



# Energy Management Institute

Course Catalog  
Fall 2019

Energy

**NYC DCAS**  
Citywide Administrative Services

**CUNY School of  
Professional Studies**

**CU  
NY**



BUILDING *performance* LAB

# Table of Contents

<b>3</b>	Energy Management Institute
<b>6</b>	EMI Learning Paths
<b>9</b>	Fall Semester Course Schedule
<b>10</b>	Fall Semester Registration Form
<b>12</b>	Fall Semester Course Descriptions
<b>13</b>	Fundamentals of Building Systems
<b>15</b>	Building Operator Certification - Level 1 (BOC-1)
<b>17</b>	Building Operator Certification - Level 2 (BOC-2)
<b>19</b>	Certified Energy Manager (CEM)
<b>21</b>	Introduction to Load Management
<b>23</b>	Load Management Training and Coaching
<b>25</b>	Foundations for Energy-Efficient Building Systems
<b>27</b>	Fall Semester Learning Fair
<b>29</b>	Field Equipment Lending Library (FELL)
<b>30</b>	Helpful Tips

# Energy Management Institute

The Energy Management Institute is a training program offered by the Department of Citywide Administrative Services' (DCAS) Division of Energy Management ("DEM") in collaboration with the City University of New York's School of Professional Studies ("SPS"), CUNY Building Performance Lab ("BPL"), and the City's Citywide Training Center ("CTC").

DEM launched EMI in 2009 to create a community of skilled energy management professionals across agencies who could contribute to meeting the City's ambitious energy and emissions reductions goals. Through EMI, DEM provides City staff with instruction in energy management best practices so that they can help create a culture of energy efficiency at their agencies and implement operational improvements, energy efficiency retrofits, and clean energy projects across the City's portfolio.

Today, through EMI, DEM offers a diverse set of courses that provide targeted competency-based training and integrate national certification requirements. The courses are led by experienced practitioners in the field. They are open to all City staff and offered free of charge.

## Who should take EMI courses?

While many EMI courses are geared towards building operators and facilities management staff, there are offerings suitable for all staff involved in energy management in City buildings.

## How do I know which EMI course is right for me?

Please see Learning Paths on page 6.

## What are EMI courses like?

EMI courses range in length from multi-day courses to half-day workshops. Most of the multi-day courses involve a blended learning approach that combines in-person instructional sessions with self-paced online modules. Depending on the course, there may be up to 20 students per class.

## What do City staff need to do to participate in an EMI course?

To participate, potential students should complete the following five steps:

- **Enroll:** To enroll in an EMI course, potential students first should seek and receive permission to participate in the course from their direct supervisor(s). They then should complete the EMI Training Application Form (see below) and email it to [EMITraining@sps.cuny.edu](mailto:EMITraining@sps.cuny.edu) by the course's designated registration date.
- **Participate:** Students should attend in-person sessions of course, complete online modules, if applicable, and do required assignments and projects.
- **Provide Feedback:** Students should complete in-session and post-session evaluations to provide feedback on their experience. EMI uses this information to improve the course for future students.
- **Take any necessary certification exams:** CUNY SPS helps City staff complete their paperwork to take certification exams and receive credentials. DEM provides funding for City staff to take credential exams one time.
- **Implement lessons learned:** Students are expected to work towards implementing the energy management best practices that they have learned at their agencies.

### When and where are EMI courses offered?

EMI courses are offered according to a fall and spring semester schedule and take place during standard working hours. In addition, DEM offers select courses during a Fall Learning Fair.

EMI courses are held at one of two locations:

- DCAS' **Citywide Training Center** (CTC), which is located at 1 Centre Street in downtown Manhattan.
- The CUNY **School of Professional Studies** (SPS), which is located at 119 West 31st Street (31st street between 6th and 7th avenue) in Midtown Manhattan.

EMI courses may also be offered at agency facilities if there is strong agency staff demand and the agency can offer an appropriate learning location. If your agency is interested in hosting an on-site EMI course, please contact Gretel Guivelondo, DEM's Program Manager – Training at [gguivelondo@dcas.nyc.gov](mailto:gguivelondo@dcas.nyc.gov).

### What are the Learning Fairs?

During the Learning Fairs, DEM and CUNY SPS offer half-day courses over a concentrated two- to three-day period. Learning Fairs are designed to serve both (1) City staff who hold either BOC-1 or BOC-2 credentials and want to maintain their active credentials and (2) City staff who seek to expand their energy management knowledge in specific areas, but do not necessarily have those credentials. The Learning Fairs bring together dozens of frontline facilities and energy management staff for learning and networking. They also include displays of field equipment available via CUNY BPL's Field Equipment Lending Library (FELL).

### Where can I find the Course Registration Form?

Please see the form on page 10. It also can be downloaded from [www.nyc.gov/energy-conservation](http://www.nyc.gov/energy-conservation) under the Training section.

### Can City staff contribute to EMI course development?

Yes! DEM, CUNY SPS, and other partners work together to update courses to include the newest developments and technologies. We always are looking for subject matter experts (SMEs) to contribute to course development. If you are

interested in supporting EMI as a SME, please contact Gretel Guivelondo, DEM's Program Manager – Training at [gguivelondo@dcas.nyc.gov](mailto:gguivelondo@dcas.nyc.gov).

### Are EMI courses the only energy-related training that DEM provides?

No! In addition to the training opportunities offered through EMI, DEM also offers three other energy management training options to City staff to support their professional development. In particular:

- **Customized energy management training available for agency staff using ExCEL funding:** City agencies can apply for competitive expense funding to offer specialized energy-related training to their staff through the ExCEL Program. Previously, DEM has focused on funding manufacturer-specific, hands-on training through ExCEL, as distinct from the broader overview trainings provided through EMI. Generally, DEM-funded Agency Energy Personnel lead the preparation of proposals for ExCEL-funded training.
- **In-house trainings directly offered by DEM:** DEM also directly provides select trainings in-house on specific topics core to our work. Currently, DEM is working to refine the set of in-house trainings that we offer. However, we generally provide EC3 and EnerTrac trainings on a quarterly basis.
- **Energy-related training videos:** In addition, DEM has worked with CUNY SPS to develop a range of energy-related training videos for City staff. The full collection of training videos is available through the [DEM Videos website](#).

