ENERGY MANAGEMENT CONTROL SYSTEM OR LIGHTING CONTROL SYSTEM

CERTIFICATE OF INSTALLATION		NRCI-LTI-02-E
Energy Management Control System or Lighting Control System		(Page 1 of 6)
Project Name:	Enforcement Agency:	Permit Number:
Project Address:	City:	Zip Code:

GENERAL INFORMATION				
DATE OF BUILDING PERMIT:	PERMIT #			
BUILDING TYPE	☐ Nonresidential	☐ High-Rise Res (Common Area)	☐ Hotel/Motel (Common Area)	
PHASE OF CONSTRUCTION	☐ New Construction	☐ Addition	☐ Alteration	☐ Unconditioned

SCOPE OF RESPONSIBILITY	
Enter the date of approval by enforcement agency of the Certificate of Compliance that provides the specifications for the energy efficiency measures for the scope of responsibility for this Installation Certificate.	Date:

Requirements in the Standards:

§130.4(b) Before an Energy Management Control System (EMCS), or Lighting Control System can be recognized for compliance with the lighting control requirements in Part 6 of Title 24, the person who is eligible under Division 3 of the Business and Professions Code to accept responsibility for the construction or installation of features, materials, components, or manufactured devices shall sign and submit this Installation Certificate.

If any of the requirements in this Installation Certificate fail the Energy Management Control System or Lighting Control System installation requirements, these options for controlling lighting shall not be recognized for compliance with the Building Energy Efficiency Standards.

Check all that apply:

PART 1 What type of Lighting Control System has been installed?

☐ **A. Energy Management Control System (EMCS) -** Is a computerized control system designed to regulate the energy consumption of a building by controlling the operation of energy consuming systems, such as the heating, ventilation and air conditioning (HVAC), lighting, and water heating systems, and is capable of monitoring environmental and system loads, and adjusting HVAC operations in order to optimize energy usage and respond to demand response signals.

- ☐ The Energy Management Control System has been installed to function as a lighting control required by Part 6 and functionally meets all applicable requirements for each application for which it is installed, in accordance with Sections 110.9, 130.0 through 130.5, 140.6 through 150.0, and 150.2; and complies with Reference Nonresidential Appendix NA7.7.2.

- ☐ The EMCS has been separately tested for each respective lighting control system for which it is installed to function as.

☐ **B. Lighting Control System -** Requires two or more components to be installed in the building to provide all of the functionality required to make up a fully functional and compliant lighting control.

- ☐ The installed Lighting Control System complies with the requirements checked below; and all components of the system considered together as installed meet all applicable requirements for the application for which they are installed as required in Sections 130.0 through 130.5, Sections 140.6 through 140.8, Section 141.0, and Section 150.0(k).

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PART 2 Lighting Control Functional requirements: ***Check all that apply when verifying the installation of an EMCS or Lighting Control System.***

☐ A. All lighting controls and equipment have been installed in accordance with the manufacturer's instructions.

☐ B. The manufacturer has provided instructions for calibration.

☐ C. If indicator lights are integral to any components, such indicator lights consumes no more than 1 watt of power per indicator light.

☐ D. Components that are regulated by the Title 20 Appliance Efficiency Regulations have been certified to the Energy Commission.

☐ E. The EMCS or Lighting Control System functions as one or more of the Time-Switch Lighting Controls checked below, and complies with all of the following requirements:

☐ 1. Automatic Time-Switch Controls meeting all requirements for Automatic Time Switch Control devices in the Title 20 Appliance Efficiency Regulations, including the requirements below:

a. Residential automatic time-switch controls have program backup capabilities that prevent the loss of the device's schedule for at least 7 days, and the device's date and time for at least 72 hours if power is interrupted.

b. Commercial automatic time-switch controls meet the following requirements:

i. Has program backup capabilities that prevent the loss of the device's schedule for at least 7 days, and the device's date and time for at least 72 hours if power is interrupted;

ii. Is capable of providing manual override to each connected load and shall resume normally scheduled operation after manual override is initiated within 2 hours for each connected load; and

iii. Incorporates an automatic holiday shutoff feature that turns off all connected loads for at least 24 hours and then resumes normally scheduled operation.

☐ 2. Astronomical Time-Switch Controls meeting all requirements for Astronomical Time-Switch Control devices in the Title 20 Appliance Efficiency Regulations, including the requirements below:

a. Meets the requirements of an automatic time-switch control;

b. Has sunrise and sunset prediction accuracy within plus-or-minus 15 minutes and timekeeping accuracy within 5 minutes per year;

c. Is capable of displaying date, current time, sunrise time, sunset time, and switching times for each step during programming;

d. Has an automatic daylight savings time adjustment; and

e. Has the ability to independently offset the on and off for each channel by at least 99 minutes before and after sunrise or sunset.

