NYC Buildings

2020 DIGITAL: SAFETY, INNOVATION & SUSTAINABILITY CONFERENCE

UPDATES TO NYC SUSTAINABLE BUILDINGS LAWS

Energy Grading
Energy Audits & Retro-Cx
Building Emissions

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PRESENTATION DESCRIPTION

This presentation reviews recent changes to NYC Local Laws related to Building Energy Grades, Energy Audits and Retro-commissioning.

With respect to the GHG emissions reduction law, information is presented about the upcoming adjustment the application program for buildings with excessive energy use and not-for-profit health care operations.

Also, related to Local Law 97 the presentation will review what buildings can or should do to prepare for compliance with the law.

AGENDA

1. Local Law 33 of 2018 – Building Energy Grades
2. Local Law 87 of 2009 – Energy Audits & Retro Cx
3. Local Law 97 of 2019 – Building Emissions

Local Law 33 of 2018

BUILDING ENERGY GRADES

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LL33/2018: BUILDING ENERGY GRADES

- What is LL33?
  - From 1RCNY §103-06 Statement of Basis and Purpose of Rule

Local Law 33 establishes a *reporting* and *notice* requirement, whereby owners of "covered buildings," are required to report their annual energy and water use ("benchmark") through the online benchmarking tool that delivers an "Energy Efficiency Score" that assesses the energy use of the building relative to buildings of comparable size and use. Based on the "Energy Efficiency Score," each "covered building" will be assigned an "Energy Efficiency Grade" in the form of a letter – A- D, F or N (not feasible) Grade…requires the covered building owner to display the "Energy Efficiency Grade" and "Energy Efficiency Score" near each public entrance, within 30 days after October first in a given year.

LL33/2018: BUILDING ENERGY GRADES

- What are Covered Buildings
  - Per DOF records
    - A single building on a lot >25,000 gsf
    - Multiple buildings on a lot that together >100,000 gsf
    - Multiple buildings held in condominium ownership with the same board of managers that together >100,000 gsf
    - City building
- What is Benchmarking/benchmarking tool?
  - Benchmarking is a comparison – LL84/2009; LL133/2016
  - US EPA's Portfolio Manager Tool
- Energy Efficiency Score
  - Numerical score (1-100) that is generated through the ESPM tool
- Energy Efficiency Grade
  - Letter grade A-D; F; N - LL95/2019

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LL33/2018: BUILDING ENERGY GRADES

- In accordance with LL95/2019

A: 85-100

B: 70-84

C: 55-69

D: 0-54

F: for buildings that didn't submit required benchmarking information

N: for buildings exempt from benchmarking or not covered by the Energy Star program (N grade buildings are not subject to the posting requirement)

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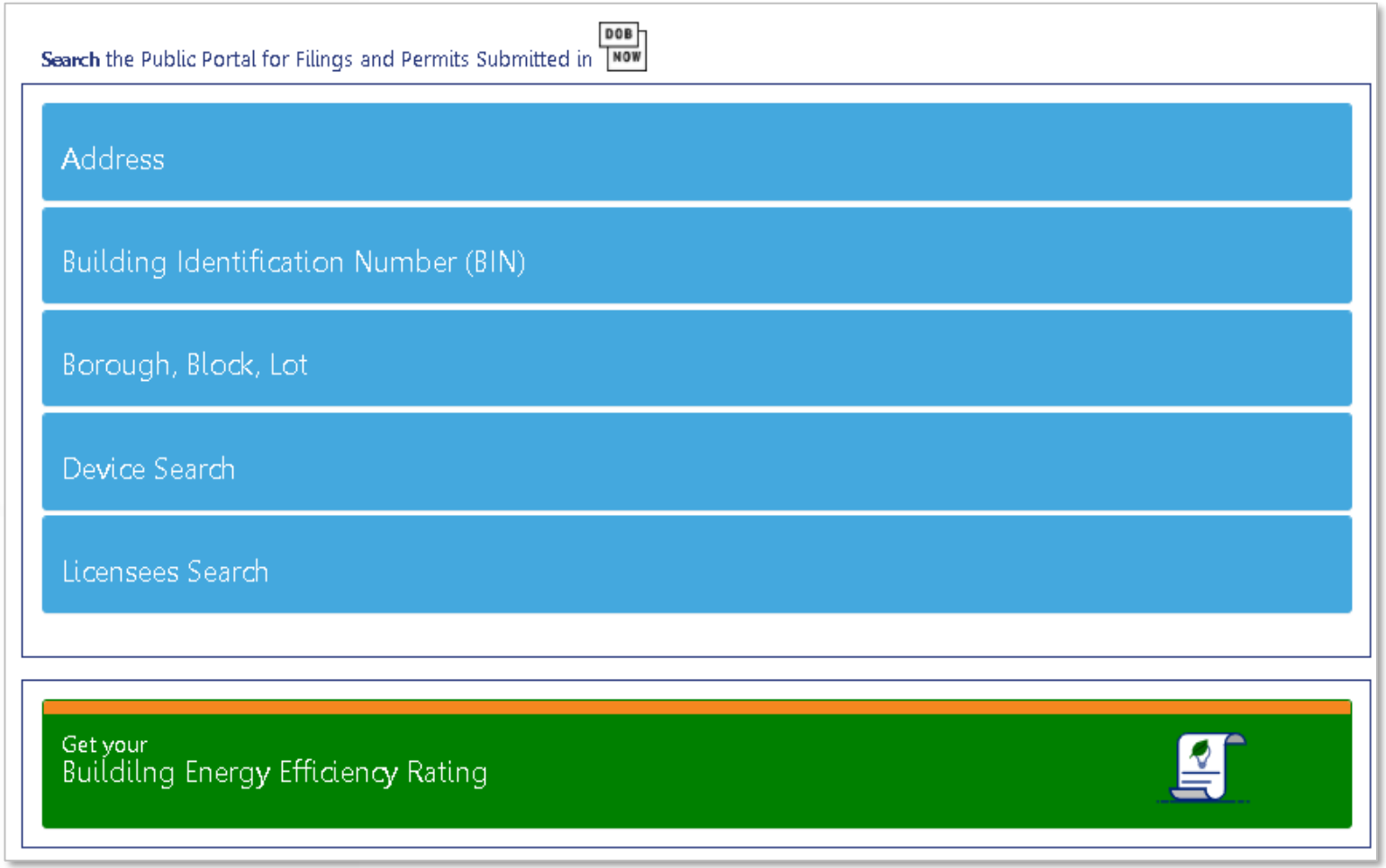
LL33/2018: BUILDING ENERGY GRADES

- STEP 1: Report
  - Submit benchmarking information through ESPM to the City of NY
- STEP 2: Post
  - Submitting attestation
  - Printing the Energy Efficiency Rating Label from the DOB NOW Public Portal

LL33/2018: BUILDING ENERGY GRADES

Building owners can access the Building Energy Efficiency Rating tab through the DOB NOW Public Portal; no sign in required.



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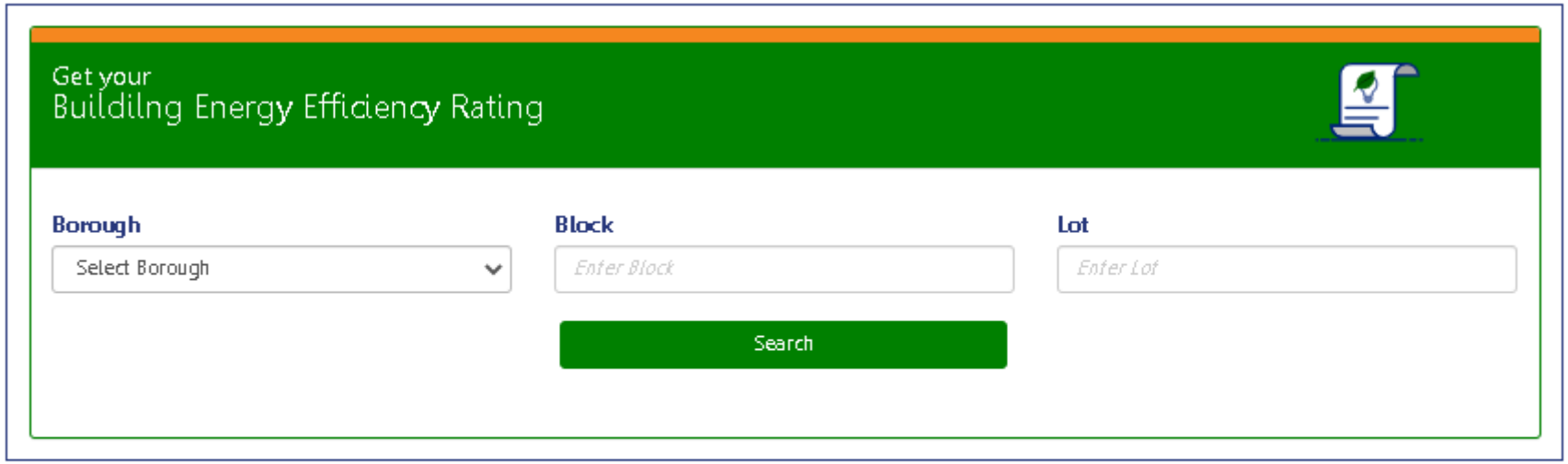
LL33/2018: BUILDING ENERGY GRADES

Owners will be required to search for their property by Borough, Block and Lot



DOB NOW Public Portal FAQ and User Manual

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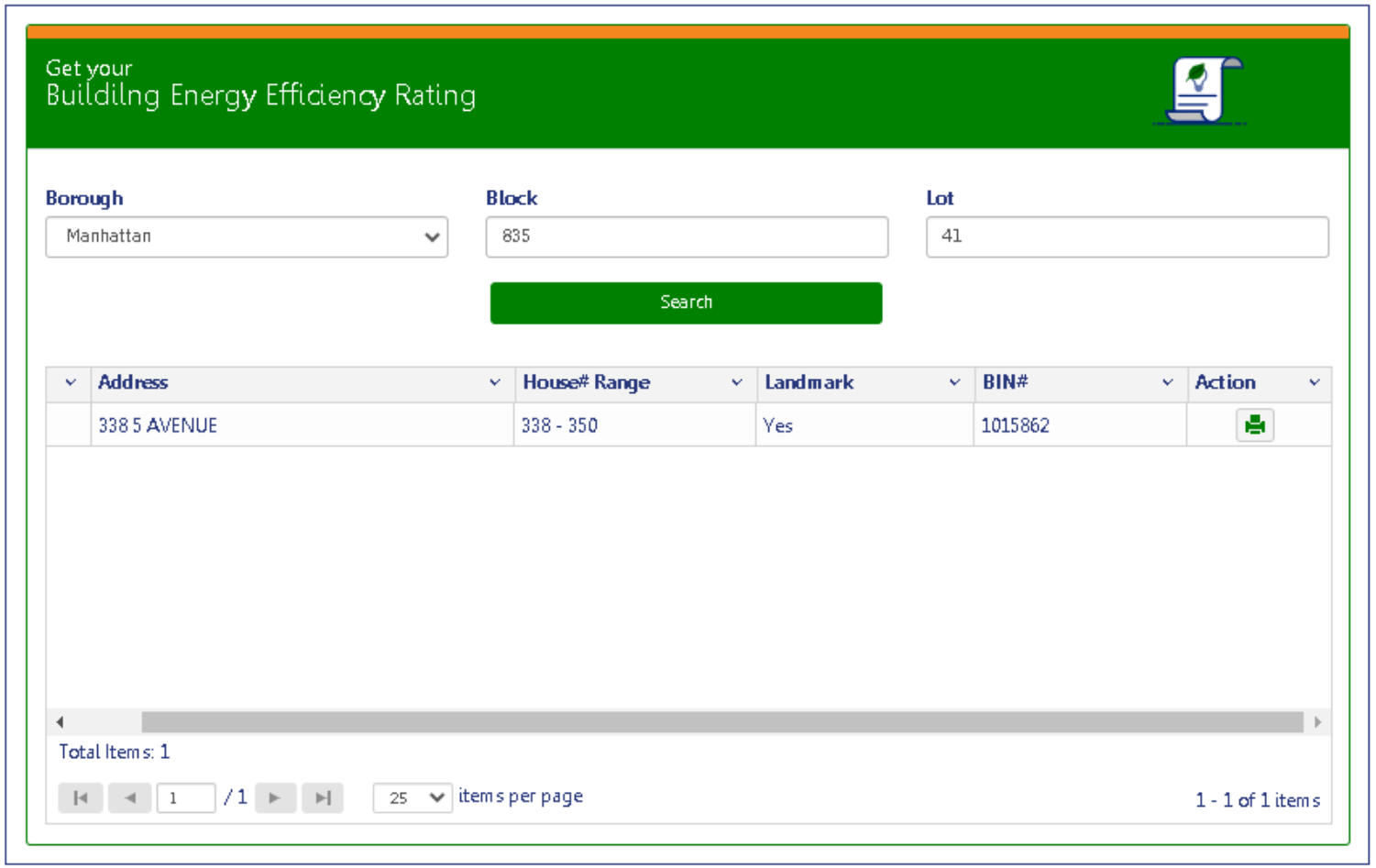

Building owners must print the Energy Efficiency Rating label for every Building Identification Number (BIN) or address displayed in the property profile.

