

Does this Building Suck (Energy)?: Decoding Building Performance with Open Data

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The **Simulated and Measured Environments Lab** is a research group in the New York Institute of Technology School of Architecture and Design with a focus on developing tools, workflows, and pedagogy to help architects design buildings that will perform as expected when built and operated. Our baseline big picture question is: how do we bake climate change mitigation into the mainstream architectural design process?

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SOME TERMS

Audit Year: important to note because performance changes year by year

BIN: building identification number

BBL: code for property borough, block and lot

Btu: about the amount of energy in a single lit match

Construction year: year building started service life

energy star score: performance rating that compares energy consumption to similar US buildings. 1-100 scale.

GHG: green house gas emissions, usually CO2 in context of building energy use

gross area: total occupied area of a building (in sf)

occupancy type: category of building use, like apartment or office; different types have different CO2 limits/sf.

site energy use (kBtu): total amount of energy used

site EUI (kBtu/sf): energy use intensity, amount of energy used per sf on site

source EUI (kBtu/sf): energy use also considering energy it takes to get the energy to the site

sf: square feet, as in floor area of a building

tCO2e: metric tons of CO2 equivalent emissions, allows for comparison of other GHG sources

Basics. These terms will come up during this talk. They are a subset of a list from this document:
[NYC Building and Water Local Law 84 Data Dictionary](#)

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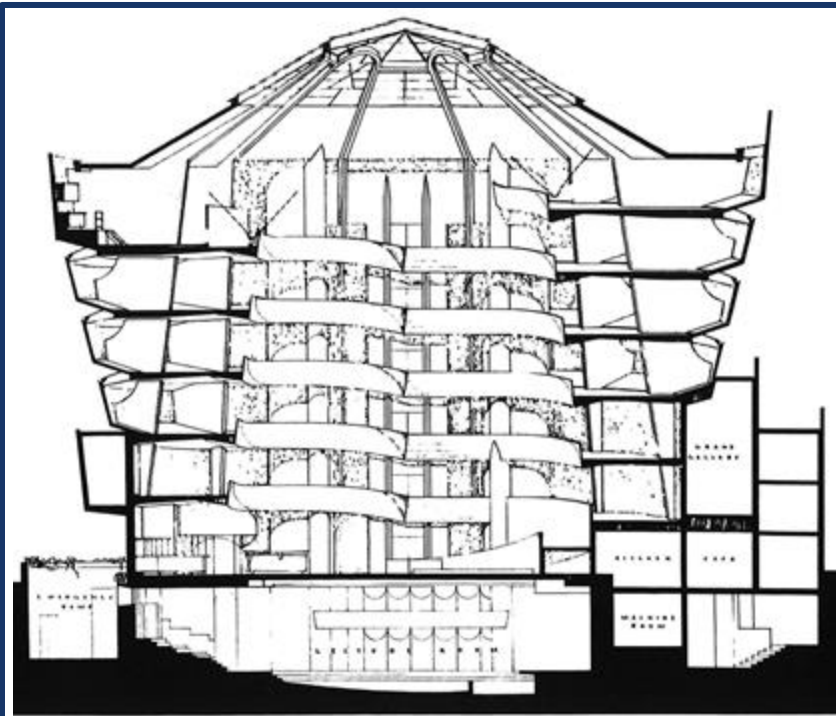
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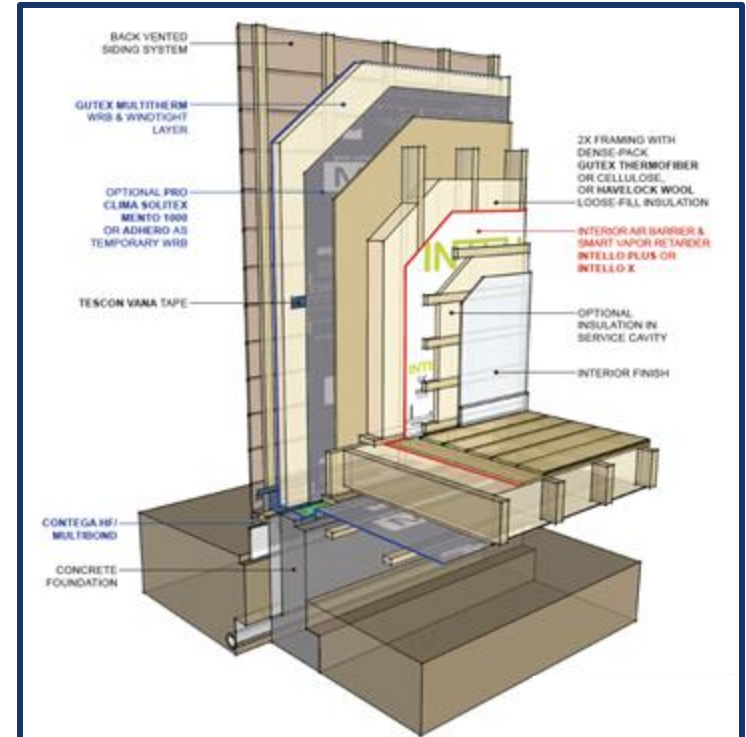
“Energy efficiency” is a new concept. Many wonderful buildings in use today were constructed before “energy” was really a thing.



1960: Guggenheim NYC, starchitect designed

opaque: solid concrete walls (R-2?)
glazed: single pane glazing (U-1?)
infiltration: ?

Source: archdaily.com



TODAY: Just some house, PH standard

opaque: thermal bridge free wall (R-40)
glazed: triple pane tunable SHGC (U-0.1)
infiltration: 0.6 ACH@50Pa

Source: 475 High Performance Building Supply



“Energy efficiency” is a new concept. Many wonderful buildings in use today were constructed before “energy” was really a thing.

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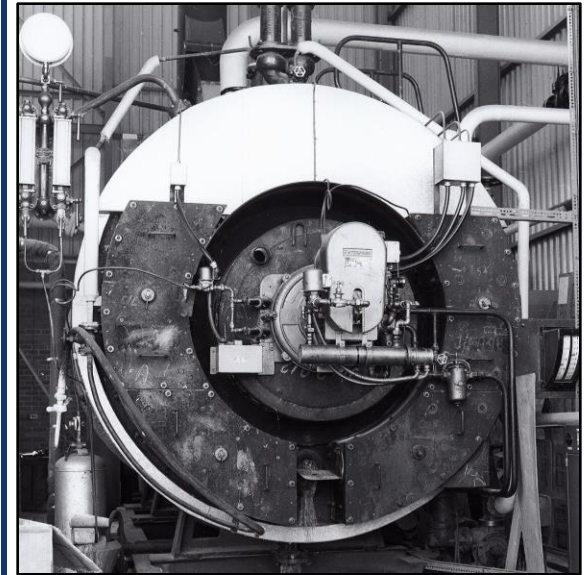
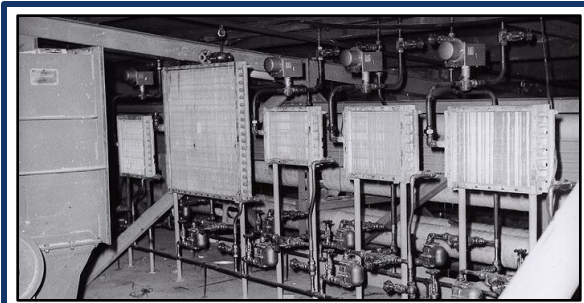
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1960: Guggenheim NYC, starchitect designed

heat: steam boiler (COP .75)

distribution: hot water radiators

cool: no mechanical

fresh air: no mechanical

source: collections.museumsvictoria.com.au



TODAY: Just some house, PH standard

heat and cool: minisplit (COP 3.5) + hot water heat pump

distribution: advance controls ducted manifold

fresh air: ERV (70% heat recovery), ducted manifold

source: SNELL

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THE FEDERAL ENERGY ADMINISTRATION

By Roger Anders

November 1980

U.S. Department of Energy
Office of Management
Office of the Executive Secretariat
Office of History and Heritage Resources

Introduction

For the three-year period between 1974 and 1977, the Federal Energy Administration implemented federal oil allocation and pricing regulations. An independent agency, the Federal Energy Administration was the successor of the Federal Energy Office, a short-term organization created to coordinate the government's response to the Arab oil embargo. By October 1977, when it became a part of the newly established Department of Energy, the Federal Energy Administration had also assumed the tasks of promoting energy conservation, collecting energy supply and demand information, managing the Nation's strategic petroleum reserve, and promoting the development of new energy resources.

The Arab Oil Embargo

On October 6, 1973, war broke out in the Middle East. Although Israel emerged victorious from yet another conflict, the effects of the "Yom Kippur" War soon spread to North America. The Organization of Petroleum Exporting Countries (OPEC) placed an embargo on oil shipped to America. Shortages were soon felt in the United States. By early November the Nation was faced with "the most acute shortages of energy since World War II." President Richard M. Nixon proposed lowering thermostats, reducing driving speeds, and eliminating all unnecessary lighting. In addition the President called on Americans to unite in "Project Independence" to develop domestic energy sources in order to eliminate dependence on foreign energy supplies. In late November Nixon announced plans for increased production of home heating oil, while allocating reduced supplies, reductions in the amount of gasoline shipped to distributors, and Sunday gasoline station closings.¹

The Federal Energy Office

On December 4, 1973, the President created the Federal Energy Office in the Executive Office of the President to coordinate American efforts to cope with the oil embargo and to allocate precious supplies of crude oil and refined petroleum products. Also charged with controlling oil and gasoline prices, the Federal Energy Office quickly responded to the crisis, serving as the focal point for federal emergency actions. In January 1974, the office established a fuel allocation program covering propane, butane, motor gasoline, residual fuel oil, aviation fuels, crude oil and refinery yield, lubricants, petrochemical feedstocks, and middle distillates. Because information on United States oil reserves, secondary stocks, and energy consumption was incomplete, the office constructed a plan for gathering energy data. The office also assumed responsibility for implementing President Nixon's proposal for "Project Independence." Dividing

Source: [federal-energy-administration](https://www.federal-energy-administration.gov/)

Energy security. The US Department of Energy was created as a result of a reality check induced by the 1973 Arab Oil Embargo.

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Energy Reorganization

On November 2, 1976, Jimmy Carter, who had promised to combine diverse federal agencies and responsibilities into a department of energy, was elected President of the United States. In March 1977, the President submitted legislation to create a new department. Consolidating responsibility for policy formulation and implementation, the President decided to abolish the Federal Energy Administration, the Energy Research and Development Administration, the Federal Power Commission, and the Energy Resources Council. On August 4, 1977, the President signed the bill establishing the new Department of Energy, which began functioning on October 1, 1977.²⁴

Source: [federal-energy-administration](https://www.federal-energy-administration.gov/)

Energy security. The US Department of Energy was created as a result of a reality check induced by the 1973 Arab Oil Embargo.




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Office of Legacy Management | History | DOE History Timeline | Timeline of Events: 1971 to 1980

Timeline of Events: 1971 to 1980



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Legacy Management



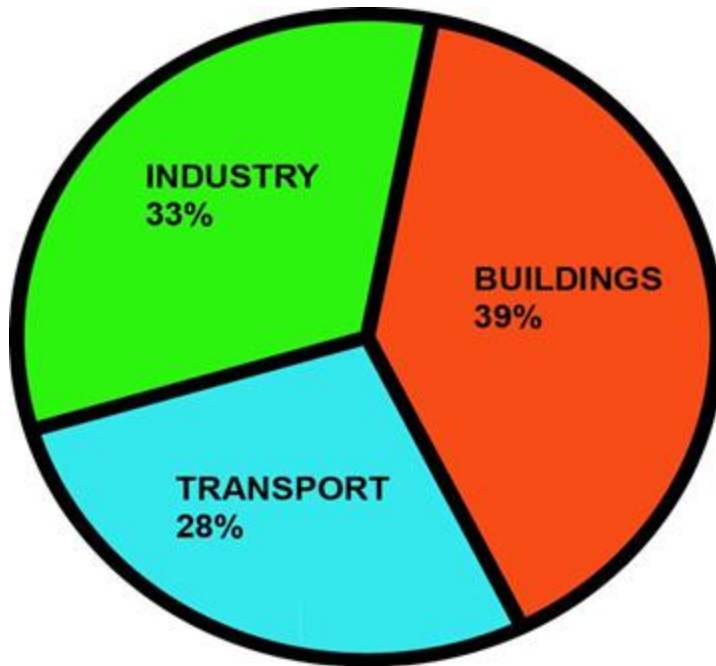
On October 6, 1973, the Yom Kippur War breaks out in the Middle East. October 17, 1973, the Organization of Arab Petroleum Exporting Countries declares an oil embargo, sparking the first "energy crisis."

Source: [Timeline of Events: 1971 to 1980 | Department of Energy](#)

Energy security. The US Department of Energy was created as a result of a reality check induced by the 1973 Arab Oil Embargo.

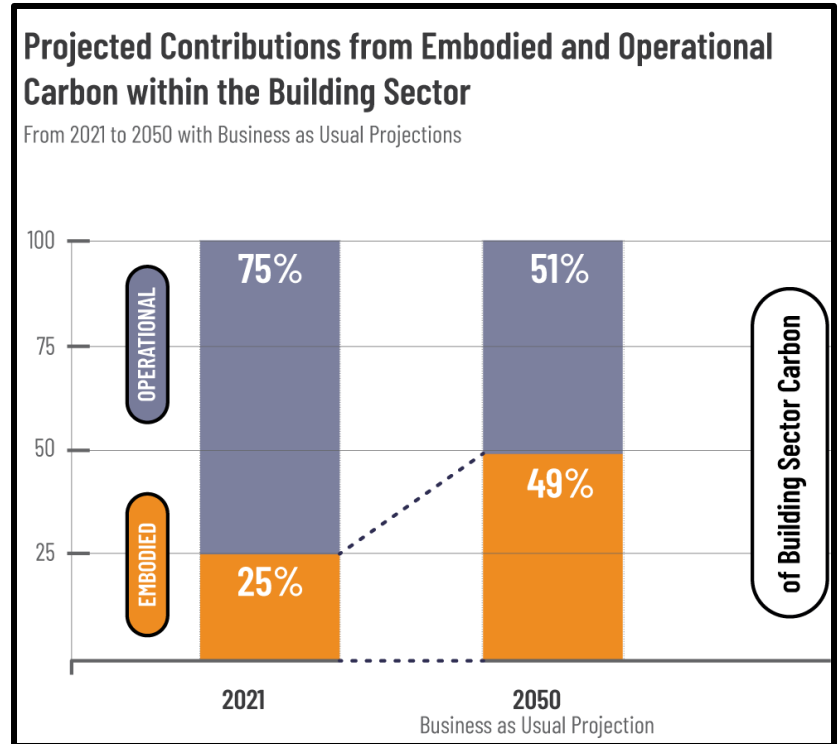
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source: SNELL

energy footprint by sector



Source: globalabc.org/buildingmaterialsandclimate

buildings: operational vs. embodied carbon

Energy and buildings. Operation of buildings is responsible for about 40% of our collective energy use and 30% of of carbon footprint, so energy security and responses to climate change are closely tied to the design and operation of buildings.



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Product Type @:	Electric Standard Ventless
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Combination All-in-One Washer-Dryer @:	No
Additional Dryer Features @:	Time remaining display/Wrinkle prevention option
Refrigerant Type@:	R-134a (1430p)
Heat Pump Technology @:	Heat Pump
Vented or Ventless @:	Ventless
Connected @:	No
ENERGY STAR Certified @:	Yes
Most Efficient @:	
Market	
CB Model Identifier @:	ES_1118034_DLHC4002*_1113202411859_80232377
Date Available on Market @:	11/05/2024
Estimated Annual Energy Use (kWh/yr) @:	257
Estimated Energy Test Cycle Time (min) @:	67
Date Certified @:	11/12/2024
Markets @:	United States, Canada
Efficiency	
Combined Energy Factor (CEF) @:	9.3
Estimated Annual Energy Use (kWh/yr) @:	257
Estimated Energy Test Cycle Time (min) @:	67
Size	
Drum Capacity (cu-ft) @:	7.8
Height (inches) @:	39.0
Width (inches) @:	27.0
Depth (inches) @:	32.25
Additional Model Identification	
ENERGY STAR Unique ID@:	3798661
UPC Codes:	195174098479

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Updated: **March 27, 2026**

Common Core

Bureau Code	020-00
Program Code	020-033
Contact Name	EPA ENERGY STAR program
Contact Email	certification@energystar.gov
License	https://efds.epa.gov/EPA_Data_License.html
Publisher	U.S. Environmental Protection Agency

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Category: Active Specifications
Tags: [heat pumps](#), [air source heat pumps](#)

Energy, buildings, and government. Therefore essentially since the '70's the US government has been involved in building energy efficiency, and therefore building energy data.

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Benchmark Your Building With Portfolio Manager

What is Benchmarking?
The first step to saving energy at your building is to benchmark – that is, to measure and compare your building's energy to similar buildings, past consumption, or a reference performance level.

ENERGY STAR® Portfolio Manager® –the Industry Standard for Benchmarking Commercial Buildings

Portfolio Manager is an interactive resource management tool that enables you to benchmark the energy use of any type of building, all in a secure online environment. Nearly 25% of U.S. commercial building space is already actively benchmarking in Portfolio Manager, making it the industry-leading benchmarking tool. It also serves as the national benchmarking tool in Canada.

Many buildings can also receive a 1–100 ENERGY STAR score

The ENERGY STAR score compares your building's energy performance to similar buildings nationwide, normalized for weather and operating characteristics. A score of 50 represents median performance. A higher score is better than average; lower is worse.

¡Ahora en Español!
¡Portfolio Manager ya está disponible en español!
[COMPRUEBALO](#)

Source: [Commercial Buildings | ENERGY STAR](#)

ENERGY STAR® Progress & Goals Report

71
ENERGY STAR® Score¹

Sample Property
Primary Property Function: Office
Gross Floor Area (ft²): 51,000
Built: 1951
For Year Ending: August 31, 2014
Date Generated: October 01, 2014
Property Address: Sample Property
123 Main St
Boston, Massachusetts 02134
Property ID: 3681885

Performance Comparison

	Progress			Performance Goals		
	Year Ending 12/31/2012 (Baseline)	Year Ending 8/31/2014 (Selected)	% Change	Property's Target	National Median	ENERGY STAR Score of 75
ENERGY STAR Score	61	71	14	85	50	75
Energy						
Site EUI (kBtu/ft²)	59.5	71.9	-17.25	57.8	92.7	68.5
Source EUI (kBtu/ft²)	186.8	169	10.53	135.8	217.8	161.1
\$	88,999.01	83,409.65	-6.28	67,052.54	107,513.12	79,465.38
\$/ft²	1.75	1.64	-6.28	1.31	2.11	1.56
Greenhouse Gas Emissions						
Metric: Tons CO2e/year	293.5	295.3	0.61	237.4	380.6	281.3
kgCO2e/ ft2/year	5.8	5.8	0.61	4.7	7.5	5.5
Water						
All Water Consumption (kgal)	300	295	-1.67	-	-	-
Indoor Water Consumption (kgal)	300	295	-1.67	-	-	-
Indoor Water Consumption (kgal/ft²)	5.88	5.78	-1.67	-	-	-
\$	450	442.51	-1.66	-	-	-

¹Setting and managing water targets is not yet available in Portfolio Manager.