☐ 3. Multi-Level Astronomical Time-Switch Controls, in addition to meeting all of the requirements for Astronomical Time-Switch Controls, includes at least 2 separately programmable steps per zone.

☐ F. The EMCS or Lighting Control System functions as one or more of the Daylighting Controls listed below:

☐ 1. Automatic Daylight Controls meet all requirements for Automatic Daylight Control devices in the Title 20 Appliance Efficiency Regulations, including the following:

a. Is capable of reducing the power consumption in response to measured daylight either directly or by sending and receiving signals;
b. If the system includes a dimmer, complies with the Dimmer Control device requirements in the Title 20 Appliance Efficiency Regulations.
c. Automatically return to its most recent time delay settings within 60 minutes when put in calibration mode;
d. Has a set point control that easily distinguishes settings to within 10 percent of full scale adjustment;
e. Has a light sensor that has a linear response within 5 percent accuracy over the range of illuminance measured by the light sensor;
f. Has a light sensor that is physically separated from where the calibration adjustments are made, or is capable of being calibrated in a manner that the person initiating the calibration is remote from the sensor during calibration to avoid influencing calibration accuracy; and
g. Complies with the Title 20 requirements for photo controls if the system contains a photo control component.

☐ 2. Photo Controls meet all requirements for Photo Control devices in the Title 20 Appliance Efficiency Regulations, including the following that it does not have a mechanical device that permits disabling of the control.

☐ G. The EMCS or Lighting Control System functions as a Dimmer and meets all requirements for a Dimmer Control device in the Title 20 Appliance Efficiency Regulations, including the following:

1. Is capable of reducing power consumption by a minimum of 65 percent when the dimmer is at its lowest level;
2. Includes an off position which produces a zero lumen output; and
3. Does not consume more than 1 watt per lighting dimmer switch leg when in the off position.
4. Dimmer controls that can directly control lamps provide electrical outputs to lamps for reduced flicker operation through the dimming range so that the light output has an amplitude modulation of less than 30 percent for frequencies less than 200 Hz without causing premature lamp failure.
5. If designed for use in three way circuits is capable of turning lights off, and to the level set by the dimmer if the lights are off.

☐ H. The EMCS or Lighting Control System meets the following requirements:

1. Is capable of automatically turning off controlled lights in the area no more than 30 minutes after the area has been vacated;
2. Allows all lights to be manually turned off regardless of the status of occupancy; and
3. Has a visible status signal that indicates that the device is operating properly, or that it has failed or malfunctioned. The visible status signal may have an override switch that turns off the signal.
4. All occupant sensing devices that utilize ultrasonic radiation for detection of occupants meet the Ultrasound Maximum Decibel Values in the Title 20 Appliance Efficiency Regulations
5. All occupant sensing devices that utilize microwave radiation for detection of occupants meet the radiation requirements in the Title 20 Appliance Efficiency Regulations

6. Occupant sensing devices incorporating dimming comply with the requirements for dimmer controls in the Title 20 Appliance Efficiency Regulations
7. The EMCS or Lighting Control System functions as one or more of the Occupant Sensing Controls Checked Below:

☐ a. Occupant Sensors meeting all applicable requirements for Occupant Sensor Control devices in the Title 20 Appliance Efficiency Regulations

☐ b. Motion Sensors meeting all applicable requirements for Motion Sensor Controls devices in the Title 20 Appliance Efficiency Regulations, including that motion sensors are rated for outdoor use.

☐ c. Vacancy Sensors meeting all applicable requirements for Vacancy Sensor Controls devices in the Title 20 Appliance Efficiency Regulations, including the following:

i. Does not turn on lighting automatically and does not incorporate DIP switches, or other manual means, for conversion between manual and automatic functionality;

ii. Has a grace period of no more than 30 seconds and no less than 15 seconds to turn on lighting automatically after the sensor has timed out; and

iii. Does not have an override switch that disables the sensor.

☐ d. Partial-ON Sensors meeting all applicable requirements for partial on sensing devices in the Title 20 Appliance Efficiency Regulations, including the following:

i. Has two poles each with automatic-off functionality;

ii. Has one pole that is manual-on and does not incorporate DIP switches, or other manual means, for conversion between manual and automatic functionality; and

iii. Has one pole that is automatic-on and is not be capable of conversion by the user to manual-on functionality.