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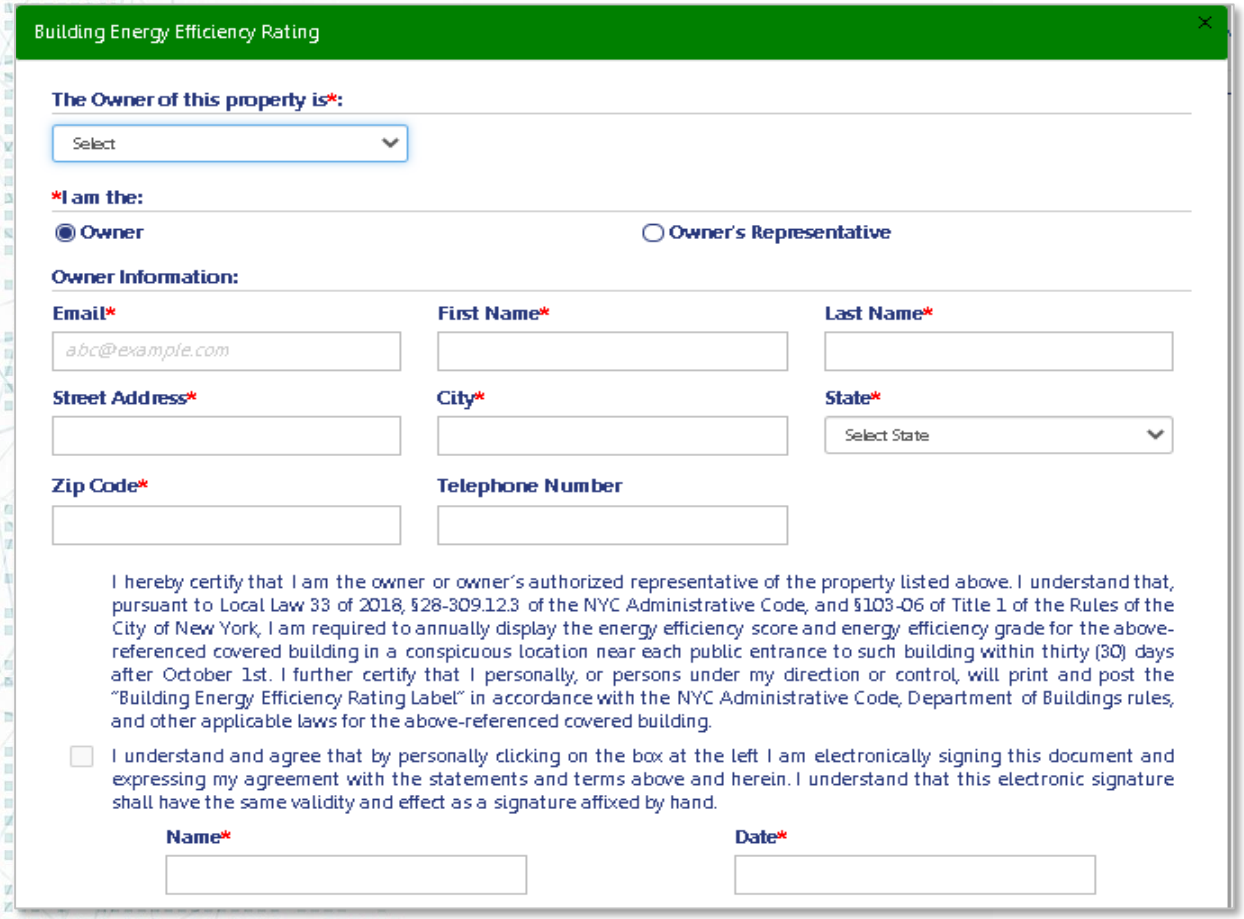

The building owner or their representative must complete the attestation before downloading the Building Energy Rating Label.

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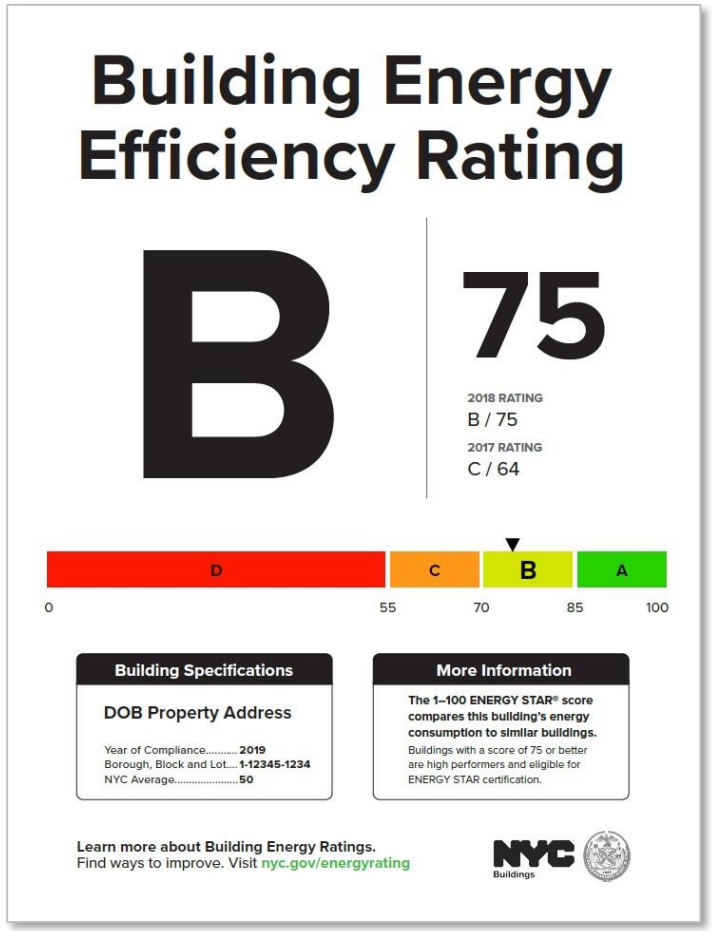
LL33/2018 – BUILDING ENERGY GRADES

- Owners can download their Building Energy Efficiency Rating Label as a PDF and print as many copies as necessary to display at all public entrances to their buildings.
- A confirmation email and instructions for display will be provided.



LL33/2018: BUILDING ENERGY GRADES

- The Department of Buildings' benchmarking webpage
  - https://www1.nyc.gov/site/buildings/business/benchmarking.page
- Department of Buildings Sustainability Enforcement Unit:
  - sustainability@buildings.nyc.gov
  - (212) 393-2574
- The NYC Sustainability Help Center
  - Help@NYCsustainability.org
  - (212) 566-5584

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Local Law 87 of 2009

ENERGY AUDITS & RETRO Cx

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LL87/2009: ENERGY AUDITS & RETRO-Cx

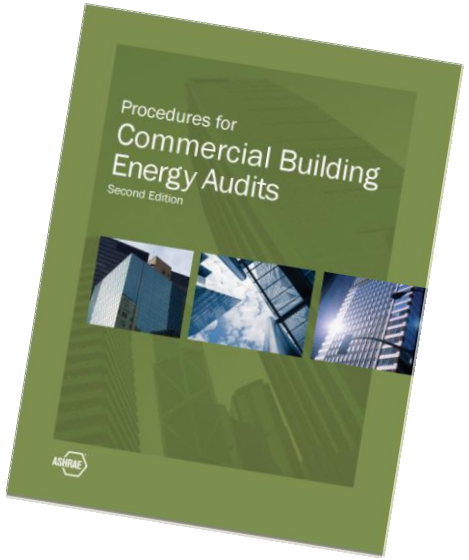
What's new with 1RCNY §103-07

- From the Statement of Basis and Purpose
  - Replace the guidelines in the reference section with ANSI-approved standards for procedures required to perform energy audits and retro-commissioning
  - Restrict the approved agency qualifications and registration for the submission of energy efficiency reports to Registered Design Professionals
  - Standardize testing protocols with functional performance testing, reformat testing criteria per base building system type, and clarify current facility requirements and sampling requirements.
  - This rule revision took effect on August 4, 2019; provided, however, that the amendments made by section one, two, and four through nine shall take effect on January 1,2020.

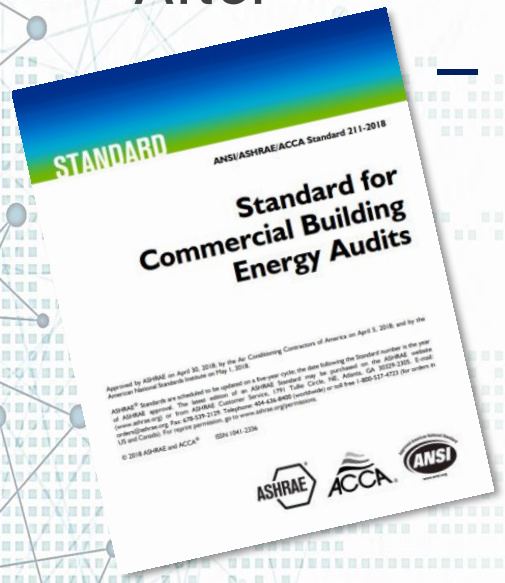
LL87/2009: ENERGY AUDITS & RETRO-Cx

Energy Audits

- Before
  - ASHRAE Procedures for Commercial Building Energy Audits 2011 edition



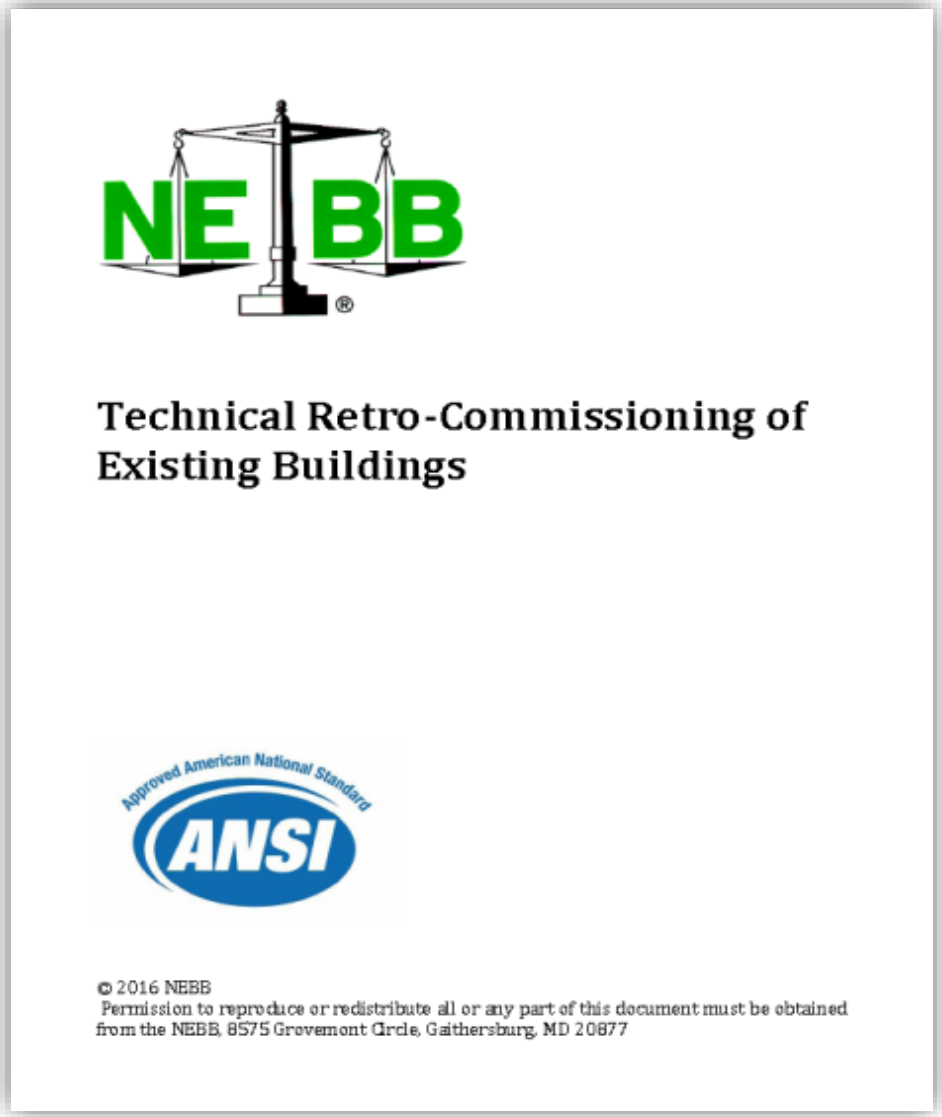
- After
  - ASHRAE Standard for Commercial Building Energy Audits ASHRAE 211-2018 American National Standards Institute (ANSI) approved Air Conditioning Contractors of America (ACCA) co-sponsored