If you have questions about ExCEL-funded, in-house, or video training opportunities, please contact Gretel Guivelondo, DEM's Program Manager, Training, at [gguivelondo@dcas.nyc.gov](mailto:gguivelondo@dcas.nyc.gov)



## **What other important information about EMI do I need to know?**

### *Course Enrollment Cancellation Policy*

If a City employee registers for an EMI course but drops out before satisfactory course completion, a “No Show” fee will be assessed to their agency’s training department in accordance with the CTC’s cancellation policy. The specific cancellation fee for each course is listed under the course description. CUNY SPS must receive requests to cancel enrollment without a fee in writing at least seven (7) business days before the confirmed start date for the course. Agencies may designate a qualified participant for substitution up to the commencement of the class without penalty.

### *Course Attendance Policy*

City employees participating in an EMI course are expected to attend all scheduled sessions and arrive by the scheduled start time. Excessive lateness or absences will result in the employee being dropped from the course and their agency being assessed a “No Show” fee.

### *Accessing EMI Online Materials*

Students can access online instructional materials through a dedicated portal, the Hughes Learning Management System (LMS), at <http://boc1.rapidtraining.com>. Students will receive specific information about the process for logging into the LMS once they are enrolled in a course.

### *Course Academic Integrity Policy*

CUNY SPS and DEM are committed to upholding CUNY’s Academic Integrity Policy. To this end, students are expected to submit assignments that reflect their own individual efforts and to seek support directly from the course instructor when they encounter challenges with the course requirements.

Students who submit work that has been copied from other students or sources will be penalized and withdrawn from the course. Unless otherwise indicated by the course instructor, group projects will not be accepted. For more information, please visit: [http://sps.cuny.edu/acad\\_policies/acad\\_integrity.html](http://sps.cuny.edu/acad_policies/acad_integrity.html).

## **Who can I contact if I have further questions?**

### **CUNY EMI Team**

Michelle Attles, Program Director  
Michaela Boren, Program Manager  
Daniella Olibrice, Program Manager  
Muamer Rasic, Program Assistant (Data Analyst)  
Email: [EMltraining@sps.cuny.edu](mailto:EMltraining@sps.cuny.edu)  
Location: CUNY School of Professional Studies, Floor 3 – Room 319, 119 West 31st Street, New York, NY, 10001

### **DEM EMI Team**

Gretel Guivelondo, Program Manager, Training  
Email: [gguivelondo@dcas.nyc.gov](mailto:gguivelondo@dcas.nyc.gov)  
Location: Department of Citywide Administrative Services, Floor 17, Manhattan Municipal Building, 1 Centre Street, New York, NY 10007

# EMI Learning Paths

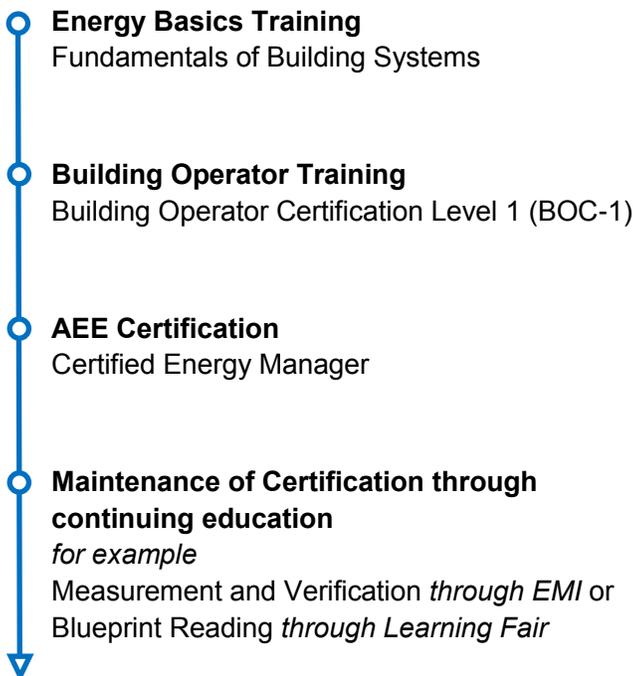
Through EMI, DEM offers a diverse set of courses that enable each student to design their own learning path. Students can select the courses that are right for them based on the following factors:

- **Breadth of topics covered:** Some EMI courses offer a broad overview of the energy management field, while others focus on specific topics.
- **Time commitment:** Some EMI courses are multi-day, while others are a single day or less. Half-day sessions tend to be offered in the setting of the Learning Fair.
- **Level of in-going expertise:** Some EMI courses require students to have completed specific prerequisites to ensure that they are prepared to be successful.
- **Certification(s) offered:** Some courses offer nationally-recognized certifications, such as BOC-1, BOC-2, CEM, CEA, and CBCP.

A common **learning path** for energy management staff is:

## Energy Manager Path

For energy management staff who are not building operators (i.e., Energy Managers and Energy Analysts)



Other suggested **learning paths** include the following:

### Building Operator Path

For building operators and facility managers

- **Building Operator Training**  
Building Operator Certification Level 1 (BOC-1)
- **Building Operator Training**  
Building Operator Certification Level 2 (BOC-2)
- **Other Training Categories (LM, Specialized, Trades)**  
Load Management Training and Coaching
- **AEE Certification**  
Certified Energy Manager
- **Maintenance of Certification through continuing education**  
*for example*  
Renewable Energy 101 *through EMI* or  
Boiler Optimization *through Learning Fair*

### Tradesperson Path

For tradespeople and interested building operators

- **Trades-Focused Training**  
Foundations of Energy-Efficient Operations  
**OR**
- **Building Operator Training**  
Building Operator Certification Level 1 (BOC-1)
- **Trades-Focused Training**  
Energy-Efficient Controls Systems
- **Maintenance of Certification through continuing education**  
*for example*  
Renewable Energy 101 *through EMI* or  
Boiler Optimization *through Learning Fair*

For ease of navigation, we have grouped available EMI courses into six categories below:

