EO 2: Measure Electricity Use in Tenant Spaces

Amendments to ANSI/ASHRAE/IESNA 90.1 (2007), as incorporated in Chapter 13 of the New York City Building Code:
Proposal developed by the Energy & Ventilation Committee

Summary

Issue
Because electricity is often unmetered in commercial tenant spaces, tenants are unaware of the energy they consume. This, in turn, can lead to excessive use and waste.

Recommendation
All new residential dwelling units and all new commercial tenant spaces of 10,000 square feet or larger shall be metered for electricity. A similar proposal was incorporated into the Greener, Greater Buildings Plan, which became law prior to the issuance of this report.

Proposed Legislation, Rule or Study

Amendments to ANSI/ASHRAE/IESNA 90.1 (2007), as incorporated in Chapter 13 of the New York City Building Code:

1. Add a new Section 8.4.2 as follows:

8.4.2 Electrical Metering

8.4.2.1 Residential metering. In buildings having individual dwelling units, electric metering shall be included capable of measuring, at a minimum, the electrical energy consumed in each dwelling unit on a monthly basis or more often. Metering may be supplied either by the owner or by the electric utility.

8.4.2.2 Commercial metering. Commercial spaces occupied by a single tenant and comprising one or more complete floors of a building or 10,000 square feet or more shall be supplied with electric metering capable of recording, at a minimum, electric energy consumption and peak demand within the space either monthly or more often. Metering may be supplied either by the owner or by the electric utility.

Exceptions:
a) In the case of renovations and retrofits of existing commercial spaces, this requirement is waived if it would require that the space be re-wired;
b) This requirement is waived for tenant spaces for which the inception of the lease of the commercial space that would otherwise be covered by this requirement precedes the enactment of this requirement.

Supporting Information

Issue - Expanded
It is well established that payments directly coupled to energy and/or demand usage lead to lower consumption. NYSERDA studies indicate that sub-metering a master-metered multifamily building can reduce apartment electricity consumption by approximately 17% - 27%. This measure will ensure that all newly constructed residential buildings, and all or almost all new or renovated commercial spaces will have meters installed and available for use. Since building code has no control over operations, the actual use of the meters as a basis for billing will be controlled by Public Service Commission regulations. Whether new or existing buildings are master metered with no individual billing (despite the presence of individual meters), master metered with sub-meters, or directly metered by Con Edison is under the purview of the PSC and cannot be decided within New York City.

Environmental & Health Benefits
Lower electricity consumption will lead to lower emissions from generating stations, improved air quality and decreased release of greenhouse gases.
This proposal was found to have a low, positive environmental impact per building and to impact a small number of buildings. It was thus given an environmental score of 1.
This proposal was found to have a positive, indirect health impact.

**Cost & Savings**

As described in the Executive Summary, Bovis Lend Lease prepared cost estimates for each Task Force proposal in the context of well-defined construction projects in specific buildings. Where possible, members of the Technical Committees prepared savings estimates for some of these projects and buildings. These cost and savings estimates are presented in the February 1st draft version of Appendix A. The innate uncertainty in how construction and operation will vary from one building to another, the complexity of the Task Force proposals, and the wide range of applications in which the proposals may be realized mean these figures are truly estimates.

This proposal was estimated to increase first capital costs by 0.07% to 0.1%, depending on building type. It was thus categorized as incurring a medium capital cost increment. This proposal was also estimated to generate financial savings that will pay for the capital costs in less than three years for certain building types, assuming that billing for individual usage is instituted in one form or another.

**Precedents**

This item is included in the New York State Energy Conservation Construction Code, 805.8, for multifamily residential buildings. It is repeated here since ASHRAE 90.1 2007 has been designated as a replacement for the New York State code, and there is no metering provision in 90.1.

**Other Jurisdictions**

Metering is nearly universal. No specific information available.

**LEED**

This measure will have little impact on LEED certification.

**Implementation & Market Availability**

Electric sub-meters are widely available.

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