Energy, buildings, and government. Therefore essentially since the '70's the US government has been involved in building energy efficiency, and therefore building energy data.

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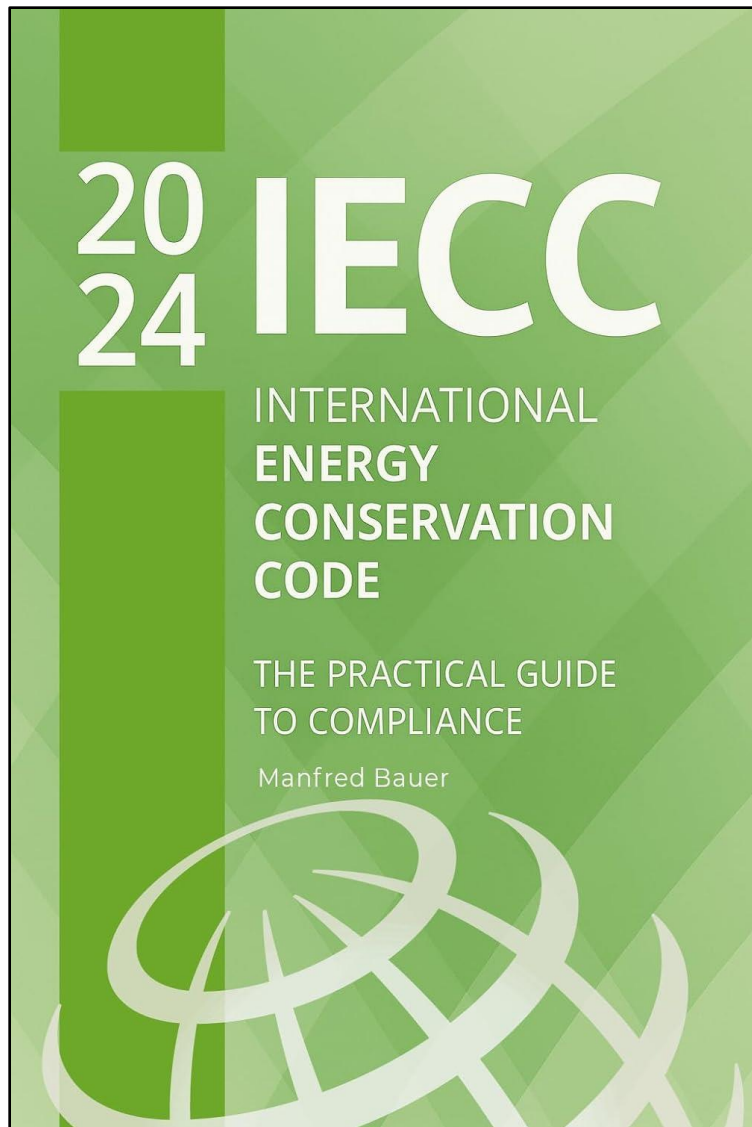
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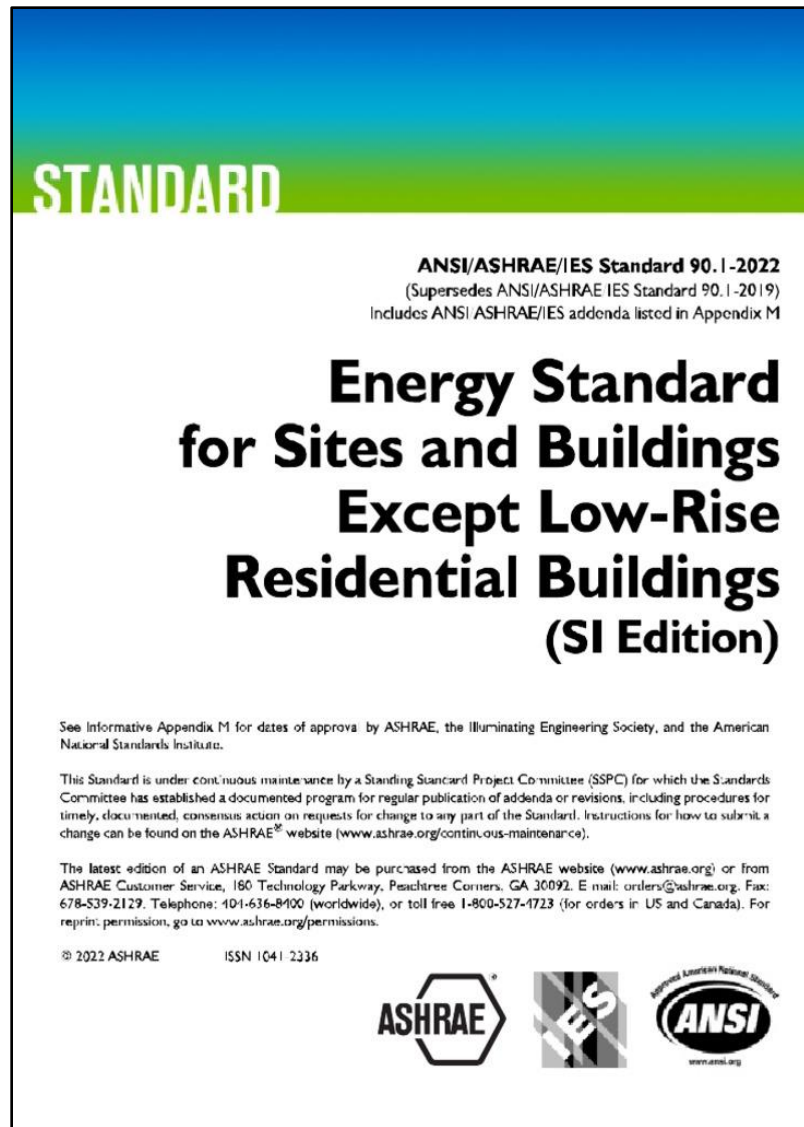
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Source: [IECC 2024](#)



Source: [ASHRAE read only](#)

Energy, buildings, and industry. Energy codes and standards essentially started during the same period. Developed b created by non-governmental orgs and adopted by state and federal government orgs.

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ASHRAE 90/90.1 TIMELINE - CLIMATE ZONE 4A

Category		IP	1975	1980	1999	2010	2019
ENVELOPE	Roof R-value	R	11	15	20	25	30–38
	Wall R-value		7	11	13	13 + 7.5 ci	13 + 10 ci
	Floor / Slab		0–5	5	8	10	10–15
	Glazing U-value	U	~1.1	0.8–1.0	0.7–0.8	0.55–0.60	0.38–0.45
	SHGC	on/thru	Not regulated	Not regulated	0.39–0.45	0.4	0.25–0.40
	Infiltration - Fenestration	cfm/ft @75Pa	Not regulated	Early guidance	0.4–0.5	0.4	0.25
	Infiltration - Whole building	cfm/ft @75Pa	No	No	No	air barrier required; no quantity	0.25–0.30; blower door
LPD	Office	W/ft ²	2.5–3.0	2.0–2.5	1.3–1.5	0.9–1.0	0.6–0.8
	Classroom		2.5–3.0	2.0–2.5	1.2–1.5	0.9–1.1	0.6–0.8
	Retail		3.0–4.0	2.5–3.0	1.5–2.0	1.2–1.4	0.8–1.0
EPD	Office equipment	W/ft ²	0.5–0.7	0.7–1.0	1.0–1.5	1.0–1.2	0.5–1.0
	Computer labs		NA	1.0–1.5	3.0–4.0	3.0–4.0	2.0–3.0
HVAC	Cooling EER	EER	6–7	7–8	9–10	10–11	11–13+
	Heat pump HSPF	HSPF	Not regulated	5–6	6.8–7.7	8.2–8.5	9–10+
	Boiler efficiency	%	70–75	75–78	80–82	82–85	90–95 (condensing)
	Economizers	NA	Not required	Some cases	Required broadly	Req. w/tighter limits	Universal w/exceptions
	VAV systems		Rare	Emerging	Standard	Standard w/ controls	Advanced controls + DCV
	Ventilation		No mech. req.	Basic	ASHRAE 62-1989	ASHRAE 62.1-2010	ASHRAE 62.1-2019

source: SNELL

Energy, buildings, and industry. Since their inception, code requirements related to building energy efficiency have very quickly become increasing more stringent.

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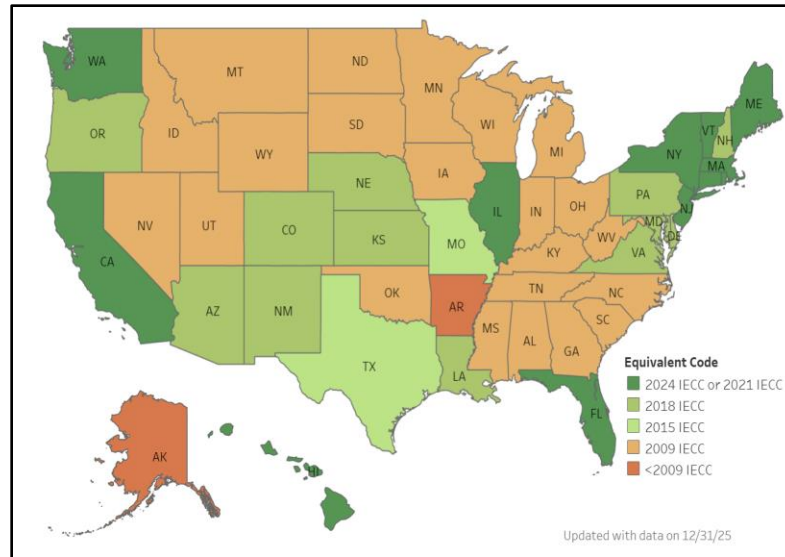
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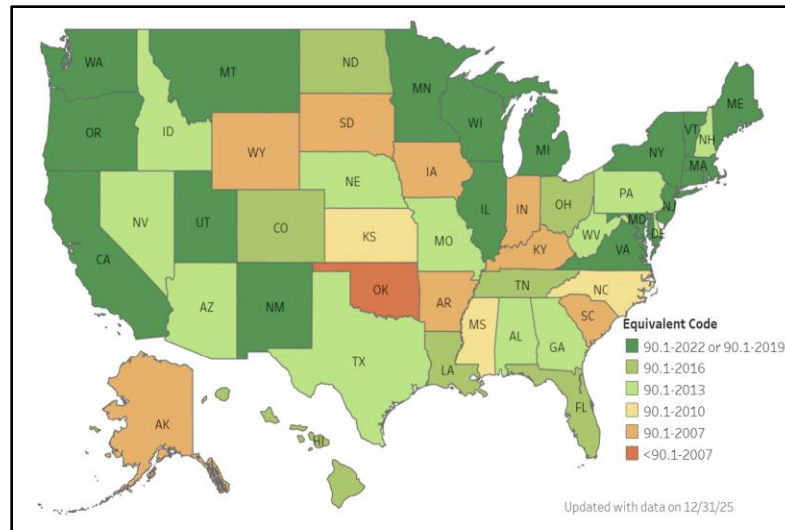
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RESIDENTIAL



COMMERCIAL

Source: energycodes.gov

Energy codes are adopted at the state level in the US. Many states are not keeping up with the state of the art.

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The screenshot shows the NYC Buildings website. The top navigation bar includes 'NYC Buildings' and a search bar. Below the navigation bar are tabs for 'DOB', 'Tenant', 'Property or Business Owner', 'Industry', 'Safety', and 'Codes'. The 'Codes' tab is selected. Below the tabs are buttons for 'Code Development', 'NYC Codes', 'Sustainability', and 'Reference'. The main content area is titled 'Energy Conservation Code'. It includes a sidebar with links for '2022 Construction Codes', '2014 Construction Codes', 'Energy Conservation Code', 'Electrical Code', 'Existing Building Code', 'Past Codes', and 'Code Tools'. The main text explains that the NYC Energy Conservation Code (NYCECC) is based on local laws and the current Energy Conservation Construction Code of New York State (ECCCNYS). It lists links for '2025 NYC Energy Conservation Code', '2020 NYC Energy Conservation Code', '2016 NYC Energy Conservation Code', '2014 NYC Energy Conservation Code', and '2011 NYC Energy Conservation Code'. It also mentions the '2025 NYC Energy Conservation Code' and '2025 NYC ASHRAE 90.1' will begin March 30, 2026. The text states that the 2025 NYCECC and the 2025 NYC ASHRAE 90.1 are based on the 2025 Energy Conservation Construction Code of New York State (2025 ECCCNYS) and the 2025 New York State Energy Standard for Buildings Except Low-Rise Residential Buildings (2025 NYS ASHRAE 90.1). It also notes that the 2025 ECCCNYS is based on the 2024 International Energy Conservation Code (2024 IECC), and the 2025 NYS ASHRAE 90.1 is based on ASHRAE 90.1-2022. Finally, it mentions that 2025 NYCECC and 2025 NYC ASHRAE 90.1 notable highlights are provided.

Source: [NYC energy codes](#)

NYC and energy. NYC has consistently updated its energy code to keep in line with current state of the art...which essentially means in line with most European and Scandinavian countries.

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COMPARISON OF CURRENT OPERATIONAL CARBON MUNICIPAL CODES					
Jurisdiction/ Standard	Scope	Metric	Penalties	Compliance Costs	Notes
EU EPBD (started 2002, 2024 recast)	EU Member States – new & existing buildings	Primary energy (EPC), ZEB for new, lifecycle GWP disclosure	Varies by Member State (~€1,000–€10,000 per violation)	Audits/EPC €500–€2,000; renovation ~€50–€200/m ² (indicative)	Recast targets ZEB by 2028 (public) & 2030 (all); renovate to MEPS worst non-res 16% by 2030, 26% by 2033; renovation rate remains low
Toronto Green Standard (2010)	City planning approvals – new development	Tiered CO ₂ e intensity/energy performance	Planning/permit conditions; no per-ton fines	~+1–3% of construction cost (measures vary)	Cost-benefit studies show lifecycle net savings for Tier 2–3 bundles
NYC Local Law 97 (2019)	Existing buildings >25,000 ft ²	Annual GHG caps (kg/lb CO ₂ e/ft ²), declining over time	\$268 per metric ton CO ₂ e over cap; \$0.50/ft ² /mo late reporting; up to \$500k for false statements	Retrofits ~\$5–\$20/ft ² ; reporting/audit ~\$0.05–0.15/ft ² /yr	DOB compliance and guidance, limited extensions; ~20% over cap initially, ~80% risk by 2030 without action
Boston BERDO 2.0 (2021)	Existing ≥20,000 ft ² or ≥15 res units	Declining emissions limits; annual reporting & verification	\$150–\$300/day (reporting); \$300–\$1,000/day (exceeding limits)	Setup \$12k–\$22k; ongoing \$3k/yr; retrofits vary by building	ACP/RECs vs electrification cost tradeoffs; assistance programs & hardship options
Seattle BEPS (2023)	Existing nonres & multifamily >20,000 ft ²	GHG intensity targets with reporting & verification	Up to ~\$10/ft ² for missing target (per some guidance); final amounts via Director's Rule	Audits/RCx \$1–\$3/ft ² ; retrofits \$10–\$30/ft ² ; grants available	Projected 27% emission reduction by 2050; grants & technical support available
Canada NECB/NBC (2025)	National model codes – new buildings	Operational GHG objective (2025); embodied GHG roadmap (2030)	Provincial enforcement via permits; fines vary	Design compliance ~+1–3% of construction cost	Permit-time compliance, no continuous benchmarking in model code
Australia NABERS (1999, but voluntary)	Existing buildings – rating scheme	Operational GHG/energy star ratings (1–6★)	No statutory fines; disclosure & procurement requirements apply	Submission+assessor AUD\$1k–\$5k; efficiency upgrades AUD\$2–\$10/ft ²	70%+ offices ≥4★; 5★+ linked to leasing premium; grid decarb → shift to energy metrics by 2030

source: SaME Lab

NYC and carbon. NYC is one of the few jurisdictions in the world with law (LL97) that caps building carbon footprint.

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site EUI (kBtu/sf): energy use intensity, amount of energy used per sf on site

source EUI (kBtu/sf): energy use also considering energy it takes to get the energy to the site

sf: square feet, as in floor area of a building

tCO2e: metric tons of CO2 equivalent emissions, allows for comparison of other GHG sources

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[NYC Building and Water Local Law 84 Data Dictionary](#)

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NYC ENVIRONMENTAL BUILDING CODE TIMELINE		
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2025	NYCECC 2025 revisions	Stronger envelope/airtightness; adoption end of 2025
2030	LL97 limits tighten	Citywide 40% GHG reduction target
2050	Net-zero target	80%+ reductions and carbon neutrality goal

The screenshot shows the NYC Buildings website's 'Sustainability' page. The page is titled 'Sustainability' and features a list of programs and helpful links. A red box highlights the 'Greenhouse Gas Emissions Reduction (LL97)' section, which includes the 'NYC Benchmarking Law (LL84)' and 'Energy Grading (LL33)'. The page also lists other programs like 'Energy Audits & Retro-Commissioning (LL87)', 'Lighting Upgrades & Sub-Metering (LL88)', 'Solar & Green Roofs (LL92 & LL94)', 'Building Electrification (LL154)', and 'NYC Energy Conservation Code'. The 'Helpful Links' section includes 'NYC Energy Conservation Code' and 'NYC Accelerator'.

Source: [NYC energy codes](#)

NYC building sustainability codes. Most of these have to do with energy efficiency of larger buildings

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Local Law 84: NYC Benchmarking Law

The NYC Benchmarking Law, [Local Law 84 of 2009 as amended](#), requires buildings to annually assess the efficiency of their building's energy and water consumption. First enacted in 2009, this law has set the foundation for sustainable decision-making for NYC building owners.

