Summary

Issue:
Current requirements for building operators do not include training in efficient building operations, energy efficiency, or monitoring of overall building performance.

Recommendation:
In buildings larger than 50,000 square feet, require operators to be trained and certified for energy-efficient operations. Fund a study to establish the appropriate training and certification requirements.

Proposed Legislation, Rule or Study

Amendments to the New York City Building Code, Title 28, Chapter 4

1. Amend Section 28-401.3 as follows:

Building Operator. Engineering staff involved in the direct supervision, management, and maintenance of a building’s mechanical and electrical systems and equipment. For commercial office buildings and institutional buildings, this shall refer to Stationary Engineers. For multifamily apartment buildings, this shall refer to Building Superintendents. In some cases, where mechanical and electrical Operations and Maintenance is largely outsourced, the term shall refer to Mechanical and/or Electrical Maintenance firms and their mechanics and supervisors. The term “Building Operator” shall not refer to Owners or to Property Managers, who may be direct staff of the Owner or who may be in the employ of third-party property management firms.

2. Add a new Article 420 as follows:

Article 420

Building Operator Certification

Section 28-420.1 Certificate required. It shall be unlawful to operate mechanical equipment in a building over 50,000 square feet in size unless such work is done by a person trained and certified as a building operator under the provision of Article 420.

Section 28-420.2 Classification: Training and certifications shall be classified (Class A, Class B, Class C, etc.) as determined by (rules of the Department of Buildings).

Section 28-420.2 Phasing: An optimal phase-in schedule for the size of buildings the mechanical equipment of which are to be managed by a trained and certified building operator shall be determined by the proposed study.

Proposed Study

The City of New York should allocate sufficient funds (an estimated $50,000 to $100,000) for the Department of Buildings, working in coordination with the Office of Long-Term Planning and Sustainability, to hire consultants to analyze what trainings and certifications should be required for building operators and to make recommendations to the City.

Schedule and Content of Study:
No later than July 1, 2010, the City should issue an RFP for a study to be completed by April 1, 2011. The study should contain an analytical portion and a set of recommendations.

Analysis:

- An analysis of the skill sets required to efficiently operate building equipment of various types in buildings of various type and size (larger than 50,000 sq. ft.) that are typical in NYC.
- A description of existing training programs and/or certifications for operators that concentrate on energy efficiency, including standards and training products that have been developed by NYSERDA and the unions and requirements that have been in the Housing Maintenance Code.
- An analysis of how well existing trainings and certifications meet the skill sets required in NYC buildings, and what gaps exist.
- A study of best practices in North America and around the world in setting standards for operators, looking at large portfolios such as government agencies, universities, businesses, etc.; any mandated standards for the private sector; or industry standards such as LEED or Green Seal.
- A determination of whether a certification program or a license requirement will best serve the purpose of this proposal.

Recommendations:

- The study should recommend an overall structure for trainings and certifications to be required to operate buildings of various sizes and types, with a range of equipment types. Should there be a single training or certification required for all building operators? Should there be a graded series of requirements – i.e. Class A, Class B, Class C, etc. – depending on the complexity of the building systems? Or should there be a general module required for all building operators, with additional specialized modules for different building types or systems?
- The study should recommend what existing trainings and/or certifications the city could start to require right away with fairly minor modifications. Continuing education requirements should be included because technologies and regulations are changing rapidly.
- The study should assess whether those initial standards are sufficient or whether the city should develop more stringent and/or more comprehensive standards.
- If it is determined that more stringent and/or more comprehensive standards should be developed, the study should outline what the city should require in terms of trainings, certifications, experience, and continuing education, along with the outline of any curriculum that should be developed.
- If curriculum should be developed, the study should make recommendations on how the city might best partner. Possible partners to consider include NYSERDA, CUNY, USGBC, BPI, the unions, the Department of Energy, and/or the professional organizations such as ASHRAE or AEE.
- The study should determine an optimal phase-in schedule, e.g. buildings larger than 200 ksf by 2013, 50ksf by 2016, etc.

Supporting Information

Issue – Expanded

The best equipment cannot ensure energy efficiency without the proper training of building operators. Current requirements for operating and stationary engineers and for multi-family building superintendents are meant to ensure that equipment is operated safely, but they do not include required training in sustainable building operations, energy efficiency, or associated monitoring. In order to ensure that the efficiency requirements mandated by the energy code achieve the intended results, New York City needs to establish minimum standards for the building operators who operate and manage the city’s largest buildings – those that are over 50,000 square feet in size. Such standards would be located in Title 28 (The New York City Construction Codes), Chapter 2 (Licensing and Registration of Businesses, Trades, and Occupations Engaged in Building Work). Since standards have not yet been developed, the City needs to undertake a study to develop the appropriate standards and then require them.