LL87/2009: ENERGY AUDITS & RETRO-Cx

Retro-commissioning

- Before: No standard or guide
- After: National Environmental Balancing Bureau (NEBB) Standard S120-2016 – Technical Retro-Commissioning of Existing Buildings (ANSI approved)
  - Provides required processes, technical procedures, methods, and documentation for a Retro-Commissioning project methodology to discover existing operating conditions and to improve the operation and function of existing building systems



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Qualifications

- Before
  Non-Registered Design Professionals who had the requisite credentials could register with the Department and submit an EER without a Professional Engineer or Registered Architect
- After
  Energy Efficiency Reports must be submitted by a Registered Design Professional
- Non-RDPs currently registered may continue to submit reports until expiration of the registration or December 31, 2021, whichever occurs first

LL87/2009: ENERGY AUDITS & RETRO-Cx

- Energy Auditor Certifications
  - CEM or CEA certified by (AEE)
  - HPBDP certified by (ASHRAE)
  - BEAP certified by (ASHRAE)
  - MFBA certified by (BPI) (*ONLY* for multi-family audits)

- Retro-Commissioning Certifications
  - A Certified Commissioning Professional certified by the Building Commissioning Association
  - A Certified Building Commissioning Professional certified by the AEE
  - An Existing Building Commissioning Professional certified by the AEE
  - *A Commissioning Process Management Professional certified by ASHRAE*
  - An Accredited Commissioning Process Authority Professional approved by the University of Wisconsin
  - A certified Commissioning Authority certified by the Associated Air Balance Council Commissioning Group (AABC / ACG)
  - A Building Commissioning Professional certified by ASHRAE
  - A Commissioning Process Professional certified by NEBB
  - A Technical Retro-Commissioning Professional certified by NEBB
  - A Building Systems Commissioning Professional certified by NEBB

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LL87/2009: ENERGY AUDITS & RETRO-Cx

Current Facility Requirements

Current Facility Requirements (CFR) are the present operational needs and requirements of the building that include:

- Temperature set points
- Steam operating pressures
- Domestic hot water delivery temperatures
- Ventilation rates
- Lighting levels

Acceptable References

- Illuminating Engineering Society Handbook (IES)
- New York City Housing Maintenance Code (HMC)
- New York City Building Code (BC)
- ASHRAE Fundamentals Handbook
- ASHRAE HVAC Systems and Equipment Handbook

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Current Facility Requirements

- Winter Indoor space temperatures should be between 68 and 76 degrees F and summer indoor temperatures should be between 72 and 80 degrees F during occupied periods of time for non-common tenant areas (without individual HVAC controls) and non-common owner areas of the facility
- Operating steam system pressure (cut-out setting) should not be greater than four psig for low pressure steam heated buildings. For any building requiring higher operating steam pressure, substantial documentation, including design/as-built documents indicating design operating steam pressure shall be submitted and acceptable to the Department.

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Current Facility Requirements *(continued)*

- Domestic hot water is stored and delivered per the HMC for Group R occupancies and per New York City Plumbing Code requirements for all other occupancies
- Minimum outside air requirements are met in areas with mechanical supply ventilation per the design and/or New York City Mechanical Code, effective at the time of installation of the major equipment
- Lighting levels (foot candles) are in accordance with the BC and HMC for all egress lighting, including common laundry rooms, and in accordance with the IES lighting handbook for all other space use types in the common areas and non-common owner areas.

LL87/2009: ENERGY AUDITS & RETRO-Cx

- HVAC and Service Water Equipment
  - Pre-testing verification of all major equipment and its sub-equipment components
  - Functional performance testing
  - Temperature and pressure setpoints and setbacks
  - Sensor calibration
  - Simultaneous heating and cooling
  - Boiler tuning for optimal efficiency
  - Manual Override remediation
  - Leaks

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HVAC and Service Water Equipment

- *Pre-testing Verification*

  An inspection of all the major equipment and its sub-equipment and components located in common areas covering at least 20% of equipment located in non-common areas, and at least 10% of equipment located in accessible non-common tenant areas. Pre testing must be conducted to check for cleanliness and proper operation. Inspections ensure that the system is able to be tested. Where major equipment, sub-equipment and components are found to require cleaning, repair or correction for proper operation, correct all deficiencies prior to conducting functional performance testing and document the post-correction condition in the retro-commissioning report under the issues log.

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HVAC and Service Water Equipment

- *Functional Performance Testing*

  Performance verification through functional performance testing for all major equipment and its sub-equipment and components must be performed during normal operating conditions. Functional performance testing includes but is not limited to: all controls, actuation, automation and sequencing functions that impact energy consumption of the major equipment such as control sequences of operation, economizer functions, staging and load distribution, automatic reset function and integrated system level testing. The functional performance test process and results must be reported on forms acceptable to the department. Completed functional performance test forms must be included in the retro-commissioning report.

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HVAC and Service Water Equipment

- *Temperature and Pressure Setpoints and Setbacks*

  All major equipment and its sub-equipment and components located in all common areas, at least 20% of such equipment located in the non-common owner areas and at least 10% of such equipment located in the non-common tenant areas must be tested to verify that such system set points are appropriate to the CFR and setbacks operate during unoccupied periods as indicated in the CFR.

- *Simultaneous Heating and Cooling*

  All major equipment air handling units located in common areas and at least 20% of major equipment air handling units located in non-common owner areas must be tested to verify that simultaneous heating and cooling is not occurring, unless intended.

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HVAC and Service Water Equipment

- *Sensor Calibration*

Critical and Monitoring sensors associated with major equipment

AHU/FCU/H&V/Packaged and Split AC Units	BOILER	COOLING TOWER	CHILLER
OA temp	OA temp	OA temp (Dry bulb and wet bulb)	OA temp
Supply and Return air temp	Return temp	Inlet water temp	Evap. water temp in
Mixed air temp	Supply temp	Outlet water temp	Evap. water temp out
Supply and return air flow rate	System pressures (Steam Boilers)	Flow rate	Cond water temp in
Static pressure	Indoor zone temp	Humidity	Cond water temp out
Zone temp	-	Supply and return temp	Zone temp and System pressures

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HVAC and Service Water Equipment

- *Sensor Calibration (continued)*
  - All critical sensors that are part of a control sequence and have direct control of major equipment located in the common area must be tested for proper calibration. Acceptable and allowable tolerances for proper calibration must be supported by a reference acceptable to industry or manufacturer's guidelines.
  - For monitoring sensors that are not part of the control sequence, a sample set constituting at least 10% of all monitoring sensors within the common area must be tested for calibration. If less than 80% of the sample set is satisfactory then all monitoring must be tested for proper calibration. The condition must be corrected and the post correction conditions must be documented in the Retro-Cx report.

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HVAC and Service Water Equipment

- *Boiler Tuning for Optimal Efficiency*

A combustion efficiency test must be conducted for each low pressure major equipment boiler (includes H-stamped domestic hot water heaters). Each boiler must be tuned and cleaned to perform as per manufacturer's guidelines for combustion efficiency. If the manufacturer's guidelines are not available, cleaning/tuning and combustion efficiency testing must be conducted to meet the requirements in Table 4 below at high and low fire rates for all fuel types. Results of the combustion efficiency test (Actual print-outs directly obtained from the calibrated combustion analyzer) must be included in the retro-commissioning report.

Table 4: Acceptable Range for Combustion Efficiency Test Results

	High Fire			Low Fire	
	Residential/Commercial Gas Fired		Commercial Oil Fired	Commercial Gas Fired	Commercial Oil Fired
	Atmospheric and Fan Assist Boilers	Power Burners	Power Burners	Power Burners	Power Burners
Oxygen (%)	6% to 9%	3% to 6%	3% to 6%	5% to 8%	6% to 10%
Stack temperature (deg. F)	325 to 450	350 to 550	350 to 500	300 to 380	300 to 400
Carbon Monoxide (ppm) Air Free	<50 ppm	<100 ppm	<100 ppm	<100 ppm	<100 ppm
Smoke number	- -	-	Zero or Per manufacturer requirements	-	Zero or Per manufacturer requirements

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HVAC and Service Water Equipment

- *Pipe Insulation*

  All exposed (uninsulated and/or with deteriorated insulation) pipes that are three inches or greater in diameter, pipe fittings and associated valves located in the common areas, at least 20% of sub-equipment located non-common owner areas and at least 10% of such sub-equipment located in non-common tenant areas, that contain steam or fluid outside the operating temperature range of 60 degrees F and 105 degrees F must be thermally insulated in accordance with the New York City Energy Conservation Code, in effect at the time of installation, and the post correction condition must be documented in the retro-commissioning report.

- *High Pressure Steam Traps*

  All high pressure traps operating above 15 PSI must be tested using ultrasonic leak detection to verify proper operations or must be replaced. All steam traps found to be functioning improperly must be replaced, repaired or rebuilt, and the post-correction condition must be noted in the retro-commissioning report.

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HVAC and Service Water Equipment

One-Pipe Steam Distribution

- All one pipe steam distribution systems serving major equipment must have steam travel duration times from the steam header to the end of each main loop vent that are an average of less than five minutes.
- Retro-cx agents must conduct the steam travel time test using temperature data loggers (temperature sensors/thermocouples) that provide an output of timestamps and surface temperature readings. At the beginning of each test, the temperature at the end of each main loop vent must be 140 degrees F or less. At the end of the test, the end of each main loop vent must be 195 degrees F or more.
- The time for which it takes the steam header to reach at least 195 degrees F and the end of each loop vent(s) reaching at least 195 degrees F must be less than five minutes.

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HVAC and Service Water Equipment

One-Pipe Steam Distribution (continued)

- A temperature vs. time curve must be plotted in 10- second intervals and all data points logged that are used to plot the curve must be listed in a table. Data points must include time from the start of the boiler/burner until the steam reaches the header and then to the end of all main loops.
- The retro-cx agent must provide a schematic plan of the steam piping distribution in the common area. The schematic plan should indicate the location of the boiler(s), supply lines , header and each main line vent.

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HVAC and Service Water Equipment

Two Steam Distribution

SCENARIO A

- The main supply and main return piping surface temperatures for all two-pipe steam distribution systems that serve major equipment must have a differential of 30 degrees F or more.
- The retro-commissioning agent must conduct the differential temperature test utilizing temperature data loggers (temperature sensors or thermocouples) that provide an output listing timestamps and surface temperature readings.

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HVAC and Service Water Equipment

Two Steam Distribution (continued)

SCENARIO A

- The retro-commissioning agent must provide Pressure vs. Time and Temperature vs. Time graphs recorded in intervals of 5 minutes. The temperature readings must be recorded using data loggers and located on the main supply/header and main return piping, on the inlet of a condensate/vacuum tank.
- This test cannot be performed on systems with master traps or double steam traps; it also cannot be performed on systems with heat exchangers and heat recovery systems that are used to cool the condensate. The data loggers must provide readings during two consecutive cycles of the boiler where each cycle (boiler run time) takes at least 30 minutes at the design operating pressure.

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HVAC and Service Water Equipment

Two Steam Distribution

SCENARIO B

- In the event that a two-pipe steam distribution system has a differential between the main supply and main return piping surface temperatures of not more than 30 degrees F for any duration of the test specified above, all steam traps in the common areas, at least 20% of steam traps in the non-common owner areas and at least 10% of steam traps in the non-common tenant area, that are served by the major equipment, must be tested to verify proper function.
- If less than 80% of the sample set, for each sample size, is found to be functioning properly, then all respective areas served by the two pipe steam distribution system must be tested to verify the steam traps are functioning properly. All steam traps found to be functioning improperly must be replaced, repaired, rebuilt, or removed and the post-correction condition must be documented in the retro-commissioning report.

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HVAC and Service Water Equipment

Two Steam Distribution (continued)

SCENARIO B

- Steam trap testing must utilize ultrasonic leak detection technology and/or a thermal imaging camera (as necessary) to determine the trap condition.
- If the work required is so extensive that it would require more time than available to meet the compliance deadline, the condition may be corrected within two years of submitting the retro-commissioning report to the department and must be noted in the report. Documented verification must be submitted on a form provided by the department showing that the differential temperature between the main supply and main return piping surface is more than 30 degrees F for any duration of the test specified in the differential temperature test described in subparagraph (A) above, after replacement, repair or rebuilding of the deficient steam traps.

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HVAC and Service Water Equipment

Two Steam Distribution

EXCEPTION TO BOTH SCENARIO A & B

- If all steam traps in the common areas, at least 20% of steam traps in the non-common owner areas and at least 10% of the steam traps in the non-common tenant areas have been replaced and/or tested and verified as functioning properly, within five years of the date the EER is submitted, and supporting documentation that is acceptable to the department is provided, then testing of steam traps is not required. Acceptable supporting documentation includes, but is not limited to, copies of paid invoices for the completed work, steam trap test reports and post-correction findings.