The NYC Benchmarking Law standardizes the benchmarking process by requiring building owners to submit their annual energy use in the United States Environmental Protection Agency's (EPA) online benchmarking tool, Energy Star Portfolio Manager® (ESPM), by May 1st of every year. The ESPM property types allow building energy performance to be measured against similar buildings nationwide. By requiring buildings to benchmark, the NYC Benchmarking Law identifies buildings that underperform compared to similarly situated buildings, allows those building owners to easily identify best practices for efficiency improvements from similar buildings, and encourages changes to building operations and maintenance that will result in reduced costs and greenhouse gas emissions.

Covered Buildings

As it appears in the records of the department of finance

- a building that exceeds 25,000 gross square feet (2323 m²)
- two or more buildings on the same tax lot that together exceed 100,000 gross square feet (9290 m²)
- two or more buildings held in the condominium form of ownership that are governed by the same board of managers and that together exceed 100,000 gross square feet (9290 m²), or
- a City building.

Source: [NYC energy codes](#)

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LL87: Energy Audits & Retro Commissioning

[Local Law 87 of 2009](#) as amended requires owners of certain buildings to undergo energy audits and retro-commissioning every ten years to identify energy-saving measures and ensure building systems are operating efficiently.

An Energy Audit is a survey and analysis of energy use in a building with the purpose of identifying opportunities to reduce the amount of energy consumed without negatively affecting the operations.

Retro-commissioning is the process of ensuring that the energy systems in an existing building are installed as per the design intentions, functionally tested, and capable of being operated and maintained, according to the owner's operational needs.

Covered Buildings

As it appears in the records of the NYC Department of Finance (DOF):

- buildings greater than 50,000 gross square feet
- a tax lot containing two or more buildings that together exceed 100,000 gross square feet
- two or more buildings held in a condominium form of ownership that together are larger than 100,000 gross square feet.

Filing Year 2026: LL87 CBL

The DOB Sustainability Law CBL 2026 (published March 2026) contains DOB's records for covered buildings under Local Law 87. See column H for relevant data.

Source: [NYC energy codes](#)

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LL97 Greenhouse Gas Emissions Reduction

In New York City, over two thirds of greenhouse gas (GHG) emissions come from buildings. [Local Law 97 of 2019](#) as amended (LL97) is one of the most ambitious plans for reducing emissions in the nation. Under this groundbreaking law, most buildings over 25,000 square feet are required to meet new GHG emissions limits beginning in 2024, with stricter limits coming into effect in 2030. The goal is to reduce the emissions produced by the City's largest buildings 40 percent by 2030 and to net zero by 2050.

The online portal is open for submissions at nyc.beam-portal.org.

Deadlines for Filing Year 2026

For LL97, LL84, LL33, LL87 and LL88

Event	Deadline
Local Law 97 Standard Reporting Period	5/1/2024 – 6/30/2026
Local Law 97 Extension Period	6/30/2026 – 8/29/2026
Local Law 94 Ongoing Reporting Period	8/29/2024 – 2/1/2027

Key Deadlines:

- 5/1: LL97 Filing Deadline
- 5/1: LL84 Filing Deadline (if full compliance not yet filed)
- 5/1: LL84 Deadline
- 6/30: LL97 Filing Deadline Grace Period (Deadline to apply for an extension)
- 8/1: 2nd Quarter LL84 Deadline
- 8/29: LL97 Filing Deadline With Extension
- 8/29: LL84 + Grade-Labels, Deadline to Post available on DOB NOW
- 11/1: 3rd Quarter LL84 Deadline
- 1/1/2027: LL97 Filing Deadline (2026 Filing Year)
- 2/1: 4th Quarter LL84 Deadline

Source: [NYC energy codes](https://nyc.energy.codes)

NYC building sustainability codes. Most of these have to do with energy efficiency of larger buildings

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SOME TERMS

Audit Year: important to note because performance changes year by year

BIN: building identification number

BBL: code for property borough, block and lot

Btu: about the amount of energy in a single lit match

Construction year: year building started service life

energy star score: performance rating that compares energy consumption to similar US buildings. 1-100 scale.

GHG: green house gas emissions, usually CO2 in context of building energy use

gross area: total occupied area of a building (in sf)

occupancy type: category of building use, like apartment or office; different types have different CO2 limits/sf.

site energy use (kBtu): total amount of energy used

site EUI (kBtu/sf): energy use intensity, amount of energy used per sf on site

source EUI (kBtu/sf): energy use also considering energy it takes to get the energy to the site

sf: square feet, as in floor area of a building

tCO2e: metric tons of CO2 equivalent emissions, allows for comparison of other GHG sources

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Source: [energy star portfolio manager](https://energy.star.gov)

NYC building sustainability codes. The energy benchmarking laws use data reported to the EPA/DOE’s Energy Star “Portfolio Manager).

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ENERGY STAR® PortfolioManager®

Welcome clarkesnell: Account | Notifications | ENERGY STAR | Contacts | Help | Sign Out

Settings Notifications

MyPortfolio | Sharing | Reporting | Recognition

Test

1007 Willow Ave, Hoboken, NJ 07030 | Map It

Portfolio Manager Property ID: 22099937

Year Built: 2022

Apply for Recognition

Not currently eligible for ENERGY STAR certification.

Not currently eligible for NextGen Certification

Weather Normalized Source EUI (kBtu/ft²)

Current: N/A

Baseline: N/A

Summary | Details | Energy | Emissions | Water | Waste & Materials | Goals | Design

Refresh to see Source EUI Trend

Change Metric

Change Metrics

Change Time Periods

Metric	Not Available (Energy Baseline)	Not Available (Energy Current)	Change
ENERGY STAR Score (1-100)	Not Available	Not Available	N/A
Source EUI (kBtu/ft ²)	Not Available	Not Available	N/A
Site EUI (kBtu/ft ²)	Not Available	Not Available	N/A
Energy Cost (\$)	Not Available	Not Available	N/A
Total (Location-Based) GHG Emissions Intensity (kgCO ₂ e/ft ²)	Not Available	Not Available	N/A
Water Use (All Water Sources) (kgal)	Not Available	Not Available	N/A
Total Waste (Disposed and Diverted) (Tons)	Not Available	Not Available	N/A

Metric

- ENERGY STAR Score (1-100)
- Source EUI (kBtu/ft²)
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- Total (Location-Based) GHG Emissions Intensity (kgCO₂e/ft²)
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Source: [energy star portfolio manager](https://energy.star/portfolio.manager)

NYC building sustainability codes. LL84 brought a lot more buildings under the requirement.

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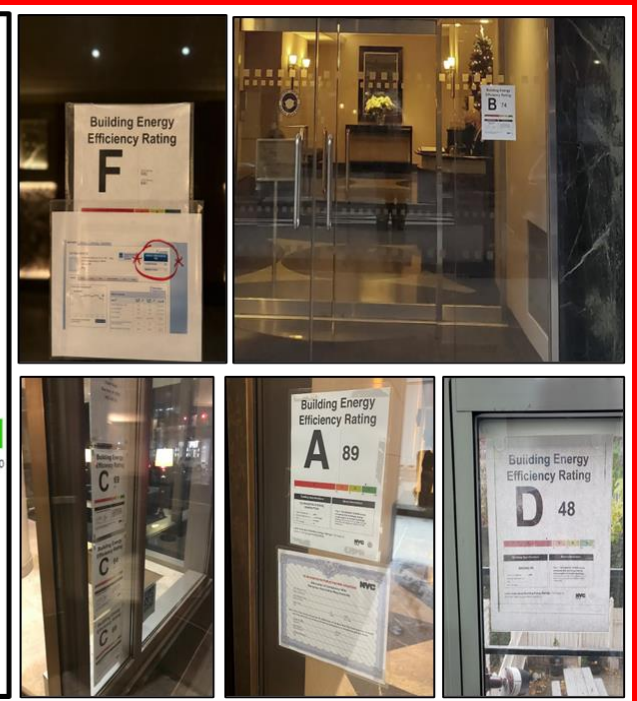
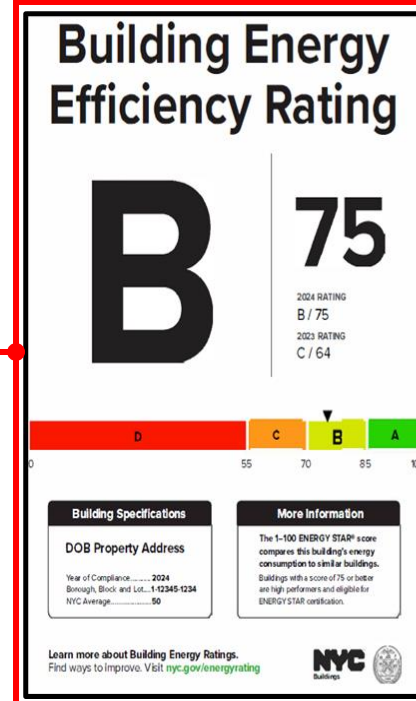
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Source: [NYC energy codes](https://www.nyc.gov/energyrating)

NYC building sustainability codes. LL33 required that buildings report their Energy Star rating generated by LL84 be publicly displayed on the building.

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NYC CLIMATE MOBILIZATION ACT OF 2019						
Law	Focus	Key Requirements	Effective	Penalties	2030 Target	2050 Target
LL92	Sustainable roofs	New buildings & major roof work: cover sustainable roofing zone with solar PV and/or green roof; PV priority for small/steep roofs	Nov 15, 2019	Building Code enforcement	Supports 40% citywide GHG reduction	Supports carbon neutrality
LL94	Cool roof standards	Raised reflectance/SRI thresholds; codifies sustainable roofing zone	Nov 15, 2019	Building Code enforcement	Supports 40% citywide GHG reduction	Supports carbon neutrality
LL95	Energy grades posting	Post A–F grade based on benchmarking (A≥85; B 70–84; C 55–69; D<55; F non-filer; N exempt)	2019 (posting by Oct 31 annually)	\$1,250 for failure to post	Transparency to drive improvements	Transparency for net-zero
LL96	PACE financing	100% long-term financing for efficiency/renewables repaid via property tax bill; transferable, non-accelerating	2019–2020 program rollout	N/A (financing)	Enables deep retrofits	Supports electrification & major upgrades
LL97	GHG caps & reporting	Caps for buildings ≥25k ft ² ; compliance starts 2024; annual reports due May 1; Article 321 prescriptive path for certain housing	Jan 1, 2024	\$268/ton CO ₂ e over limit; civil/criminal penalties for false reports	40% citywide reduction vs. 2005 baseline; stricter caps	Net-zero requirement

NYC building sustainability codes. The 2019 Climate Mobilization Act is a group of laws targeting specifically at carbon reduction. The carbon in question is energy produced from the combustion of fossil fuels.

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PV system on Bloomberg Center, Roosevelt Island, NYC by Morphosis



Urban farm 180' above street level on the Javits Center in Manhattan

NYC building sustainability codes. LL92 and 94 apply to commercial buildings with roofs over 200sf commercial and most residential buildings of any size.

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Local Law 97 – Building Emissions Limits

Executive Summary

Local Law 97 of 2019, as amended by Local Law 147 of 2019 and Local Law 95 of 2020 (the “Law”) designates **annual building emissions intensity limits** which cap the amount of greenhouse gas emissions large buildings in New York City can produce. Buildings covered by the law will be required to report their greenhouse gas emissions intensity to the City for 2024 and every subsequent year. Starting in 2025, penalties will be assessed for exceeding a building’s emissions intensity limit for the prior year. These penalties are intended to be costlier than renovating the building to emit less. [Read Local Law 97.](#)

Overview

Under the Law, emissions are described in metric tons of carbon dioxide equivalent (tCO₂e). Building emissions intensity is a measure of building emissions per square foot of building area (tCO₂e/sf). Buildings’ emissions intensity limits will be calculated based on their occupancy types and fuel sources. Penalties of \$268 per tCO₂e will be assessed for buildings that exceed their building emissions intensity limit. Visit the NYC Accelerator online to access the Local Law 97 Emissions Calculator and other resources: <https://www1.nyc.gov/site/nycaccelerator/index.page>. For additional information, visit the Urban Green Council online (<https://www.urbangreencouncil.org/content/projects/all-about-local-law-97>).

What is covered	What isn't covered
<ul style="list-style-type: none"> Any building in New York City that exceeds 25,000 square feet Two or more buildings on the same tax lot that together exceed 50,000 square feet Two or more buildings held in condominium ownership that are governed by the same board of managers and that together exceed 50,000 square feet 	<ul style="list-style-type: none"> Power generating facilities City-owned property New York City Housing Authority property Property owned by a Housing Development Fund Corporation Dedicated places of worship Certain types of condominiums of no more than three stories, as described in the Law

Mechanics

Building emissions intensity limits will be calculated based on each calendar year’s twelve months of utility data, so buildings that are already subject to New York City’s benchmarking law ([Local Law 84](#) of 2009) will be familiar with the reporting obligations under Local Law 97.

Compliance Dates

- (2024 – 2029)** An estimated 25% of covered buildings must reduce energy consumption to meet annual building emissions intensity limits established in 2024.
- (2030 – 2034)** An estimated 75% of covered buildings must reduce energy consumption to meet the stricter limits established in 2030. The annual building emissions limits align with the City’s goal of reducing greenhouse gas emissions citywide 40% by 2030.
- (Future dates)** No later than January 1, 2023, the City will establish annual building emissions intensity limits applicable for subsequent years.

NYC building sustainability codes. LL97 is a signature carbon reduction law that puts NYC at the forefront in the world of this approach to climate change mitigation.

Does this Building Suck (Energy)??: Decoding Building Performance with Open Data

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1959

\$215K \$260K

GUGGENHEIM

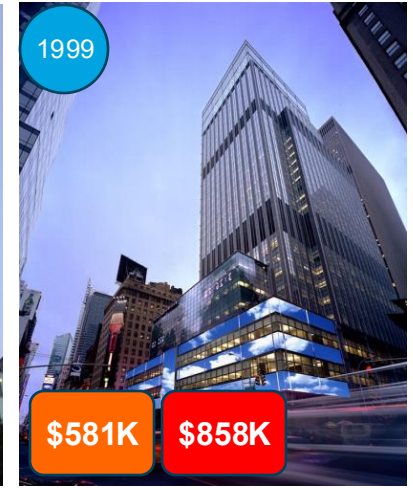


1964

2003

\$232K \$1,369K

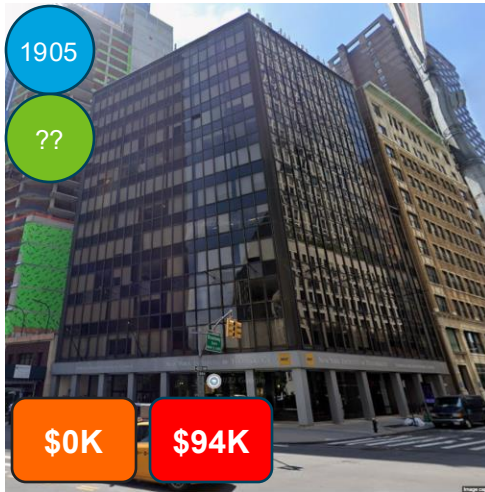
GENERAL MOTORS



1999

\$581K \$858K

BARCLAY'S



1905

??

\$0K \$94K

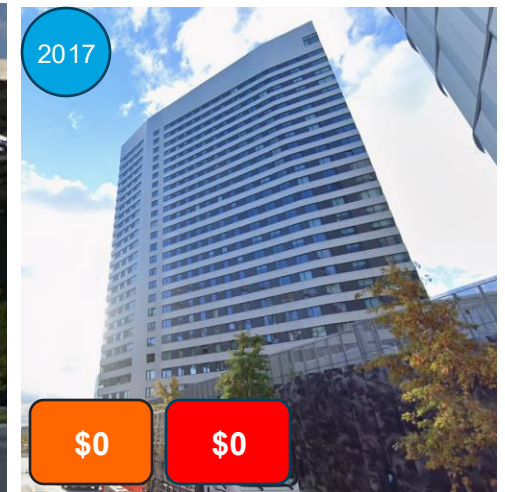
NEW YORK TECH



2017

\$0K \$0.6K

BLOOMBERG CENTER



2017

\$0 \$0

THE HOUSE AT CORNELL

● constructed ● remodeled ■ 2024 fine ■ 2030 fine

NYC building sustainability codes. Fines are set based on a CO2/sf allotment based on occupancy type. The allotment goes down every five years. \$\$ amounts can be substantial.

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Year	Projected LL97 Annual Penalty
2024-2029	\$0.00
2030-2034	\$14,000.00

1/05/25

Year	Projected LL97 Annual Penalty
2024-2029	\$475,800.00
2030-2034	\$688,100.00

Year	Projected LL97 Annual Penalties
2024-2029	\$232,700
2030-2034	\$1,368,700

2/12/24

Year	Projected LL97 Annual Penalties
2024-2029	\$581,400
2030-2034	\$858,000

Year	Projected LL97 Annual Penalty
2024-2029	\$232K
2030-2034	\$1,369K

GENERAL MOTORS

Year	Projected LL97 Annual Penalty
2024-2029	\$581K
2030-2034	\$858K

BARCLAY'S

Projected LL97 Annual Penalty

2024-2029:	\$0.00
2030-2034:	\$14,500.00

Projected LL97 Annual Penalty

2024-2029:	\$475,800.00
2030-2034:	\$688,100.00

Projected LL97 Annual Penalty

2024-2029:	\$232,700
2030-2034:	\$1,368,700

Projected LL97 Annual Penalty

2024-2029:	\$581,400
2030-2034:	\$858,000

NYC building sustainability codes. Fines are set based on a CO2/sf allotment based on occupancy type. The allotment goes down every five years. \$\$ amounts can be substantial.