This proposal would ensure that the operators of the largest buildings in New York City are trained to operate their equipment efficiently. The impact of this will be quite large, since the buildings directly impacted constitute roughly half of the city’s total square footage, and are responsible for roughly 40% of the city’s overall energy consumption and greenhouse gas emissions. In addition, over time there will be indirect impacts on smaller buildings, since there will be a certain amount of movement of trained operating staff from large buildings into smaller ones.

Environmental & Health Benefits

The impact of proper operations and maintenance on building efficiency is significant. The experience of Texas A&M University and the Council Rock School District in Pennsylvania show that aggressive improvements in O+M, including monitoring and continuous commissioning, can result in as much as a 35% decrease in energy consumption across a portfolio. One would not expect such radical improvement across the board in NYC, and proper training is only one part of a preventative maintenance plan. Still, if training resulted in only a 2% improvement in efficiency in the largest buildings, it would result in a greenhouse gas emissions reduction of 0.8%, and decreased annual energy expenditures of...
EO 3: TRAIN BUILDING OPERATORS IN ENERGY EFFICIENCY

approximately $150 million citywide. Reduced demand for energy would also result in reductions in the emissions of air pollutants from the burning of fossil fuel within buildings and at electrical power plants. This proposal is for a study, and therefore environmental and health rankings are not applicable.

Cost / Savings
This proposal is for a study that will have no direct impact on construction or operating costs.

Precedents
In NYC, subchapter 2 of the Housing Maintenance Code, section 27-2055 “Certification of Competency” requires a similar process for building superintendents in multifamily housing, under HPD enforcement. Training programs exist. Training also exists, in particular through unions, on the non-residential side, for the state title of Stationary Engineer but this designation is not a NYC legal requirement.

LEED
Training of operators is consistent with LEED scoring, in particular for the EB product.

Implementation & Market Availability
By Oct. 1, 2011, DOB should submit to the City Council proposed code changes establishing initial requirements for building operators in buildings larger than 50,000 square feet. If the study has determined that a second generation of standards is required, by Dec. 31, 2013, DOB should submit to the City Council code changes with amended standards. The proposed code changes should allow for a phase-in of the requirements as required to allow sufficient time for the training of all impacted operators. Appropriate training is available, e.g. union courses such as 32BJ. However, based on existing requirements, sustainability and energy efficiency are not emphasized, if included at all. NYSERDA and its related service providers have developed standards and training products. National training and certifications do exist. A list of such certifications is provided in the table below. Phasing-in would be necessary to avoid the market of service providers from being swamped.

Certifications relating to building operations for sustainable high-performance buildings *

<table>
<thead>
<tr>
<th>Organization</th>
<th>Certification</th>
</tr>
</thead>
</table>
| Building Owners and Managers Institute (BOMI) | • Real Property Manager (RPM)  
• Facilities Management Administrator (FMA)  
• Systems Maintenance Technician (SMT)  
• Systems Maintenance Administrator (SMA) |
| USGBC | • LEED Accredited Professional (AP) |
| Association of Energy Engineers (AEE) | • Certified Energy Manager (CEM), original and flagship certification  
• Certified Lighting Efficiency Professional  
• Certified Power Quality Professional  
• Certified Indoor Air Quality Professional  
• Distributed Generation Certified Professional |
| Association of Heating Refrigeration and Air-conditioning Engineers (ASHRAE) | • Operations and Performance Management Professional (OPMP) |
| International Facilities Management Association (IFMA) | • Certified Facility Manager (CFM)  
• Facility Management Professional |
| Building Operator Certification (the non-profit that manages this has the same name as the certification) | • Building Operator Certification (BOC) |
## EO 3: TRAIN BUILDING OPERATORS IN ENERGY EFFICIENCY

<table>
<thead>
<tr>
<th>Organization</th>
<th>Certification Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Performance Institute</td>
<td>• Energy Analyst I and II</td>
</tr>
<tr>
<td></td>
<td>• Residential Retrofit Specialist</td>
</tr>
<tr>
<td></td>
<td>• Multifamily Energy Analyst</td>
</tr>
<tr>
<td></td>
<td>• Energy Efficient Building Operations (multifamily)</td>
</tr>
<tr>
<td>National Association for Technical Excellence</td>
<td>• Provides a range of certification standards aimed primarily at the installation and service trades.</td>
</tr>
<tr>
<td>(NATE)</td>
<td></td>
</tr>
<tr>
<td>Association of Physical Plant Administrators</td>
<td>• Educational Facilities Professional</td>
</tr>
<tr>
<td>(APPA)</td>
<td>• Certified Educational Facilities Professional</td>
</tr>
<tr>
<td>Association for Facilities Engineering (AFE)</td>
<td>• Certified Plant Engineer</td>
</tr>
<tr>
<td>Source: Michael Bobker</td>
<td>• Certified Plant Maintenance Manager</td>
</tr>
<tr>
<td></td>
<td>• Certified Plant Supervisor</td>
</tr>
</tbody>
</table>

### Notes

1. Note possible savings redundancy with controls measures, system documentation, and retro-commissioning.