

Retrofit Legislation - Recommendation Submitted to the City Council October 15, 2018

The American Council of Engineering Companies of New York (ACEC New York) submits the following recommendations for consideration as the City Council develops building Retrofit Legislation.

Context: Existing buildings may be required to comply with limits on the amount of onsite energy they consume annually. For buildings that must meet these new requirements, assigning negligence or culpability in the event of a failure to comply must be adjudicated between multiple stakeholders: the building design team, construction team, property management/operations and owners. However, existing standards and contract forms do not delineate the various roles and responsibilities associated with each of these stakeholders in determining the ultimate energy performance of the building.

Recommendation #1: Include a provision in the bill requiring the City to convene a Task Force that must publish a Reference Guideline for building designers. Creating a Reference Guideline would:

- Make the stakeholders' responsibilities clear.
- Avoid lawsuits between stakeholders.
- Establish an accepted guideline and quality for building design.

The Task Force should include representatives of the engineering industry. The Reference Guideline should include, at a minimum:

Design Team Responsibilities:

- All space occupancy schedules and operational schedules of all systems must be defined for every hour of the year.
- Assumptions for unit power densities for all internal energy consumption loads (e.g. Plug and Lighting) must be defined for every hour of the year.
- All space temperature and humidity set points must be defined for every hour of the year.
- The model weather year for purposed of hourly energy simulation must be explicitly defined in the standard for each location.
- System Types for all building functions and spaces must be defined.
- Assumptions for energy consumption parameters of non-regulated loads must be defined.
- Elevator energy consumption parameters must be defined (e.g. per American Society of Heating and Air-Conditioning Engineers (ASHRAE) User Manuals)
- Assumptions about Domestic Hot Water consumption must be defined.
- Assumptions about any energy consuming misc. equipment must be defined.
- An overall energy modeling safety factor must be defined.
- Energy modeling software must be compliant and certified against applicable ASHRAE Standards.
- Energy modeling personnel must have appropriate professional certifications: Building Energy Modelling Professional (BEMP, by ASHRAE) or other certification or credentials
- A Quality Assurance process must be implemented by the energy modeler which includes identifying and publishing: Preparer of Models, Reviewer of Models, and Approver of Models.
- If required, customized control and equipment performance curves may be required to accommodate specific systems configurations and control sequences. This may require post processing or other analytical tools not available in "off the shelf" software packages.
- Address fact that owner does not have knowledge about some assumptions: guideline could include a number of defined prototypes of buildings that could be chosen from.

- Require peer review for projects above a certain size threshold.

Owner Responsibilities:

- Owner will provide appropriate sub metering and trend logging of energy consuming systems (A portion of these sub meters may be required by Code) and have this data analyzed in order to proactively identify any potential energy performance shortcomings (prior to any regulatory milestones of measured energy performance).
- Owner will perform Commissioning of all energy consuming systems in the project, commensurate with industry best practices.
- Owner will include adequate time in project design schedule to complete energy modeling of the project for all major milestones.
- Milestones for Full Energy Modeling shall include: Schematic Design (SD) Phase, Design Development (DD) phase, Final Design Model at end of CD's. Also, an update of model based on substitutions during bid/award phase and an as-built model at end of Construction Administration (CA).
- Owner will require installing contractors to submit all final sequences of operation for review by design team, upon completion of construction.
- All design information and energy modeling assumptions shall be documented and formally approved by the Owner.
- All energy modeling inputs and assumptions shall be reviewed by the entire design team for review.
- Owner will commission a peer reviews of all energy models, at a minimum at the Development Design (DD) milestone.
- Owner to conduct post occupancy evaluation with participation of design team.

Context: Certain facets of the Retrofit Bill and the bill's implementation will require input from individuals with technical expertise regarding building design and energy performance. For example, developing building energy use targets and a made-in-NYC energy metric requires technical knowledge.

Recommendation #2: Include representatives of the engineering industry on any Technical Working Group or advisory body that is established to develop and implement the Retrofit Bill's provisions.

ACEC New York is the voice of the professional engineering community, representing 270 member firms throughout New York State that collectively employ over 30,000 people statewide, with a concentrated presence of firms in New York City. Our members plan and design the structural, mechanical, electrical, civil, environmental, plumbing, fire protection and technology systems for the city's buildings and infrastructure.

The recommendations above were generated by ACEC New York's Metro Region Energy Codes Committee. The Committee's roster is attached. The Committee is actively discussing the potential Retrofit Bill. Their next meeting will take place October 31st, 8:30-10:00am at 8 West 38th St., Ste 1101, NYC. We welcome you to attend or call-in if you have any questions regarding these recommendations or if we may be a resource to you as you develop the Retrofit Bill.

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