Does this Building Suck (Energy)??: Decoding Building Performance with Open Data

Energy data history buildings & energy standards NYC laws

NYC building data

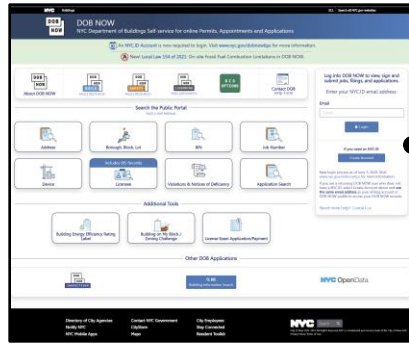
NYC tools examples

SamE Lab datasets

Other cities

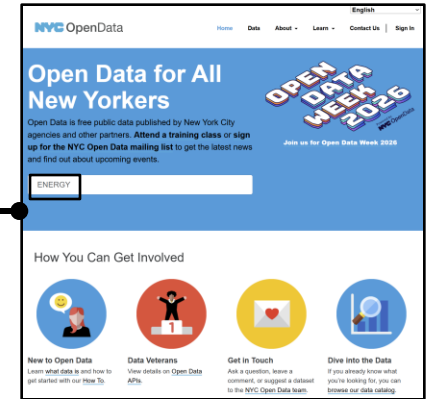
Academia

lit review NYIT



Source: [NYC DOB NOW](#)

Source: [NYC LL84 disclosure dataset](#)



Source: [NYC Open Data](#)



Source: [NYC Carbon Calculator](#)

Source: [NYC Energy Snapshot](#)

Source: [NYC Sustainability Compliance](#)

Public access to energy data. Large datasets are created and then made publicly available, but the easiest way to access it is through a variety of custom tools.

Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

Energy data

- history
- buildings & energy
- standards
- NYC laws

NYC building data

NYC tools examples

SaME Lab datasets

Other cities

Academia

- lit review
- NYIT



15 Charles, Manhattan. 122 unit condo in the West Village. Constructed: 1964

Does this Building Suck (Energy)??: Decoding Building Performance with Open Data

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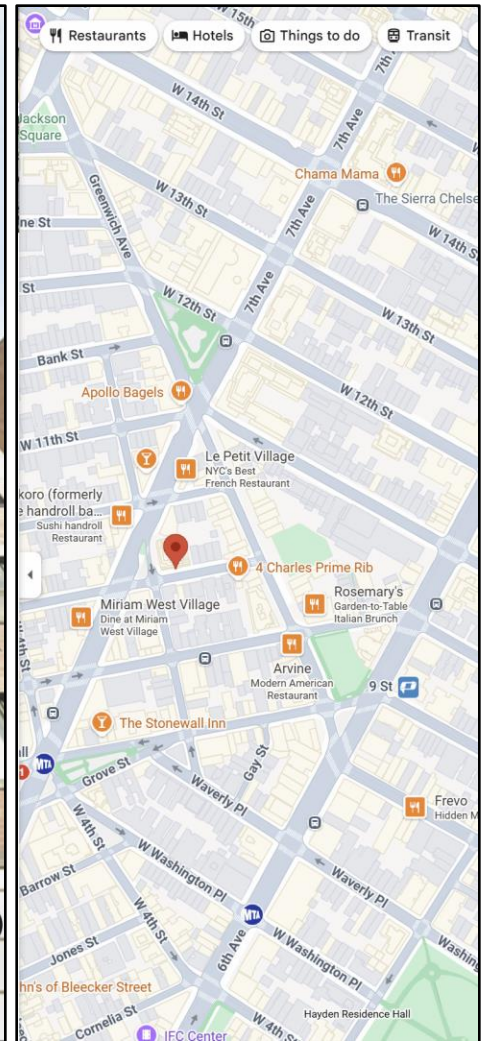
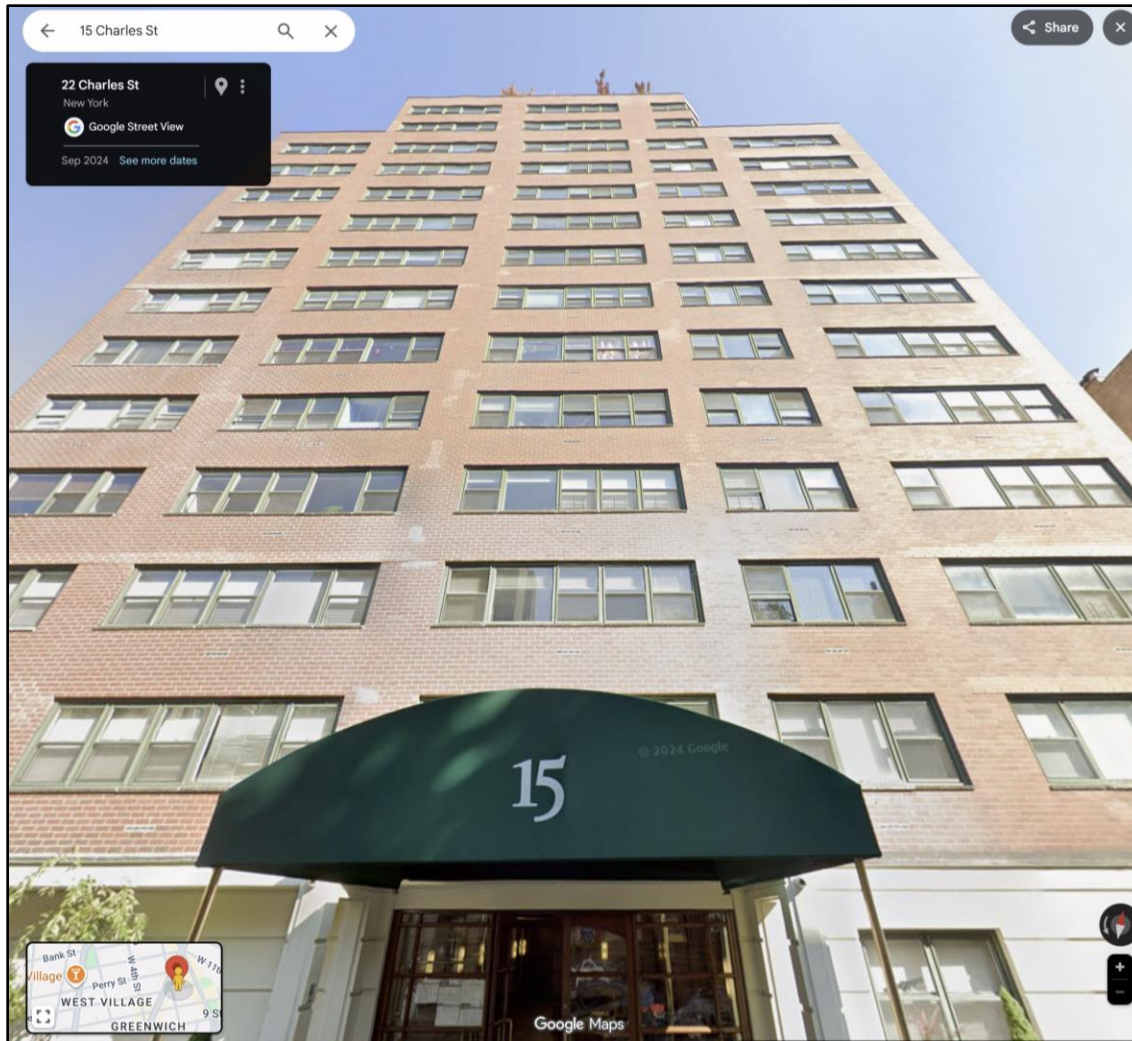
SamE Lab datasets

Other cities

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15 Charles, Manhattan. 122 unit condo in the West Village. Constructed: 1964



SOME TERMS

Audit Year: important to note because performance changes year by year

BIN: building identification number

BBL: code for property borough, block and lot

Btu: about the amount of energy in a single lit match

Construction year: year building started service life

energy star score: performance rating that compares energy consumption to similar US buildings. 1-100 scale.

GHG: green house gas emissions, usually CO2 in context of building energy use

gross area: total occupied area of a building (in sf)

occupancy type: category of building use, like apartment or office; different types have different CO2 limits/sf.

site energy use (kBtu): total amount of energy used

site EUI (kBtu/sf): energy use intensity, amount of energy used per sf on site

source EUI (kBtu/sf): energy use also considering energy it takes to get the energy to the site

sf: square feet, as in floor area of a building

tCO2e: metric tons of CO2 equivalent emissions, allows for comparison of other GHG sources

Basics. These terms will come up during this talk. They are a subset of a list from this document:
[NYC Building and Water Local Law 84 Data Dictionary](#)

NYC Buildings

NYC Department of Buildings
Building Information Search

BIS is not reflecting some transactions made April 29 - May 6, 2022, as well as limited transactions prior to April 29 due to an unexpected power outage at the City's data center.
If BIS does not accurately reflect your transaction, submit an inquiry at www.nyc.gov/dobhelp.

The below search does not include filings submitted in DOB NOW; use the [DOB NOW Public Portal](#) to access DOB NOW records.

Property Search | Complaints / Violations | Applications | Boiler Search | Gas Service
Power Authorizations | Elevator Devices | Cranes & Derricks

Search by Property

1 Manhattan House No: 15 Street: charles st GO

2 Pick a Borough Block: Lot: GO

3 Building Identification Number (BIN): GO

Browse Block and Lot

4 Pick a Borough Block: Lot (optional): GO

Search for Complaint, Summons or Violation

5 Complaint Number: GO

311 Reference Number: GO

6 OATH/ECB Violation Number: GO

7 BIN Number for OATH/ECB Violation: GO

8 Select OATH/ECB Viol Type Start Month: Start Day: Start Year: End Month: End Day: End Year: GO

Application Searches

9 BIS Job Number: Doc Number (optional): GO

10 Permit Number: GO

11 BIS Plumbing Work Order Number: GO

source: [NYC DOB Building Information Search](#)

NYC Buildings

NYC Department of Buildings
Property Profile Overview

15 CHARLES STREET MANHATTAN 10014 BIN# 1010899

CHARLES STREET 13 - 21
WAVERLY PLACE 207 - 211

Manhattan Area : 6100
Census Tract : 71
Community Board : 102
Buildings on Lot : 1

Tax Block : 612
Tax Lot : 7504
Condo : YES
Vacant : NO

View DCP Addresses... Browse Block

View Zoning Documents View Challenge Results Pre - BIS PA View Certificates of Occupancy

Cross Street(s): GREENWICH AVENUE, WAVERLY PLACE

DOB Special Place Name:

DOB Building Remarks:

Landmark Status: L - LANDMARK Special Status: N/A
Local Law: NO Loft Law: NO
SRO Restricted: NO TA Restricted: NO
UB Restricted: NO
Environmental Restrictions: N/A Grandfathered Sign: NO
Legal Adult Use: NO City Owned: NO

Additional BINs for Building: NONE
HPD Multiple Dwelling: Yes

Special District: UNKNOWN

This property is not located in an area that may be affected by Tidal Wetlands, Freshwater Wetlands, Coastal Erosion Hazard Area, or Special Flood Hazard Area. [Click here for more information](#)

Department of Finance Building Classification: R0-CONDOMINIUMS

Please Note: The Department of Finance's building classification information shows a building's tax status, which may not be the same as the legal use of the structure. To determine the legal use of a structure, research the records of the Department of Buildings.

	Total	Open	Elevator Records
Complaints	44	0	Electrical Applications
Violations-DOB	49	0	Permits In-Process / Issued
Violations-OATH/ECB	29	0	Illuminated Signs Annual Permits
Jobs/Fillings	100		Plumbing Inspections
ARA / LAA Jobs	20		Open Plumbing Jobs / Work Types
Total Jobs	120		Facades
Actions	45		Marquee Annual Permits
OR Enter Action Type:			Boiler Records
OR Select from List: Select...			DEP Boiler Information
AND Show Actions			Crane Information
			After Hours Variance Permits

If you have any questions please review these [Frequently Asked Questions](#), the [Glossary](#), or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

Bin look-up. Buildings often have more than a single number for their address. Better to use the BIN or BBL

Does this Building Suck (Energy)?:
Decoding Building Performance with Open Data

Energy data history buildings & energy standards NYC laws

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DOB NOW
NYC Department of Buildings Self-service for online Permits, Appointments and Applications

Due to the inclement weather, all DOB development inspections are cancelled and customer service windows for in-person transactions are closed on Monday, February 23, 2026. Online services are not affected.

An NYC.ID Account is now required to login. Visit www.nyc.gov/dobnowtips for more information.

New! Local Law 154 of 2021: On-site Fossil Fuel Combustion Limitations in DOB NOW.

Log into DOB NOW to view, sign and submit jobs, filings, and applications.

Enter your NYC.ID email address:

Email:

Login

If you need an NYC.ID: [Create Account](#)

New login process as of June 3, 2024. Visit www.nyc.gov/dobnowtips for more information.

If you are a returning DOB NOW user who does not have a NYC.ID, select [Create Account](#) above and use the same email address as your eFiling account or DOB NOW profile to access your DOB NOW records.

Need more help? Contact us.

Search the Public Portal

Address, Borough, Block, Lot, **BIN**, Job Number, Device, Licensee, Violations & Notices of Deficiency, Application Search

Additional Tools: Building Energy Efficiency Rating Label, Building on My Block / Zoning Challenge, License Exam Application/Payment

DOB NOW
NYC Department of Buildings Self-service for online Permits, Appointments and Applications

Property Profile

13 CHARLES STREET | MANHATTAN 10014 | **BIN# 1010899**

Penalties Owed, Building Schedule of Occupancy, Certificate of Occupancy, Certificate of Compliance, Active Tenant Protection Plans, After Hour Variance, Energy Submission, Loft Board Submission, Notifications

Energy Efficiency Rating (Local Law 33 of 2018) [View](#)

Alternate Addresses:
CHARLES STREET 13 - 21
WAVELY PLACE 207 - 211

Cross Street(s) GREENWICH AVENUE, WAVELY PLACE	DOB Special Place Name 612	Tax Block 612	Tax Lot 7504
Vacant NO	Health Area 6100	Condo YES	Buildings on Lot 1
Landmark Status L - LANDMARK	Community Board 102	Local Law NO	DOB Building Remarks
Special Status N/A	TA Restricted NO	Loft Law NO	SRO Restricted NO
UB Restricted NO	Environmental Restrictions N/A	Grandfathered Sign NO	
Legal Adult Use NO	City Owned NO	Additional BINs for Building NONE	Special District

Energy Efficiency Rating (Local Law 33 of 2018)

Grade : D Score : 5

Source: NYC.DOB.NOW

DOB NOW. Department of Building public portal is a good place to start. We can find the Energy Star score here.

Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

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DOB NOW

13 CHARLES STREET | MANHATTAN | BIN# 1010899

Total Active Violations: 8 | Total Civil Penalties Due: \$24,000.00

Compliance Type: All | Violation Type: All

Total Active Violations: 8 | Total Civil Penalties Due: \$24,000.00

Print | Modify Search

For a complete list of the violations on a property, also search the Buildings Information System (BIS). OATH/ECB violations and some DOB violations are only in BIS and are not found in DOB NOW.
If a civil penalty is due, pay or request a challenge/waiver for the violation by selecting the Home button. Then enter your email and Login to DOB NOW: Safety. Once logged in, select Violations & Notices of Deficiency and then +Violations Payments.

Elevators

Violation #	BIN	Compliance Type	Violation Status	Civil Penalty Due
VIO-FTC-VT-PER-202412-0005774	1010899	Elevators	Active	\$3,000.00
VIO-FTC-VT-PER-202412-0005775	1010899	Elevators	Active	\$3,000.00
VIO-FTC-VT-PER-202312-0004072	1010899	Elevators	Active	\$3,000.00
VIO-FTC-VT-PER-202312-0004071	1010899	Elevators	Active	\$3,000.00
VIO-FTC-VT-PER-202212-0013366	1010899	Elevators	Active	\$3,000.00
VIO-FTC-VT-CAT1-202412-0009616	1010899	Elevators	Active	\$3,000.00
VIO-FTF-VT-CAT1-201812-0000964	1010899	Elevators	Active	\$3,000.00

DOB NOW DOB NOW

NYC Department of Buildings Self-service for online Permits, Appointments and Applications

Property Profile

13 CHARLES STREET | MANHATTAN 10014 | BIN# 1010899

New Penalties Owed | Building Schedule of Occupancy | Certificate of Occupancy | Certificate of Compliance

Active Tenant Protection Plans | After Hour Variance | Energy Submission | Loft Board Submission | Notifications

Energy Efficiency Rating (Local Law 33 of 2018) View

Alternate Addresses:
CHARLES STREET 13 - 21
WAVELY PLACE 207 - 211

Cross Street(s) GREENWICH AVENUE, WAVELY PLACE	DOB Special Place Name	Tax Block 612	Tax Lot 7504
	Community Board 102	Condo YES	Buildings on Lot 1
Vacant NO	Health Area 6100	Census Tract 71	DOB Building Remarks
Landmark Status L - LANDMARK			
Special Status N/A	Local Law NO	Loft Law NO	SRO Restricted NO
TA Restricted NO	UB Restricted NO	Environmental Restrictions N/A	Grandfathered Sign NO
Legal Adult Use NO	City Owned NO	Additional BINs for Building NONE	Special District

Source: [NYC DOB NOW](https://www.dob.nyc.gov/)



Sustainability Compliance Maps

LL97 | GHG Emission LL33 | Energy Grades

DOB
NOW
BUILD

Terms of Use

About Local Law 97

To amend the New York city charter and the administrative code of the city of New York, in relation to the commitment to achieve certain reductions in greenhouse gas emissions by 2050. [Learn more](#)

Emissions performance and targets to be included soon

COVERED BUILDING:

1. a building that exceeds 25,000 gross square feet, or
2. two or more buildings on the same tax lot that together exceed 50,000 gross square feet, or
3. 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 gross square feet

EXCEPTIONS:

1. An industrial facility primarily used for the generation of electric power or steam.
2. Real property, not more than three stories, consisting of a series of attached, detached or semi-detached dwellings, for which ownership and the responsibility for maintenance of the HVAC systems and hot water heating systems is held by each individual dwelling unit owner, and with no HVAC system or hot water heating system in the series serving more than 25,000 gross square feet as certified by a registered design professional to the department.
3. A city building
4. A housing development or building on land owned by the New York city housing authority.
5. A rent regulated accommodation.
6. A building whose main use or dominant occupancy is classified as occupancy group A-3 religious house of worship.
7. Real property owned by a housing development fund company organized pursuant to the business corporation law and article

Local Law 97 Lot Information

Click on a lot for details...

source: [NYC DOB Sustainability Compliance Maps](#)

Sustainability Compliance Maps. An interactive map to look into LL33 and LL97 compliance



Sustainability Compliance Maps

LL97 | GHG Emission **LL33 | Energy Grades** Terms of Use

About Local Law 33

Local Law 33 of 2018 amended the Administrative Code of the City of New York in relation to energy efficiency scores and grades for buildings required to benchmark their energy and water consumption. Energy efficiency scores and grades for these buildings shall be obtained, assigned and disclosed in accordance with the new section as28-309.12 annually, based on benchmarking reporting consistent with Federal energy efficiency standards. [Learn more](#)

COVERED BUILDING:

- Any property on the Covered Buildings List for benchmarking compliance as per Department of Finance records.

