



NECA
Boston
2016
OCT. 7-10

TECHNICAL
WORKSHOP

Maximizing the Plug Load Control Opportunity

Maximizing the Plug Load Control Opportunity

Kevin Kohl
Legrand

**This session is eligible for
1 Contact Hour.**

For these hours to appear on your certificate, you must:

- Have your badge scanned at the door
- Attend 90% of this presentation
- Fill out the online evaluation for this session



NECA 2016 BOSTON

Maximize the Opportunity



What is Plug Load Control?



Code Requirements and Impact



What's In It For ME?



Developing your strategy










NECA 2016 BOSTON

What is Plug Load Control?

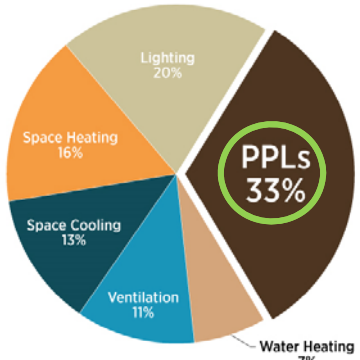
Plug Load Control

- **Definition:**
 - *The ability to limit the electricity used by the products that are powered by an ordinary AC plug.*








- Many ways to do it – but not all are code compliant

Commercial Buildings Energy Use Breakdown



Source: US Dept. of Energy



NECA 2016 BOSTON

Background

- “Occupants are only at their workstations approximately **30% of the day** during business hours.” (U.S. GSA)
- “In an ultra-efficient office building, plug loads are typically one of the last end uses to be considered for energy conservation, and, as a result, can account for **more than 50%** of the total electrical load.” (Lobato et. Al, 2011)

Plug Load Control Strategy	Space	% Energy Reduction from Baseline
Occupancy	Workstation	21%
Schedule Timer	Workstation	26%
Schedule Timer	Print Rooms	50%
Schedule Timer	Break Rooms	46%

Source: NREL, 2014



NECA 2016 BOSTON

Code Requirements



- Private offices
- Conference rooms
- Copier rooms
- Break rooms
- Classrooms
- Workstations



- Private offices
- Open office area
- Reception lobbies
- Conference rooms
- Kitchenette areas
- Copy rooms
- Hotel/motel guest rooms



NECA 2016 BOSTON

ASHRAE 90.1: Section 8.4.2

Automatic Receptacle Control

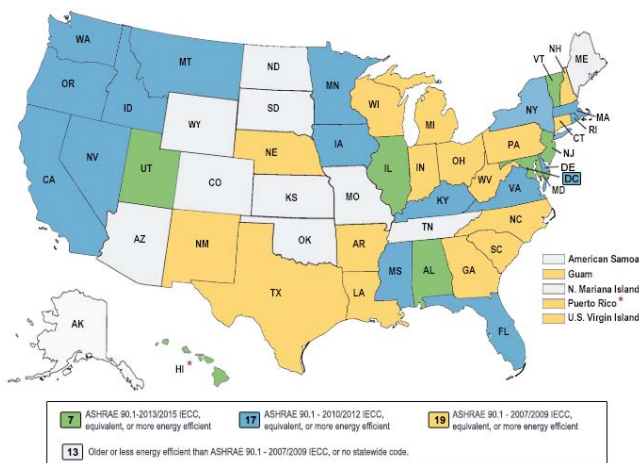
- At least 50% of all 125V, 15 & 20A receptacles
- Shall be controlled by an **automatic control device** that shall function on:
 - A scheduled basis,
 - occupant sensor,
 - or a signal from another control system
- Plug-in devices **do not comply**

- Private offices
- Conference rooms
- Copier rooms
- Break rooms
- Computer Classrooms
- Open Office Workstations



NECA 2016 BOSTON

ASHRAE 90.1 Adoption



- ASHRAE 90.1 -2010 → Plug Load Control
- Approx 1/2 of US has adopted
- Know your local market!



