



ENERGY AUDITS & RETRO-COMMISSIONING

LOCAL LAW 87 OF 2009

Compliance Checklist & User's Guide

May 2015 Version 6.0 - This document is intended to help real estate owners and property managers comply with Local Law 87.

What is Local Law 87?

Local Law 87 is part of a package of four laws known as the *Greener, Greater Buildings Plan*, which were enacted in December 2009 to improve the energy and water efficiency of New York City's largest buildings. Local Law 87 requires property owners to audit energy use and retro-commission their buildings every 10 years, as well as submit an "Energy Efficiency Report" to the NYC Department of Buildings (DOB) documenting the results. For more information on the *Greener, Greater Buildings Plan*, go to www.nyc.gov/ggbbp.

What is an energy audit? What is retro-commissioning?

An energy audit is a systematic analysis of a building's energy equipment and systems to identify cost-effective capital improvements that will save energy. An energy audit report provides a list of recommended strategies to save energy along with an estimate of their cost and payback. Local Law 87 requires property owners to receive an energy audit but does NOT require them to follow the recommendations described therein.

Retro-commissioning is the testing and tune-up of existing building systems to confirm they are operating as designed and as efficiently as possible. Retro-commissioning commonly identifies maintenance, calibration and operations errors that are easily corrected and, when implemented, typically amount to significant energy savings and improvement in equipment reliability. Sometimes the testing will make apparent mistakes that originate from the building's construction or a subsequent renovation. Any operations measures revealed through retro-commissioning as not in compliance with the Law must be rectified.

Local Law 87 only requires energy audits and retro-commissioning of "base building systems" which includes, but is not limited to, the building envelope, HVAC systems, elevators and escalators, domestic hot water supply, and electrical and lighting systems. Neither the energy audit nor retro-commissioning include equipment owned by tenants or used for industrial processes within the building.

Who is responsible for complying with Local Law 87?

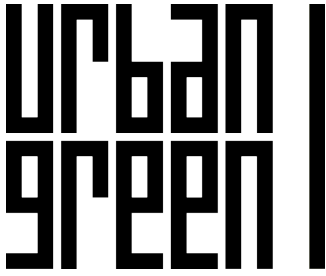
Property owners, including co-ops and condo boards, are ultimately responsible for complying with the Law. However, many of these parties have property managers to whom they can delegate administration of the compliance work. This work includes hiring and supervising consultants to conduct the energy audit and retro-commission, as well as submitting the "Energy Efficiency Report" to DOB. The property manager may also be tasked with reviewing the consultant's reports and recommending follow up action to the owner or co-op/condo board. This work may be considered an additional service under property manager's contract.

How will Local Law 87 be enforced?

DOB is responsible for enforcement. Failure to comply with Local Law 87 will be deemed a Class 2 violation, subjecting property owners to fines of \$3,000 for the first year and \$5,000 for each additional year of non-compliance. DOB conducts random reviews of documents submitted under the Law.

Who developed this checklist and user's guide and for what purpose?

Urban Green Council, an environmental nonprofit based in New York City, developed this checklist and user's guide with assistance from the NYC's Mayor's Office, DOB, and the real estate industry. The goal is to provide property owners with step-by-step instructions on how to comply with Local Law 87 and guidance for directing staff or consultants. This checklist and user's guide are not intended to provide detailed compliance instructions. For detailed instructions and official responses, go to http://www.nyc.gov/html/dob/html/sustainability/energy_audit.shtml.



ENERGY AUDITS & RETRO-COMMISSIONING

LOCAL LAW 87 OF 2009

Compliance Checklist

GETTING STARTED

- 1. Determine whether your property is subject to Local Law 87.
- 2. Determine your property's reporting year.
- 3. Determine whether your property is exempt from all or part of the Law.
- 4. Select your Greener, Greater, Buildings Plan administrator ("GGBP project manager").
- 5. Decide whether to do your energy audit at the same time as retro-commissioning.

ENERGY AUDITS

- 6. Search for and select a qualified energy auditor.
- 7. Begin your energy audit at least one year before it is due.

RETRO-COMMISSIONING

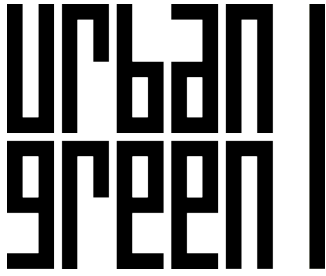
- 8. Search for and select a qualified energy auditor.
- 9. Begin your retro-commissioning 12 - 18 months before it is due.

