INSPECTION GUIDELINES:
LIGHTING REQUIREMENTS

INSPECTION CODE: N/A

SCOPE: RESIDENTIAL

APPLICABLE CODES: 2016 CBC, CRC, CPC, CMC, CEC, CALGreen, CEnC, and PAMC

The information provided in this document is general and intended as a guide only. Each project is unique and additional requirements may be enforced as deemed appropriate.

IMPORTANT

Unless noted otherwise by a code reference, information found in this checklist also came from the California Lighting Technology Center (CLTC) at the University of California, Davis (https://cltc.ucdavis.edu/title24-residential-lighting) and EnergyCode Ace (https://energycodeace.com/).

GENERAL LUMINAIRE REQUIREMENTS

☐ All luminaires shall be high-efficacy (see items 1-10 below). High efficacy products include any luminaire that contains approved light sources or JA8-compliant lamps. (CEnC 150.0(k)1A)

  o Light sources in Items 1-7 are **always** considered high-efficacy:
    1. Pin-based linear or compact fluorescent light sources using electronic ballasts.
    2. Pulse-start metal halide.
    3. High pressure sodium.
    4. GU-24 sockets containing light source other than LEDs (such as compact fluorescents and induction lamps).
      - Note: Incandescent sources with GU24 base are not allowed in California.
    5. Luminaires with hardwired high frequency generator and induction lamp.
    6. Inseparable SSL luminaires installed outdoors.
    7. Inseparable SSL luminaries containing colored light sources that are installed to provide decorative lighting.

  o Light sources in Items 8-10 are considered high-efficacy when they comply with Reference Joint Appendix JA8 and be marked as meeting JA8. To verify if your light source is compliant, visit: http://www.appliances.energy.ca.gov/AdvancedSearch.aspx
    8. All light sources in ceiling recessed downlight luminaires.
      - Note: Ceiling recessed downlight luminaires shall not have screw bases regardless of lamp type as described in section 150.0(k)1C.
    9. GU-24 sockets containing LED light sources.
    10. Any light source otherwise listed in this table and certified to the commission as complying with Joint Appendix 8
BLANK ELECTRICAL BOXES
☐ Blank electrical boxes more than 5’ above the finished floor and that do not contain a luminaire shall be restricted to the number of bedrooms (e.g., if you only have four bedrooms in the house, you are limited to four blank electrical boxes). The boxes must be served by a dimmer, vacancy sensor control, or fan speed control. (CEnC 150.0(k)1B)

RECESSED DOWNLIGHT LUMINAIRES
☐ Luminaires recessed into ceilings shall meet the following requirements (CEnC 150.0(k)1C):
  o Approved for insulation contact (IC) by UL or NRTL.
  o Labeled certifying airtight (AT) according to ASTM E283 (air leakage is <2.0 CFM at 75 pascals).
    1. Exception: Does not apply to exhaust fans.
  o Sealed with gasket or caulking between housing and ceiling—all air leak paths through luminaire assembly or ceiling opening must be sealed.
  o For luminaires with hardwired ballasts and drivers, allow for readily accessible maintenance from below the ceiling without cutting holes.
  o No screw base sockets
  o Only paired with JA8 compliant light sources marked “JA8-2016-E”
    1. E means tested and approved for elevated temperatures

BALLASTS
☐ Ballasts for fluorescent lamps rated 13 watts or greater shall be electronic and shall have an output frequency no less than 20 kHz. (CEnC 150.0(k)1D)

NIGHT LIGHTS
☐ Night lights that are permanently installed shall be rated to consume no more than 5 watts of power; night lights shall not be required to be controlled by vacancy sensors. (CEnC 150.0(k)1E)

EXHAUST FANS
☐ Lighting integral to exhaust fans shall be high-efficacy. (CEnC 150.0(k)1F)
  o Exception: Lighting installed by the manufacturer in kitchen exhaust hoods.

SCREW BASED AND ENCLOSED LUMINAIRES
☐ Screw based luminaires shall meet the following (CEnC 150.0(k)1G):
  o Not be recessed downlight luminaires in ceilings.
  o Contain lamps that are comply with JA8 and are labeled “JA8-2016” or “JA8-2016-E”.
    ▪ JA8-2016 lamps are appropriate for open fixtures.
    ▪ JA8-2016-E lamps are appropriate for fixtures that experience elevated temperatures (e.g., enclosed).
  o Exception: Luminaires with hard-wired ballasts for high intensity discharge (HID).

ENCLOSED LUMINAIRES
☐ Light sources not marked with JA8-2016-E shall not be installed in enclosed luminaires. (CEnC 150.0(k)1H)
  o Enclosed luminaires are those that contain enclosed lamp compartments where ventilation openings are less than 3 square inches per lamp per UL 1598.
INTERIOR LIGHTING SWITCHING DEVICES AND CONTROLS

☐ All forward phase dimmers used with LED light sources must comply with NEMA SSL 7A. (CEnC 150.0(k)2A)
  o NEMA SSL 7A is an industry standard that provided compatibility requirements for dimmers and LED light sources.

☐ Exhaust fans shall be switched separately from lighting systems. (CEnC 150.0(k)2B)
  o Exception: Lighting integral to the exhaust fan, provided that the lighting can be switched to OFF

☐ Luminaires shall be switched with controls that are readily accessible that permit the luminaires to be manually switched to ON and OFF. (CEnC 150.0(k)2C, CEnC 150.0(k)2E)
  o No controls shall bypass a dimmer or vacancy sensor function (i.e., cannot be locked in a permanent ON state).
  o The time delay cannot be greater than 20 minutes.