☐ e. Partial-OFF Sensors meet all applicable requirements for partial off sensing devices in the Title 20 Appliance Efficiency Regulations, including the following:

i. Has two poles;

ii. Has one pole that is manual-on and manual off; and

iii. Has one pole that is automatic-on and automatic-off and is not capable of conversion by the user to manual-on only functionality.

☐ f. Occupant Sensing Control systems consist of a combination of single or multi-level Occupant, Motion, or Vacancy Sensor Controls, and all components installed to comply with manual-on requirements are not capable of conversion by the user from manual-on to automatic-on functionality.

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PART 3 Requirements for which the control is being installed to complied with:
Identify all requirements in the Standards for which the EMCS or Lighting Control System is installed to function as and complies with:

Check all that are applicable

- ☐ A. Section 130.1(a) Area Controls.
- ☐ B. Section 130.1(b) Multi-Level Lighting Controls
- ☐ C. Section 130.1 (c) Shut-OFF Controls
- ☐ D. Section 130.1 (d) Automatic Daylighting Controls.
- ☐ E. Section 130.1 (e) Demand Responsive Controls.
- ☐ F. Section 130.5 (d) Circuit Controls for 120-Volt Receptacles.

If installed to qualify for a Power Adjustment Factor, submit this Installation Certificate in addition to the PAF Installation Certificate.

- ☐ G. To qualify for the PAF for a Partial-ON Occupant Sensing Control in TABLE 140.6-A
- ☐ H. To qualify for the PAF for an occupant sensing control controlling the general lighting in large open plan office areas above workstations, in accordance with TABLE 140.6-A
- ☐ I. To qualify for the PAF for a Manual Dimming System PAF or a Multiscene Programmable Dimming System PAF in TABLE 140.6-A
- ☐ J. To qualify for the PAF for a Demand Responsive Control in TABLE 140.6-A
- ☐ K. To qualify for the PAF for Combined Manual Dimming plus Partial-ON Occupant Sensing Control in TABLE 140.6-A

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Installation documentation is accurate and complete.	
Documentation Author Name:	Documentation Author Signature:
Documentation Author Company Name:	Date Signed:
Address:	CEA Certification Identification (If applicable):
City/State/Zip:	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Installation is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code in the applicable classification to accept responsibility for the system design, construction, or installation of features, materials, components, or manufactured devices for the scope of work identified on this Certificate of Installation and attest to the declarations in this statement (responsible builder/installer), otherwise I am an authorized representative of the responsible builder/installer.
3. The constructed or installed features, materials, components or manufactured devices (the installation) identified on this Certificate of Installation conforms to all applicable codes and regulations, and the installation conforms to the requirements given on the plans and specifications approved by the enforcement agency.
4. I reviewed a copy of the Certificate of Compliance approved by the enforcement agency that identifies the specific requirements for the scope of construction or installation identified on this Certificate of Installation, and I have ensured that the requirements that apply to the construction or installation have been met.
5. I will ensure that a completed signed copy of this Certificate of Installation shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Installation is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Builder/Installer Name:	Responsible Builder/Installer Signature:	
Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)	Position With Company (Title):	
Address:	CSLB License:	
City/State/Zip:	Phone	Date Signed:

NRCI-LTI-02-E User Instructions

This Certificate of Installation must be submitted whenever a lighting control system, and whenever an Energy Management Control System (EMCS), has been installed to comply with any of the lighting control requirements in the Standards.

If this Certificate of Installation is not submitted, or if all of the appropriate boxes have not been checked, the lighting controls system or the EMCS will not be recognized for compliance with the lighting control requirements in the Standards.

Note that if the control systems are installed to function as an automatic daylighting control, occupancy sensing control, or automatic time-switch control, Certificates of Acceptance (NRCA-LTI-02-A and NRCA-LTI-03-A) must also be submitted.

Check all appropriate boxes in this certificate as a declaration that the control system has been installed to meet all of the minimum specifications and functionalities.

- Part 1 – Identify if the system is a lighting control system, or an EMCS, by checking the appropriate boxes.
- Part 2 - Lighting Control Functional requirements: Check all boxes that apply to verify the functionality of the Lighting Control System or EMCS.
- Part 3 – Check all boxes to indicate what sections of the Standards the control has been installed to comply with

If this control system or EMCS has been installed to qualify for a Power Adjustment Factor, the NRCI-LTI-05-E must also be submitted.