LL87/2009 – ENERGY AUDITS & RETRO-Cx

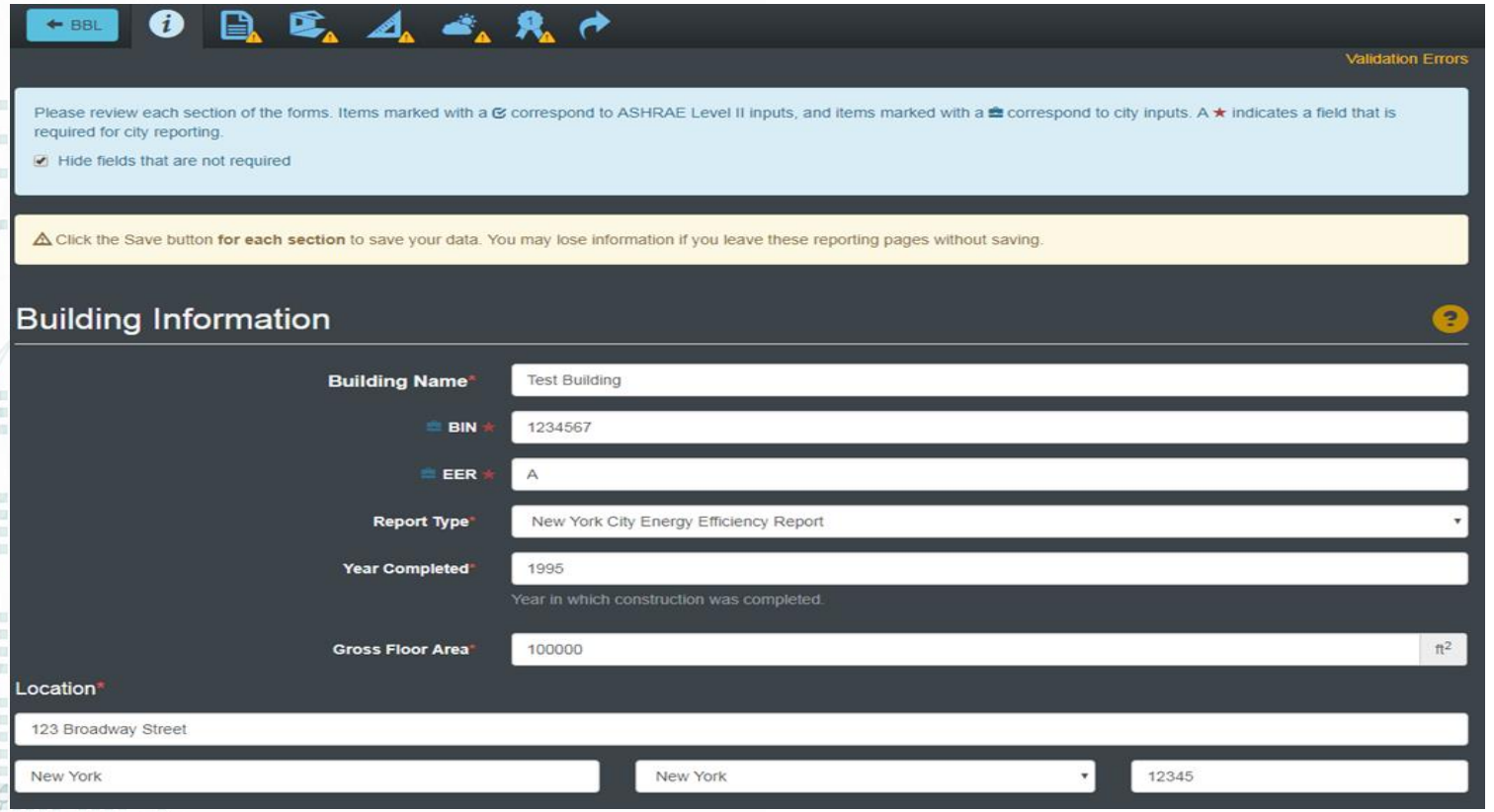
Energy Audit Template Tool

- To access the Audit Template Tool, visit https://buildingenergyscore.energy.gov

- Step 1 – Building Information

LL87/2009: ENERGY AUDITS & RETRO-Cx

- Step 1 – Building Information



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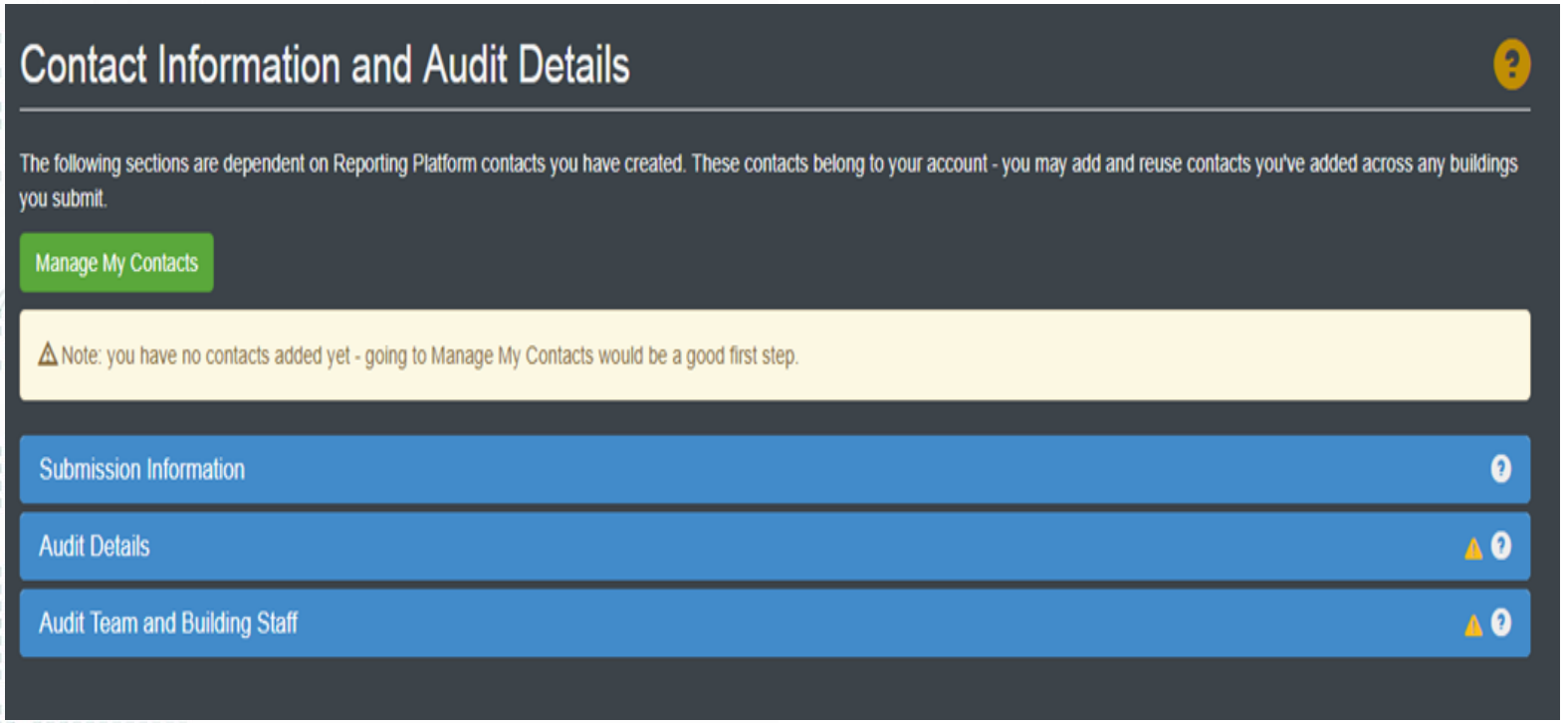
- Step 2 – Contact Information and Audit Details



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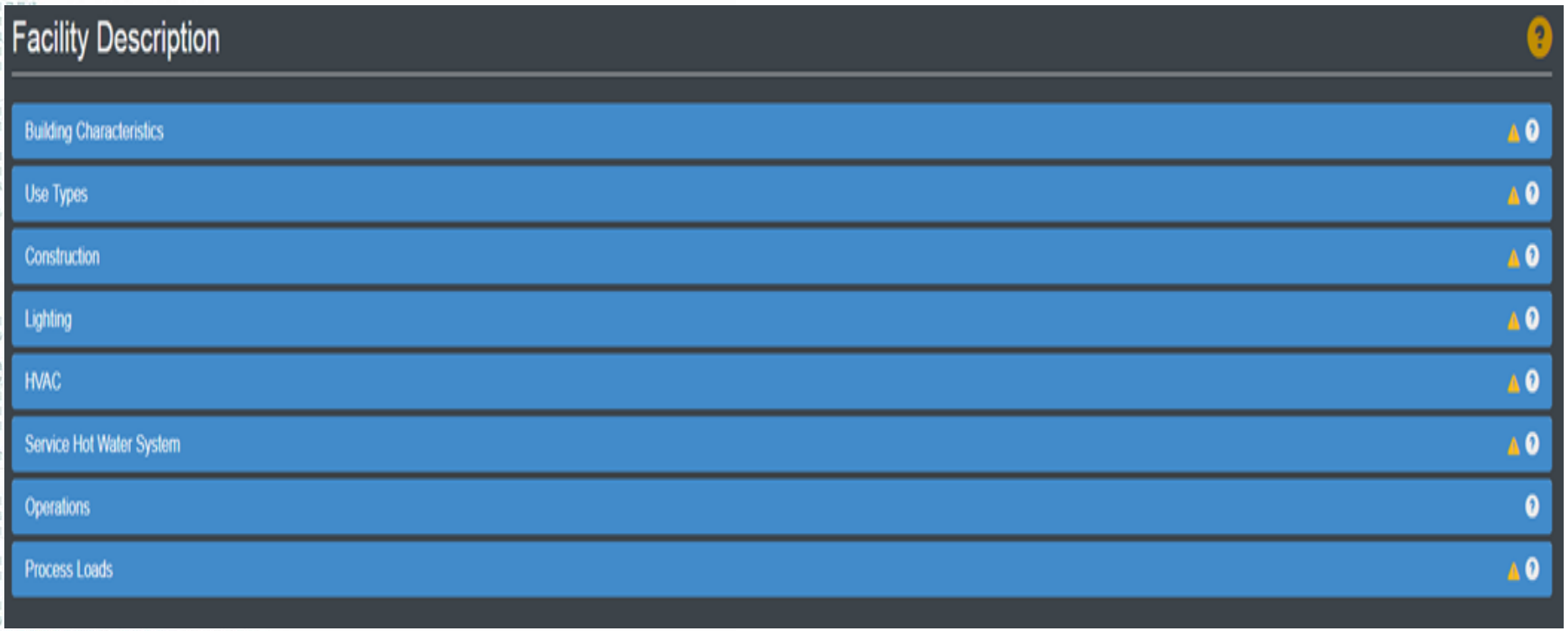
- Step 3 – Facility Description



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- Step 4 – Utility Data and Benchmarking

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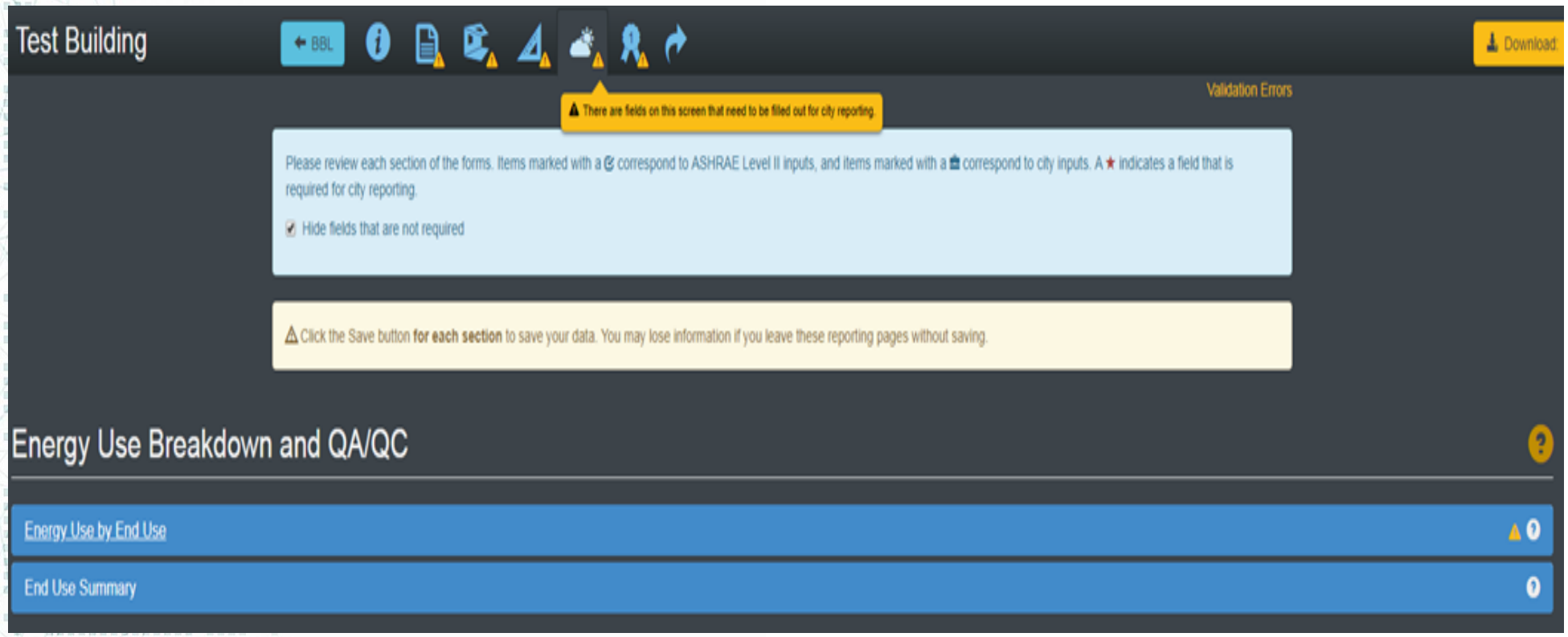
- Step 5 – Energy Use Breakdown and QA/QC