SUBMIT ENERGY EFFICIENCY REPORT

- 10. Submit your Energy Efficiency Report (EER) by the end of the reporting year.
- 11. Maintain records for a minimum of 11 years.

GETTING VALUE

- 12. Contact NYSERDA and Con Edison for resources and support.
- 13. Get the most out of the energy audit.
- 14. Make the best of retro-commissioning.
- 15. Invest in staff training.



ENERGY AUDITS & RETRO-COMMISSIONING

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User's Guide

GETTING STARTED

1. Determine if your property is subject to this Law.

For determining compliance, the City uses the gross square footage of the building(s) according to the Department of Finance. Your property (tax lot) is subject to the Law if it includes:

- One building larger than 50,000 gross square feet.
- Two or more buildings on the same tax lot that together total more than 100,000 gross square feet.
- Two or more buildings held in condominium ownership that are governed by the same board of managers and that together exceed 100,000 gross square feet.

These requirements are the same as those for benchmarking. Thus, if you had to comply with Local Law 84 then you will also need to comply with Local Law 87.

Exception: The Law does not apply to one to three family residences on properties classified as Class One under the Real Property Tax Law.

A list of properties covered by the Law is available from the Mayor's Office at http://www.nyc.gov/html/gbee/html/plan/I187_covered_buildings_list.shtml. This list is sorted by the building's Borough Block and Lot (BBL) number, a set of three numbers that identifies each property in New York City. The BBL can be found on the Department of Finance's website at <http://www1.nyc.gov/nyc-resources/service/1232/borough-block-lot-bbl-lookup> by selecting "Get the borough, block and lot number for a specific address" in the middle of the page.

Typically, the gross square foot value on the list of covered buildings will be different than the actual gross square footage of the building(s) because the Department of Finance does not include below grade space and some other space types. Use the actual gross square footage when determining compliance.

For simplicity, this checklist will refer to "building" in the singular. If you checked the second or third box above (multiple buildings on one tax lot), you must conduct separate energy audits and retro-commissioning for each

building if they have independent heating, cooling, and domestic hot water systems. Multiple buildings on one lot or on multiple lots that share any base systems must conduct an energy audit and retro-commissioning as "one building." Consult the Rule for Local Law 87 at www.nyc.gov/ggbp for further details and information on other special circumstances.

2. Determine your property's reporting year.

Your property will be required to submit an Energy Efficiency Report every 10 years. Using the last digit of your tax block number, you can identify the year in which your report is due from the table below:

Last digit of tax block number:	3	4	5	6	7	8	9	0	1	2
Year of first Energy Efficiency Report:	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012

You will need to submit a new report every 10 years following the date of your last report. For example, if your tax block number ends in five, your first report must be submitted in 2015, any time from January 1 to December 31. Your next reporting year is 2025, then 2035, and so on. You can complete your energy audit and retro-commissioning any time in the four years prior to your reporting year, but you must submit your Energy Efficiency Report during your designated submission year.

3. Determine if your property is exempt from all or part of the Law.

The Law exempts properties that have met certain energy performance standards in the recent past from conducting an energy audit and/or undertaking retro-commissioning. An Energy Efficiency Report (EER) documenting the exemption will need to be submitted each reporting year for which the property is exempt.

Exemptions for Energy Audits AND Retro-commissioning

Your property does not require an audit and retro-commissioning if all base building systems are in compliance with the Energy Code effective July 1, 2010 or

with a subsequent code in effect at the time of renovation AND if either of the following is true:

- It is less than 10 years old by the reporting year, based on the date of issuance of the permanent or temporary Certificate of Occupancy. This exception is only available for the building's first reporting year. For example, if your property's reporting year is 2015 and it was constructed in 2006, then it can skip the first energy audit and retro-commissioning. The next time it will need to be reported will be in 2025.
- It has undergone a substantial rehabilitation within the 10 years preceding the reporting year. According to the DOB, "substantial rehabilitation" means replacement of all base building systems: building envelope, HVAC, conveying systems, domestic hot water, and electrical and lighting systems. See the Local Law for details on exceptions to the definition of base building systems.

Exemptions for Energy Audits

Your property does not require an energy audit if any of the following are true.

- It received an Environmental Protection Agency (EPA) Energy Star label for at least two of the three years preceding its reporting year (or 2013, if you are pursuing early compliance).