	<b>Energy Basics Training</b>	<b>Building Operator Training</b>	<b>AEE Certification Training</b>	<b>Load Management Training</b>	<b>Clean Energy and M&amp;V Training</b>	<b>Trades-Focused Training</b>
<b>Target Audience</b>	City energy management staff who are not building operators	Building operators or City energy management staff with a solid working knowledge of building systems and equipment	All interested City energy management staff and building operators who meet necessary experience and educational pre-requisites	All interested City energy management staff and building operators	All interested City energy management staff and building operators	Tradespeople focused on energy-efficiency building operations and maintenance
<b>Courses by Category</b>	Fundamentals of Building Systems	Building Operator Certification: Level 1 (BOC-1)  Building Operator Certification: Level 2 (BOC-2)	Certified Energy Manager (CEM)  Certified Building Commissioning Professional (CBCP)  Certified Energy Auditor (CEA)	Introduction to Load Management  Load Management Training and Coaching	Measurement and Verification Training  Measurement and Verification Coaching  Renewable Energy 101	Foundations of Energy-Efficient Operations  Energy-Efficient Controls Systems
<b>Fall Courses Offered</b>	Fundamentals of Building Systems	Building Operator Certification: Level 1 (BOC-1)  Building Operator Certification: Level 2 (BOC-2)	Certified Energy Manager (CEM)	Introduction to Load Management  Load Management Training and Coaching	Measurement and Verification Coaching	Foundations of Energy-Efficient Operations
<b>Spring Courses Offered</b>	Fundamentals of Building Systems	Building Operator Certification: Level 1 (BOC-1)	Certified Energy Manager (CEM)  Certified Building Commissioning Professional (CBCP)  Certified Energy Auditor (CEA)	Introduction to Load Management  Load Management Training and Coaching	Measurement and Verification Training  Measurement and Verification Coaching  Renewable Energy 101	Foundations of Energy-Efficient Operations  Energy-Efficient Controls Systems

# Fall Semester Course Schedule and Registration

## Course Schedule

To register for all courses **except for Load Management Training and Coaching**, students should complete the Course Registration Form by the registration date and email it to the CUNY SPS team at [EMltraining@sps.cuny.edu](mailto:EMltraining@sps.cuny.edu).

To register for **Load Management Training and Coaching**, a course for which DEM must do some additional pre-screening to determine student eligibility, students should complete the Course Registration Form by the registration date and email it to Elizabeth Taveras, Associate Engineer – LM Program at [ETaveras@dcas.nyc.gov](mailto:ETaveras@dcas.nyc.gov).

Fall Courses	Registration Deadline	Start Date
<b>Fundamentals of Building Systems</b>	September 27	November 6
<b>Building Operator Certification, Level 1</b>	September 4 (Cohort A)	September 13
	September 4 (Cohort B)	September 12
<b>Building Operator Certification, Level 2</b>	September 27	October 4
<b>Certified Energy Manager</b>	September 27 (Cohort A)	October 21
	September 27 (Cohort B)	December 9
<b>Introduction to Load Management</b>	September 4	September 17
	September 27	October 22
<b>Load Management Training and Coaching</b>	September 4 (Cohort A)	September 11
	September 27 (Cohort B)	October 17
	September 27 (Cohort C)	December 4
<b>Foundations of Energy-Efficient Buildings</b>	September 27	October 22

### Fall 2019 Energy Management Institute Registration Form

Date \_\_\_\_\_

#### Applicant Information

Full Name \_\_\_\_\_  
*Last First M.I.*

Agency \_\_\_\_\_

Work Phone \_\_\_\_\_ Alternate Phone \_\_\_\_\_

Work Email Address \_\_\_\_\_ Alternate Email Address \_\_\_\_\_

Civil Service Title \_\_\_\_\_ Work Title \_\_\_\_\_

Work Address \_\_\_\_\_  
*Street Address Unit/Floor*

\_\_\_\_\_ *City*

\_\_\_\_\_ *Borough*

\_\_\_\_\_ *Zip Code*

**What is your highest level of education or training?**

- |  |   |
|--|---|
| <input type="checkbox"/> High School   | <input type="checkbox"/> College (Associate's or Bachelor's Degree) |
| <input type="checkbox"/> Apprenticeship  | <input type="checkbox"/> College (Master's or above)                |
| <input type="checkbox"/> Technical College (Certificate or Associate's Degree) | <input type="checkbox"/> Other _____                                |

**Are you requesting special accommodations in order to participate in this program?**

- No  
 Yes

If yes, please explain: \_\_\_\_\_

.....  
Supervisor's Name \_\_\_\_\_

Supervisor's Phone # \_\_\_\_\_ Supervisor's Email \_\_\_\_\_

Supervisor's Civil Service Title \_\_\_\_\_ Supervisor's Work Title \_\_\_\_\_

### Class Information

I would like to apply for:

**Fundamentals of Building Systems** Registration Deadline: 9/27

- CUNY SPS Location** Start Date: Wednesday, 11/6

**Building Operator Certification Level 1 (BOC-1)** Registration Deadline: 9/4

*By selecting this course, I understand that this course is a combination of classroom sessions and online modules. I understand that I will be required to complete some of the course content from a computer.*

*By selecting this course, I also understand that I will be asked to take online assessments to measure my knowledge of basic Math and the use of Excel. If I score below 70% on these assessments, I will be required to take an online Math Refresher Course and an online Excel Refresher Course, which will help me in preparation for the BOC-1 course.*

- Cohort A, CTC Location** Start Date: Friday, 9/6
- Cohort B, CUNY SPS Location** Start Date: Thursday, 9/5

**Building Operator Certification Level 2 (BOC-2)** Registration Deadline: 9/27

*Building Operator Certification Level 1 must have been completed in fall 2018 or prior.*

- CTC Location** Start Date: Friday, 10/4

**Certified Energy Manager** Registration Deadline: 9/27

*Building Operator Certification Level 1 and 2 must have been completed in spring 2019 or prior.*

- Cohort A, CTC Location** Start Date: Monday, 10/21
- Cohort B, CTC Location** Start Date: Monday, 12/9

**Introduction to Load Management** Registration Deadline: 9/4 and 9/27

- Cohort A, SPS Location** Start Date: Tuesday, 9/17
- Cohort B, SPS Location** Start Date: Tuesday, 10/22

**Load Management Training and Coaching** Registration Deadline: 9/4 and 9/27

*Building Operator Certification Level 1 must have been completed in spring 2019 or prior, assigned to and/or are responsible for at least one agency building where major equipment can be controlled, and can access trend logging functions in a BAS/BMS throughout the duration of the course.*

- Cohort A, CTC Location** Start Date: Wednesday (AM), 9/11
- Cohort B, CTC Location** Start Date: Thursday (AM), 10/17
- Cohort C, CTC Location** Start Date: Wednesday (PM), 12/4

**Foundations for Energy Efficient Building Systems** Registration Deadline: 9/27

- CTC Location** Start Date: Tuesday, 10/22

### Cancellation Policy

DCAS Energy Management covers the cost of City staff participation in order to improve the energy efficiency of building operations and maintenance. Requests for cancellations or schedule changes must be received in writing at least **7 business days prior to the start of a confirmed class by CUNY SPS**. Requests received without the required notice will result in a charge of the full course fee to the agency training department. Agencies may designate a qualified participant for substitution up to the commencement of the class without penalty. Please refer to the Citywide Training Center (CTC) Catalog for specific course fee information.