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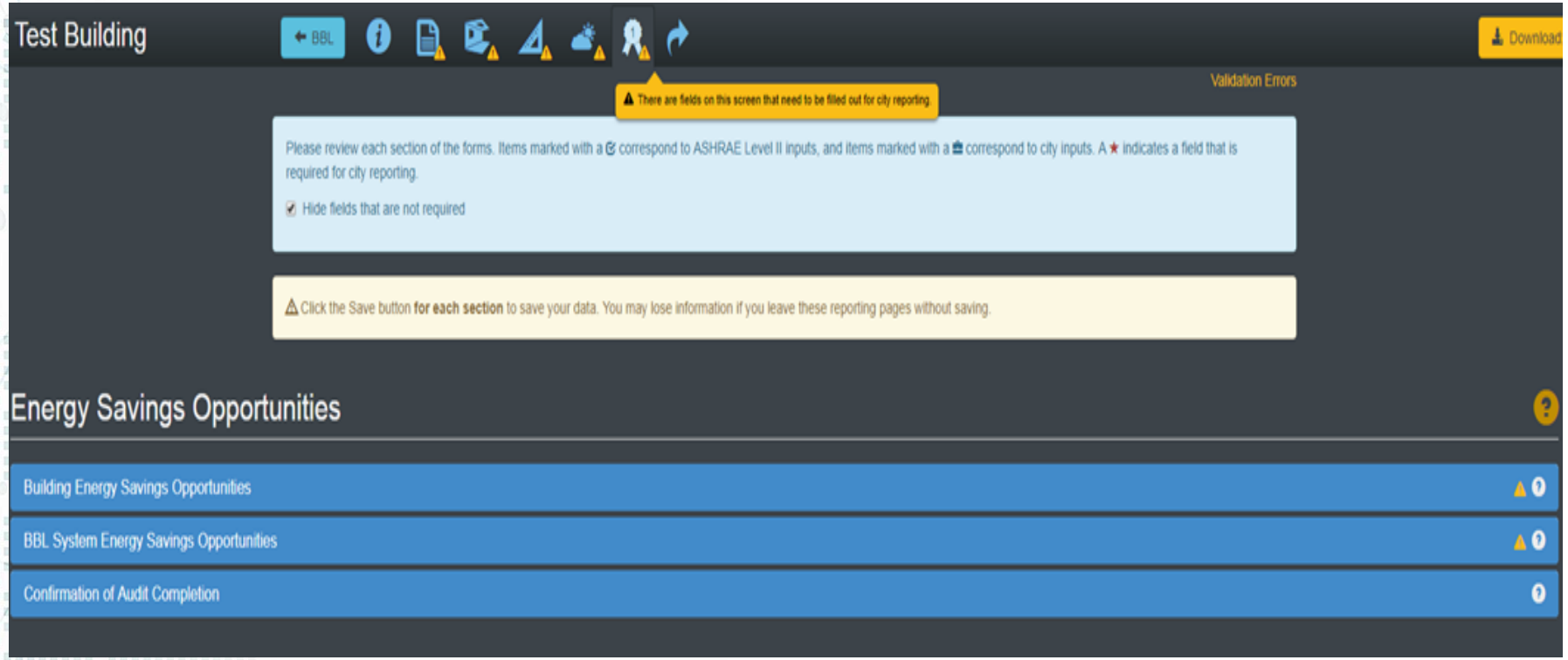
- Step 6 – Energy Savings Opportunities



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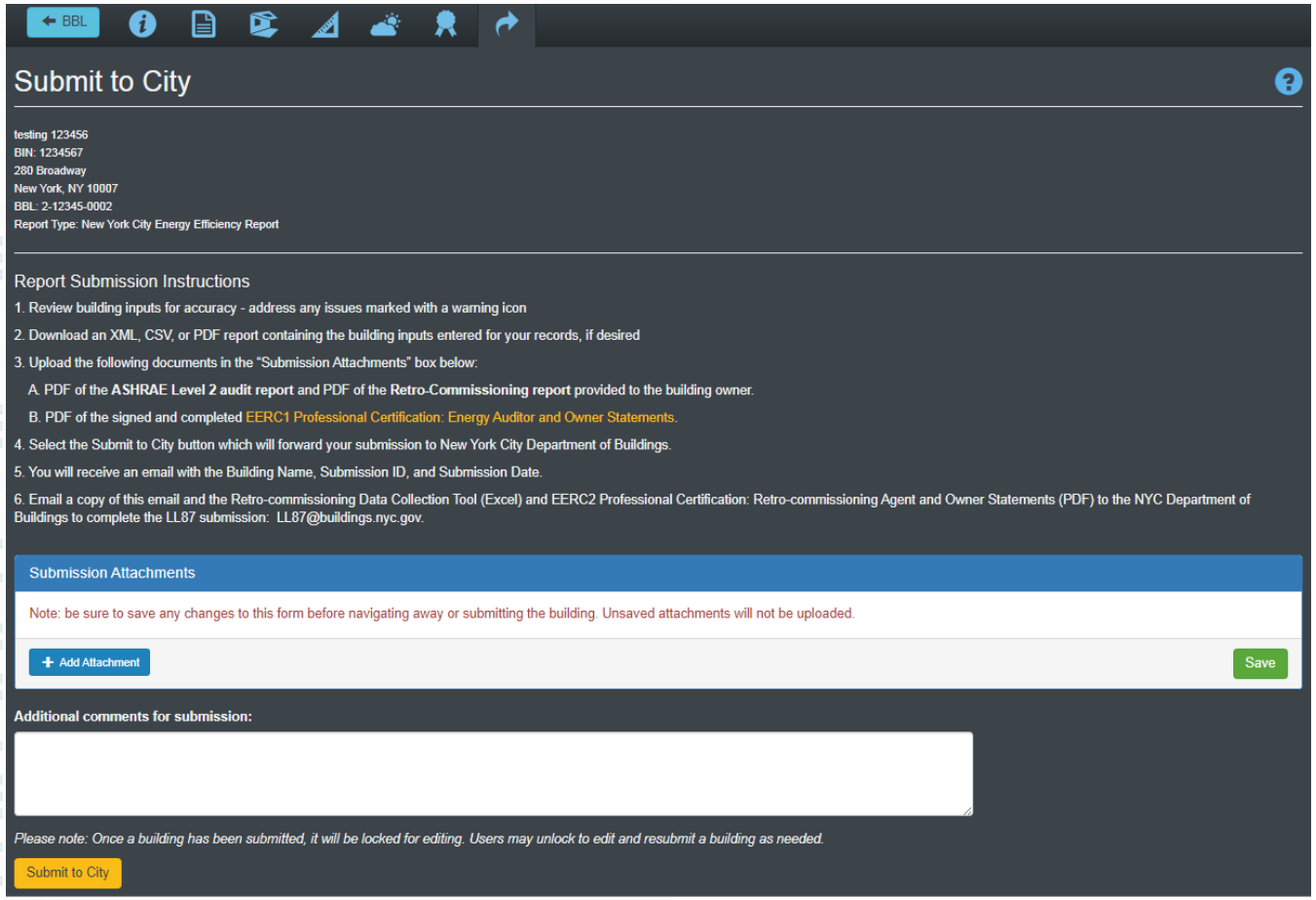
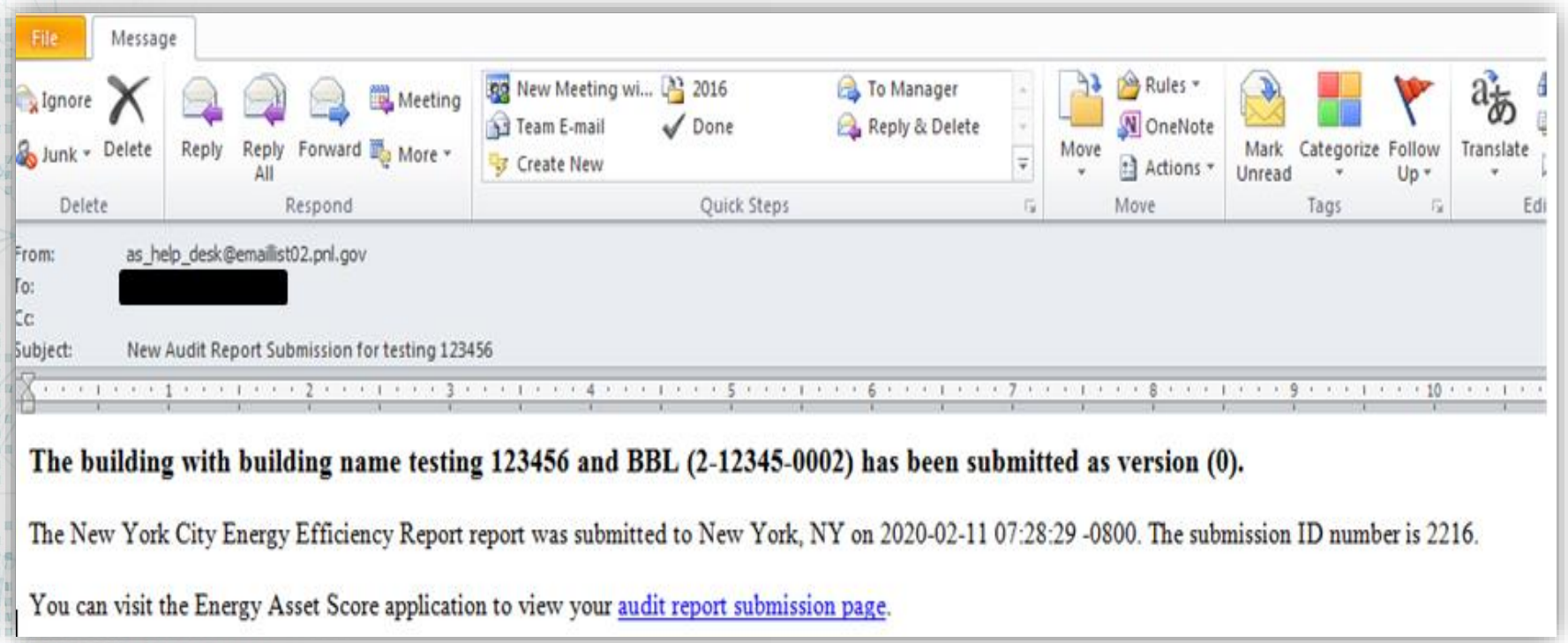
- Step 7 – Submit to the City



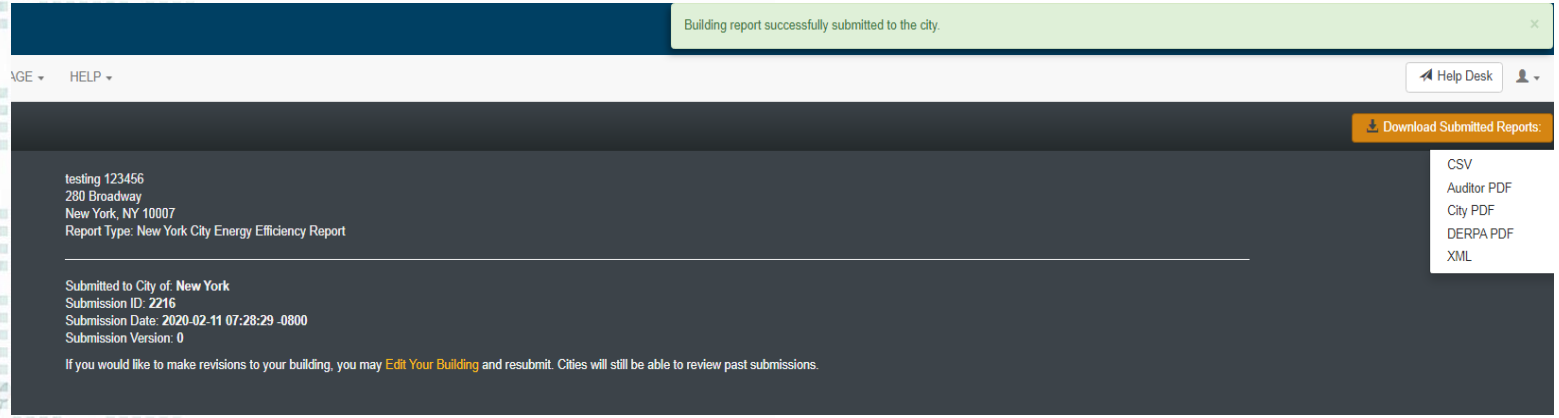
LL87/2009: ENERGY AUDITS & RETRO-Cx

- Confirmation Email



LL87/2009: ENERGY AUDITS & RETRO-Cx

- What is a DERPA Report/Tool?
  - An informational pathway for buildings to achieve aggressive energy performance levels
  - Applies deep energy retrofit strategies that are specific to the buildings' characteristics as entered through the energy Audit Template tool, and suggests a sequencing of opportunities that would allow for phasing in these strategies over time