EXCEPTIONS:

- Multifamily buildings with less than 20 units, enclosed parking, or other property types that are not eligible to receive a 1-100 ENERGY STAR Score
- Properties with New Build or Demolition permits and no TCO in the applicable reporting year, or properties with an ownership change in the applicable reporting year may be eligible for a temporary exemption.

Local Law 33 Compliance - 2020

BBL: 1006127504

Borough: MANHATTAN
Block: 612
Lot: 7504
Address: 15 CHARLES STREET

Number of Buildings: 1
Gross Square Footage: 105590
Building Class: R0
Tax Class: 2
Energy Efficiency Score: D1

Q 15 Charles Street, New York Cit...

ENERGY EFFICIENCY SCORE	
A: ENERGY STAR RATING >= 85	
B: ENERGY STAR RATING >= 70 AND < 85	
C: ENERGY STAR RATING >= 55 AND < 70	
D: ENERGY STAR RATING < 55	
F: REQUIRED BENCHMARKING INFORMATION NOT SUBMITTED	

Sustainability Compliance Maps

LL97 | GHG Emission LL33 | Energy Grades Terms of Use

About Local Law 97

To amend the New York city charter and the administrative code of the city of New York, in relation to the commitment to achieve certain reductions in greenhouse gas emissions by 2050. [Learn more](#)

Emissions performance and targets to be included soon

COVERED BUILDING:

- a building that exceeds 25,000 gross square feet, or
- two or more buildings on the same tax lot that together exceed 50,000 gross square feet, or
- 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 gross square feet

EXCEPTIONS:

- An industrial facility primarily used for the generation of electric power or steam.
- Real property, not more than three stories, consisting of a series of attached, detached or semi-detached dwellings, for which ownership and the responsibility for maintenance of the HVAC systems and hot water heating systems is held by each individual dwelling unit owner, and with no HVAC system or hot water heating system in the series serving more than 25,000 gross square feet as certified by a registered design professional to the department.
- A city building
- A housing development or building on land owned by the New York city housing authority.
- A rent regulated accommodation.
- A building whose main use or dominant occupancy is classified as occupancy group A-3 religious house of worship.
- Real property owned by a housing development fund company organized pursuant to the business corporation law and article

Local Law 97 - Lot Information

Click on a lot for details...

???

Q 15 Charles Street, New York Cit...

source: [NYC DOB Sustainability Compliance Maps](#)

Energy Efficiency Rating (Local Law 33 of 2018)

Grade : D Score : 5

Sustainability Compliance Maps. These data collation apps are awesome because they are simple and graphically clear but you cannot control many variables. This building is required to report under LL97.



LOCAL LAWS
OF
THE CITY OF NEW YORK
FOR THE YEAR 2019

No. 97

ARTICLE 320

BUILDING ENERGY AND EMISSIONS LIMITS

§ 28-320.1 Definitions. As used in this article, the following terms shall have the following meanings:

§ 28-320.3.1 Annual building emissions limits 2024-2029. For calendar years 2024 through 2029 the annual building emissions limits for covered buildings shall be calculated pursuant to items 1 through 10 of this section. For the purposes of such calculation the department shall provide a method for converting categories of uses under the United States environmental protection agency Portfolio Manager tool to the equivalent uses and occupancy groups set forth in this section. For a covered building with spaces classified in more than one occupancy group, the annual building emissions limit shall be the sum of the calculated values from items 1 through 10 of this paragraph, as applicable for each space.

9. For spaces classified as occupancy group R-2; multiply the building emissions intensity limit of 0.00675 tCO₂e/sf by the corresponding gross floor area (sf);

§ 28-320.6 Penalties. An owner of a covered building who has submitted a report pursuant to section 28-320.3.7 which indicates that such building has exceeded its annual building emissions limit shall be liable for a civil penalty of not more than an amount equal to the difference between the building emissions limit for such year and the reported building emissions for such year, multiplied by \$268.

Source: [NYC Energy Snapshot](#)

Building energy snapshot tool. Another nice data collation map is this tool from the NYC accelerator. Here we get a result for LL97 compliance for 15 Charles St.

Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

Energy data history buildings & energy standards NYC laws

NYC building data

NYC tools examples

SamE Lab datasets

Other cities

Academia

lit review

NYIT



15 Charles at Waverly Place Condominium (15 Cha)
LL84 2025 (calendar year 2024) ①

carbon emissions calculator

Building Inputs

Building Input Area (SF)

1 Multifamily 114,707 ②

2 Parking 8,983 X

3 Restaurant 4,158 X

Add Building Type

Utility Inputs

Electricity (kWh) \$/kWh
792,674 0.22

Natural Gas (therms) \$/therm
135,628 0.997

Steam (mlb) \$/mlb
0 35

Fuel Oil #2 (gal) \$/gal
0 1.65

Fuel Oil #4 (gal) \$/gal
0 1.65

Use Default Rates

Carbon Deductions

Solar PV (kWh) 0

Annual Carbon Threshold Summary

	2024-2029	2030-2034	2035-2039	2040-2049	2050-
Emissions (tCO ₂ e/yr)	949	835	835	835	835
Threshold (tCO ₂ e/yr)	862 ③	403	322	244	0
Est Penalty (\$/yr)	\$23,511	\$116,954	\$137,462	\$158,497	\$223,851

Carbon Below Threshold Carbon Over Threshold

Source: [NYC Carbon Calculator](#)

NYC ACCELERATOR

SEARCH LANGUAGE MENU

15 CHARLES STREET
NEW YORK, NY, USA

BBL: 1006127504

Total Square Feet: 112,981 ②

Buildings on Lot: 1

Year of Energy Data Used: 2023 ①

Year of Next LL87 Energy Audit/Retro-commissioning Deadline: 2032

Building on DOB's LL88 Covered Buildings List: Yes

Projected LL97 Annual Penalty

2024-2029: \$134,300.00 ③

2030-2034: \$196,100.00

Building on DOB's LL97 Covered Building List (CBL): Yes

LL97 CBL Preliminary Compliance Pathway(s): CPI: Article 320 Beginning 2026

Download Results

Penalty Estimates: LL97 penalty estimates are calculated based on the most recent year of LL84 benchmarking energy data, provided the information meets minimum screening criteria for data quality. If this data is not available, the tool uses the most recent data that meets these criteria.

Disclaimer: NYC Accelerator's Building Energy Snapshot displays estimated penalty amounts, compliance pathways, and energy savings that will vary annually. Projections are intended to aid LL97 planning but may not exactly match actual penalties and savings. The compliance pathways are based on DOB's LL97 Covered Buildings List (CBL) which were compiled using preliminary data that is subject to change. This information is intended only as a reference for building owners to consider in consultation with legal representatives and registered design professionals (RDPs). The presence or absence of any property on the CBL does not relieve it from compliance with LL97 or any other applicable law.

LL97 Fine Status

- No fines estimated to start in 2024 or 2030
- Fines estimated to start in 2024
- Fines estimated to start in 2024. #4 oil may be in use, or insufficient data
- Compliance not required

Take the Next Step

Contact NYC Accelerator to have a building expert walk you through your results and provide free guidance on how you can reduce emissions and avoid annual fines.

Source: [NYC Energy Snapshot](#)

LL97 carbon emissions calculator is another tool that give access to LL97 compliance data. The snapshot tool on the right is defaulted to 2023 reporting, whereas we can choose the year...

Does this Building Suck (Energy)?
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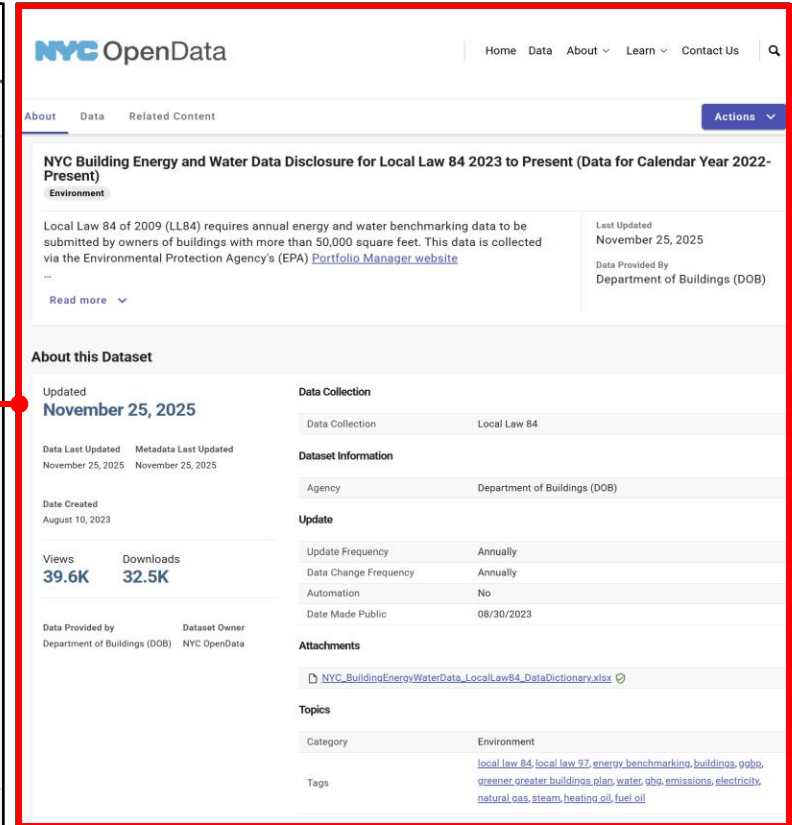
SaME Lab datasets

Other cities

Academia

lit review

NYIT



source: [NYC DOB Sustainability Compliance Maps](#)

Source: [NYC LL84 disclosure dataset](#)



... and set a variety of values in the calculator. All of these tools are pulling information from the same dataset.



nyc LL97
carbon emissions
calculator

15 Charles at Waverly Place Condominium (15 Charles LL84 2025 (calendar year 2024))

Building Inputs

Building Input	Area (SF)	
1 Multifamily ...	114,707	x
2 Parking	8,983	x
3 Restaurant	4,158	x

Utility Inputs

Utility	Unit	Value
Electricity (kWh)	\$/kWh	792,674 @ 0.22
Natural Gas (therms)	\$/therm	135,628 @ 0.997
Steam (mLbs)	\$/mlb	0 @ 35
Fuel Oil #2 (gal)	\$/gal	0 @ 1.65
Fuel Oil #4 (gal)	\$/gal	0 @ 1.65

Use Default Rates

Carbon Deductions

Solar PV (kWh) 0

carbon
cost

Annual Carbon Threshold Summary

	2024-2029	2030-2034	2035-2039	2040-2049	
Emissions (tCO _{2e} /yr)	949	835	835	835	835
Threshold (tCO _{2e} /yr)	862	403	322	244	0
Est Penalty (\$/yr)	\$23,511	\$115,954	\$137,462	\$158,497	\$223,851

units: absolute | normalized | group | summary | end uses

source: [NYC DOB Sustainability Compliance Maps](#)

Find Your Building

- About Loaded Building
- About This Calculator
- Load Sample Building

LL97 carbon emissions calculator is another tool that give access to LL97 compliance data. The snapshot tool on the right is defaulted to 2023 reporting, whereas we can choose the year and set a variety of values in the calculator.



nyc LL97 carbon emissions calculator

find your building

Building Inputs

Building Input: Office, Area (SF): 0

Utility Inputs

Electricity (kWh): 0, \$/kWh: 0.22

Natural Gas (therms): 0, \$/therm: 0.997

Steam (mLbs): 0, \$/mlb: 35

Fuel Oil #2 (gal): 0, \$/gal: 1.65

Fuel Oil #4 (gal): 0, \$/gal: 1.65

Use Default Rates

Carbon Deductions

Solar PV (kWh): 0

Load LL84 Building Info

This form queries NYC's "Energy and Water Data Disclosure" database to load building characteristics and utility information.

To find your building, select reporting year, then input BBL ID number, property name, or address.

2025 (cal year 2024) | 1006127504

Property Name	Address	NYC BBL	NYC BIN	1st Property Type	2nd Property Type	3rd Property Type
15 Charles at Waverly Place Condominium (15 Charles Street)	15 Charles Street	1006127504	1010899	Multifamily Housing	Parking	Restaurant

LOAD

source: [NYC DOB Sustainability Compliance Maps](#)

LL97 carbon emissions calculator. Reporting year and a variables related to type and amount of energy used taken from utility data are accessible and adjustable.



nyc LL97
carbon emissions
calculator

15 Charles at Waverly Place Condominium (15 Charles

LL84 2025 (calendar year 2024)

📘 🖨️ ☰

Building Inputs

Building Input	Area (SF)	
1 Multifamily ...	114,707	X
2 Parking	8,983	X
3 Restaurant	4,158	X

+ Add Building Type

Utility Inputs

Electricity (kWh)	\$/kWh	792,674	0.22
Natural Gas (therms)	\$/therm	135,628	0.997
Steam (mLbs)	\$/mlb	0	35
Fuel Oil #2 (gal)	\$/gal	0	1.65
Fuel Oil #4 (gal)	\$/gal	0	1.65

Use Default Rates

Carbon Deductions

Solar PV (kWh)

carbon
cost

Annual Carbon Threshold Summary

	2024-2029	2030-2034	2035-2039	2040-2049	2050-
Emissions (tCO2e/yr)	949	835	835	835	835
Threshold (tCO2e/yr)	862	403	322	244	0
Est Penalty (\$/yr)	\$23,511	\$115,954	\$137,462	\$158,497	\$223,851

■ Carbon Below Threshold
■ Carbon Over Threshold

units
absolute
normalized
group
summary
end uses

source: [NYC DOB Sustainability Compliance Maps](#)

LL97 carbon emissions calculator. We can choose the year and set a variety of variables related to type and amount of energy used.



15 Charles at Waverly Place Condominium (15 Charles)

LL84 2025 (calendar year 2024)



nyc LL97
carbon emissions
calculator

Building Inputs

Building Input	Area (SF)	
1 Multifamily ...	114,707	x
2 Parking	8,983	x
3 Restaurant	4,158	x

+ Add Building Type

Utility Inputs

Electricity (kWh)	\$/kWh	792,674	0.22
Natural Gas (therms)	\$/therm	135,628	0.997
Steam (mLbs)	\$/mlb	0	35
Fuel Oil #2 (gal)	\$/gal	0	1.65
Fuel Oil #4 (gal)	\$/gal	0	1.65

Use Default Rates

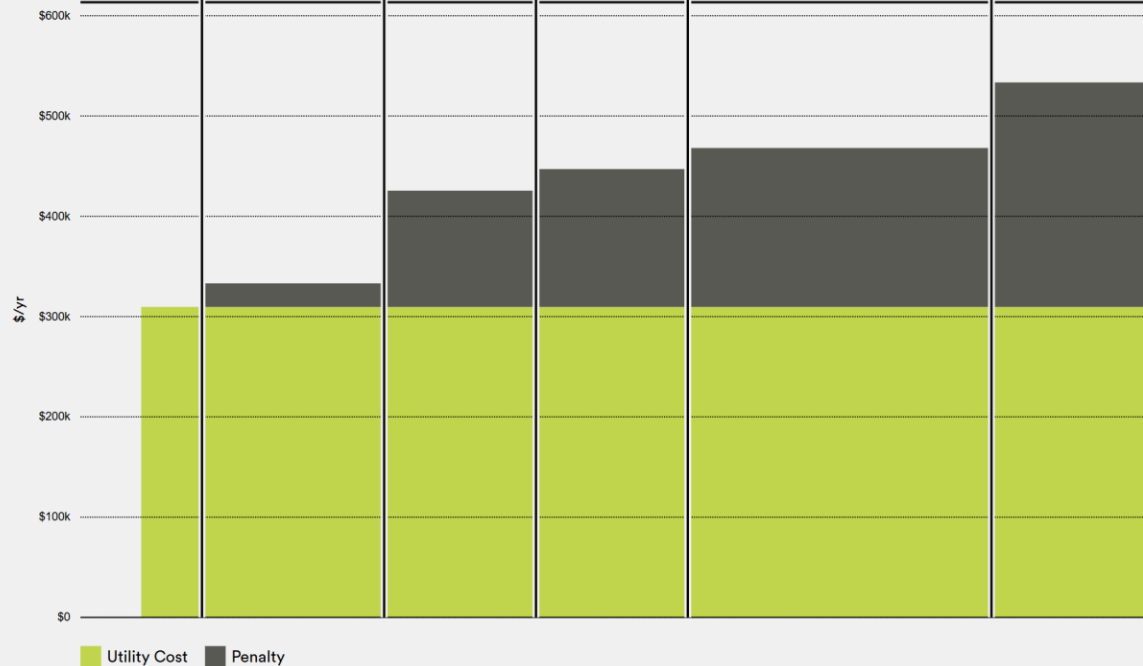
Carbon Deductions

Solar PV (kWh) 0

carbon **cost**

Annual Cost Summary

	2024-2029	2030-2034	2035-2039	2040-2049	2050-
Utility Cost (\$/yr)	\$309,609	\$309,609	\$309,609	\$309,609	\$309,609
Est Penalty (\$/yr)	\$23,511	\$115,954	\$137,462	\$158,497	\$223,851
Total Cost (\$/yr)	\$333,120	\$425,564	\$447,071	\$468,107	\$533,461



units absolute normalized group summary end uses

source: [NYC DOB Sustainability Compliance Maps](#)

LL97 carbon emissions calculator. Reporting year and a variables related to type and amount of energy used taken from utility data are accessible and adjustable.



nyc LL97
carbon emissions
calculator

15 Charles at Waverly Place Condominium (15 Charles

LL84 2025 (calendar year 2024)

📘 🖨️ ☰

Building Inputs

Building Input	Area (SF)	
1 Multifamily ...	114,707	X
2 Parking	8,983	X
3 Restaurant	4,158	X

+ Add Building Type

Utility Inputs

Electricity (kWh)	\$/kWh	792,674	0.22
Natural Gas (therms)	\$/therm	135,628	0.997
Steam (mLbs)	\$/mlb	0	35
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Fuel Oil #4 (gal)	\$/gal	0	1.65

Use Default Rates

Carbon Deductions

Solar PV (kWh)

carbon
cost

Annual Carbon Threshold Summary

	2024-2029	2030-2034	2035-2039	2040-2049	2050-
Emissions (tCO2e/yr)	949	835	835	835	835
Threshold (tCO2e/yr)	862	403	322	244	0
Est Penalty (\$/yr)	\$23,511	\$115,954	\$137,462	\$158,497	\$223,851

■ Carbon Below Threshold
 ■ Carbon Over Threshold

source: [NYC DOB Sustainability Compliance Maps](#)

units
absolute
normalized
group
summary
end uses

LL97 carbon emissions calculator. Reporting year and a variables related to type and amount of energy used taken from utility data are accessible and adjustable.