Signature of Applicant: \_\_\_\_\_

Date: \_\_\_\_\_

Signature of Supervisor: \_\_\_\_\_

Date: \_\_\_\_\_



# Fall Semester Course Descriptions



# Fundamentals of Building Systems



energy basics training



two weeks

## Course Structure

Fundamentals is designed to provide foundational energy management knowledge for City staff. It provides an overview of critical building systems and equipment, including their relationship to energy consumption; explains electrical and mechanical engineering concepts pertinent to building operations; and introduces best practices for energy efficiency in City buildings. The course prepares students without a technical background to succeed in BOC-1.

Fundamentals consists of a half-day in-person introductory session, followed by ten self-paced online modules, and then a half-day in-person wrap-up session. The wrap-up session helps close out the online modules to ensure understanding. The online modules cover: (1) the building envelope; (2) the science of building systems; (3) HVAC, plumbing, and electrical building systems; (4) building controls; (5) occupant controls; (6) maintenance; (7) risks; (8) codes, zones, and regulatory requirements; (9) environmental factors; and (10) a wrap-up module. To successfully complete the course, students must attend the in-person sessions; finish all online modules; and take pre- and post- learning assessments given during the first and final classes.

## Target Audience

Fundamentals is designed for City energy management staff who are not building operators and do not have a technical background. Students enrolled in this course should not have primary job responsibility for managing building operations at their facility and/or extensive working knowledge of building systems and equipment. In most cases, Fundamentals is a pre-requisite for non-building operators who seek to complete BOC-1.

## Fundamentals Cohort

<b>Duration</b>	two sessions over a span of two weeks
<b>Day</b>	Wednesday
<b>Time</b>	9 AM to 1 PM
<b>Location</b>	CUNY School of Professional Studies, 119 W. 31st Street NY, NY 10001
<b>Training Dates</b>	11/6 and 11/20
<b>Registration Deadline</b>	September 27

**\*\*\*To enroll, potential students should email the Course Registration Form to the CUNY SPS team at [EMltraining@sps.cuny.edu](mailto:EMltraining@sps.cuny.edu).\*\*\***

### **Cancellation Fee**

If a City employee registers for Fundamentals but drops out before satisfactory course completion, a “No Show” fee of \$975 will be assessed to their agency’s training department in accordance with the CTC’s cancellation policy.



## Building Operator Certification Level 1 (BOC-1)



building operator training



19 weeks



third-party certification

### Course Structure

BOC-1 is the foundational energy efficiency course for building operators working in City facilities. It is designed to help building operators identify opportunities to make their facilities more energy-efficient so they can contribute to meeting City energy and emissions reductions goals. BOC-1 provides an overview of building systems and equipment, including electrical systems, mechanical systems, lighting technologies, and building controls. It also introduces students to energy data management and analysis and operational improvements that can improve energy efficiency and occupant comfort.

BOC-1 consists of one online webinar, nine in-person sessions taught by subject matter experts over a 19-week period, and 14 self-paced online modules. To successfully complete the course, students must attend all sessions and complete all online modules; take and pass four module-specific exams; and submit four practical project assignments focused on applying concepts learned in class to the facilities where they work. Students who do so can pursue the BOC-1 certification from the Northwest Energy Efficiency Council (“NEEC”). CUNY SPS and NEEC work together to assist City staff in completing their paperwork for the credential and taking the certification exam.

### Target Audience

BOC-1 is open to building operators, facilities management staff, and other energy management staff working in City buildings. The course is especially well-suited to the following:

- Building operators who may have limited formal building systems training, but have substantial on-the-job work experience with building systems.
- Energy management staff who already have received some energy efficiency training and are seeking to deepen their understanding of building system and equipment concepts. In general, energy management staff should take the Fundamentals of Building Systems course before enrolling in BOC-1.

### BOC-1 Cohort A (Starts 9/6)

<b>Duration</b>	nine sessions + one webinar over a span of 19 weeks
<b>Day</b>	Friday (generally, in-person sessions every other week)
<b>Time</b>	9 AM to 4 PM
<b>Location</b>	Citywide Training Center // 1 Centre Street, Floor 24, New York, NY
<b>Training Dates</b>	One-hour webinar: 9/6 In-person sessions: 9/13, 9/27, 10/11, 10/25, 11/8, 11/22, 12/6, 12/20, 1/10/2020
<b>Registration Deadline</b>	September 4

### BOC-1 Cohort B (Starts 9/5)

<b>Duration</b>	nine sessions + one webinar over a span of 19 weeks
<b>Day</b>	Thursday (generally, in-person sessions every other week)
<b>Time</b>	9 AM to 4 PM
<b>Location</b>	CUNY School of Professional Studies // 119 W. 31st Street, New York, NY
<b>Training Dates</b>	One-hour webinar: 9/5 In-person sessions: 9/12, 9/26, 10/10, 10/24, 11/7, 11/21, 12/5, 12/19, 1/9/2020
<b>Registration Deadline</b>	September 4

**\*\*\*To enroll, potential students should email the Course Registration Form to the CUNY SPS team at [EMltraining@sps.cuny.edu](mailto:EMltraining@sps.cuny.edu).\*\*\***

*Note: To confirm that they are ready to participate in BOC-1, potential students must complete two mandatory pre-course assessments: one focused on math skills and one focused on Microsoft Excel skills. Once potential students complete the registration process, CUNY SPS sends them a link to the two assessments. Each assessment takes about 15 minutes to complete. If a potential student does not achieve a satisfactory score on either or both assessments, they must take one or two self-paced online prep courses before BOC-1 starts.*

### Cancellation Fee

If a City employee registers for BOC-1 but drops out before satisfactory course completion, a "No Show" fee of \$1,875 will be assessed to their agency's training department in accordance with the CTC's cancellation policy.



## Building Operator Certification Level 2 (BOC-2)



building operator training



31 weeks



third-party certification

### Course Structure

BOC-2 offers advanced training to City staff who meet the enrollment pre-requisites and want to further their building energy management skills. BOC-2 is comprised of six core modules: (1) Best Practices for High-Performance Operations and Maintenance (“O&M”); (2) Sensors, Calibration, and Transmitters; (3) HVAC Controls Optimization; (4) Energy Strategies: Control Sequences of Operation; (5) Electrical Maintenance and Troubleshooting; and (6) Boiler Plant and Hydronic System High-Performance O&M.