For example, if your property's reporting year is 2015, it must have received the Energy Star label in two years between 2012 and 2014. These labels are awarded by the EPA to buildings that are in the top 25% of energy efficiency for their class.
- It is ineligible for an Energy Star rating (e.g. multifamily) and rates within the top 25% for energy efficiency using the methodology in LEED for Existing Buildings Operations & Maintenance EA Credit 1, Optimize Energy Efficiency Performance. A registered design professional must review and stamp documentation submitted in proof of this exemption.
- It received certification under LEED for Existing Buildings Operations & Maintenance (version 2009 or later) within the four years preceding the reporting year.
- It is a "simple building" as defined by the Law that complies with certain energy efficiency measures.

"Simple buildings" either lack a central air conditioning system or have a system that only cools 10% or less of the indoor area. This is true for most multifamily buildings in which the residential units have either no cooling, or rely on window air conditioning units, through the wall air conditioning units, or PTAC units. Under this exemption, which is only available for the first reporting year, buildings that are in compliance with six of the following seven

energy efficiency measures (as defined by the Law) do not need to conduct an energy audit: (1) individual apartments have heating controls or an energy management system with apartment temperature feedback; (2) common and exterior lighting is in compliance with the New York City Energy Conservation Code; (3) all faucets and shower heads are low-flow; (4) all exposed pipes are insulated; (5) all hot water tanks are insulated; (6) common-area washing machines are front-loading; and (7) roof coating is reflective and compliant with the NYC Building Code.

Exemptions for Retro-commissioning

Your property does not require retro-commissioning if the following is true.

- The building has received certification under the LEED EBOM 2009 system within two years of the required filing date and earned both credits EA c2.1 Existing Building Commissioning – Investigation and Analysis AND EA c2.2 Existing Building Commissioning – Implementation.

Time Extensions

Owners may apply to DOB for one-year extensions. The request must be filed by October 1 of the reporting year and demonstrate that the owner is either:

- Unable to complete the energy audit or retro-commissioning prior to the report due date despite good faith efforts. If you receive a time extension, it will not change your subsequent reporting year. You may receive up to two one-year extensions for good faith efforts.
- Suffering from financial hardship as defined in Local Law 87. This exception must be filed annually.

4. Select your Greener, Greater Buildings Plan administrator ("GGBP project manager").

Your GGBP project manager is the person in your management structure responsible for managing compliance with the Law. Thus, it is essential that the person you select has a strong understanding of building operations. If not, he or she will be unable to provide effective oversight of the work and maximize its value.

Possible GGBP project managers include:

- Property manager, superintendent, or operator who is already knowledgeable about building operations.
- Property manager, superintendent, or operator who you send to training. See Invest in Staff Training in the Next Steps section.
- Consultant Owner's Representative

5. Decide whether to do your energy audit at the same time as retro-commissioning.

Doing the energy audit and retro-commissioning at the same time will likely save you time and money, but that may not always be the case for less complex buildings. Because there is substantial overlap between the two, staff will spend less time compiling information if you do them together. In addition, consultants may offer discounts for bundled services. Performing the energy audit and retro-commissioning at the same time will also help ensure that the capital projects are actually necessary. For example, an energy audit may suggest that you replace a piece of equipment that is under-performing whereas retro-commissioning could extend the equipment life through maintenance. Finally, it is helpful to benchmark the performance of the building as part of the energy audit so that it can be analyzed with the retro-commissioning report for a complete cost analysis of replacement versus maintenance.

Conversely, simple commercial buildings and multifamily buildings may not always see lower consultant fees for combined services. The market for retro-commissioning less complex buildings is relatively new and if the energy audit is conducted first, it will clarify the scope of required retro-commissioning work. Otherwise, retro-commissioners may submit a higher price due to the uncertainty of what to expect in the field.

For both simple and complex buildings, we recommend soliciting costs for each service separately as well as for both services as a package. Your final decision should be based on a cost analysis of each option.

ENERGY AUDITS

This section explains the steps for undertaking an energy audit and the key questions an owner should consider.

6. Search for and select a qualified energy auditor.

Under Local Law 87, the energy auditor must meet either of the two compliance paths outlined below. In addition, the energy auditor may not be on the staff of the building being audited.

