A NEMA Wiring Devices Section White Paper
NEMA BI 50002-2022

Automatic Receptacle Control to Meet Energy-Efficiency Requirements in Codes and Standards IECC, ASHRAE 90.1, and California Title 24

National Electrical Manufacturers Association
1300 North 17th Street, Suite 900
Rosslyn, Virginia 22209

www.nema.org

NOTICE AND DISCLAIMER

The information in this publication was considered technically sound by the consensus of persons engaged in the development and approval of the document at the time it was developed. Consensus does not necessarily mean that there is unanimous agreement among every person participating in the development of this document.

NEMA standards and guideline publications, of which the document contained herein is one, are developed through a voluntary consensus standards development process. This process brings together volunteers and/or seeks out the views of persons who have an interest in the topic covered by this publication. While NEMA administers the process and establishes rules to promote fairness in the development of consensus, it does not write the document and it does not independently test, evaluate, or verify the accuracy or completeness of any information or the soundness of any judgments contained in its standards and guideline publications. NEMA disclaims liability for any personal injury, property, or other damages of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use of, application, or reliance on this document.

NEMA disclaims and makes no guaranty or warranty, express or implied, as to the accuracy or completeness of any information published herein and disclaims and makes no warranty that the information in this document will fulfill any of your particular purposes or needs. NEMA does not undertake to guarantee the performance of any individual manufacturer or seller's products or services by virtue of this standard or guide.

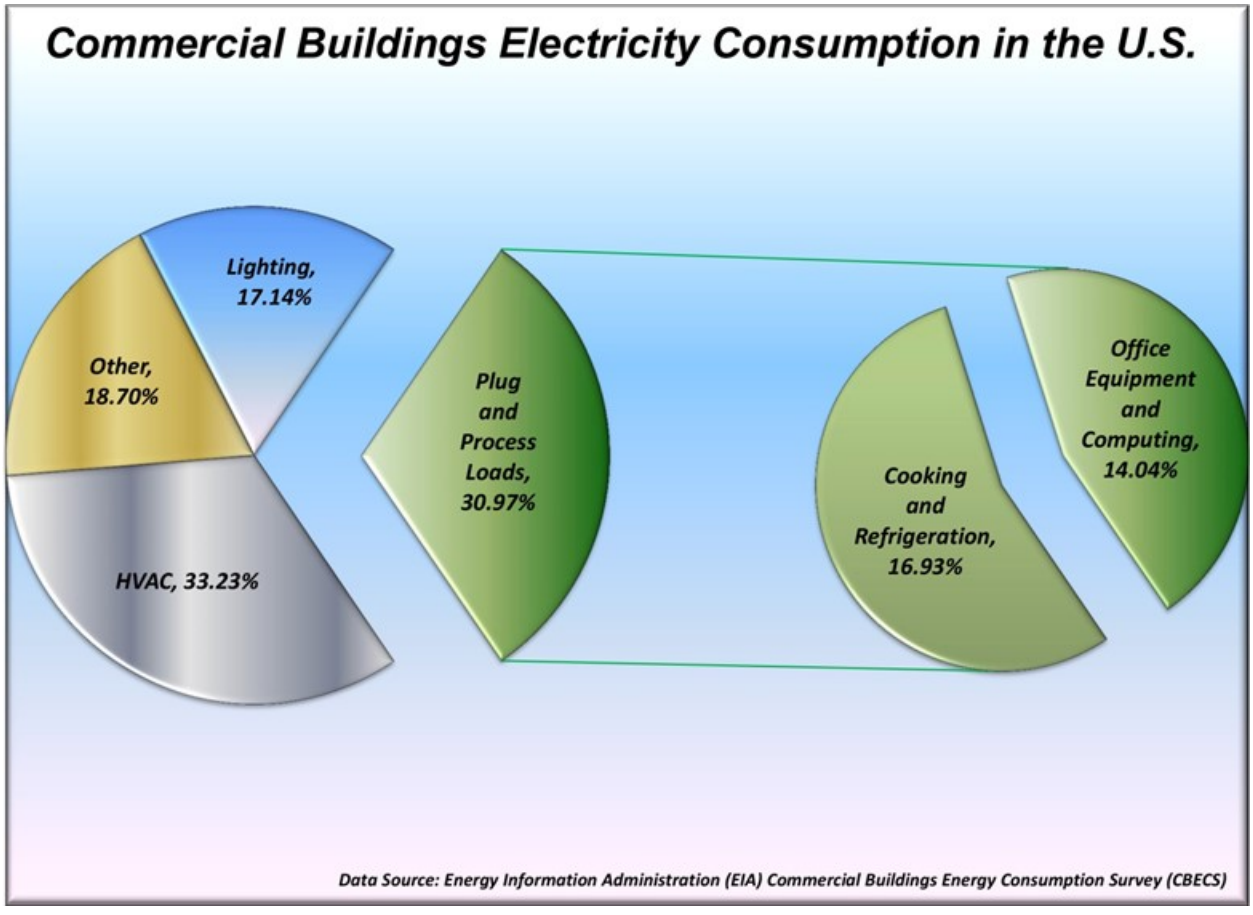
In publishing and making this document available, NEMA is not undertaking to render professional or other services for or on behalf of any person or entity, nor is NEMA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances. Information and other standards on the topic covered by this publication may be available from other sources, which the user may wish to consult for additional views or information not covered by this publication.

NEMA has no power, nor does it undertake to police or enforce compliance with the contents of this document. NEMA does not certify, test, or inspect products, designs, or installations for safety or health purposes. Any certification or other statement of compliance with any health or safety-related information in this document shall not be attributable to NEMA and is solely the responsibility of the certifier or maker of the statement.

Automatic Receptacle Control to Meet Energy-Efficiency Requirements in Codes and Standards IECC, ASHRAE 90.1, and California Title 24

Advances in building construction methodology and product technology have allowed for greater energy efficiency in building design than ever before. In the recent past, HVAC, building envelope, and lighting presented the greatest opportunities to reduce power consumption and conserve energy. Designers and manufacturers have been implementing solutions targeting these systems for decades.

Although appliance standards and programs such as ENERGY STAR® have increased the energy efficiency of office equipment, appliances, and plug-in lighting loads, they have remained a largely unmanaged group of energy-consuming loads in a building. Today, much of what is plugged into a convenience receptacle is uncontrolled. Based on data from the Energy Information Administration Commercial Buildings Energy Consumption Survey of 2012, approximately 30% of the energy used in buildings is by loads that are plugged in. A pilot study by the Pacific Northwest National Laboratory estimates that plug loads can account for as much as 50% of the energy consumed in new construction that uses energy-efficient HVAC and lighting. The DoE data shows that implementing automatic receptacle controls can reduce energy use by 20-50%. The DoE forecasts that overall energy consumption in a commercial environment will increase 24% by 2030 and plug loads will increase twice as much, to 49%.



ASHRAE 90.1, the International Energy Conservation Code (IECC), and the California Energy Efficiency Standard Title 24 have identified receptacles as a category requiring energy management. They target specific spaces in a building and require that half (50%) of the receptacles and circuits, including modular