LL87/2009: ENERGY AUDITS & RETRO-Cx

Benefit and Cost Comparison***	Deep Optimization	Hydronic Conversion	Heat Pumps for Heating	Package 3 + Wall Insulation
BENEFIT **Site Energy Savings**	6% to 22%	14% to 30%	42% to 52%	52% to 62%
BENEFIT **GHG Savings**	Medium Savings	Medium Savings	High Savings	Highest Savings
BENEFIT **Improved Occupant Experience**	Lowest Improvement	Lowest Improvement	High Improvement	Highest Improvement
COST **Capital Costs**	Lowest Costs	Medium Costs	High Costs	Highest Costs
COST **Operations & Maintenance**	Highest Costs	Medium Costs	Medium Costs	Lowest Costs

LL87/2009: ENERGY AUDITS & RETRO-Cx

- The Department of Buildings' Energy Audits & Retro-cx webpage https://www1.nyc.gov/site/buildings/business/energy-audits-and-retro-commissioning.page

- Department of Buildings Sustainability Enforcement Unit: LL87questions@buildings.nyc.gov
(212) 393-2475

- The NYC Sustainability Help Center Help@NYCsustainability.org
(212) 566-5584

NYC Buildings

Local Law 97 of 2019

BUILDING EMISSIONS: ADJUSTMENTS PROGRAM, APPLICATION PROCESS & PREPARING FOR COMPLIANCE

NYC Buildings

LL97/2019: BUILDING EMISSIONS

1. Building Emissions Overview
   - Climate Mobilization Act
   - Local Law 97 of 2019
2. Adjustment Program
   - Purpose of Adjustment
   - Types of Adjustments
   - 28-320.8 – 40% over
   - 28-320.9 – Not-for- profit hospitals and healthcare facilities
3. Adjustment Filing Process
4. Preparing for Compliance

LAW OVERVIEW

- NYS Climate Leadership & Community Protection Act
  - UPDATES THE CARBON GOAL FOR NYS
    requiring that the state eliminate 85% of its GHG emissions by 2050 and offset the remaining 15% (Carbon-neutrality)
  - EQUITY AND SOCIAL JUSTICE
    35% of funding must go to disadvantaged communities
  - INTERIM GOALS
    70% of electricity to come from renewables by 2030, with 100% carbon free electricity by 2040
  - ALL-IN
    aspires to be truly economy-wide

NYC Buildings

LAW OVERVIEW

- NYC Climate Mobilization Act
  - LOCAL LAWS 92 AND 94
    requiring that the roofs of certain buildings be covered in green roofs and/or solar PV systems
  - LOCAL LAW 95
    assigns a building energy efficiency grade
  - LOCAL LAW 96
    establishing a sustainable energy loan program (i.e. PACE)
  - LOCAL LAW 97
    the commitment to achieve certain reductions in greenhouse gas emissions by 2050

NYC Buildings

LAW OVERVIEW

- Building on Previous Local Laws
  - LOCAL LAW 84
    Benchmarking Energy and Water Use
  - LOCAL LAW 87
    Energy Audits and Retro-commissioning of Base Building
  - SYSTEMS LOCAL LAW 88
    Upgrading Lighting Systems and Installing Sub-meters

LAW OVERVIEW

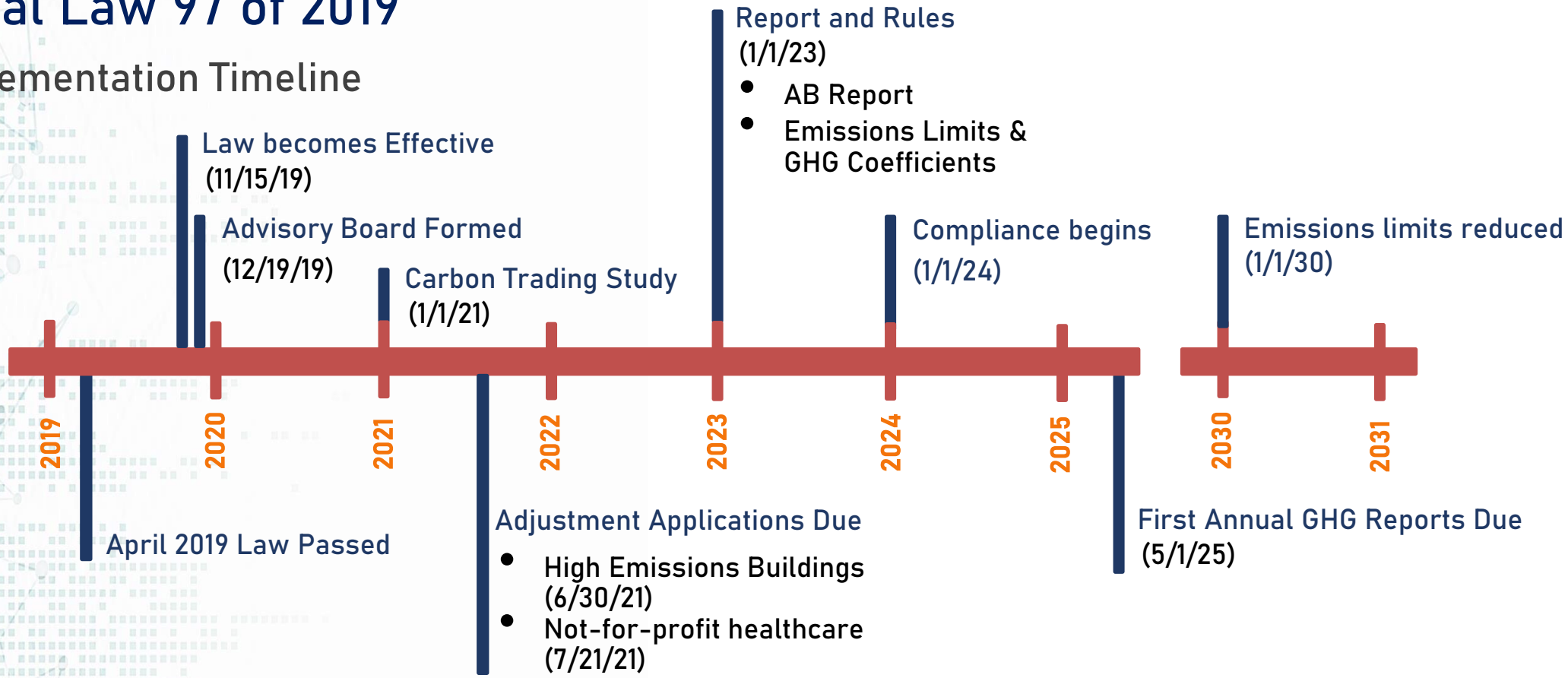
- Local Law 97 of 2019
  - City wide 40% GHG reduction by 2030 and 80% by 2050 [24-803 a (1)]
  - Covered Building 40% GHG reduction by 2030 [26-651 a (3)]
  - City operations 40% GHG reduction by 2025 and 50% by 2030 [24-803 b (1)]
  - NYCHA goal of 40% by 2030 & 80% by 2050 [24-803 b (3)]

NYC Buildings

LAW OVERVIEW

Local Law 97 of 2019

Implementation Timeline



LAW OVERVIEW

- **Local Law 97 of 2019**
  - Article 320 Building Energy and Emissions Limit
    - Definition [28-320.1]
    - Advisory Board [28-320.2]
    - Building Emission Limits [28-320.3]
    - Assistance [28-320.4]
    - Outreach & Education [28-320.5]
    - Penalties [28-320.6]

NYC Buildings

LAW OVERVIEW

- Local Law 97 of 2019
  - 28-320.1 Definition

    The term “covered building” means, as it appears in the records of Department of Finance
    i. A building that exceeds 25,000 GSF, or
    ii. Two or more buildings on the same tax lot that together exceed 50,000 GSF, or
    iii. Two or more buildings held in the condominium form of ownership that are governed by the same board of managers and that together exceed 50,000 GSF

Exceptions

1. Industrial … electricity and steam generation
2. Low-rise residential, independent, under 25k GSF
3. City buildings
4. NYCHA
5. Rent regulated (also a defined term)
6. Religious house of worship (A-3) Low-rise residential, independent, under 25k GSF
7. Article 11 housing development fund properties
8. Federal housing projects

LAW OVERVIEW

- Local Law 97 of 2019
  - 28-320.1 Definition Breakdown of Buildings

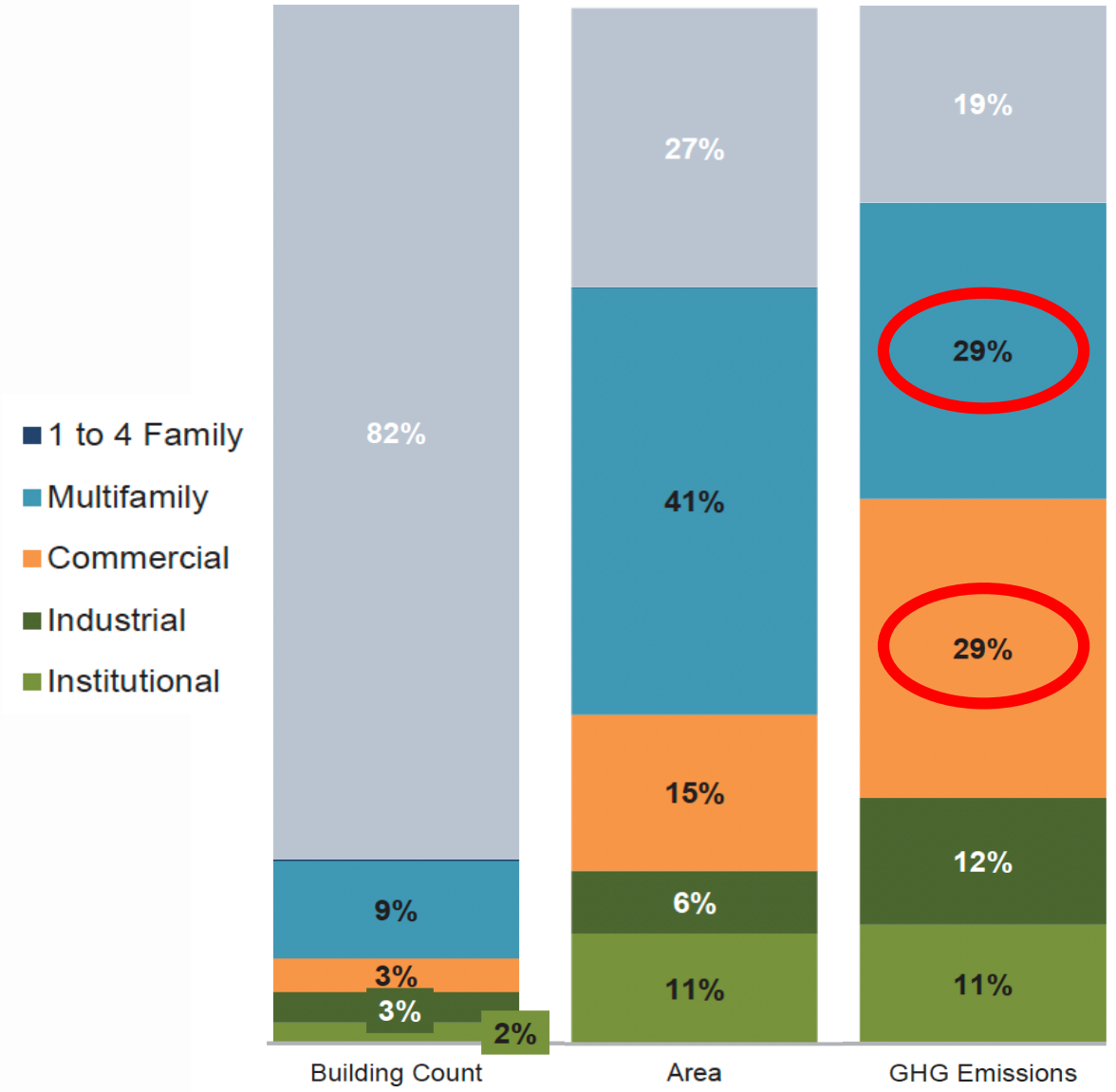


Fig. E3. **Building Uses by Building Count, Floor Area, and GHG Emissions**

NYC Buildings

LAW OVERVIEW

- Local Law 97 of 2019
  - 28-320.2 Advisory Board
    - 28-320.2.1 Advisory Board Composition
      - 19 Members
      - Chairperson – DOB Director, Building Emissions Unit
      - City Speaker Representative
      - Mayor's Office Representative
      - Plus 8 appointees each by the Mayor and Speaker
    - Convened periodically
      - 15 November 2019; 01 January 2029; 01 January 2039
    - Charged with …
      - Advice and recommendations for reducing GHG from buildings
      - Report with same by January 1, 2023

NYC Buildings

LAW OVERVIEW

- Local Law 97 of 2019
  - 28-320.2.1 Advisory Board Composition

Mayor's Office

- Architect
- Operating Engineer
- Building Owner/Manager
- Public Utility Industry
- Environmental Justice Organization
- Business Sector
- Residential Tenant
- Environmental Advocacy Organization

City Council

- Architect
- Stationary Engineer
- Construction Trades
- Green Energy Industry
- Environmental Justice Organization
- Not-For-Profit Organization
- Residential Tenant
- Environmental Advocacy Organization

LAW OVERVIEW

- Local Law 97 of 2019
  - 28-320.2.1 Advisory Board Composition
    - May convene working groups
    - Working group can include individuals outside the AB
    - Working groups to take up elements of the law
    - Shall convene a working group on hospitals

§ 28-320.2.1 Advisory board composition. Such advisory board shall be staffed with registered design professionals and be composed of 19 members as follows: the chairperson, the speaker of the council or the speaker's des ght members appointed by e speaker of the council. ngineer, one building own presentative, one enviro ness sector representativ and one environmenta peaker shall appoint one uction trades representativ e residential tenant repr organization representativ and one not for profit org office, or the designee of the advisory board. The roups. Such **working gro** ory board to address the r mayor shall invite the appropriate federal, state and local agencies and authorities to participate, including but not limited to the New York state energy research and development authority. Such advisory board shall convene a working group on hospitals that shall be composed of engineers, architects, and hospital industry representatives.

