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PRIVATE OFFICE: Windows, 0-10V Dimming Fixtures

Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Manual/Partial Automatic On (Section 9.4.1.1b/c)
- Bi-Level Lighting Control (Section 9.4.1.1d)
- Automatic Daylight Responsive Controls (Section 9.4.1.1e/f)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)
- Plug-Load Control (Section 8.4.2)

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<tr>
<td></td>
<td>1</td>
<td>nPP16 D</td>
<td>Relay Module with 0-10V Dimming Output</td>
</tr>
<tr>
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<td>nPP20 PL</td>
<td>Plug Load Relay Pack</td>
</tr>
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<td>1</td>
<td>nPODM DX</td>
<td>On/Off &amp; Raise/Lower WallPod</td>
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<td>nCM PDT 9 (RJB)</td>
<td>Dual Technology Occupancy Sensor</td>
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Options

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<th>Description</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>nCM ADCX (RJB)</td>
<td>Automatic Dimming Control Photocell</td>
</tr>
</tbody>
</table>

// OPERATION DETAILS:

**Lights:**
- All lights are dimmable
- All fixtures are controlled together
- Maximum level can be limited to 80%

**Occupancy Control:**
- Lights must be turned on manually (or optionally can be controlled on automatically to 50%)
- Plug load turns on automatically
- Lights & plug load turn off when room becomes vacant

**Daylight Control:**
- Smooth continuous dimming
- Not required in spaces with primary sidelighted or top-lighted areas with a load <150W

**Manual Control:**
- On/off & raise/lower control of lights

// ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Substitute model nPP16 D SA for default manual on functionality or nPP16 D PA for default auto-on to 50% functionality
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control add model nPP16 D ER

*If daylighting is required, additional relay pack(s) may also be required.
**Supports the Following Requirements:**

- **Local Control** (Section 9.4.1.1a)
- **Manual/Partial Automatic On** (Section 9.4.1.1b/c)
- **Bi-Level Lighting Control** (Section 9.4.1.1d)
- **Automatic Daylight Responsive Controls** (Section 9.4.1.1e/f)
- **Automatic Full-Off via Occupancy Sensor** (Section 9.4.1.1h)

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**Bill of Materials**

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>nLight Enabled Fixture</td>
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<td><img src="light.png" alt="Light Icon" /></td>
<td>2</td>
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<td>nLight Enabled Fixture with the EMG Option</td>
</tr>
<tr>
<td><img src="wallpod.png" alt="WallPod Icon" /></td>
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<td>nPODM DX</td>
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<tr>
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<tr>
<td><img src="sensor.png" alt="Sensor Icon" /></td>
<td>1</td>
<td>nCM ADCX (RJB)</td>
<td>Automatic Dimming Control Photocell</td>
</tr>
</tbody>
</table>

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**OPERATION DETAILS:**

- **Lights:**
  - All lights are dimmable
  - All fixtures controlled together or independently
  - Maximum level can be limited to 80%
  - Optional automatic lumen compensation

- **Occupancy Control:**
  - Lights must be turned on manually (or optionally can be configured to come on automatically to 50%)
  - Lights turn off when room becomes vacant

- **Daylight Control:**
  - Smooth continuous dimming
  - Not required in spaces with primary sidelighted or toplighted areas with a load <150W

- **Manual Control:**
  - On/off & raise/lower control of lights
  - Optional individual row control (add nPODM 4P DX)

---

**ADDITIONAL OPTIONS:**

- Surface or recessed mount sensors also available
- Add model nPODM 4S DX for four scene with manual dimming control
- Add Graphic WallPod (model nPOD GFX) for individual row and up to 16 scene control
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- Add model nPP20 PL if plug load is required for modular furniture

---

Note: Not all emergency nLight enabled fixtures require a normal monitoring feed. Refer to data sheet for additional information.
Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Manual/Partial Automatic On (Section 9.4.1.1b/c)
- Bi-Level Lighting Control (Section 9.4.1.1d)
- Automatic Daylight Responsive Controls (Section 9.4.1.1e/f)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)

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<tbody>
<tr>
<td><img src="image" alt="nPP16 D" /></td>
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<td>nPP16 D</td>
<td>Relay Module with 0-10V Dimming Output</td>
</tr>
<tr>
<td><img src="image" alt="nPP16 D ER" /></td>
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<td>nPP16 D ER</td>
<td>Emergency Relay Module with 0-10V Dimming Output</td>
</tr>
<tr>
<td><img src="image" alt="nPODM DX" /></td>
<td>2</td>
<td>nPODM DX</td>
<td>On/Off &amp; Raise/Lower WallPod</td>
</tr>
<tr>
<td><img src="image" alt="nCM PDT 9 (RJB)" /></td>
<td>4</td>
<td>nCM PDT 9 (RJB)</td>
<td>Dual Technology Occupancy Sensor</td>
</tr>
<tr>
<td><img src="image" alt="nCM ADCX (RJB)" /></td>
<td>1</td>
<td>nCM ADCX (RJB)</td>
<td>Automatic Dimming Control Photocell</td>
</tr>
</tbody>
</table>