If the auditor is a licensed architect or engineer, then either they or a person under them must be one of the following:

- NYSERDA contracted FlexTech Consultant
- Certified Energy Manager (CEM)
- Certified Energy Auditor (CEA)
- High Performance Building Design Professional
- Building Energy Assessment Professional

- For energy audits of multi-family buildings only:
BPI Multi-family Building Analyst (MFBA)

If the auditor is not a licensed architect or engineer, then he or she must be registered with DOB as an energy auditor. (Registration forms are expected to be available mid-2013.) In addition, the auditor must be one of the following:

- Certified Energy Manager (CEM)
- Certified Energy Auditor (CEA)
- High Performance Building Design Professional
- Building Energy Assessment Professional
- For energy audits of multi-family buildings only:
BPI Multi-family Building Analyst (MFBA)

It is recommended that you select a vendor who has experience undertaking energy audits in buildings that are of similar size and type to yours. Be sure to ask for a client list, past energy audit reports, and examples of energy savings from clients who followed their recommendations.

For commercial and industrial buildings, we recommend vendors authorized by NYSERDA as FlexTech Consultants. For residential buildings, consider contractors who are certified as NYSERDA Multifamily Performance Program Partners. NYSERDA's list of contractors is available on their website. You can also find Certified Energy Managers and Certified Energy Auditors through the Association of Energy Engineer's website (www.aeecenter.org) under Certification / AEE Certified Professionals Directory.

Your contract with the vendor should also include a requirement that the auditor provide written information on available financial incentives for each energy conservation measure recommended.

7. Begin your energy audit at least one year before it is due.

The length of the time the energy audit takes will depend greatly on the size and complexity of the building. An average building should be able to have a high quality audit performed in three to six months. Energy audits for larger and more complex buildings could take three to six additional months, for a total of six to twelve months.

RETRO-COMMISSIONING

This section explains the steps for undertaking retro-commissioning and the key questions an owner should consider. Selecting a good vendor and scheduling retro-commissioning well in advance of your deadline are critical to receiving good information.

8. Search for and select a qualified retro-commissioning agent.

Under Local Law 87, the retro-commissioning agent must meet either of the two compliance paths outlined below. In addition, the retro-commissioning agent may not be on the staff of the building being audited.

For the first path, the retro-commissioning agent is either:

- A licensed architect or engineer;
- Certified Refrigerating System Operating Engineer; or
- Licensed High Pressure Boiler Operating Engineer.

In addition, the agent or an individual under their direct supervision must be one of the following:

- Certified Commissioning Professional (CCP);
- Certified Building Commissioning Professional (CBCP);
- Existing Building Commissioning Professional (EBCP);
- Commissioning Process Management Professional (CPMP); or
- Accredited Commissioning Process Authority Professional (ACPAP).

Alternatively, for agents who are not licensed architects or engineers, or boiler or refrigeration engineers, then he or she must be registered with the DOB as a retro-commissioning agent. (Registration forms are expected to be available mid-2013.) In addition, the agent must be one of the following:

- Certified Commissioning Professional (CCP);
- Certified Building Commissioning Professional (CBCP);
- Existing Building Commissioning Professional (EBCP); or
- Commissioning Process Management Professional (CPMP).

Since retro-commissioning is a fairly new sector of the industry, finding an agent may be challenging. Consider hiring an experienced energy auditor from a firm that also offers retro-commissioning services. Confirm that the agent has experience with buildings similar to yours.

9. Begin your retro-commissioning 12 - 18 months before it is due.

The amount of time required for retro-commissioning depends on many factors, including the size and

complexity of your building, seasonal considerations, and the nature and extent of any deficiencies. Your building must be in compliance with the list of 28 building operations measures specified in Local Law 87 when you submit your retro-commissioning report as part of your Energy Efficiency Report. Thus, you should incorporate time to correct any deficiencies or noncompliance issues into your projected schedule.

For buildings with only a central heating system, the retro-commissioning investigation should be undertaken during the heating season. This will require at least three to four months and should therefore be started no later than January of the building's reporting year. For buildings with central heating and cooling systems, the investigation should be undertaken over a portion of both the heating and cooling seasons. This means it must begin no later than the summer prior to the building's reporting year.

SUBMIT ENERGY EFFICIENCY REPORT

After you have received your energy audit and retro-commissioning report, your GGBP project manager will need to submit the Energy Efficiency Report.