BOC-2 consists of 22 in-person sessions taught by subject matter experts over a 31-week period, as well as 10 self-paced online modules. The course also includes field activities guided by subject matter experts and learning coaches. To successfully complete the course, students must attend all sessions and complete all online modules; take and pass module-specific exams; and submit practical project assignments focused on applying concepts learned in class to the facilities where they work. Students who do so can pursue the BOC-2 certification from the Northwest Energy Efficiency Council (“NEEC”). CUNY SPS and NEEC work together to assist City staff in completing their paperwork for the credential and for taking the certification exam.

### Target Audience

BOC-2 is designed for students who have previous intensive energy management training or experience. Specifically, it is meant for students who have successfully completed BOC-1 and/or are Certified Building Operators (“CBOs”), Certified Energy Managers (“CEMs”), Certified Building Commissioning Professionals (“CBCPs”), or Certified Energy Auditors (“CEAs”). On a case-by-case basis, students may be able to substitute other advanced training or experience for these credentials; please reach out to CUNY SPS to request enrollment permission.

## BOC-2 Cohort

<b>Duration</b>	22 sessions over a span of 31 weeks
<b>Day</b>	Friday
<b>Time</b>	9 AM to 4 PM
<b>Location</b>	Citywide Training Center // 1 Centre Street, Floor 24, New York, NY
<b>Training Dates</b>	One-hour webinar: 10/4 In-person sessions: 10/11, 10/25, 11/1, 11/8, 11/15, 12/6, 12/13, 12/20, 1/3/2020, 1/10, 1/17, 1/31, 2/7, 2/14, 2/21, 3/6, 3/13, 3/20, 3/27, 4/3, 4/17, 5/1
<b>Registration Deadline</b>	September 27

**\*\*\*To enroll, potential students should email the Course Registration Form to the CUNY SPS team at [EMltraining@sps.cuny.edu](mailto:EMltraining@sps.cuny.edu).\*\*\***

*Note: To confirm that they are ready to participate in BOC-1, potential students must complete two mandatory pre-course assessments: one focused on math skills and one focused on Microsoft Excel skills. Once potential students complete the registration process, CUNY SPS sends them a link to the two assessments. Each assessment takes about 15 minutes to complete. If a potential student does not achieve a satisfactory score on either or both assessments, they must take one or two self-paced online prep courses before BOC-1 starts.*

### **Cancellation Fee**

If a City employee registers for BOC-2 but drops out before satisfactory course completion, a "No Show" fee of \$1,875 will be assessed to their agency's training department in accordance with the CTC's cancellation policy.



## Certified Energy Manager (CEM)



AEE certification training



one week



third-party certification

### Course Structure

This course enables students to obtain the Certified Energy Manager (CEM) credential by preparing and registering them for the CEM certification exam, offered by the Association of Energy Engineers (AEE). CEM operates as a standard for qualifying energy professionals in the United States and abroad. It is recognized by the U.S. Department of Energy, the Office of Federal Energy Management Programs, and numerous state energy offices, utilities, corporations, and energy service companies.

The course consists of four in-person instructional sessions taught by subject matter experts and a full-day comprehensive certification exam. The five-day course is offered over a one-week period. To successfully complete the course, students must meet the stated eligibility criteria; attend all instructional sessions; submit an exam application form before sitting for the exam; (provided during the prep period); and pass the four-hour, written, open-book CEM exam.

### Target Audience

CEM is designed for students who have previous intensive energy management training or experience. For FY20, DEM will give preference to students who have successfully completed both

BOC-1 and BOC-2, but accommodate other qualified students as space permits. Students seeking to substitute other advanced training or experience for BOC-1 or BOC-2 should reach out to CUNY SPS to request enrollment permission. All students must meet AEE's combined education-experience eligibility requirements summarized on the next page (i.e., they can qualify under any one of the six qualification pathways).

### CEM Cohort A (Starts 10/21)

<b>Duration</b>	five sessions over a span of one week
<b>Day</b>	Monday, Tuesday, Wednesday, Thursday, Friday
<b>Time</b>	9 AM to 5 PM
<b>Location</b>	Citywide Training Center // 1 Centre Street, Floor 24, New York, NY
<b>Training Dates</b>	10/21, 10/22, 10/23, 10/24, 10/25
<b>Registration Deadline</b>	September 27

### CEM Cohort B (Starts 12/9)

<b>Duration</b>	five sessions over a span of one week
<b>Day</b>	Monday, Tuesday, Wednesday, Thursday, Friday
<b>Time</b>	9 AM to 5 PM
<b>Location</b>	Citywide Training Center // 1 Centre Street, Floor 24, New York, NY
<b>Training Dates</b>	12/9, 12/10, 12/11, 12/12,12/13
<b>Registration Deadline</b>	September 27

### Education and Experience Requirements for Certification

4-yr. degree in Engineering or Architecture, AND	3+ yrs. experience in energy engineering or energy management
4-yr. degree in Environmental Science or Physics, AND	4+ yrs. experience in energy engineering or energy management
4-yr. degree in Business (or related field), AND	5+ yrs. experience in energy engineering or energy management
2-yr. degree in Energy Management, AND	6+ yrs. experience in energy engineering or energy management
2-yr. degree in a technical topic, AND	8+ yrs. experience in energy engineering or energy management
No specific educational background, AND	10+ yrs. experience in energy engineering or energy management

**\*\*\*To enroll, potential students should email the Course Registration Form to the CUNY SPS team at [EMltraining@sps.cuny.edu](mailto:EMltraining@sps.cuny.edu).\*\*\***

### Cancellation Fee

If a City employee registers for CEM but drops out before satisfactory course completion, a "No Show" fee of \$1,875 will be assessed to their agency's training department in accordance with the CTC's cancellation policy.



## Introduction to Load Management



load management training



one day

### Course Structure

This course provides City staff with an overview of Load Management concepts and techniques aimed at finding ways in which to optimize your building's operation by reducing energy consumption. Led by an expert in energy engineering, the course is designed to equip staff with the essential information that they need to help their agencies participate in the City's Load Management Program and realize the benefits involved in doing so, including contributing to the City's target of 80% reduction in greenhouse gas emissions by 2050.

During the course, students will discover the policy context for load management, go through relevant load management concepts, discuss key examples, and learn to interpret load profiles, all in an effort to draw connections between your buildings' energy usage, and operations to identify savings opportunities. The course consists of a 6-hour interactive workshop held on a single day. The first part of the workshop involves lecture and discussion, while the second part is comprised of hands-on EnerTrac training, the City's tool for analyzing real-time metering data, with a focus on load profile analysis in a computer lab. To successfully complete the course, students must only attend the course; there are no out-of-class assignments.

### Target Audience

Introduction to Load Management is open to all interested energy management staff, building operators, and facilities management staff at City buildings. The course does not require a technical background. Please note that DEM may give preference to staff at agencies targeted for near-term Load Management Program participation.