Operation Details:

- **Lights:**
  - All lights are dimmable
  - Each row controlled independently
  - Maximum level can be limited to 80%

- **Occupancy Control:**
  - Lights must be turned on manually (or optionally can be configured to come on automatically to 50%)
  - Lights turn off when room becomes vacant

- **Daylight Control:**
  - Smooth continuous dimming
  - Daylight zones defined by rows
  - Not required in spaces with primary sidelight or toplighted areas with a load <150W

- **Manual Control:**
  - On/off & raise/lower control of lights
  - Optional individual row control (add nPODM 4P DX)

Additional Options:

- Surface or recessed mount sensors also available
- Add additional relay pack (model nPP16 D) if a white board lighting zone also required
- Add Graphic WallPod (model nPOD GFX) for individual row and up to 16 scene control
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- Add model nPP20 PL if plug load is required for modular furniture
Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Manual/Partial Automatic On (Section 9.4.1.1b/c)
- Bi-Level Lighting Control (Section 9.4.1.1d)
- Automatic Daylight Responsive Controls (Section 9.4.1.1e/f)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)
- Plug-Load Control (Section 8.4.2)

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<tr>
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<td>See Appendix A</td>
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<td>Plug Load Relay Pack</td>
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</tbody>
</table>

Options

| ![Symbol](image5) | 1   | nCM ADCX (RJB) | Automatic Dimming Control Photocell |

/ OPERATION DETAILS:

Lights:
- All lights are dimmable
- All fixtures controlled together or independently
- Maximum level can be limited to 80%
- Optional automatic lumen compensation

Occupancy Control:
- Lights must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Plug load turns on automatically
- Lights & plug load turn off when room becomes vacant

Daylight Control:
- Smooth continuous dimming
- Custom grouping of fixtures into separate daylight zones (max. number of zones = number of fixtures)
- Not required in spaces with primary sidelighted or toplighted areas with a load <150W

Manual Control:
- On/off & raise/lower control of lights

/ ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Add nPODM 4S for four scene or nPOD GFX for touch screen control
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control, order fixtures with -n80EMG or -n100EMG option
CONFERENCE ROOM with 0-10V Dimming Fixtures

Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Manual/Partial Automatic On (Section 9.4.1.1b/c)
- Bi-Level Lighting Control (Section 9.4.1.1d)
- Automatic Daylight Responsive Controls (Section 9.4.1.1e/f)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)
- Plug-Load Control (Section 8.4.2)

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<tr>
<td><img src="image" alt="Relay Module" /></td>
<td>1</td>
<td>nPP16 D</td>
<td>Relay Module with 0-10V Dimming Output</td>
</tr>
<tr>
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<tr>
<td><img src="image" alt="Plug Load Relay Pack" /></td>
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</tbody>
</table>

Options

| ![Automatic Dimming Control Photocell](image) | 1 | nCM ADCX (RJB) | Automatic Dimming Control Photocell |

// OPERATION DETAILS:

- **Lights:**
  - All lights are dimmable
  - All fixtures controlled together
  - Maximum level can be limited to 80%

- **Occupancy Control:**
  - Lights must be turned on manually (or optionally can be configured to come on automatically to 50%)
  - Plug load turns on automatically
  - Lights & plug load turn off when room becomes vacant

- **Daylight Control:**
  - Smooth continuous dimming
  - Daylight zones defined by rows
  - Not required in spaces with primary sidelighted or toplighted areas with a load <150W

- **Manual Control:**
  - On/off & raise/lower control of lights

// ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Model nPP16 D PA for default auto-on to 50%
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control add model nPP16 D ER

*If daylighting is required, additional relay pack(s) may also be required.*
Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Manual/Partial Automatic On (Section 9.4.1.1b/c)
- Bi-Level Lighting Control (Section 9.4.1.1d)
- Automatic Daylight Responsive Controls (Section 9.4.1.e/f)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)
- Plug-Load Control (Section 8.4.2)

Bill of Materials

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<td>Dual Technology Wide View Occupancy Sensor</td>
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<td><img src="path" alt="Symbol" /></td>
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Options