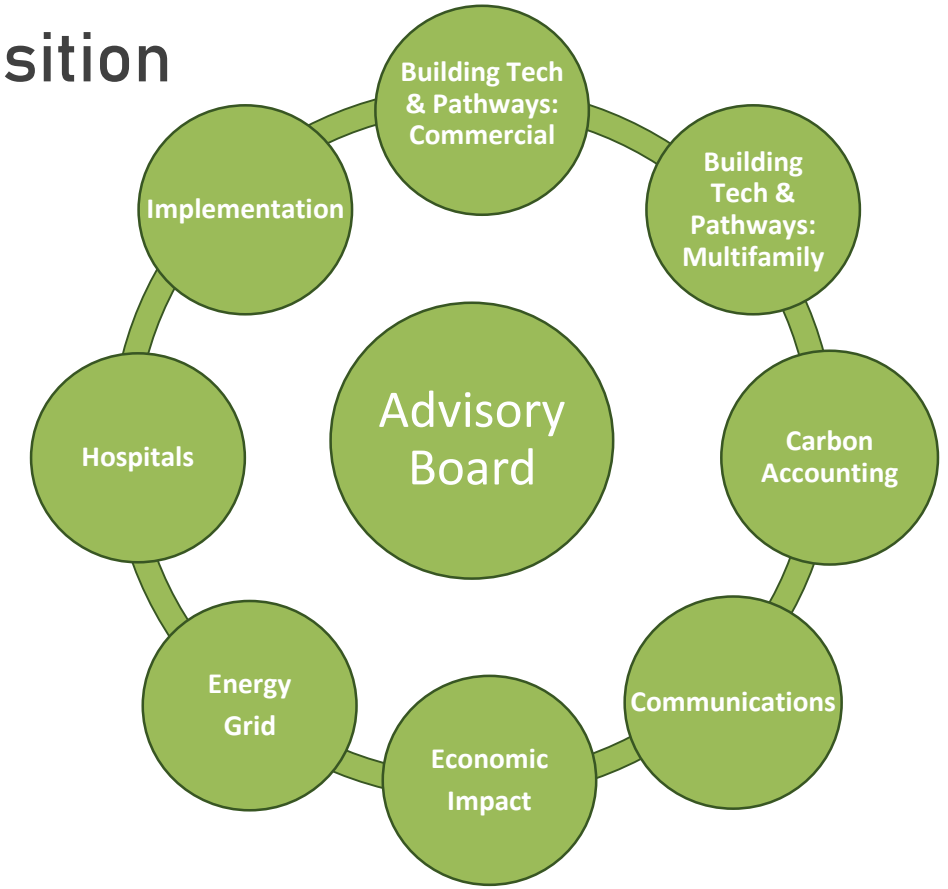
NYC Buildings

LAW OVERVIEW

- Local Law 97 of 2019
  - 28-320.2.1 Advisory Board Composition

8 Working Groups

- Hospitals
- Building Technology & Pathways - Multifamily
- Building Technology & Pathways - Commercial
- Carbon Accounting
- Energy Grid
- Economic Impact
- Communications
- Implementation



LAW OVERVIEW

- Local Law 97 of 2019
  - 28-320.2 Advisory Board

§28-320.2 Advisory board. There shall be an advisory board convened by the office of building energy and emissions performance upon the effective date of this article, in January of 2029 and in January of 2039, to provide advice and recommendations to the commissioner and to the mayor's office of long term planning and sustainability relating to effectively reducing greenhouse gas emissions from buildings. Such recommendations shall include, but not be limited to:

1. A report to be delivered to the mayor and 1. A speaker of the city council no later than Janu building energy performance. Such report shall
   - 1.1. An approach for buildings to submit ene purpose of assessing energy performanc
   - 1.2. A methodology that includes the metric the output to a benchmark, alternati distributed energy resources, and an app
   - 1.3. Recommendations for addressing tenant
   - 1.4. Recommendations for amendments to code, including consideration of whethe
   - 1.5 Recommendations for reducing building
   - 1.6 Recommendations for allowing additi converting to a new occupancy group o that would affect applicability of the pro
   - 1.7 An evaluation of the extent to whic incorporated and addressed within the section; and
   - 1.8 A reference guide to delineate the resp emissions limits.

ıncil no later than January 1, 2023, providing
ınd emissions performance requirements for
achieve at least a 40 percent reduction in
ndar year 2030 relative to such emissions for
to assessments of:

ınce with energy and emissions performance

ended energy performance requirements;
the energy and emissions performance

uildings;
ns and tenant-controlled energy systems;
ring and industrial processes; and
s while maintaining critical care for human

ffective date of November 15, 2019.

***Section 28-320.2 was amended by: Local Law 147 of 2019. This law has an effective date of November 15, 2019.*

1.8 A reference guide to delineate the responsibilities of the building designer and owners to comply with emissions limits.

2.4 Estimated emissions reductions associated with any recommended energy performance requirements.

2.5 The economic impact, including benefits, of achieving the energy and emissions performance requirements.

2.8 Methods for achieving emissions reductions from manufacturing and industrial processes.

NYC Buildings

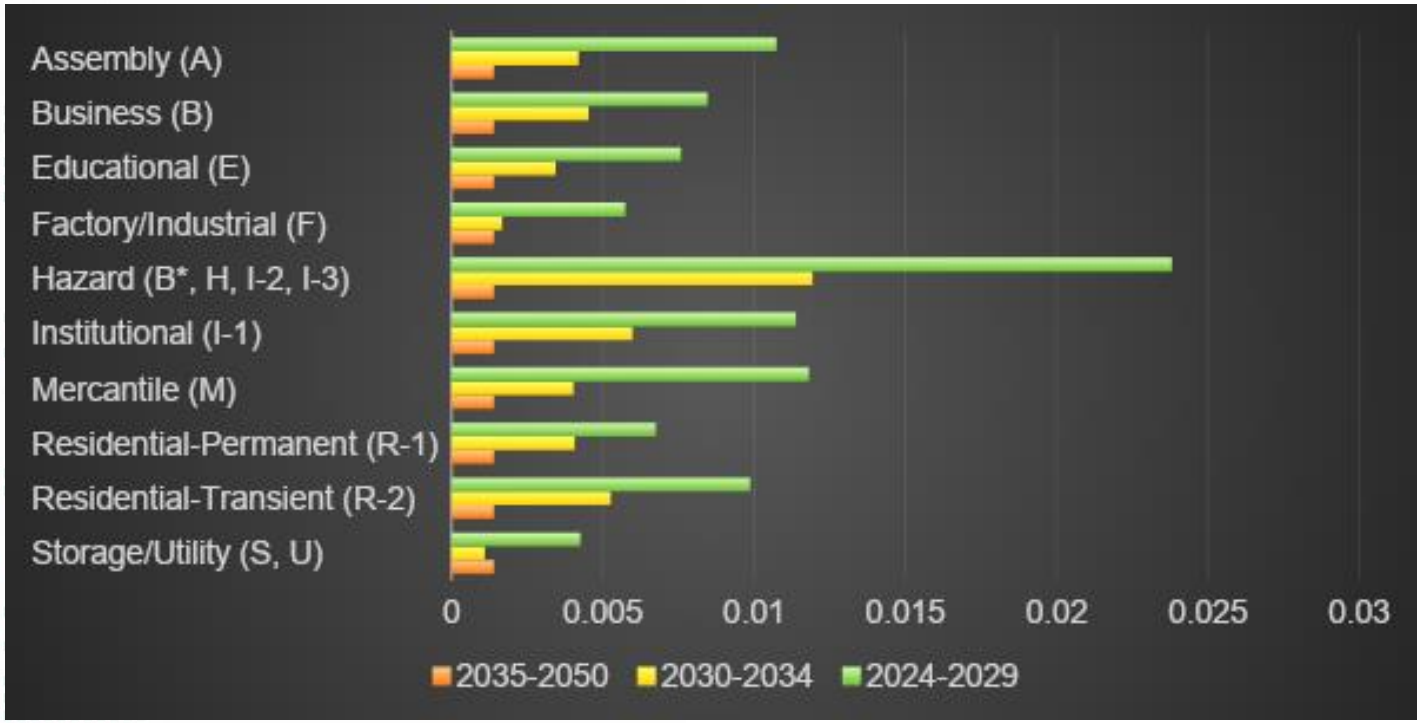
LAW OVERVIEW

- Local Law 97 of 2019
  - 28-320.3 Building Emission Limits
    - Annual Building Emission Limits
      - Values set 2024-29 (3.1), 2030-34 (3.2)
      - Need values 2035-39, 2040-49 (3.4), 2050 & beyond (3.5)
        - By Jan. 1, 2023
        - Established by commissioner
        - Aggregate equivalence 0.0014 tCO2e/GSF
    - The 2030-2034 target aligns with the City's 40x30 goal

NYC Buildings

LAW OVERVIEW

- Local Law 97 of 2019
  - 28-320.3 Building Emission Limits



LAW OVERVIEW

- Local Law 97 of 2019
  - 28-320.3 Building Emission Limits
    - GHG Coefficients
      - Values set 2024-29 (3.1.1)
      - Need values 2030-34 (3.2.1)
        - By January 1, 2023

28-320.3 GHG Coeffecients							
Years	Energy Source						
	Electricity (Utility Purchase)	Natural Gas	#2 Fuel Oil	#4 Fuel Oil	District Steam	Fuel Cells (Natural Gas)	Other (including DERs)
	tCO2e/kWh	tCO2e/kBtu	tCO2e/kBtu	tCO2e/kBtu	tCO2e/kBtu	tCO2e/kBtu	tCO2e/kBtu
2024 - 2029	0.000288962	0.00005311	0.00007421	0.00007529	0.0004493	TBD	TBD
2030 - 2035	TBD	TBD	TBD				

1. Utility electricity consumed on the premises of a covered building that is delivered to the building via the electric grid shall be calculated as generating 0.000288962 tCO_2e per kilowatt hour or, at the owner's option, shall be calculated based on time of use in accordance with referenced emissions factors promulgated by rules of the department. The department, in consultation with the office of long term planning and sustainability, shall promulgate rules governing the calculation of greenhouse gas emissions for campus-style electric systems that share on-site generation but make use of the utility distribution system and for buildings that are not connected to the utility distribution system.