15 Charles at Waverly Place Condominium (15 Charles)

manual user input

nyc LL97 carbon emissions calculator

Building Inputs

Building Input	Area (SF)	
1 Multifamily ...	114,707	X
2 Parking	8,983	X
3 Restaurant	4,158	X

Utility Inputs

Utility Input	Value	Unit
Electricity (kWh)	792,674	\$/kWh
Natural Gas (therms)	100,000	\$/therm
Steam (mLbs)	0	\$/mlb
Fuel Oil #2 (gal)	0	\$/gal
Fuel Oil #4 (gal)	0	\$/gal

Use Default Rates

Carbon Deductions

Solar PV (kWh)	0
----------------	---

carbon
cost

Annual Carbon Threshold Summary

	2024-2029	2030-2034	2035-2039	2040-2049	2050-
Emissions (tCO _{2e} /yr)	760	646	646	646	646
Threshold (tCO _{2e} /yr)	862	403	322	244	0
Est Penalty (\$/yr)	\$0	\$65,243	\$86,751	\$107,786	\$173,140

■ Carbon Below Threshold ■ Carbon Over Threshold

units: absolute normalized
group: summary end uses

source: [NYC DOB Sustainability Compliance Maps](#)

LL97 carbon emissions calculator. Reporting year and a variables related to type and amount of energy used taken from utility data are accessible and adjustable.

Does this Building Suck (Energy)?:
Decoding Building Performance with Open Data

Energy data

history

buildings & energy

standards

NYC laws

NYC building data

NYC tools

examples

SaME Lab datasets

Other cities

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School of Architecture
& Design



Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

Energy data

- history
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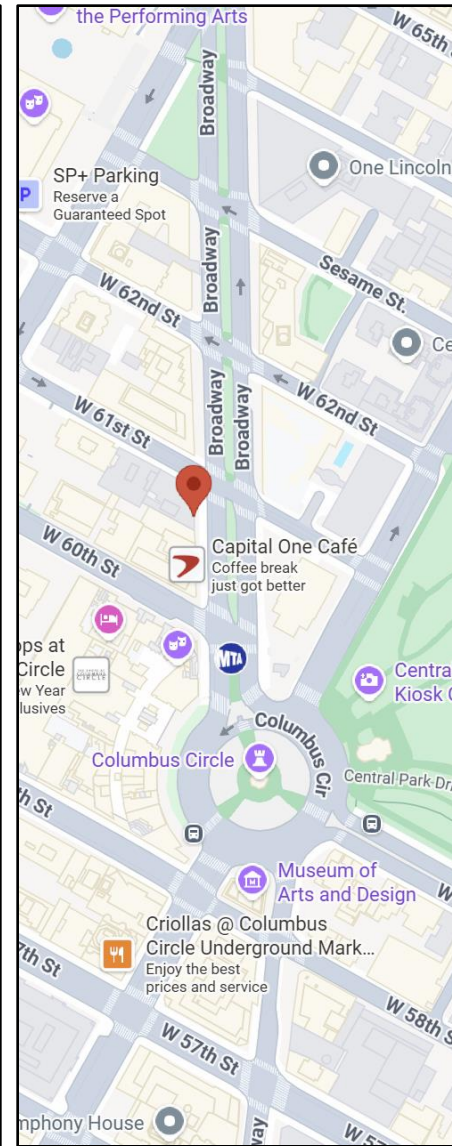
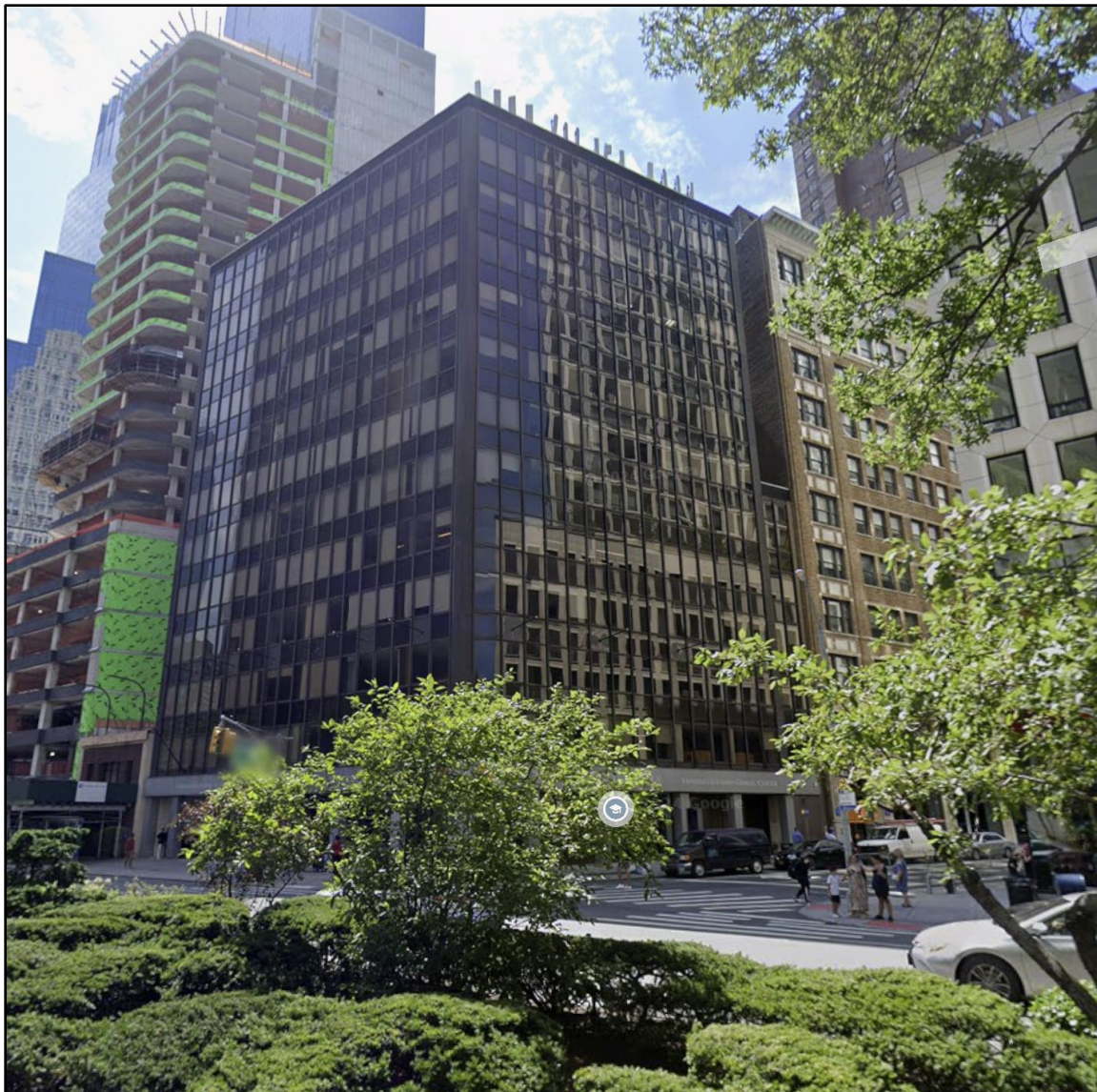
NYC building data

- NYC tools
- examples

- SaME Lab datasets

Other cities

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1855 Broadway, Manhattan. NYIT Columbus Circle campus. Constructed: 1905 (?)

Does this Building Suck (Energy)?
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Cross Street(s)	DOB Special Place Name	Tax Block	Tax Lot
WEST 60 STREET, WEST 61 STREET		1113	47
	Community Board 07	Condo NO	Buildings on Lot 1
Vacant NO	Health Area 4600	Census Tract 145	DOB Building Remarks
Landmark Status			
Special Status N/A	Local Law NO	Loft Law NO	SRO Restricted NO
TA Restricted	UB Restricted NO	Environmental Restrictions N/A	Grandfathered Sign NO
Legal Adult Use NO	City Owned NO	Additional BINs for Building NONE	Special District L - LINCOLN SQUARE

Source: [NYC DOB NOW](#)

Does this Building Suck (Energy)?:
Decoding Building Performance with Open Data

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2025 NYC Benchmarking Law Covered Buildings List for 2024 calendar year data submissions - Required to comply													
10 Digit DBL	Required to report automated water data from DEP? Y/N	Boro	Block	Lot	Esmt	Building Class	Tax Class	Building Count	DOF Gross Square Footage	Street Number	Street Name	Zip Code	Multiple Buildings on a tax lot with one over 25,000 Gross Square Footage
1010990021	YES	1	1099	21		O3	4	2	121,638	609	WEST 51 STREET	10019	
1011020011	YES	1	1102	31		G8	4	1	152,375	760	JOE DIMAGGIO HIGHWAY	10019	
1011020018	NO	1	1102	18		O6	4	1	320,116	619	W. 54TH ST.	10019	
1011027501	NO	1	1102	7501		R0	2	1	459,112	787	11TH AVE.	10019	
1011030015	YES	1	1103	15		K2	4	1	95,176	625	W. 55TH ST.	10019	
1011030041	YES	1	1103	41		G8	4	1	38,600	614	W. 56TH ST.	10019	
1011030044	NO	1	1103	44		V6	4	1	79,969	786	JOE DIMAGGIO HIGHWAY	10019	
1011040001	YES	1	1104	1		V6	4	1	167,700	800	JOE DIMAGGIO HIGHWAY	10019	
1011040031	YES	1	1104	31		O7	2	1	1,192,139	827	11TH AVE.	10019	
1011047501	YES	1	1104	7501		R0	2	1	163,321	611	WEST 56TH STREET	10019	
1011050036	YES	1	1105	36		O6	4	1	143,128	600	W. 58TH ST.	10019	
1011057501	YES	1	1105	7501		R0	2	1	978,663	625	W. 57TH ST.	10019	
1011070012	YES	1	1107	12		T2	4	1	403,125		WEST 48 STREET	0	
1011070021	NO	1	1107	21		T2	4	1	94,500	555	12 AVENUE	10036	
1011090015	NO	1	1109	15		T2	4	1	84,000	801	12TH AVE.	10019	
1011090020	NO	1	1109	20		T2	4	2	235,412		WEST 57 STREET	0	
1011090099	NO	1	1109	99		T2	4	1	48,200		WEST 59 STREET	0	
1011091000	NO	1	1109	100		T9	4	1	75,562	755	12TH AVENUE	10019	
1011100001	NO	1	1111	1		Q1	4	29	34,025	1000	5TH AVE.	10028	
1011130001	YES	1	1113	1		O8	2	1	408,644	45	W. 60TH ST.	10023	
1011130008	YES	1	1113	8		O3	4	1	134,102	27	W. 60TH ST.	10023	
1011130018	NO	1	1113	18		O6	2	1	184,411	1841	BROADWAY	10023	
1011130047	YES	1	1113	47		V6	4	1	78,200	1855	BROADWAY	10023	
1011130052	YES	1	1113	52		V6	4	1	62,500	20	W. 61ST ST.	10023	
1011137501	NO	1	1113	7501		R0	2	1	244,100	30	W. 61ST ST.	10023	
1011137502	YES	1	1113	7502		R0	2	1	618,334	1	CENTRAL PARK W.	10023	
1011137503	NO	1	1113	7503		R0	2	1	77,164	17	WEST 60TH STREET	10023	
1011140061	YES	1	1114	61		O4	2	1	247,113	44	W. 62ND ST.	10023	
1011147501	YES	1	1114	7501		R0	2	1	197,400	41	COLUMBUS AVENUE	10023	
1011147502	YES	1	1114	7502		R0	2	1	164,080	62	W. 62ND ST.	10023	
1011147503	NO	1	1114	7503		R0	2	2	837,002	15	CENTRAL PARK W.	10023	
1011147504	YES	1	1114	7504		R0	2	1	346,483	15	W. 61ST ST.	10023	
1011150057	YES	1	1115	57		H1	4	1	217,283	1889	BROADWAY	10023	
1011157501	NO	1	1115	7501		R0	2	1	621,304	25	CENTRAL PARK W.	10023	
1011157502	NO	1	1115	7502		R0	2	1	318,448	61	W. 62ND ST.	10023	
1011157503	YES	1	1115	7503		R0	2	1	687,320	30	W. 63RD ST.	10023	
1011160024	NO	1	1116	24		P3	4	1	249,575	3	WEST 63 STREET	10023	
1011160029	YES	1	1116	29		W3	4	1	75,440	33	CENTRAL PARK W.	10023	
1011167501	NO	1	1116	7501		R0	2	1	1,187,491	20	W. 64TH ST.	10023	
1011167502	NO	1	1116	7502		R0	2	1	205,665	15	W. 63RD ST.	10023	
1011170001	NO	1	1117	1		O7	2	1	377,564	1930	BROADWAY	10023	
1011170014	YES	1	1117	14		O7	2	1	37,778	35	W. 64TH ST.	10023	

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source: [NYC DOB CODES](#)

Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

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NYC Department of Buildings
DOB Violation Display for 120124EGRADE2400272

Premises: 1851 BROADWAY MANHATTAN | BIN: 1027193 | Block: 1113 | Lot: 47

Issue Date: 12/01/2024 | Violation Category: V* - DOB VIOLATION - DISMISSED

Violation Type: EGRADE - FAILURE TO POST ENERGY GRADE/SCORE

Violation Number: 2400272 | Device No.:

OATH/ECB No.:

Infraction Codes:

Description: FAILURE TO DISPLAY ENERGY EFFICIENCY SCORE AND ENERGY EFFICIENCY GRADE AS PER AD CODE SEC. 28-309.12.3

Disposition: Code: D - DISMISSED | Date: 04/24/2025

Inspector:

Comments: CIANOW CRM Violation Dismissed

NYC Department of Buildings
DOB Violations

Elevator violations for failure to file Periodic, Category 1, Category 5 and Affirmation of Correction issued in August 2023 or later are only available in DOB NOW: Safety. Search the [DOB NOW public portal](#) for these records.

Boiler violations for failure to file internal and external inspection reports and affirmation of correction issued in November 2023 or later are only available in DOB NOW: Safety. Search the [DOB NOW public portal](#) for these records.

Benchmark and AEUHAZ violations for failure to file an acceptable Certificate of Correction (COC) for a Class 1 summons issued in December 2025 or later are only available in DOB NOW: Safety. Search the [DOB NOW public portal](#) for these records.

Page: 4

Premises: 1851 BROADWAY MANHATTAN | BIN: 1027193 | Block: 1113 | Lot: 47

NUMBER	TYPE	FILE DATE
V* 090619ACC101919	DOB VIOLATION - DISMISSED	09/06/2019
V* 010820IMEGNY14229	DOB VIOLATION - DISMISSED	01/08/2020
V* 062920EARCX00135	DOB VIOLATION - DISMISSED	06/29/2020
V* 040919E9028/649594	DOB VIOLATION - RESOLVED	04/09/2019
V* 040919E9028/649592	DOB VIOLATION - RESOLVED	04/09/2019
V* 062021EARCX00182	DOB VIOLATION - DISMISSED	06/20/2021
V* 060122BENCH00158	DOB VIOLATION - DISMISSED	06/01/2022
V* 082122EARCX00968	DOB VIOLATION - DISMISSED	08/21/2022
V* 080222BENCH00092	DOB VIOLATION - DISMISSED	08/02/2022
V* 120122EGRADE2200258	DOB VIOLATION - DISMISSED	12/01/2022
V* 042223EARCX00012	DOB VIOLATION - DISMISSED	04/22/2023
V* 050224BENCH00202	DOB VIOLATION - DISMISSED	05/02/2024
V* 062324EARCX10054	DOB VIOLATION - ACTIVE	06/23/2024
V* 080224BENCH00102	DOB VIOLATION - DISMISSED	08/02/2024
V* 022224FISPNRF00212	DOB VIOLATION - DISMISSED	02/22/2024
V* 120124EGRADE2400272	DOB VIOLATION - DISMISSED	12/01/2024

source: [NYC DOB Building Information Search](#)

DOB NOW
NYC Department of Buildings Self-service for online Permits, Appointments and Applications

Property Profile

1855 BROADWAY | MANHATTAN 10023 | BIN# 1027193

Penalties Owed

Building Schedule of Occupancy

Certificate of Occupancy

Certificate of Compliance

Active Tenant Problem Plans

Alter Hour Variance

Energy Submission

Left Board Submission

Notifications

Energy Efficiency Rating (Local Law 33 of 2018)

DOB NOW
NYC Department of Buildings Self-service for online Permits, Appointments and Applications

1851 BROADWAY | MANHATTAN | BIN# 1027193

Total Active Violations: 2 | Total Civil Penalties Due: \$6,000.00

Compliance Type: All | Violation Type: All

2 Total Active Violations | \$6,000.00 Total Civil Penalties Due

Print | Modify Search

For a complete list of the violations on a property, also search the Buildings Information System (BIS). OATH/ECB violations and some DOB violations are only in BIS and are not found in DOB NOW.

If a civil penalty is due, pay or request a challenge/waiver for the violation by selecting the Home button. Then enter your email and Login to DOB NOW: Safety. Once logged in, select Violations & Notices of Deficiency and then +Violations Payments.

Retro-Commissioning - LL87

Violation #	BIN	Compliance Type	Violation Status	Civil Penalty Due
123113EARCX00057	1027193	Retro-Commissioning - LL87	Active	\$3,000.00
062324EARCX10054	1027193	Retro-Commissioning - LL87	Active	\$3,000.00

Source: [NYC DOB NOW](#)

1855 Broadway. ... circling back to DOB NOW, we find penalties for non-compliance under LL87 which requires periodic energy audits but the related LL33 violation is dismissed...