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<td>Graphic WallPod for individual row and up to 16 scene control</td>
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<td>nPOD GFX</td>
<td>Graphic WallPod for individual row and up to 16 scene control</td>
</tr>
</tbody>
</table>

Operation Details:

- All lights are dimmable
- Each row/fixture can be controlled independently
- Maximum level can be limited to 80%
- Optional automatic lumen compensation

Occupancy Control:
- Lights must be turned on manually (or optionally)
- Plug load is controlled independently
- Lights will turn off when room becomes vacant

Daylight Control:
- Smooth continuous dimming
- Custom grouping of fixtures into separate daylight zones (max. number of zones = number of fixtures)
- Not required in spaces with primary sidelighted or toplighted areas with a load <150W

Manual Control:
- On/off & Raise/Lower control of lights
- Optional 4 scene control

Additional Options:
- Surface or recessed mount sensors also available
- Add Graphic WallPod (model nPOD GFX) for individual row and up to 16 scene control
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)

*Apply this design to classrooms, lecture halls or training rooms.

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CLASSROOM* with 0-10V Dimming Fixtures (Distributed Relays)

Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Manual/Partial Automatic On (Section 9.4.1.1b/c)
- Bi-Level Lighting Control (Section 9.4.1.1d)
- Automatic Daylight Responsive Controls (Section 9.4.1.1e/f)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)
- Plug-Load Control (Section 8.4.2)

Bill of Materials

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<td>nPP16 D ER</td>
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<tr>
<td><img src="1" alt="Symbol" /></td>
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<td>nPP20 PL</td>
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</table>

Options

| ![Symbol](1) | 1   | nPODM 4S DX | Teacher Station — 4 Scene Control Master On/Off & Raise/Lower |
| ![Symbol](1) | 1   | nCM ADCX (RJB) | Automatic Dimming Control Photocell               |

**OPERATION DETAILS:**

**Lights:**
- All lights are dimmable
- Each row controlled independently
- Maximum level can be limited to 80%

**Occupancy Control:**
- Lights must be turned on manually (or optionally can be configured to come on automatically to 50%)
- Plug load turns on automatically
- Lights & plug load turn off when room becomes vacant

**Daylight Control:**
- Smooth continuous dimming
- Provides up to three daylight zones, each controlled independently
- Not required in spaces with primary sidelighted or top lighted areas with a load <150W

**Manual Control:**
- On/off & raise/lower control of lights
- Optional 4 scene control

**ADDITIONAL OPTIONS:**
- Surface or recessed mount sensors also available
- Add additional relay pack (model nPP16 D) if a white board lighting zone also required
- Add Graphic WallPod (model nPOD GFX) for individual row and up to 16 scene control
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)

*Apply this design to classrooms, lecture halls or training rooms.
CLASSROOM* with 0-10V Dimming Fixtures (Panel Alternative)

Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Manual/Partial Automatic On (Section 9.4.1.1b/c)
- Bi-Level Lighting Control (Section 9.4.1.1d)
- Automatic Daylight Responsive Controls (Section 9.4.1.1e/f)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)
- Plug-Load Control (Section 8.4.2)

Bill of Materials

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</tr>
</tbody>
</table>

Options

| ![nPodm 4S Dx](image) | 1 | nPODM 4S DX | Teacher Station — 4 Scene Control Master On/Off & Raise/Lower |

// OPERATION DETAILS:

- **Lights:**
  - All lights are dimmable
  - Each row controlled independently
  - Maximum level can be limited to 80%

- **Occupancy Control:**
  - Lights must be turned on manually (or optionally can be configured to come on automatically to 50%)
  - Plug load turns on automatically
  - Lights & plug load turn off when room becomes vacant

- **Daylight Control:**
  - Smooth continuous dimming
  - Provides up to three daylight zones, each controlled independently
  - Not required in spaces with primary sidelighted or top-lighted areas with a load <150W

- **Manual Control:**
  - On/off & raise/lower control of lights
  - Optional 4 scene control

// ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- 4th relay available in panel for connection to additional lighting zone (e.g., white board)
- Add Graphic WallPod (model nPOD GFX) for individual row and up to 16 scene control
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control add barrier to nPANEL

*Apply this design to classrooms, lecture halls or training rooms.*
STAIRWELL with 0-10V Dimming Fixtures

**Supports the Following Requirements:**

- Local Control (Section 9.4.1.1a)
- Bi-Level Lighting Control (Section 9.4.1.1d)
- Automatic Partial-Off (or Full-Off) via Occupancy Sensor (Section 9.4.1.1g)
- Scheduled Shutoff (i.e., Timeclock, see pg. 26) (section 9.4.1.1)