NYC Buildings

LAW OVERVIEW

- Local Law 97 of 2019
  - 28-320.3 Building Emission Limits
    - Deductions (3.6)
      - RECs (3.6.1), GHGOs (3.6.2), CDERs (3.6.3)
    - Reporting (3.7)
      - Certified by a registered design professional
    - Continuing requirements (3.8)
    - Extension for income-restricted housing (3.9)
    - Change in building status (3.10)

LAW OVERVIEW

- Local Law 97 of 2019
  - 28-320.6 Penalties
    - Exceed GHG limit
      - Civil penalty…up to $268/mTCO2e
    - Failure to report (6.2)
      - Civil penalt …$0.50/GSF/month
    - False statements (6.3)
      - Misdemeanor – fine up to $500k, prison up to 30 days

LAW OVERVIEW

- Local Law 97 of 2019

  Article 321 Energy Conservation Measure Requirements for Certain Buildings

  - Definitions [28-321.1]
  - Required ECMs for Certain Buildings [28-321.2]
  - Reports [28-321.3]

NYC Buildings

LAW OVERVIEW

- Local Law 97 of 2019
  - 28-321.1 Definition
    The term “covered building” means, as it appears in the records of Department of Finance,
    i. Rent regulated (a defined term),
    ii. Religious house of worship (A-3),
    iii. Article 11 housing development fund properties, or
    iv. Federal housing projects

    AND such building
    i. exceeds 25,000 GSF, or
    ii. is one of two or more buildings on the same tax lot that together exceed 50,000 GSF, or
    iii. is one of two or more buildings held in the condominium form of ownership that are governed by the same board of managers and that together exceed 50,000 GSF

LAW OVERVIEW

- Local Law 97 of 2019
  - 28-321.2 Required Energy Conservation

2.1 Meets GHG Limit per 28-320.3.2 (2030-34 limits)

- Reporting certified by a RDP

Or

2.2 Prescriptive energy conservation measures

- Implemented by Dec. 31, 2024
- Reporting prepared and certified by a Retro-Cx Agent

NYC Buildings

LAW OVERVIEW

- Local Law 97 of 2019
  - 28-321.2.2 Prescriptive Energy Conservation Measures
    - Adjusting temperature set points for heat and hot water;
    - Repairing all heating system leaks;
    - Maintaining heating systems;
    - Installing individual temperature controls or insulated radiator enclosures with temperature controls on all radiators;
    - Insulating all pipes for heating and/or hot water;
    - Insulating steam system condensate tank or water tank;
    - Installing indoor and outdoor heating system sensors and boiler controls;
    - Replacing or repairing all steam traps
    - Installing or upgrading steam system master venting;
    - Upgrading lighting;
    - Weatherizing and air sealing;
    - Installing timers on exhaust fans; and
    - Installing radiant barriers behind all radiators.

NYC Buildings

AGENDA

1. LL33/2018 – Building Energy Grades
2. LL87/2009 – Energy Audits & Retro Cx
3. LL97/2019 – Building Emissions
   - Overview
   - Adjustments Program
   - Adjustments Application Process
   - Preparing for Compliance

NYC Buildings

ADJUSTMENT PROGRAM

- **Purpose of Adjustment**

  Considering the universe of covered buildings and the economic and social impact of the law, adjustments are available for qualifying buildings.

  - Adjustment is Not an Exemption
    - Adjustment temporarily raises the building emissions limit.
    - Adjusted limits based on CY 2018 energy with a set reduction.
  - Assistance for Efficient Buildings with Special Circumstances
    - Recognizes real challenges for certain buildings.
    - Mechanism to assist qualifying buildings to reach compliance.

NYC Buildings

ADJUSTMENT PROGRAM

- Available Adjustments
  - 28-320.7 Adjustment to Applicable Annual Building Emissions Limit
    Applications due by date TBD
  - 28-320.8 Adjustment to Applicable Annual Building Emissions Limit for Calendar Years 2024 - 2029
    Application due before July 1, 2021 by a RDP
  - 28-320.9 Adjustment to Applicable Annual Building Emissions Limit for Not-for-Profit Hospitals and Healthcare Facilities
    Application due by July 21, 2021 by a RDP
  - DOB NOW
    Adjustment applications will be submitted through DOB NOW

ADJUSTMENT PROGRAM

- 28-320.8 Adjustment to Applicable Annual Building Emissions Limit for CY 2024 - 2029
  - 2018 Emissions Excessive
    More than 40% above 2024 emissions limit
  - Special Circumstance
    ALL excess emissions attributable to a Special Circumstance
  - 2014 ECC Equivalent
    Energy performance equivalent to 2014 ECC compliant building
  - Plan to Reduce GHG to Meet 2030 Emissions Limit
    Schedule of alterations and operations and management changes
  - Certificate of Occupancy Remains Unchanged
    CO unchanged after December 31, 2018

"… **special circumstances** related to the use of the building**, including but not limited to**

- **24 hour operations,**
- **operations critical to human health and safety,**
- **high density occupancy,**
- **energy intensive communications technologies or operations, and**
- **energy-intensive industrial processes** …"

NYC Buildings

ADJUSTMENT PROGRAM

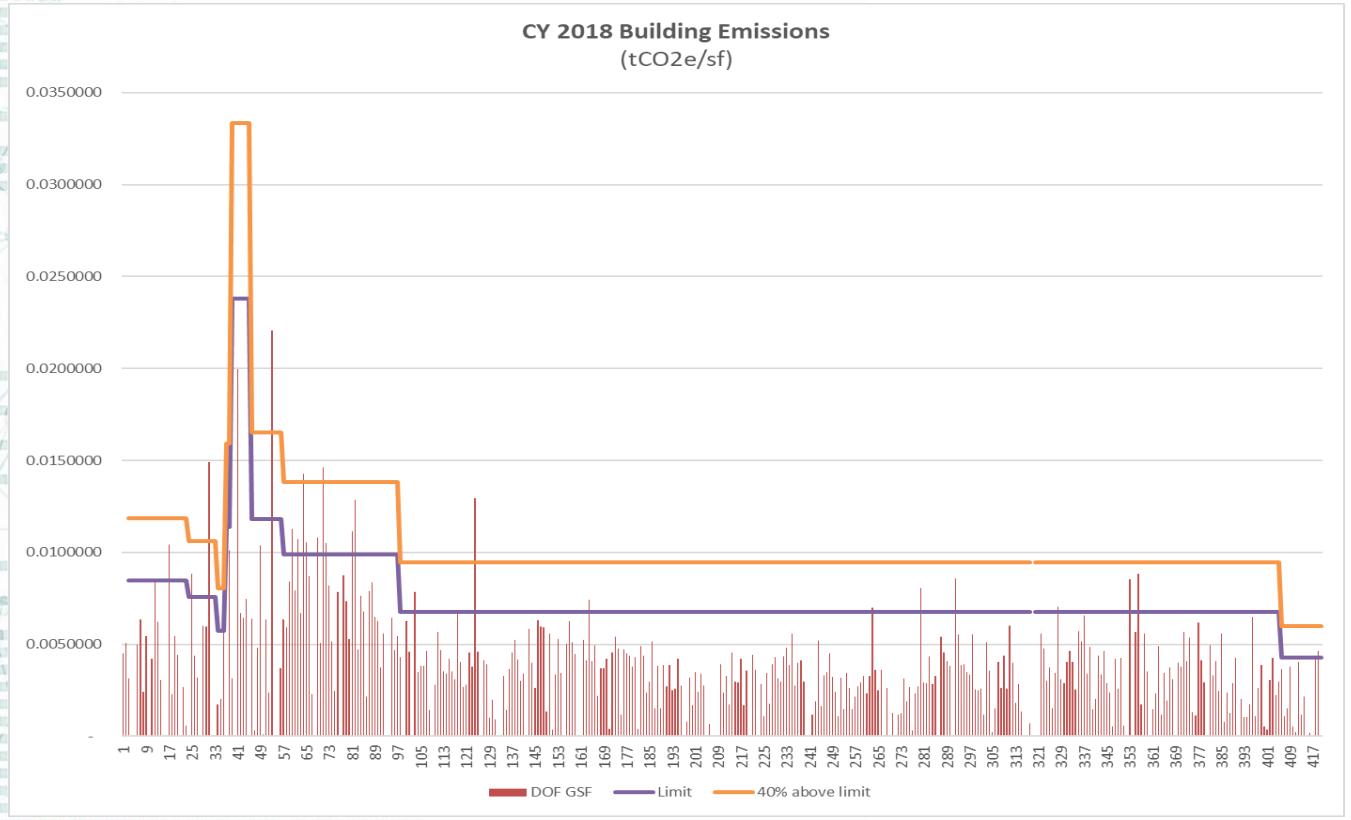
- 28-320.8 Adjustment to Applicable Annual Building Emissions Limit for CY 2024 - 2029

  - Adjusted Limit
    70% of CY 2018 emissions … 30% reduction avoids penalties
  - Extension possible
    An extension may be requested for CY2030 - 2035

NYC Buildings

ADJUSTMENT PROGRAM

- 28-320.8 Adjustment to Applicable Annual Building Emissions Limit for CY 2024-2029



40% over 2024 Limit
2024 Emissions Limit

ADJUSTMENT PROGRAM

- 28-320.9 Adjustment to Applicable Annual Building Emissions Limit for Not-for-Profit Hospitals and Healthcare Facilities
  - Building Classified on November 15, 2019 as
    - Not-for-profit hospital,
    - Not-for-profit health center, or
    - Not-for-profit HIP center
  - Adjusted Limit
    - 2024-2029: 85% of CY 2018 emissions
    - 2030-2034: 70% of CY 2018 emissions

AGENDA

1. LL33/2018 – Building Energy Grades
2. LL87/2009 – Energy Audits & Retro Cx
3. LL97/2019 – Building Emissions
   - Overview
   - Adjustments Program
   - **Adjustments Application Process**
   - Preparing for Compliance

NYC Buildings

ADJUSTMENT APPLICATION PROCESS

- DOBNOW
  - Application Window
    - 28-320.8: Due Jun 30, 2021
    - 28-320.9: Due Jul 21, 2021
  - Required Application Inputs … Depends on application. Can include:
    - Building Areas by Occupancy Group
    - CY 2018 energy use by energy source (e.g., LL84 data)
    - 2014 ECC Equivalency
    - GHG Reduction Strategies
    - Energy Use Breakdowns
    - NFP Status
  - Required Documents
    - Supporting Documentation/Reports based on application

NYC Buildings

ADJUSTMENT APPLICATION PROCESS

- LL97 Adjustment Application Filing Guide
  - Intended to Assist Applicant
    Information to complete the application
  - Step-by-Step
    - How to complete each DOBNOW section
    - Required information for each section
  - References
    - Guidelines to prepare and submit documents
    - Guidelines to determine information
  - Additional Resources
    - GHG Building Emissions website
      https://www1.nyc.gov/site/buildings/business/greenhouse-gas-emission-reporting.page

NYC Buildings

AGENDA

1. LL33/2018 – Building Energy Grades
2. LL87/2009 – Energy Audits & Retro Cx
3. LL97/2019 – Building Emissions
   - Overview
   - Adjustments Program
   - Adjustments Application Process
   - Preparing for Compliance

NYC Buildings

PREPARING FOR COMPLIANCE

- Determine Applicability and Compliance Path
  - Covered Building
    - Article 320
    - Article 321
    - Other Articles: NYCHA / DCAS / City Building
  - Article 320
    - 320.3.1 RDP Calculate Emissions & Limits (2024-29 limits)
  - Article 321
    - 321.2.1 RDP Calculate Emissions & Limit per 28-320.3.2 (2030-34 limits)
    - 321.2.2 Retro Cx Agent Review List of Prescriptive ECMs

PREPARING FOR COMPLIANCE

- Think Ahead
  - Energy Audit
    - Analysis of energy use of building to determine GHG emissions
    - Determine building emissions limit
  - Plan for Future Compliance
    - Estimated 75-80% of properties comply with 2024-2029 limits
    - Estimated 25-30% of properties comply with 2030-2034 limits
  - Reduce Greenhouse Gas Emissions
    - Improve energy efficiency
    - Reduce carbon intensity
    - Renewable Energy Credits (RECs)
    - GHG Offsets
    - Clean Distributed Energy Resources (CDER)
    - Carbon Trading

NYC Buildings

PREPARING FOR COMPLIANCE

- Prepare for Filing
  - Work with a Registered Design Professional
    - Applications must be certified by a RDP
    - Building Area breakdown by Occupancy Group
  - Conduct an Energy Audit
    - Analysis of energy use of building to determine GHG emissions
    - Determine building emissions limit
    - Energy modeling to support GHG reductions and ECC Equivalency
    - Analysis validated against 2018 actual energy use
    - Develop a list of energy and emissions reduction strategies

PREPARING FOR COMPLIANCE

- Prepare for Filing
  - Assess Eligibility for Adjustment

    28-320.8 Excessive Emissions
    - Is the 2018 emissions >40% over 2024 limit?
    - Is there a Special Circumstance present in the building?
    - Are ALL excess emission due to a Special Circumstance?
    - Are GHG emissions equivalent to a 2014 ECC compliant building? Will it be?
    - Has CO been amended since December 31, 2018? Will it be?

    28-320.9 Not-for-Profit Hospital or Healthcare facility
    - Was the building classified as not-for-profit hospital, health care center, or HIP center on Nov 15, 2019?
    - Has it been since and will it be in the future?
    - Documentation of NFP status available?

PREPARING FOR COMPLIANCE

- Prepare for Filing
  - 2018 Energy Use Data (e.g., LL84 data)
    - Used to establish actual building emissions
    - Complex metering can be clearly determined for the building
    - Energy use breakdown by end use
    - Bills/records available as supporting documents
  - References
    - LL97 Adjustment Application Filing Guide
    - GHG Building Emissions website https://www1.nyc.gov/site/buildings/business/greenhouse-gas-emission-reporting.page
    - NYC Sustainability Enforcement Unit GHGemissions@buildings.nyc.gov

THANK YOU

NYC Buildings