☐ An energy management control system (EMCS)/multiscene programmable controller can be used to comply with 150.0(k)2 requirements assuming that it provides the same functionality and is certified. (CEnC 150.0(k)2G, CEnC 150.0(k)2H, CEnC 150.0(k)2I)

☐ In bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces shall be controlled by a vacancy sensor. (CEnC 150.0(k)2J)

☐ Dimmers or vacancy sensors shall control all high efficacy luminaires. (CEnC 150.0(k)2AK)
  o Exception: Luminaires in closets less than 70 square feet and luminaires in hallways.

☐ Undercabinet lighting shall be switched separately from other lighting systems. (CEnC 150.0(k)2L)

OUTDOOR LIGHTING

☐ Outdoor lighting shall meet all of the indoor lighting requirements in addition to meeting Item 1 and Item 2 or 3 (CEnC 150.0(k)3A):
  1. Controlled by a manual ON and OFF switch; the switch shall not override the automatic actions of 2 or 3 below
  2. Controlled by a photocell and motion sensor
  3. Controlled by one of the following methods:
     a. Photocontrol and automatic time switch control
     b. Astronomical time clock
     c. Energy management control system (EMCS)
### Lighting Controls Required

All installed luminaires shall be high-efficacy (see table below) that are permanently installed or integral to a luminaire exhaust fan, or ceiling fan. Portable lighting (plugged in) are not subject to these requirements.

<table>
<thead>
<tr>
<th>Location</th>
<th>Control Requirements</th>
<th>Special Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bathroom</td>
<td>At least one light in each of these rooms to be controlled with a vacancy sensor, no matter the light source type.</td>
<td>On/Off switch to be readily accessible manual controls, allowing occupants easy control of lighting in the space (or outdoors).</td>
</tr>
<tr>
<td>Laundry/Utility</td>
<td></td>
<td>Exhaust fans to be switched/controlled separately from lighting.</td>
</tr>
<tr>
<td>Garage (attached or unattached)</td>
<td>J88 lamps/luminaires to be controlled with either dimmer or vacancy sensor.</td>
<td>Undercabinet lighting switched separately all other lighting.</td>
</tr>
<tr>
<td>Kitchen</td>
<td>“Automatically” high efficacy can be controlled with either on/off switch, vacancy sensor, or dimmer.</td>
<td>EMCS can be used if dimmer control requirements met.</td>
</tr>
<tr>
<td>All Other: i.e. bedrooms, living rooms, office, dining, attic spaces, closets ≥70 ft², detached storage buildings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closets &lt;70 ft²</td>
<td>Dimmer or vacancy sensor are not required even if J88 lamps/luminaires are used.</td>
<td></td>
</tr>
<tr>
<td>Hallways</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blank Electrical Boxes (more than 5 feet above floor)</td>
<td>Each box to be controlled by either vacancy sensor, dimmer or fan speed control.</td>
<td>No greater than the number of bedrooms</td>
</tr>
<tr>
<td>Nightlights</td>
<td>Vacancy sensor not required.</td>
<td>Permanent, or integral to exhaust fan or luminaire, not to use more than 5 watts per fixture.</td>
</tr>
<tr>
<td>Outdoors</td>
<td>Photocell and motion sensor OR Photocell and time switch OR Astronomical time clock OR EMCS that works like an astronomical time clock Illuminated signs: Meet NR sign lighting requirements ($130.0(c)) OR use no more than 5 watts</td>
<td>Controls that override to ON shall not be allowed unless the override automatically reactivates within 6 hours. Landscape lighting exempt. Lighting not attached to building(s) exempt.</td>
</tr>
</tbody>
</table>

### Alterations/Additions to Existing Home

- **Will Require Compliance to these Requirements**
  - Such as (but not limited to) work TYPICALLY associated with pulling a building permit:
    - **Adding onto a home**: New areas of the home must meet the applicable requirements.
    - **Remodeling a home**: When work is done with a permit, then these requirements apply to the remodeled spaces as is applicable.
    - **Spaces not being renovated**: None of these requirements apply to spaces or fixtures NOT being added/remodeled/replaced.

- **Does NOT Require Compliance to these Requirements**
  - Such as (but not limited to) work NOT typically associated with pulling a building permit:
    - Changing the light bulbs;
    - Changing lighting controls;
    - Replacing lighting fixtures;
    - Moving light fixtures.
### What’s Considered High Efficiency Lighting
(images are examples only)

<table>
<thead>
<tr>
<th>Luminaire/Fixture Type</th>
<th>Automatically High Efficacy</th>
<th>Using JA8 Certified Lamps (JA8-2016-E must be used for enclosed lamps/luminaires)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor</td>
<td>• Pin-based linear fluorescent</td>
<td>• LED luminaires with integral sources</td>
</tr>
<tr>
<td></td>
<td>• Pin-based compact fluorescent</td>
<td>• Screw-based LED lamps</td>
</tr>
<tr>
<td></td>
<td>• GU-24 other than LEDs</td>
<td>• Pin-based LED lamps</td>
</tr>
<tr>
<td></td>
<td>• Inseparable SSL luminaires with colored light sources for decorative lighting purpose</td>
<td>• GU-24 based LED light source</td>
</tr>
<tr>
<td>Outdoor</td>
<td>• Pulse-start metal halide.</td>
<td>• Recessed Ceiling (Can) Lights: <em>Recessed ceiling downlights</em> (can lights) CANNOT be screw base and must use an insulation contact &amp; air tight (ICAT) rated can.</td>
</tr>
<tr>
<td></td>
<td>• High pressure sodium.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Luminaires with hardwired high frequency generator and induction lamp.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Inseparable SSL luminaires that are installed outdoors.</td>
<td></td>
</tr>
</tbody>
</table>