**Bill of Materials**

<table>
<thead>
<tr>
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<tr>
<td><img src="image3.png" alt="Symbol" /></td>
<td>1</td>
<td>nCM 10 (RJB)</td>
<td>PIR Extended Range Occupancy Sensor</td>
</tr>
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</table>

**OPERATION DETAILS:**

- **Lights:**
  - All lights are dimmable
  - Maximum level can be limited to 80%

- **Occupancy Control:**
  - Lights automatically drop to 50% (or lower) when space becomes vacant

- **Auto-Off Control:**
  - Lights automatically turn off when the space becomes vacant or can be shut-off via timeclock (see pg. 26 for programmable timeclock)

- **Manual Control:**
  - On/off & raise/lower control of lights

**ADDITIONAL OPTIONS:**

- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control add model nPP16 D ER
- For primary sidelight/toplight daylight zones with a load >150W, add nCM ADCX (RJB) for daylight control (section 9.4.1.1(e/f))
LOBBY with nLight Enabled Fixtures

Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Automatic Daylight Responsive Controls (Section 9.4.1.1e/f)
- Automatic Partial and Full-Off via Occupancy Sensor (Section 9.4.1.1g/h)

Bill of Materials

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<th>Description</th>
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<td>nCM PDT 10 ADCX</td>
<td>Dual Technology Extended Range Occupancy Sensor With Automatic Dimming Photocell</td>
</tr>
</tbody>
</table>

OPERATION DETAILS:

- **Lights:**
  - All lights are dimmable
  - All fixtures controlled together or independently
  - Maximum level can be limited to 80%
  - Optional automatic lumen compensation

- **Occupancy Control:**
  - Lights automatically go to full bright when occupied
  - Lights automatically turn off when space becomes vacant (or optionally can be configured to dim to <50%)

- **Daylight Control:**
  - Smooth continuous dimming
  - Custom grouping of fixtures into separate daylight zones (max. number of zones = number of fixtures)
  - Not required in spaces with primary sidelighted or toplighted areas with a load <150W

- **Manual Control:**
  - On/off & raise/lower control of lights

ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Space/zone can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control, order fixture with -n80EMG or -n100EMG option
LOBBY with 0-10V Dimming Fixtures

Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Automatic Daylight Responsive Controls (Section 9.4.1.e/f)
- Automatic Partial and Full-Off via Occupancy Sensor (Section 9.4.1.g/h)

Bill of Materials

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<td>nCM PDT 10 ADCX (RJB)</td>
<td>Dual Technology Extended Range Occupancy Sensor With Automatic Dimming Photocell</td>
</tr>
</tbody>
</table>

// OPERATION DETAILS:

**Lights:**
- All lights are dimmable
- All fixtures controlled together
- Maximum level can be limited to 80%

**Occupancy Control:**
- Lights automatically go to full bright when occupied
- Lights automatically turn off when space becomes vacant (or optionally can be configured to dim to <50%)

**Daylight Control:**
- Smooth continuous dimming
- Not required in spaces with primary sidelighted or toplighted areas with a load <150W

**Manual Control:**
- On/off & raise/lower control of lights

// ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Space/zone can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control add model nPP16 D ER
PRIVATE / SINGLE RESTROOM with nLight Enabled Fixture

Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)

Bill of Materials

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<td>1</td>
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<td>On/Off &amp; Raise/Lower Dual Tech Occupancy Switch</td>
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/ OPERATION DETAILS:

Lights:
- All lights are dimmable
- Maximum level can be limited to 80%
- Optional automatic lumen compensation

Occupancy Control:
- Lights automatically go to full bright when occupied
- Lights automatically turn off when space becomes vacant

Manual Control:
- On/off & raise/lower control of light

/ ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control add -n80EMG or -n100EMG to fixture option
PRIVATE / SINGLE RESTROOM with 0-10V Dimming Fixtures

Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)

Bill of Materials

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</table>

/ OPERATION DETAILS:

**Lights:**
- All lights are dimmable
- Maximum level can be limited to 80%

**Occupancy Control:**
- Lights automatically go to full bright when occupied
- Lights automatically turn off when space becomes vacant

**Manual Control:**
- On/off & raise/lower control of light

/ ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control add model nPP16 D ER
PUBLIC RESTROOM with nLight Enabled Fixtures

**Supports the Following Requirements:**

- Local Control (Section 9.4.1.1a)

- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)

**Bill of Materials (Each Restroom)**

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<td>![symbol]</td>
<td>2</td>
<td>nCM PDT 9 (RJB)</td>
<td>Dual Technology Occupancy Sensor</td>
</tr>
</tbody>
</table>