### Load Management Cohort A

<b>Duration</b>	one day
<b>Day</b>	Tuesday
<b>Time</b>	9 AM to 4 PM
<b>Location</b>	CUNY School of Professional Studies // 119 W. 31st Street, New York, NY
<b>Training Dates</b>	9/17
<b>Registration Deadline</b>	September 4

### Load Management Cohort B

<b>Duration</b>	one day
<b>Day</b>	Tuesday
<b>Time</b>	9 AM to 4 PM
<b>Location</b>	CUNY School of Professional Studies // 119 W. 31st Street, New York, NY
<b>Training Dates</b>	10/22
<b>Registration Deadline</b>	September 27

**\*\*\*To enroll, potential students should email the Course Registration Form to the CUNY SPS team at [EMltraining@sps.cuny.edu](mailto:EMltraining@sps.cuny.edu).\*\*\***

### Cancellation Fee

If a City employee registers for Introduction to Load Management but drops out before satisfactory course completion, a “No Show” fee of \$400 will be assessed to their agency’s training department in accordance with the CTC’s cancellation policy.



## Load Management Training and Coaching



load management training



15 to 16 weeks

### Course Structure

Load Management Training and Coaching (“LMTC”) is designed to provide building operators with hands-on support in implementing Load Management measures at your buildings to optimize energy usage. LMTC teaches operators how to utilize their real-time metering data, trending data from your Building Automation Systems (“BAS”) and/or data loggers to apply Building Re-tuning (“BRT”) practices to your building to save energy. While LMTC is a new offering for FY20, on average, students who have participated in similar trainings have achieved total energy consumption savings of 10% at their buildings.

LMTC will be spread amongst nine in-person sessions. The first three sessions consist of lecture and discussion, where the instructor brings together LM and BRT concepts. The following six sessions consist of hands-on coaching, during which the CUNY BPL coaches and the DEM LM team will work closely with students to identify and implement operational improvements at their specific buildings. To successfully complete the course, students must attend all in-person sessions and complete designated out-of-class assignments. Support for the completion of the assignments will be provided by BPL and DEM LM engineers, including personalized site visits.

### Target Audience

LMTC is open to interested energy management staff, building operators, and facilities management staff at City buildings where the following is encouraged but not required:

- Have successfully completed BOC-1.
- Are assigned to and/or are responsible for at least one agency building where major equipment can be controlled.
- Can access trend logging functions in a BAS/ BMS throughout the duration of the course.

Please note that DEM may give preference to staff at agencies targeted for near-term Load Management Program participation. In general, if Agency Energy Personnel seek to enroll in this training offering, they should confirm that at least one building operator from their agency also will attend.

### **LMTC Cohort A (starts 9/11)**

<b>Duration</b>	nine sessions over a span of 15 weeks
<b>Day</b>	Wednesday (AM)
<b>Time</b>	9 AM to 12 noon
<b>Location</b>	Citywide Training Center // 1 Centre Street, Floor 24, New York, NY
<b>Training Dates</b>	9/11, 9/18, 9/25, 10/2, 10/16,10/30,11/13,12/4,12/18
<b>Registration Deadline</b>	September 4

### **LMTC Cohort B (starts 10/17)**

<b>Duration</b>	nine sessions over a span of 15 weeks
<b>Day</b>	Thursday (AM)
<b>Time</b>	9 AM to 12 noon
<b>Location</b>	Citywide Training Center // 1 Centre Street, Floor 24, New York, NY
<b>Training Dates</b>	10/17, 10/24, 10/31, 11/7, 11/21, 12/5, 12/19, 1/9/2020, 1/23
<b>Registration Deadline</b>	September 27

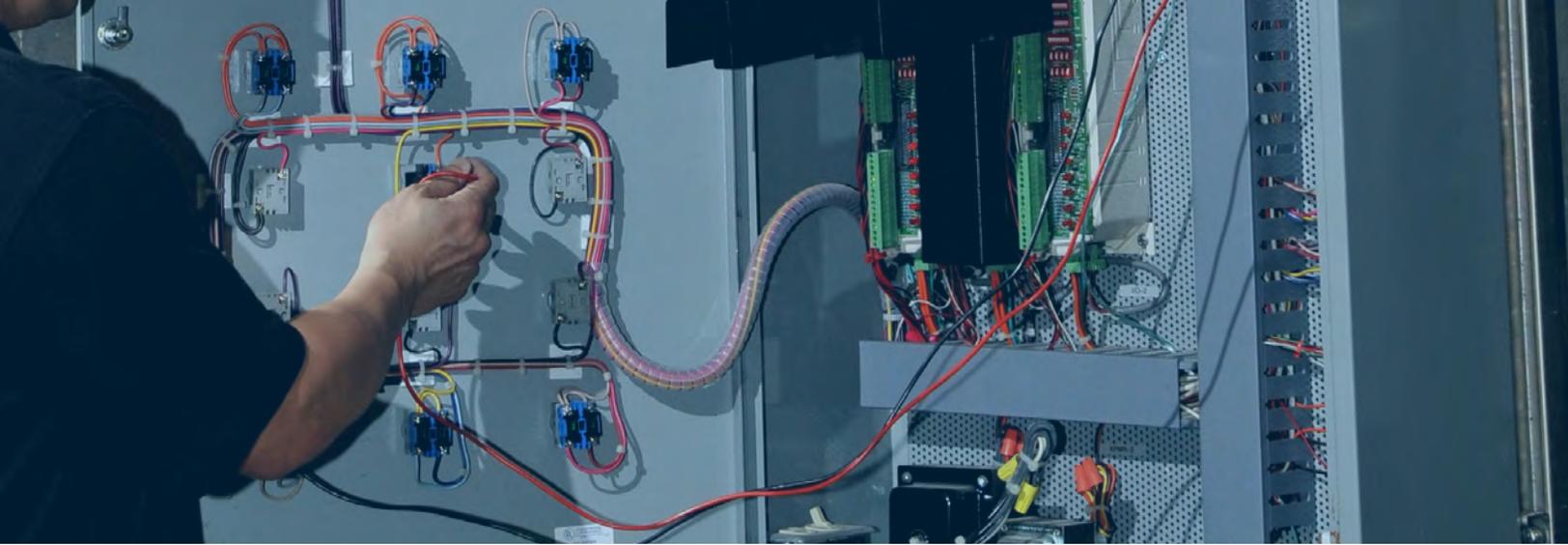
### **LMTC Cohort C (starts 12/4)**

<b>Duration</b>	nine sessions over a span of 16 weeks
<b>Day</b>	Wednesday (PM)
<b>Time</b>	1 PM to 4 PM
<b>Location</b>	Citywide Training Center // 1 Centre Street, Floor 24, New York, NY
<b>Training Dates</b>	12/4, 12/11, 12/18, 1/8/2020, 1/22, 2/5, 2/19, 3 /4, 3/18
<b>Registration Deadline</b>	September 27