NECA 2016 BOSTON

CEC Title 24, Part 6

Automatic Receptacle Control

- At least one controlled receptacle must be **within 6 feet of an uncontrolled receptacle**
 - Can be accomplished with **split-wired** receptacle
- Demand responsive lighting controls in new construction buildings **>10,000 sq ft**

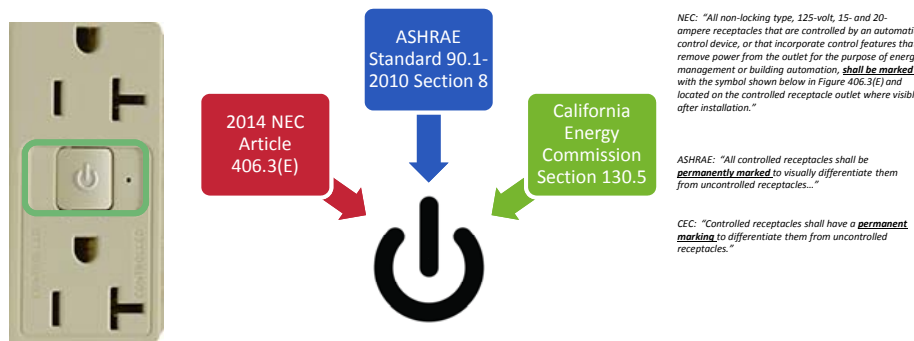
- Private offices
- Open office area
- Reception lobbies
- Conference rooms
- Kitchenette areas
- Copy rooms
- Hotel/motel guest rooms



NECA 2016 BOSTON

Marked Receptacle Requirement

Codes & Standards drive the need for permanent identification of controlled receptacles.



DON'T TAKE A CHANCE WITH STICKERS!



NECA 2016 BOSTON

What's In It For ME?

- Recurring Revenues: Become the **trusted expert**



- Make retrofits **more profitable** with a simple bolt-on



NECA 2016 BOSTON

What's In It For ME?

- Become More Valuable to Your Customers!



- Reduce energy consumption by 21% with occupancy-based plug load controls at workstations.

- *It's as easy as changing out a receptacle!*

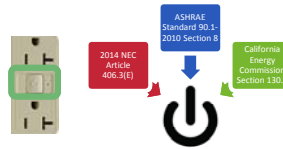


NECA 2016 BOSTON

Developing Your Strategy

Eliminate Risk and Add Value

1. Consider hiring a consultant or in-house expert
 - Leave confusing code navigation to an expert
 - Several large EC's doing this today in California with Title 24
 - Avoid costly rework due to code confusion
2. Future-proof as much as possible!
 - Identify and install flexible solutions to accommodate for space reconfigurations
 - Scalable systems
 - Retrofittable solutions
 - Keep plug load as accessible as possible
3. Pre-construction!
 - Identify solutions that can be configured and installed offsite
 - Avoid costly onsite troubleshooting
4. Install **permanently marked** receptacles
 - End users need to understand which receptacles are controlled
 - ASHRAE 90.1, Title 24 require a **permanent marking** for controlled receptacles
 - 2014 NEC® requires placement of logo on the outlet
 - Stickers present **more risk**
 - Stickers are **not permanent**



NECA 2016 BOSTON

Developing Your Strategy

Simplify Your Approach

1. Future-ready your building as much as possible
2. Identify solutions that bolt onto your existing lighting controls
3. Keep it simple!



NECA 2016 BOSTON

Developing Your Strategy

Don't Just Focus on the Walls

- Outlets in the floor count too!
- You may be surprised at your ratio of outlets in the floor versus wall
- Look for poke-thrus and floor boxes tested with wireless products!



NECA 2016 BOSTON

Resources

Legrand offers a wide range of solutions & resources to cover the needs of your entire building.



www.youtube.com/LegrandNA



www.AECDaily.com

Search for: Legrand



Can we help you? Let us know:

www.legrand.us/project-help



NECA 2016 BOSTON

Questions?

Kevin Kohl
Product Manager, Pass & Seymour
ELECTRICAL WIRING SYSTEMS

Legrand, North America
kevin.kohl@legrand.us
www.legrand.us



For More Information
Visit us in Booth 757



NECA 2016 BOSTON