**OPERATION DETAILS:**

**Lights:**
- All lights are dimmable
- All fixtures are controlled together or independently
- Maximum level can be limited to 80%
- Optional automatic lumen compensation

**Occupancy Control:**
- Lights automatically go to full bright when occupied
- Lights automatically turn off when room becomes vacant

**Manual Control:**
- On/off & raise/lower control of lights

**ADDITIONAL OPTIONS:**
- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control add -n80EMG or -n100EMG to fixture option
- For primary sidelight/toplight daylight zones with a load >150W, add nCM ADCX (RJB) for daylight control (section 9.4.1.1[e/f])
PUBLIC RESTROOM with 0-10V Dimming Fixtures

Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)
- Automatic Full-Off via Occupancy Sensor (Section 9.4.1.1h)

Bill of Materials (Each Restroom)

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<td>nPODM DX</td>
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<tr>
<td><img src="image3" alt="Symbol" /></td>
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<td>Dual Technology Occupancy Sensor</td>
</tr>
</tbody>
</table>

/// OPERATION DETAILS:

- **Lights:**
  - All lights are dimmable
  - All fixtures are controlled together (per room)
  - Maximum level can be limited to 80%

- **Occupancy Control:**
  - Lights automatically go to full bright when occupied
  - Lights automatically turn off when room becomes vacant

- **Manual Control:**
  - On/off & raise/lower control of lights

/// ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Room can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control add model nPP16 D ER
- For primary sidelight/toplight daylight zones with a load >150W, add nCM ADCX (RJB) for daylight control (section 9.4.1.1[e/f])
### SUPPORTS THE FOLLOWING REQUIREMENTS:

- Local Control (Section 9.4.1.1a)
- Automatic Partial and Full-Off via Occupancy Sensor (Section 9.4.1.1g/h)

### BILL OF MATERIALS

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<td>nPODM DX</td>
<td>On/Off &amp; Raise/Lower WallPod</td>
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### OPERATION DETAILS:

**Lights:**
- All lights are dimmable
- All fixtures controlled together or independently
- Maximum level can be limited to 80%
- Optional automatic lumen compensation

**Occupancy Control:**
- Lights automatically go to full bright when occupied
- Lights automatically turn off when space becomes vacant (or optionally can be configured to dim to <50%)

**Manual Control:**
- On/off & raise/lower control of lights

### ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Space/zone can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg. 26)
- For emergency lighting control use +n80EMG or -n100EMG to fixture option
- For primary sidelight/toplight daylight zones with a load >150W, add nCM ADCX (RJB) for daylight control (section 9.4.1.1[e/f])

---

CAT-5e Cable | Line Voltage Wires | Line Power Feed | 0-10V Wires
---|---|---|---
-| | | |
Supports the Following Requirements:

- Local Control (Section 9.4.1.1a)

- Automatic Partial and Full-Off via Occupancy Sensor (Section 9.4.1.1g/h)

Bill of Materials

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Qty</th>
<th>Product #</th>
<th>Description</th>
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<tbody>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>1</td>
<td>nPP16 D</td>
<td>Relay Module with 0-10V Dimming Output</td>
</tr>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>4</td>
<td>nCM 10 (RJB)</td>
<td>PIR Extended Range Occupancy Sensor</td>
</tr>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>2</td>
<td>nPODM DX</td>
<td>On/Off &amp; Raise/Lower WallPod</td>
</tr>
</tbody>
</table>

/ OPERATION DETAILS:

**Lights:**
- All lights are dimmable
- All fixtures controlled together
- Maximum level can be limited to 80%

**Occupancy Control:**
- Lights automatically go to full bright when occupied
- Lights automatically turn off when space becomes vacant or optionally can be configured to dim to <50%

**Manual Control:**
- On/off & raise/lower control of lights

/ ADDITIONAL OPTIONS:

- Surface or recessed mount sensors also available
- Space/zone can be connected to nLight backbone to enable network control including time based controls and integration with building management systems (see pg.26)
- For emergency lighting control add model nPP16 D ER
- For primary sidelight/toplight daylight zones with a load >150W, add nCM ADCX (RJB) for daylight control (section 9.4.1.1[e/f])

CAT-5e Cable | Line Voltage Wires | Line Power Feed | 0-10V Wires
--- | --- | --- | ---

Programmable Timeclock Control:

Although not pictured within each of the individual room design guides, each nLight Control Zone can be connected via an nLight backbone to create a networked nLight lighting control system capable of meeting the requirements of the ASHRAE 90.1 scheduled shut off provision (Section 9.4.1.1(i)). A networked system also enables astronomical time clock control.