**\*\*\*To enroll, potential students should email the Course Registration Form to Elizabeth Taveras at [ETaveras@dcas.nyc.gov](mailto:ETaveras@dcas.nyc.gov). The DEM LM Team will work to confirm both that potential students meet the pre-requisites for the training offering and that their buildings are good near-term candidates for LM participation. Following this process, the DEM LM Team and CUNY SPS will place students in the most suitable cohort, such that they can participate alongside other staff from their own or similar agencies.\*\*\***

### **Cancellation Fee**

If a City employee registers for Load Management Training and Coaching but drops out before satisfactory course completion, a “No Show” fee of \$1,875 will be assessed to their agency’s training department in accordance with the CTC’s cancellation policy.



## Foundations for Energy-Efficient Systems



trades-focused training



one week

### Course Structure

Foundations introduces skilled tradespeople working within City buildings to the trades' role in improving energy efficiency. It helps tradespeople identify and act on energy-saving opportunities for critical systems, including performing cost comparisons between system maintenance and correction.

Foundations consists of two in-person instructional sessions taught by subject matter experts over a two-day period. The course includes a field trip to a City-owned building to provide hands-on learning opportunities related to different building systems. To successfully complete the course, students must attend and take part in in-person sessions and take pre- and post-learning assessments given during the first and final classes.

*Note: Foundations is a new course that DEM first piloted in FY 2019 as part of a larger effort to refresh EMI's trades-focused training offerings. Previously, the trades-focused training offerings consisted of five courses targeted to individuals in the following professions: (1) Electricians, (2) Thermostat Repairers, (3) Pipe/Steamfitters, (4) Plumbers, and (5) Oilers/Mechanics. The team is planning to replace these courses with one foundation-level*

*course (Building Foundations) for members of all five trades and three advanced courses focused on specific building systems (Controls, Electrical, and Mechanical).*

### Target Audience

Foundations is designed for tradespeople and supervisors interested in improving energy efficiency in their buildings. The course may be relevant to tradespeople in the following professions: (1) Electricians, (2) Thermostat Repairers, (3) Pipe/Steamfitters, (4) Plumbers, and (5) Oilers/Mechanics.

## Foundations Cohort

<b>Duration</b>	two sessions over a span of one week
<b>Day</b>	Tuesday and Thursday
<b>Time</b>	9 AM to 4 PM
<b>Location</b>	Citywide Training Center // 1 Centre Street, Floor 24, New York, NY
<b>Training Dates</b>	10/22 and 10/24
<b>Registration Deadline</b>	September 27

**\*\*\*To enroll, potential students should email the Course Registration Form to the CUNY SPS team at [EMltraining@sps.cuny.edu](mailto:EMltraining@sps.cuny.edu).\*\*\***

### Cancellation Fee

If a City employee registers for Foundations but drops out before satisfactory course completion, a “No Show” fee of \$975 will be assessed to their agency’s training department in accordance with the CTC’s cancellation policy.

# Fall Semester Learning Fair

The following additional courses will be offered in the context of the Fall Learning Fair, which is scheduled for Late October. During the Learning Fair, DEM and CUNY SPS offer half-day courses over a concentrated period.

## Learning Fair Target Audience

The target audience for the Learning Fair is **BOTH** (1) City staff who hold either BOC-1 or BOC-2 credentials and want to maintain their active credentials and (2) City staff who seek to expand their energy management knowledge in specific areas, but do not necessarily have those credentials. If seats are limited, DEM may grant preference to students who need to maintain their credentials.

## Currently Planned Courses

DEM currently is planning to offer the following courses at the Fall Learning Fair. DEM also may supplement these offerings with additional courses, so please stay tuned for the announcement of the final Fall Learning Fair course schedule.

Course	Brief Description
<a href="#">Using Microsoft Excel for Energy Management, Level 1 (Introductory)</a>	Introductory Excel provides a basic overview of spreadsheet usage for building operators and other City staff who want to use Excel for energy management purposes. The course is designed for staff who have very little to no experience with Excel and want to take other EMI courses that include spreadsheet-based energy data analysis.
<a href="#">Using Microsoft Excel for Energy Management, Level 2 (Intermediate)</a>	Intermediate Excel is designed to help building operators and other City staff learn to use Excel at a more advanced level to analyze and forecast energy usage. The course is designed for staff who have moderate Excel proficiency. The course covers: Subtotal & Filter; Advanced Functions (Vlookup, Sumifs, Forecast); chart production and use; and Pivot Table production and use.
<a href="#">EC3 and EnerTrac</a>	EC3 and EnerTrac training introduces individuals to existing methods and tools available City staff to acquire and report on municipal energy consumption and cost data. EC3 and EnerTrac is targeted to building operators and energy management staff who are interested in municipal energy data. This course enables students to navigate the two platforms, download and manipulate municipal energy reports for their agency, and create load profile baselines for their buildings.



## Course

## Brief Description

### Blueprint Reading

Blueprint Reading provides an overview of basic blueprint reading skills that are useful to efforts to upgrade buildings' energy efficiency. The course is designed to complement building operators' existing hands-on knowledge about mechanical, electrical, and plumbing systems. Specifically, it offers instruction in how to interpret line types, scales, and symbols; read different drawing types, such as plans, elevations, and sections; and understand blueprint set organization.

### Opportunities for Operational Improvements

Opportunities for Operational Improvements provides an overview of four types of issues (i.e., equipment scheduling; control sensor errors; simultaneous heating and cooling issues; and poor outside air control) that can contribute to inefficient building operations. The course provides instruction in creating a building systems operation map and implementing optimization strategies to correct these issues.

### Boiler Plant Optimization

Boiler Optimization introduces methods for evaluating and improving boiler plant efficiency. The course provides instruction in using data loggers to determine trends and establish baseline conditions for projects; identifying boiler room optimization opportunities, including improving Steady State Efficiency (SSE), minimizing stand-by and cyclical losses, and eliminating leaks; and performing simple payback calculations for potential improvements.

### NYC Climate Action

NYC Climate Action provides an interactive opportunity for students to discuss their work in the context NYC's overarching sustainability plan, OneNYC. The course introduces basic environmental science concepts, such as climate risk, sustainability, and embodied energy.