10. Submit your Energy Efficiency Report by the end of the reporting year.

You have until December 31 of your reporting year to submit the Energy Efficiency Report forms provided by DOB. This report will consist of the following, as applicable:

- DOB Energy Audit Form;
- DOB Retro-commissioning Form;
- Mandatory DOB filing fee;
- Completion of the Energy Efficiency Report includes electronic filing online as well as an in person filing of a hard copy at DOB;
- Proof that your property is exempt from one or both reports under one of the exemptions listed in Step 3 above; and/or
- Proof that your property opted for the early compliance path under the Law. These forms are expected to be available early 2013.

11. Maintain records for at least 11 years.

You must maintain records for a minimum of 11 years. This includes copies of any reports and/or forms submitted to the City and/or any documentation that the property was exempt from one or both required reports. In addition, you should maintain records of the qualifications of your energy auditor and retro-commissioning agent; DOB will ask for this information if they audit your Energy Efficiency

Report. It is recommended that you have this information on hand until you have completed your subsequent filing.

GETTING VALUE

By completing the first 11 steps, you have complied. Congratulations!

This final section covers methods for getting the most value from the energy audit and retro-commissioning reports.

12. Take advantage of NYSERDA and Con Edison resources and support

A variety of programs are available from NYSERDA and Con Edison to help pay for the energy efficiency improvements recommended in the energy audit. Some buildings may also be eligible for installation incentives. In addition, NYSERDA's FlexTech Program can provide cost-sharing (up to 50%) for energy audits and retro-commissioning for commercial, industrial, and institutional buildings.

For more information on NYSERDA programs: Commercial and industrial customers contact Outreach@nyserderda.ny.gov or 866.774.8818; Multifamily customers contact Anthony Sellers at Anthony.Sellers@nyserderda.ny.gov.

For information on Con Edison programs: Commercial and industrial customers contact Amelia Axtell (Lockheed Martin/ConEd Commercial and Industrial Program) at amelia.l.axtell@lmco.com or 646-574-0095; Multifamily customers contact Martha Sickles (Association for Energy Affordability) at msickles@aea.us.org or 718.292.6733 x8022.

The vendor who performs your energy audit should be knowledgeable about the available programs and provide a list of applicable incentives with their report.

13. Get the most out of the energy audit.

Implementing the measures found in an energy audit are not required for compliance with the Law, but you will find that some of the recommendations are low-cost methods that will improve your building's performance while also saving energy and money.

After the energy audit is completed, your staff should meet with the auditor to review the report, discuss options for implementing measures, and develop an action plan. You should consider implementing all low and no cost energy conservation measures, including changes to day-to-day operations, as soon as possible after the completion of the energy audit. For recommendations that will be more expensive to implement, you should make a careful analysis of the payback and borrowing costs.

14. Make the best of retro-commissioning.

The most important step to effective retro-commissioning is hiring a good contractor to prepare the report (Step 9). Many of the recommendations in the retro-commissioning report will be inexpensive to implement, so it is critical that you obtain good information and a thorough analysis.

Your building superintendent or operator needs to be involved in the retro-commissioning exercise and should accompany the vendor during their review. The GGBP project manager or other appropriate staff should also work with retro-commissioning agent and the building operator to create an implementation schedule based on deficiencies identified in the retro-commissioning report.

Remember, any operations measures resulting from retro-commissioning that are not in compliance with Local Law 87 standards must be rectified.

15. Invest in staff training.

Buildings will only perform as designed if the people who manage, operate, and maintain those buildings have a complete working knowledge of equipment and processes. It is important to train your managers, operators, and engineers to understand the base building systems, as well as how the improvements will be implemented and managed, so that the entire facilities team can operate comprehensively.

Relevant training programs include:

- GPRO:** Green Professional Building Skills Training, Operations & Maintenance Essentials. This 14 hour certificate course offers an overview of green operations and maintenance practices for property managers and building operators. (www.gpro.org).
- BPI:** Building Performance Institute. The 40 hour Energy Efficient Building Operator Certification teaches best practices for operators of residential buildings to increase energy efficiency and building health. The Association for Energy Affordability (www.aeany.org) and Solar One (www.solar1.org) offers BPI training in New York.
- BOC:** Building Operators Certificate. This 90 hour certification course teaches commercial building operators detailed methods to save energy and increase building performance. The CUNY Building Performance Laboratory (www.cunybpl.org) offers BOC training in New York.

32BJ's Green Supers program includes BPI and GPRO courses, IUOE Local 94 offers BOC and GPRO training. GPRO courses are offered publicly, and private courses can be arranged.