For additional information regarding building management integration or demand response features, please contact your Acuity Brands Sales Representative.

nLight BLE Radio Module

The nLight nIO BT Bluetooth Low Energy (BLE) module enables wireless communication to an nLight zone of devices from a smartphone. The nLight smartphone app, nConfig, easily modifies the settings and operation of the devices in an nLight zone aiding in meeting energy code requirements.

Bill of Materials

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Qty</th>
<th>Product #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="8-Port Backbone Bridge" /></td>
<td>1</td>
<td>nBRG KIT</td>
<td>8-Port Backbone Bridge</td>
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<tr>
<td><img src="image2" alt="Network Gateway Controller" /></td>
<td>1</td>
<td>nGWY2 KIT</td>
<td>Network Gateway Controller</td>
</tr>
</tbody>
</table>

The nLight BLE Module connects to an nLight zone of devices using CAT-5e cables, powering directly off the CAT5e. Upon powering up the nIO BT communicates with the Acuity Controls smartphone app via Bluetooth Low Energy. The on-board blue LED indicates paired state, and pin code recognition ensures system security.
### APPENDIX A: nLight Enabled Fixtures

<table>
<thead>
<tr>
<th>Product Family</th>
<th>Fixture Series</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithonia Lighting</td>
<td>AC Series</td>
<td>LED Recessed</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>AL Series</td>
<td>LED High Performance Architectural Recessed</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>ALLS</td>
<td>LED Surface Mount</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>AVLED</td>
<td>Avante® LED Recessed - Direct/Indirect</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>BZL Series</td>
<td>LED Recessed Indirect</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>FSL Series</td>
<td>LED Recessed</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>RT Series</td>
<td>LED Recessed Volumetric</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>T Series</td>
<td>LED Recessed Troffer</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>VT Series</td>
<td>LED Recessed Volumetric</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>GT Series</td>
<td>General Recessed Troffer</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>SBS Series</td>
<td>LED Shadow Box Square</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>WL Series</td>
<td>LED Wall Bracket Surface Mount</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>RTLX</td>
<td>LED Surface Volumetric</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>ST LED</td>
<td>LED Surface Volumetric</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>IBL / IBH</td>
<td>LED Highbay</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>PTN</td>
<td>LED Highbay - Proteon</td>
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<tr>
<td>Lithonia Lighting</td>
<td>LDN</td>
<td>Downlight</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>ACLX</td>
<td>AC Series Surface Mount</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>RTLR</td>
<td>LED Relight Volumetric Recessed Mount</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>RTLEDRT</td>
<td>Relight Volumetric for Lensed Troffers</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>SBS LX</td>
<td>LED Relight Shadow Box Square</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>T LX</td>
<td>LED Relight Surface Mount</td>
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<tr>
<td>Lithonia Lighting</td>
<td>VTL RT LED</td>
<td>LED Relight Lensed Troffers</td>
</tr>
<tr>
<td>Lithonia Lighting</td>
<td>VTLR LED</td>
<td>LED Relight Parabolic Lensed</td>
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<tr>
<td>Lithonia Lighting</td>
<td>VTLX</td>
<td>LED Relight Volumetric Surface Mount</td>
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<tr>
<td>Gotham</td>
<td>EVO</td>
<td>LED Downlight</td>
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<tr>
<td>Gotham</td>
<td>Incito</td>
<td>LED Downlight</td>
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<tr>
<td>Mark Architectural Lighting</td>
<td>Slot 4 LED</td>
<td>Pendant, Wall, Surface, Recessed</td>
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<tr>
<td>Mark Architectural Lighting</td>
<td>Slot 6 LED</td>
<td>Recessed</td>
</tr>
<tr>
<td>Mark Architectural Lighting</td>
<td>Fin LED</td>
<td>Recessed</td>
</tr>
<tr>
<td>Mark Architectural Lighting</td>
<td>Whisper LED</td>
<td>Recessed</td>
</tr>
<tr>
<td>Mark Architectural Lighting</td>
<td>Nol LED</td>
<td>Recessed</td>
</tr>
<tr>
<td>Mark Architectural Lighting</td>
<td>SPR LED</td>
<td>Perimeter</td>
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<tr>
<td>Peerless</td>
<td>Vellum LED</td>
<td>Suspended, Recessed</td>
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<tr>
<td>Peerless</td>
<td>Mino LED</td>
<td>Recessed</td>
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<tr>
<td>Peerless</td>
<td>Round 2/4 LED</td>
<td>Suspended, Wall</td>
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<tr>
<td>Peerless</td>
<td>Square LED</td>
<td>Suspended, Wall</td>
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<tr>
<td>Peerless</td>
<td>Origami LED</td>
<td>Suspended, Wall</td>
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<tr>
<td>Peerless</td>
<td>Bruno LED</td>
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<tr>
<td>Peerless</td>
<td>Staple</td>
<td>Suspended, Wall</td>
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<tr>
<td>Peerless</td>
<td>Lightline, Indirect</td>
<td>Suspended</td>
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<td>Peerless</td>
<td>Lightedge</td>
<td>Suspended</td>
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<tr>
<td>Peerless</td>
<td>Icetray</td>
<td>Suspended</td>
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<tr>
<td>Peerless</td>
<td>Cerra</td>
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<td>Peerless</td>
<td>Prima</td>
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<td>Peerless</td>
<td>Naro</td>
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<td>Peerless</td>
<td>Tulip</td>
<td>Suspended</td>
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<tr>
<td>Peerless</td>
<td>Envision</td>
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<td>Peerless</td>
<td>Aero</td>
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<tr>
<td>Peerless</td>
<td>Enzo</td>
<td>Suspended</td>
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</tbody>
</table>