# Field Equipment Lending Library (FELL)

The Field Equipment Library (FELL) is a shared library of specialized energy diagnostic and measurement equipment that is available to all City staff working on energy management projects in City buildings. The FELL is jointly run by DEM and CUNY BPL.

## What equipment does the FELL have?

The FELL is stocked with equipment for measuring, diagnosing, and optimizing a range of building systems and equipment, from boilers to air handling units to solar panels. The FELL includes more than 1,200 items. These items include, but are not limited to: Digital Light Meters, Thermo-Anemometers, Ultrasonic Meters, Portable Combustion Analyzers, Clamp Meters, HOBO Data Loggers, and Thermal Imaging Cameras. The online library is [HERE: www.cunybpl.org/fell/](http://www.cunybpl.org/fell/).

## Where is FELL located?

The FELL is located at 31 Chambers Street, New York, NY 10007. It is open from 9:00 am to 5:00 pm Monday-Friday.

## How can City staff borrow equipment from the FELL?

City staff can search the library online or download the catalog to identify the equipment that they need. City staff should request equipment 2 to 5 days before they plan to use it.

- For equipment pick-up: Please schedule an appointment with Felix Rodriguez ([frodriguez3@ccny.cuny.edu](mailto:frodriguez3@ccny.cuny.edu))
- **For equipment drop-off:** FELL offers free courier service to all five boroughs for City employees.

## How can City staff learn how to use equipment from FELL?

FELL has a dedicated, full-time equipment specialist on staff to give advice on project design and tool selection; provide equipment training and installation assistance; and offer follow-up and evaluation. FELL equipment demonstrations are also provided during Learning Fairs and within specific EMI courses.

# Helpful Tips

## **CUNY SPS Location**

119 West 31st Street, New York, NY 10001  
(31st Street between 6th and 7th Avenue)

### **Directions**

- 1, 2, 3, A, C, E to Penn Station
- B, D, F, M, N, Q, R TO Herald Square
- Path Trains
- M4, M5, M7, M34/M34A, Q32 Buses

### **Closest Parking Garage to CUNY SPS**

- Continental Garage Parking Tower 111 - 107 West 31st Street, New York, NY 10001
- Garden Lots - 24 West 31st Street, New York, NY 10001 (right across the street)

### **Closest Places to Eat near CUNY SPS**

- Café R (right beside CUNY SPS)
- Dunkin Donuts - 152 W 31st St, New York, NY 10001 (31st Street & 7th Avenue)
- Sunsweet Deli - 838 6th Ave., New York, NY 10001 (6th Avenue between 29th & 30th Street)
- Europa Café - 11 Pennsylvania Plaza # 1, New York, NY 10001 (31st Street & 7th Avenue)
- Speedy's - 1271 Broadway, New York, NY 10001 (32nd Street & Broadway Avenue)
- Pret A Manger - 104 W 32nd St, New York, NY 10001 (beside Jack's)
- Food Gallery 32 - 11 W 32nd St, New York, NY 10001 (between 5th & 6th Avenue)

## **Citywide Training Center Location (CTC)**

1 Centre Street, New York, NY 10007  
24th floor, South Side Entrance

### **Directions**

- 4,5, 6 to Brooklyn Bridge - City Hall
- J, Z to Chambers Street - Centre Street
- A, C to Chambers Street - Church Street
- R to City Hall

### **Closest Parking Garage to CTC**

- SP+ Parking - 101-117 Worth St, New York, NY 10013 (Between Broadway Avenue & Lafayette Street)
- 24-Hr Parking - 80 Gold Street (Corner Spruce Street and Gold Street)

### **Closest Places to Eat near CTC**

- Potbelly Sandwich Shop - 280 Broadway, New York, NY 10007 (between Chambers Street & Reade Street)
- Chipotle - 281 Broadway, New York, NY 10007 (corner Chambers street & Broadway Avenue)
- Sophie's - 96 Chambers St, New York, NY 10007 (between Broadway Avenue & Church Street)
- Dunkin Donuts - 100 Chambers St, New York, NY 10007 (corner Chambers Street & Church Street)
- Kaede - 90 Chambers St, New York, NY 10007 (between Broadway Avenue & Church Street)
- Amish Market Tribeca— 53 Park Pl, New York, NY 10007 (Between Church Street & W. Broadway Avenue)
- GRK Fresh Greek - 111 Fulton St, New York, NY 10038 (between William Street & Nassau Street)



### **About CUNY School of Professional Studies**

The CUNY School of Professional Studies (CUNY SPS) provides online and on campus programs that meet the needs of adults who are looking to finish a bachelor's degree, earn a master's degree or certificate in a specialized field, advance in the workplace, or change careers.

Drawing on CUNY's nationally and internationally renowned faculty and practitioners, as well as industry and education partners, our programs provide opportunities for personal growth, job mobility, greater civic participation, and new ways to advance knowledge.

Email: [EMltraining@sps.cuny.edu](mailto:EMltraining@sps.cuny.edu)

Location: CUNY School of Professional Studies, Floor 3 – Room 319, 119 West 31st Street, New York, NY, 10001

**[www.sps.cuny.edu](http://www.sps.cuny.edu)**

### **About CUNY Building Performance Lab**

Founded in 2006, the mission of the CUNY Institute for Urban Systems Building Performance Lab is to advance high-performance building operations and practices in existing commercial and public buildings. We focus on improving efficiency and optimizing building operations through continuing education programs for facility managers, building operators, and energy professionals, internships for CUNY students, and building systems research and development.

**[www.cunybpl.org](http://www.cunybpl.org)**

### **About DCAS Energy Management**

The DCAS Division of Energy Management (DEM) is at the forefront of the City of New York's energy conservation and sustainability efforts. It oversees more than 10,000 utility accounts for City government agencies across 4,000 public buildings. It implements creative solutions to reduce energy consumption, promote energy efficiency in public buildings, and to generate clean energy on City-owned properties. The Division manages a \$700 million annual energy supply budget and a \$2.7 billion 10-year capital budget to develop and implement programs to achieve the City's One City: Built to Last strategy of an 80% reduction of greenhouse gas emissions by 2050.

Email: [energy@dcas.nyc.gov](mailto:energy@dcas.nyc.gov) or [gguivelondo@dcas.nyc.gov](mailto:gguivelondo@dcas.nyc.gov)

Location: Department of Citywide Administrative Services, Floor 17, Manhattan Municipal Building, 1 Centre Street, New York, NY 10007

**[www.nyc.gov/energy-conservation](http://www.nyc.gov/energy-conservation)**