Note: New nLight enabled fixtures added regularly. Please reference fixture spec sheets for nLight enabled options.
## APPENDIX B: Requirements Overview

<table>
<thead>
<tr>
<th>Local (i.e. Switch) Control</th>
<th>Code Provision</th>
<th>Code Summary*</th>
<th>Recommendations for Compliance</th>
<th>nLight Solution Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1.1[a]</td>
<td>There shall be one or more readily accessible manual lighting controls in the space that controls all lighting in the space. Note: Remote locations permitted for reasons of safety or security.</td>
<td>Include manual control device(s) in all room control system designs.</td>
<td>nLight WallPod devices provide a user with local control of lighting within an nLight controlled space (i.e. nLight zone). WallPods are available in multiple styles – each with varying features and user experience.</td>
<td>Push-Button WallPod, Graphic WallPod</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scheduled Shutoff (i.e. Timeclock)</th>
<th>Code Provision</th>
<th>Code Summary*</th>
<th>Recommendations for Compliance</th>
<th>nLight Solution Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1.1[j]</td>
<td>All lighting shall be automatically shut off during periods when the space is scheduled to be unoccupied using a time-of-day operated control. Note: A signal from another automatic control device or alarm/security system complies.</td>
<td>Utilizing controls capable of being networked across an entire building enables simple compliance via a single central programmable time clock.</td>
<td>Individual nLight Control Zones (i.e. rooms) can be easily networked together across an entire building simply by connecting them into a “backbone” made up of one or more nLight Bridge devices and an nLight Gateway. The Gateway provides programmable time clock functionality for an nLight network as well as interfaces to the SensorView Suite of web-based software applications (via an Ethernet LAN / WAN connection).</td>
<td>Network Gateway</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Automatic Full OFF Via Occupancy Sensor</th>
<th>Code Provision</th>
<th>Code Summary*</th>
<th>Recommendations for Compliance</th>
<th>nLight Solution Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1.1[h]</td>
<td>All lighting shall be automatically shut off within 20 minutes of all occupants leaving the space.</td>
<td>Always include occupancy sensors in all control system designs regardless of lighting type.</td>
<td>nLight occupancy sensors utilize 100% digital passive infrared (PIR) detection, come in several mounting styles, and offer multiple coverage pattern options. Additionally, nLight sensors are available with patented Microphonics® dual technology detection for rooms with obstructions. Configuring for full off vs partial off control is done with system programming.</td>
<td>360° Occupancy Sensor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Automatic Partial OFF Via Occupancy Sensor</th>
<th>Code Provision</th>
<th>Code Summary*</th>
<th>Recommendations for Compliance</th>
<th>nLight Solution Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1.1[g]</td>
<td>The general lighting power shall be automatically reduced by at least 50% within 20 minutes of all occupants leaving the space. Note: Full Off also complies.</td>
<td>Always include occupancy sensors in all control system designs. Reducing the level of dimmable fixtures to 50% is easiest method of compliance, however turning off 50% of lighting via circuit switching is also an option.</td>
<td>nLight occupancy sensors utilize 100% digital passive infrared (PIR) detection, come in several mounting styles, and offer multiple coverage pattern options. Additionally, nLight sensors are available with patented Microphonics® dual technology detection for rooms with obstructions. Configuring for full off vs partial off control is done with system programming.</td>
<td>120° WideView Corner Sensor</td>
</tr>
</tbody>
</table>

*Note: This summary is for general information purposes only and is provided without any warranty as to accuracy, completeness, or otherwise. The user should read the applicable code sections for more complete and detailed descriptions of code requirements and exceptions and should consult with a professional engineering or other competent advisor before making any decision or taking any action based on this summary.*
## APPENDIX B: Requirements Overview

<table>
<thead>
<tr>
<th>Control Requirement</th>
<th>Code Provision</th>
<th>Code Summary*</th>
<th>Recommendation for Compliance</th>
<th>nLight Solution Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi-Level Lighting Control</td>
<td>9.4.1.1[d]</td>
<td>Controlled lighting shall have at least one control step between 30% and 70%, or continuous dimming, in additional to full on and full off.</td>
<td>Continuous dimmable LED (or fluorescent) fixtures and manual dimming controls are the easiest method of compliance.</td>
<td><strong>nLight enabled Acuity Brands Fixtures</strong>&lt;br&gt;<strong>Dimming Relay Packs / Panels</strong>&lt;br&gt;Acuity offers a wide variety of LED fixtures with factory installed integrated nLight controls that provide smooth continuous dimming, and optional automatic lumen maintenance or manual task tuning. nLight dimming relay packs / panels enable control of any 0-10VDC dimmable LED (or fluorescent) luminaire. Manual task tuning control can also be used.</td>
</tr>
<tr>
<td>Automatic Daylight Responsive Controls for Sidelighting/Toplighting</td>
<td>9.4.1.1[e] 9.4.1.1[f]</td>
<td>If the general lighting load is 150W or greater in the primary sidelighted or toplighted areas, or 300W or greater in the primary &amp; secondary sidelighted areas, the general lighting in these areas shall be controlled by multi-step or continuous dimming photocontrols.</td>
<td>Automatic daylight harvesting photocells that continuously adjust the level of dimming fixtures according to daylight levels provide the most effective and least distracting control.</td>
<td><strong>Ceiling Mount Dimming Photocell</strong>&lt;br&gt;<strong>Recessed Mount Dimming Photocell</strong>&lt;br&gt;nLight offers standalone daylight harvesting sensors as well as occupancy sensors with integrated daylight harvesting. Sensors are available in four different housings and provide continuous dimming control of any/all networked nLight enabled fixtures or dimming relay packs, each capable of being its own daylight zone.</td>
</tr>
<tr>
<td>Automatic Receptacle (i.e. Plug Load) Control</td>
<td>8.4.2</td>
<td>50% of all receptacles, and 25% of branch circuit feeders installed for modular furniture, shall be automatically turned off by an occupant sensor within 20 minutes of all occupants leaving the space. Note: A time-of-day schedule or a signal from another automatic control device or alarm/security system complies.</td>
<td>Since the same automatic shut-off requirements apply to receptacles and lighting, utilizing the same occupancy sensors for both is the simplest method of compliance.</td>
<td><strong>Plug Load / Receptacle Relay Pack</strong>&lt;br&gt;The nLight Plug-Load relay pack is capable of switching an entire 20A receptacle load. Simply add into an nLight Control Zone (room) with an occupancy sensor and the unit will automatically switch off when the room is vacant. Local manual switch control of receptacles is not required and therefore is disabled by default.</td>
</tr>
</tbody>
</table>

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Additional Resources:

**Acuity Controls Typical Layout Drawings**
http://www.acuitybrands.com/typicals

**ASHRAE**
https://www.ashrae.org/

**Use the Following Sections of the ASHRAE 90.1–2013 Code as Reference:**
- Section 8.4.2 — Automatic Receptacle Control
- Section 9.4.1.1[a] — Local Control
- Section 9.4.1.1[b] — Manual On
- Section 9.4.1.1[c] — Partial Automatic On
- Section 9.4.1.1[d] — Bi-Level Lighting Control
- Section 9.4.1.1[e] — Automatic Daylight Responsive Control for Sidelighting
- Section 9.4.1.1[f] — Automatic Daylight Responsive Controls for Toplighting
- Section 9.4.1.1[g] — Automatic Partial Off
- Section 9.4.1.1[h] — Automatic Full Off
- Section 9.4.1.1[i] — Scheduled Shutoff

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For lighting applications, A+ means verified consistent performance, visual appearance and system interoperability of all luminaires and controls within the certified solutions. For lighting professionals it means confidence that all parts of the lighting system will work together and meet common Acuity Brands specifications.

Go to www.acuitybrands.com/solutions/a-certified or contact your local Acuity Brands representative for more information.