Does this Building Suck (Energy)??: Decoding Building Performance with Open Data

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Sustainability Compliance Maps

LL97 | GHG Emission LL33 | Energy Grades

Local Law 33 Compliance - 2022

BBL: 1011130047

Borough: MANHATTAN

Block: 1113

Lot: 47

Address: 1855 BROADWAY

Number of Buildings: 1

Gross Square Footage: 78200

Building Class: W6

Tax Class: 0

Energy Efficiency Score: F/-

1855 Broadway, New York City, ...

ENERGY EFFICIENCY SCORE

- A: ENERGY STAR RATING \geq 85
- B: ENERGY STAR RATING \geq 70 AND $<$ 85
- C: ENERGY STAR RATING \geq 55 AND $<$ 70
- D: ENERGY STAR RATING $<$ 55
- F: REQUIRED BENCHMARKING INFORMATION NOT SUBMITTED

Source: [NYC Sustainability Compliance](#)

DOB NOW
NYC Department of Buildings Self-service for online Permits, Appointments and Applications

Property Profile

1855 BROADWAY | MANHATTAN 10023 | BIN# 1027193

Penalties Owed

Energy Efficiency Rating (Local Law 33 of 2018)

DOB NOW
NYC Department of Buildings Self-service for online Permits, Appointments and Applications

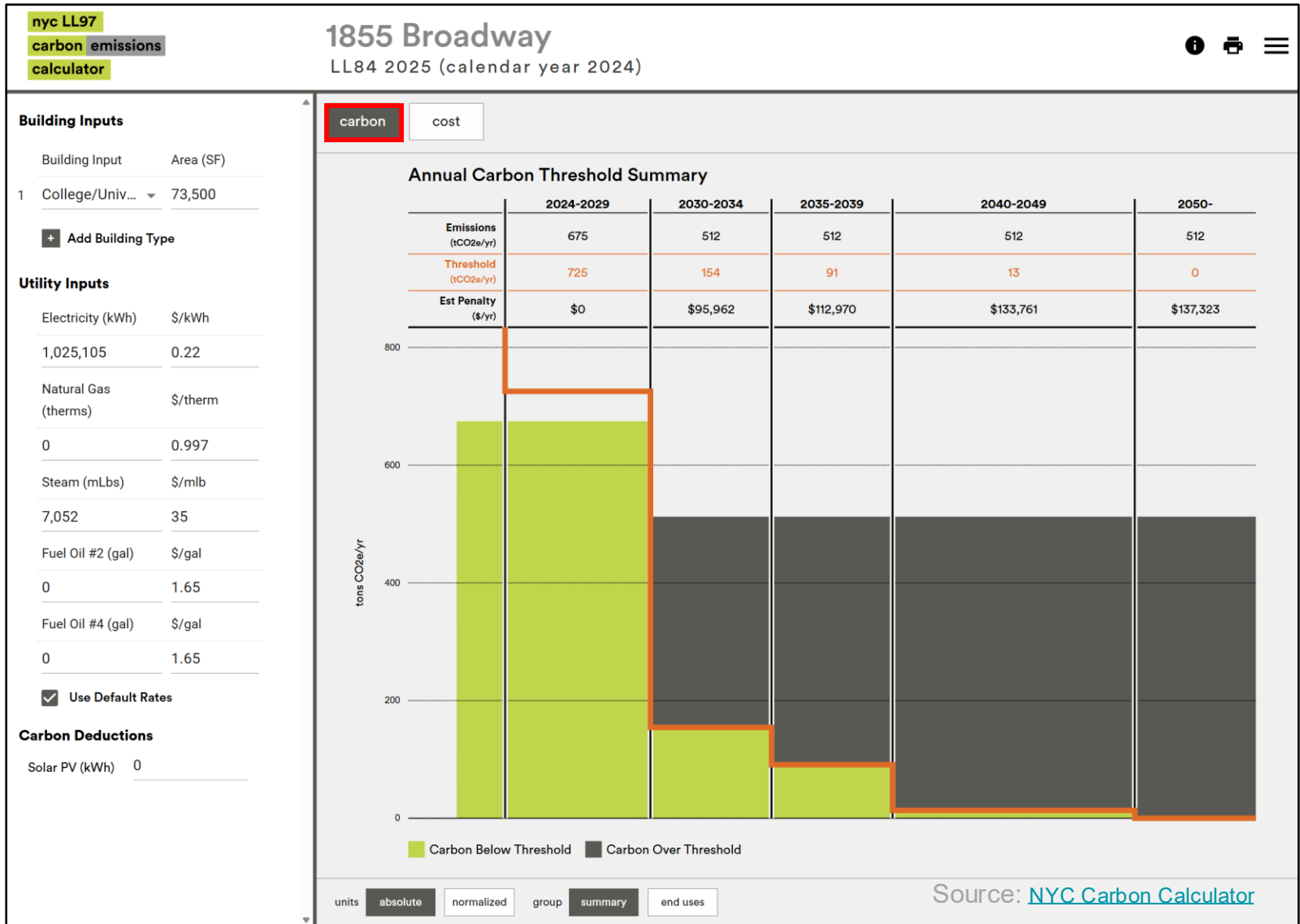
1851 BROADWAY | MANHATTAN | BIN# 1027193

Total Active Violations: 2 | Total Civil Penalties Due: \$6,000.00

Violation #	BIN	Compliance Type	Violation Status	Civil Penalty Due
123113EARCX00057	1027193	Retro-Commissioning - LL87	Active	\$3,000.00
062324EARCX10054	1027193	Retro-Commissioning - LL87	Active	\$3,000.00

Source: [NYC DOB NOW](#)

1855 Broadway. ... regardless, the LL33 map says the building is violating the energy grade display rule.



1855 Broadway. In any case, the building is in pretty good shape as it has passed the initial 5 year period of LL97 compliance without a fine.

Does this Building Suck (Energy)??: Decoding Building Performance with Open Data

Energy data

history
buildings & energy
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NYC laws

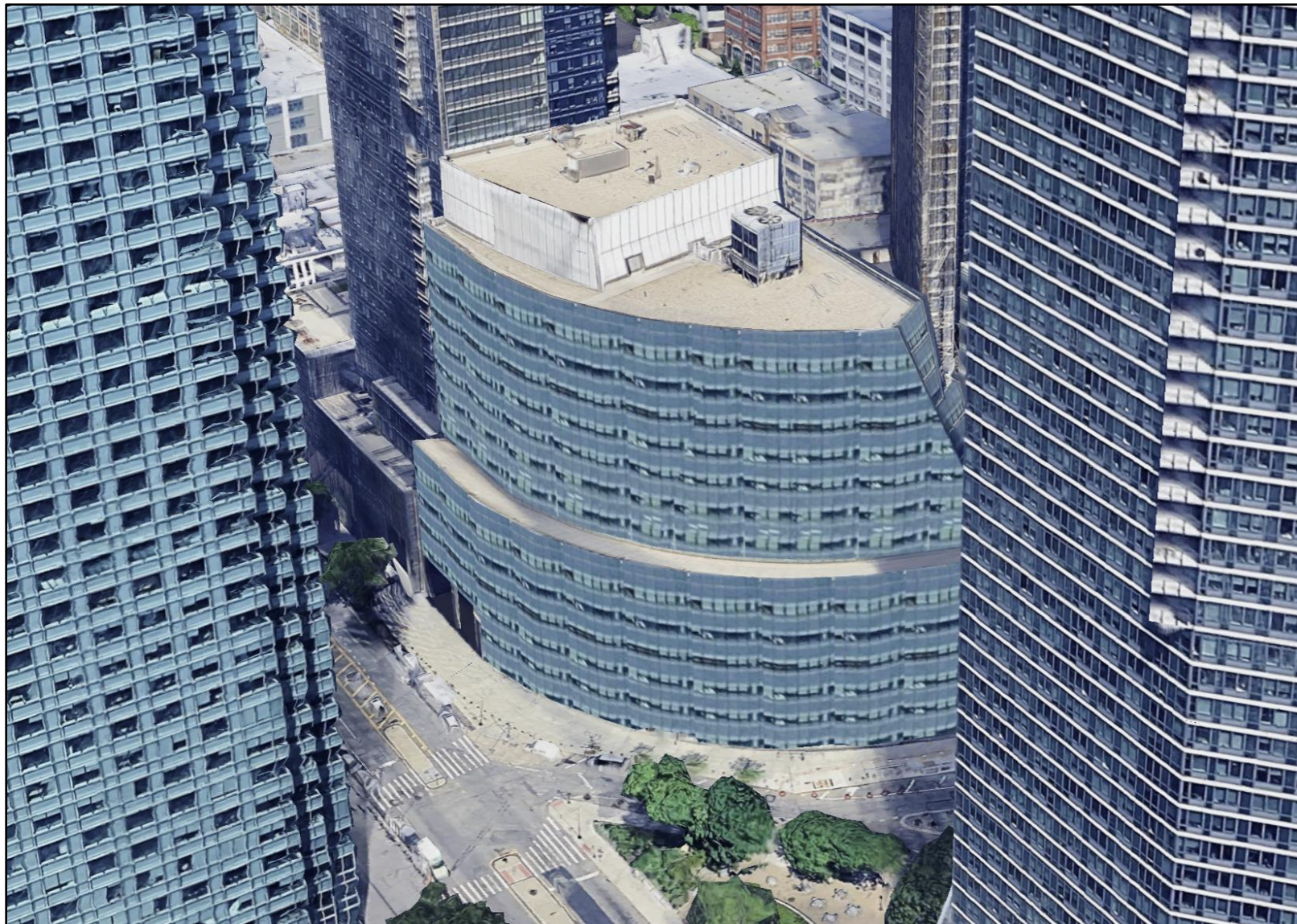
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Does this Building Suck (Energy)??: Decoding Building Performance with Open Data

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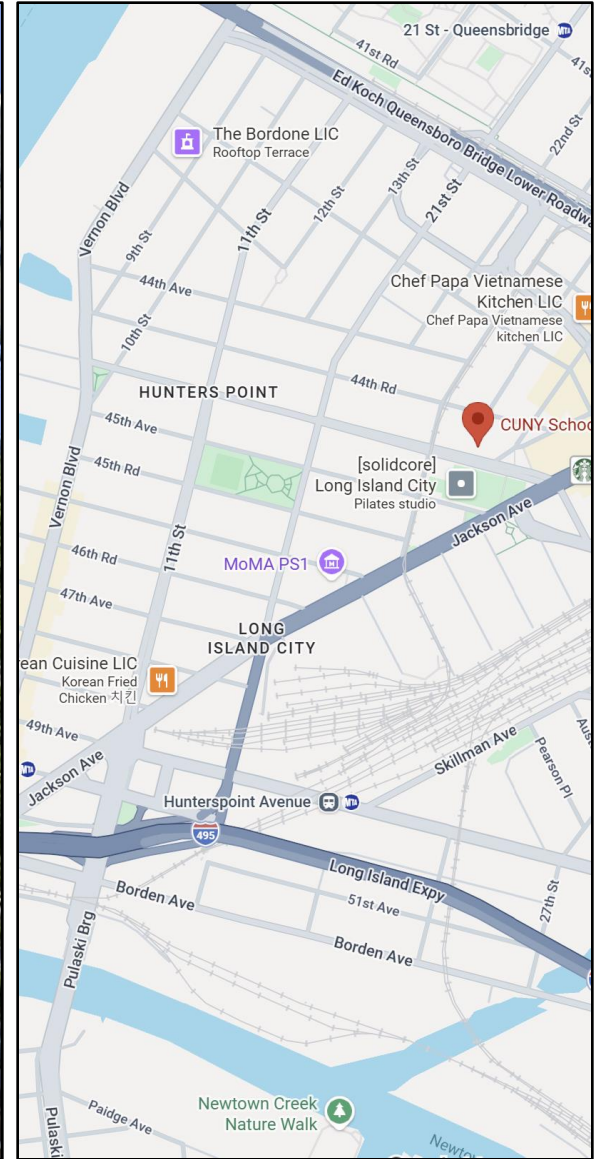
NYC building data

NYC tools examples

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2 Court Square, Queens. CUNY School of Law. Constructed: 2007

Does this Building Suck (Energy)??: Decoding Building Performance with Open Data

Energy data history buildings & energy standards NYC laws

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DOB NOW
 NYC Department of Buildings Self-service for online Permits, Appointments and Applications

Property Profile

23-29 44 DRIVE | QUEENS 11101 | BIN# 4539429

Penalties Owed | Building Schedule of Occupancy | Certificate of Occupancy | Certificate of Compliance

Active Tenant Protection Plans | After Hour Variance | Energy Submission | Loft Board Submission | Notifications

Energy Efficiency Rating (Local Law 33 of 2018)
 Grade: A | Score: 85

Sustainability Compliance Maps

LL97 | GHG Emission LL33 | Energy Grades

Local Law 33 Compliance - 2022

BBL: 4004377501
 Borough: QUEENS
 Block: 437
 Lot: 7501
 Address: 23-21 44 DRIVE
 Number of Buildings: 1
 Gross Square Footage: 524274
 Building Class: RB
 Tax Class: 2
 Energy Efficiency Score: F/-

ENERGY EFFICIENCY SCORE

A: ENERGY STAR RATING >= 85
 B: ENERGY STAR RATING >= 70 AND < 85
 C: ENERGY STAR RATING >= 55 AND < 70
 D: ENERGY STAR RATING < 55
 F: REQUIRED BENCHMARKING INFORMATION NOT SUBMITTED

Sustainability Compliance Maps

LL97 | GHG Emission LL33 | Energy Grades

Local Law 33 Compliance - 2020

BBL: 4004377501
 Borough: QUEENS
 Block: 437
 Lot: 7501
 Address: 23-21 44 DRIVE
 Number of Buildings: 1
 Gross Square Footage: 524274
 Building Class: R0
 Tax Class: 2
 Energy Efficiency Score: A/96

ENERGY EFFICIENCY SCORE

A: ENERGY STAR RATING >= 85
 B: ENERGY STAR RATING >= 70 AND < 85
 C: ENERGY STAR RATING >= 55 AND < 70
 D: ENERGY STAR RATING < 55
 F: REQUIRED BENCHMARKING INFORMATION NOT SUBMITTED

Source: [NYC Sustainability Compliance](#)

2009 (85), 2010 (89), 2011 (93), 2012 (89), 2013 (83), 2014 (84), 2015 (86), 2016 (86), 2017 (90), 2018 (79), 2019 (81), 2020 (82), 2021 (75), 2023 (75), 2024 (87)

2 Court Square, Queens. Energy star scores are based on energy consumption, so could vary year to year. In this case it looks like the building did not submit benchmarking data in 2022 and was fined.



Copy of NE - COURT SQUARE II

LL84 2025 (calendar year 2024)

nyc LL97
carbon emissions
calculator

📘 🖨️ ☰

Building Inputs

Building Input	Area (SF)	
1 Office	365,765	X
2 College/Univ...	90,489	X

+ Add Building Type

Utility Inputs

Electricity (kWh)	\$/kWh	
6,646,589	0.22	
Natural Gas (therms)	\$/therm	
50,753	0.997	
Steam (mLbs)	\$/mlb	
0	35	
Fuel Oil #2 (gal)	\$/gal	
2,740	1.65	
Fuel Oil #4 (gal)	\$/gal	
0	1.65	

Use Default Rates

Carbon Deductions

Solar PV (kWh)	0
----------------	---

carbon
cost

Annual Carbon Threshold Summary

	2024-2029	2030-2034	2035-2039	2040-2049	2050-
Emissions (tCO ₂ e/yr)	2,218	1,261	1,261	1,261	1,261
Threshold (tCO ₂ e/yr)	3,666	1,174	716	229	0
Est Penalty (\$/yr)	\$0	\$23,372	\$146,111	\$276,638	\$338,064

■ Carbon Below Threshold
 ■ Carbon Over Threshold

units
absolute
normalized
group
summary
end uses

Source: [NYC Sustainability Compliance](#)

2 Court Square, Queens. Carbon calculator shows the building to have easily met the 2024 LL97 benchmark and to be very close to the 2030 mark without renovation.

Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

Energy data

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NYC building data

NYC tools examples

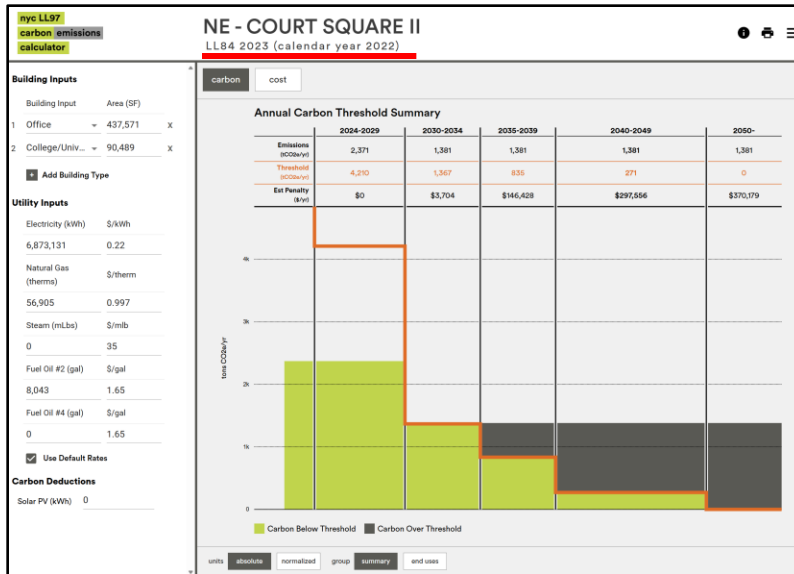
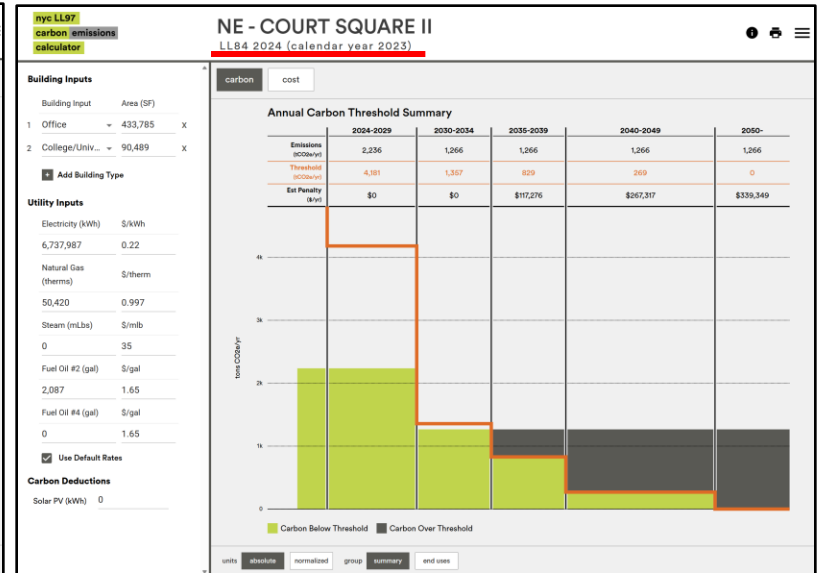
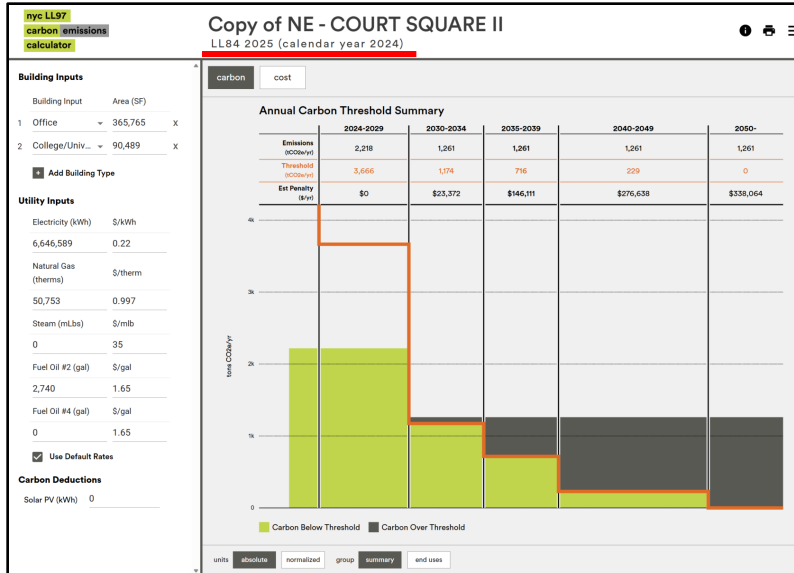
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Source: [NYC Sustainability Compliance](#)

2 Court Square, Queens. Three years of reporting show consistent but slightly varying carbon totals doing to fluctuations in energy use. Pretty cool that we have public access to such nuanced building data.

Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

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- standards
- NYC laws

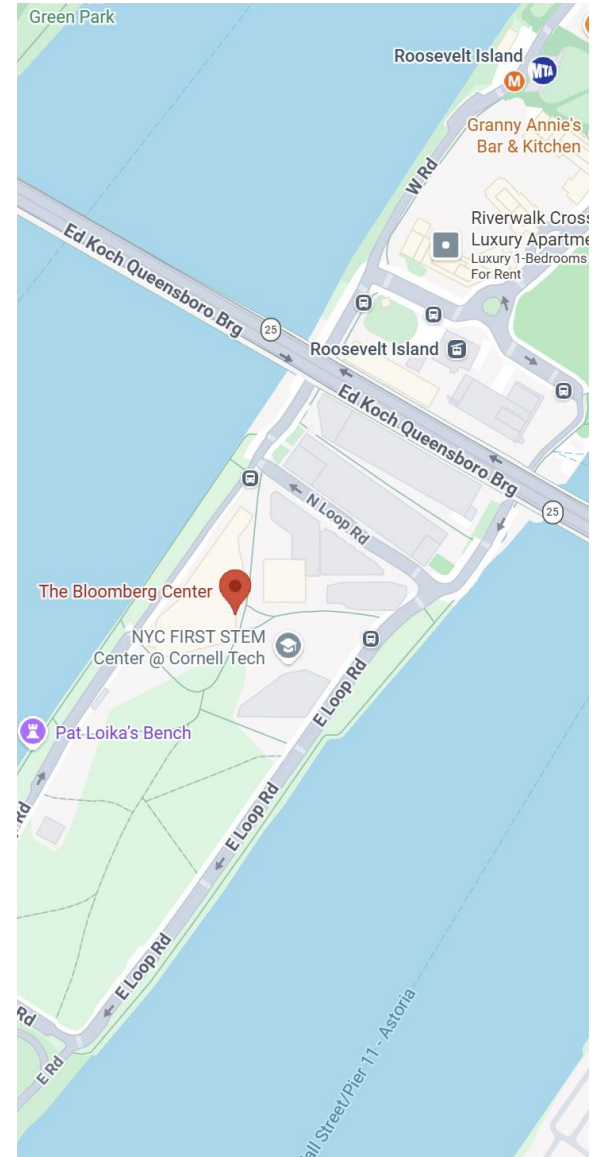
NYC building data

- NYC tools
- examples

- SaME Lab datasets

Other cities

- Academia
- lit review
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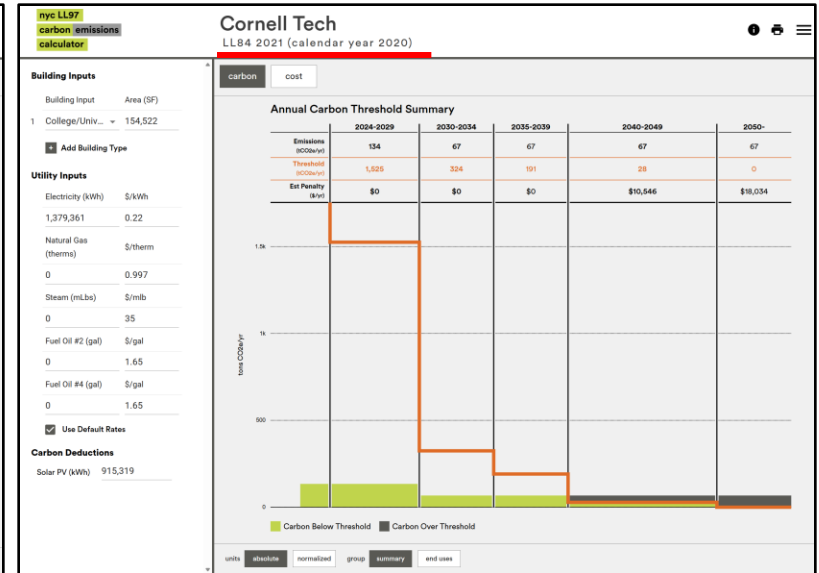
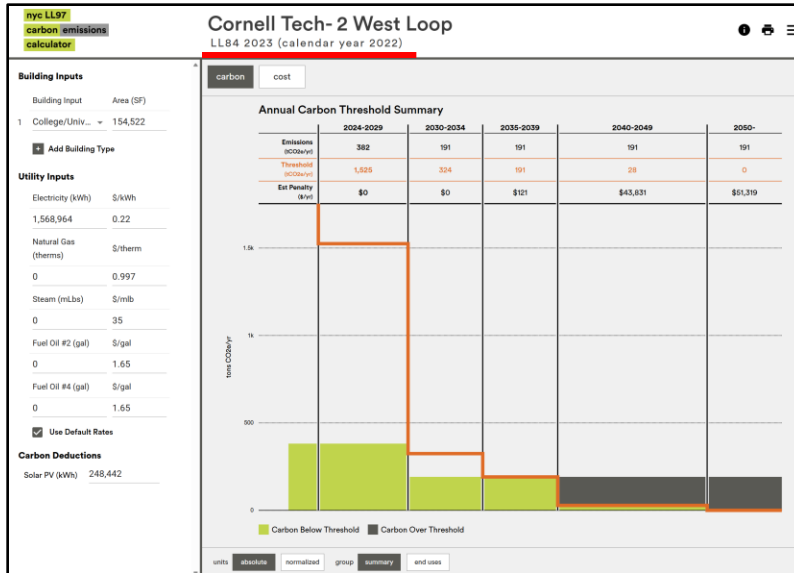
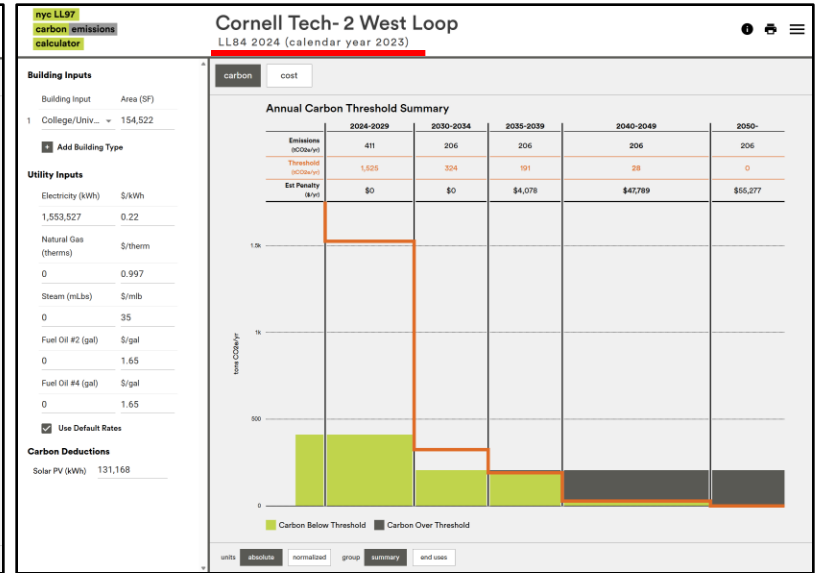
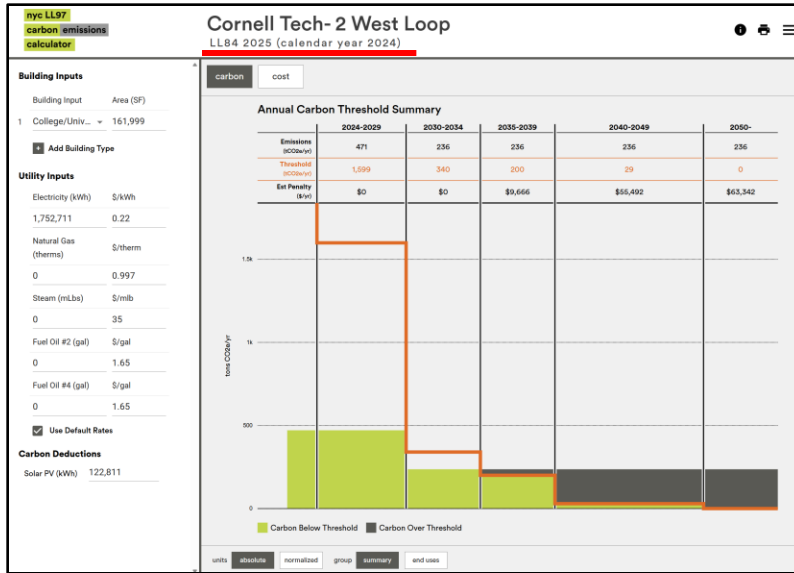
Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

Energy data
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NYC laws

NYC building data
NYC tools examples

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Source: [NYC Sustainability Compliance](https://nycsustainability.compliance.com)

2 W Loop Rd, Manhattan. Very low energy building that meets NZE standards. Interesting that energy usage has gone up in the last few years.

Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

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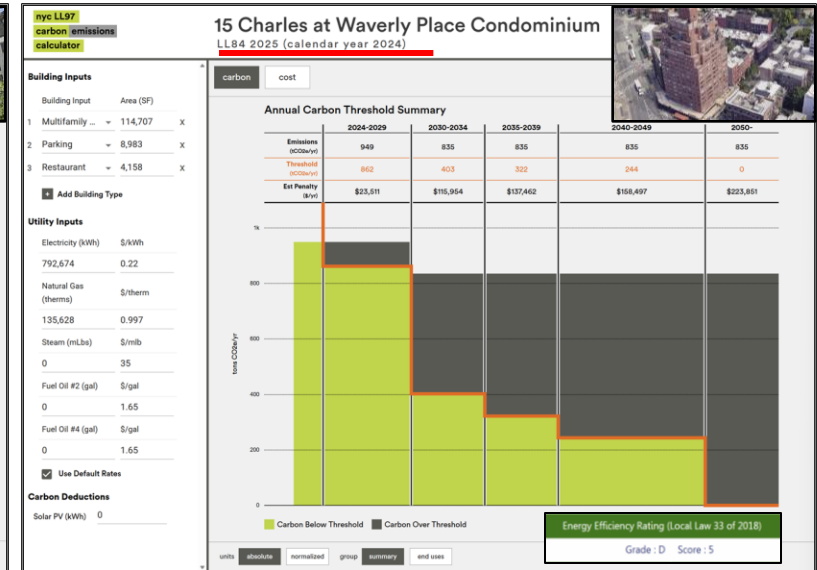
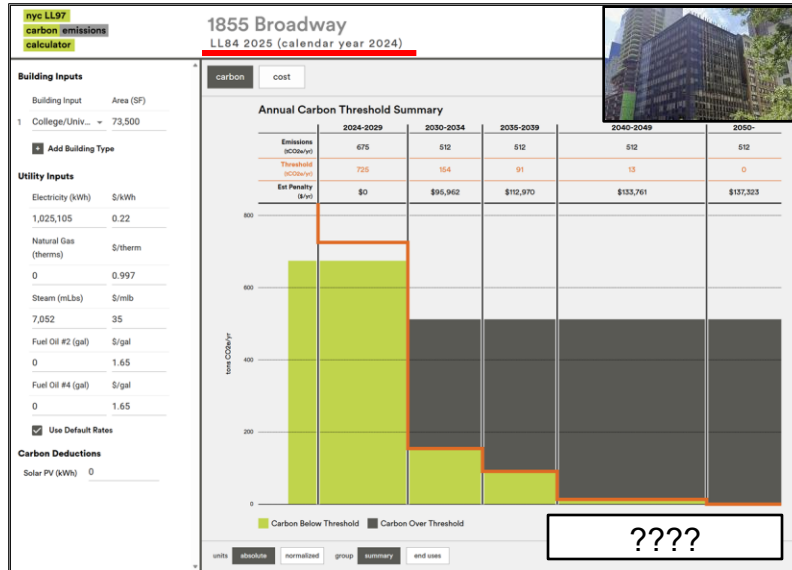
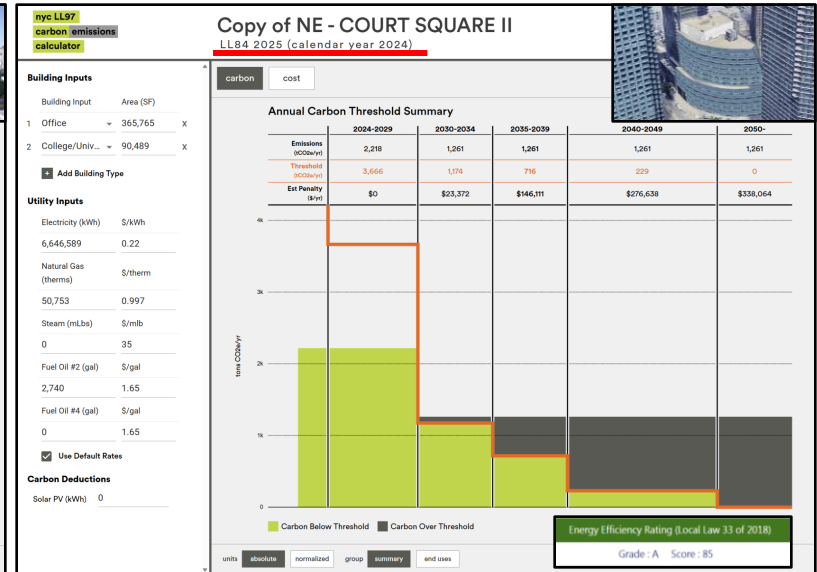
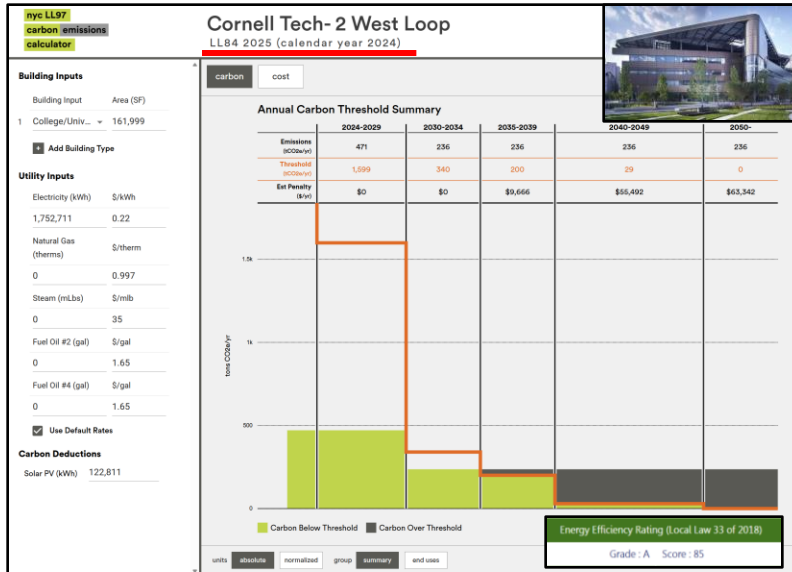
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Source: [NYC Sustainability Compliance](#)

Comparison of building energy profiles. The out of the box graphics are pretty good and allow for quick comparisons.

Does this Building Suck (Energy)??: Decoding Building Performance with Open Data

Open Data Drives the Machine:

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NYC Building Energy and Water Data Disclosure for Local Law 84 2023 to Present (Data for Calendar Year 2022-Present)
Environment

Local Law 84 of 2009 (LL84) requires annual energy and water benchmarking data to be submitted by owners of buildings with more than 50,000 square feet. This data is collected via the Environmental Protection Agency's (EPA) [Portfolio Manager website](#)

... [Read more](#)

Last Updated
November 25, 2025

Data Provided By
Department of Buildings (DOB)

About this Dataset

Updated
November 25, 2025

Data Last Updated: November 25, 2025 | Metadata Last Updated: November 25, 2025

Date Created
August 10, 2023

Views: **40K** | Downloads: **32.8K**

Data Provided by: Department of Buildings (DOB) | Dataset Owner: NYC OpenData

Data Collection

Data Collection: Local Law 84

Dataset Information

Agency: Department of Buildings (DOB)

Update

Update Frequency: Annually
Data Change Frequency: Annually
Automation: No
Date Made Public: 08/30/2023

Attachments

[NYC_BuildingEnergyWaterData_LocalLaw84_DataDictionary.xlsx](#)

Topics

Category: Environment

Tags: [local law 84](#), [local law 97](#), [energy benchmarking](#), [buildings](#), [gghp](#), [greener greater buildings plan](#), [water](#), [ghg](#), [emissions](#), [electricity](#), [natural gas](#), [steam](#), [heating oil](#), [fuel oil](#)

Change on October 1, 2024 3:56 PM EDT

Published by [afinkel](#) a year ago

Dataset Schema Changes
1 column update

The following columns were updated

- Changes to column Report Year
display name changed from Report Year to Calendar Year

Change on October 1, 2024 3:33 PM EDT

Published by [afinkel](#) a year ago

Metadata Changes
Details

Dataset Schema Changes
10 column updates

The following columns were updated


- Changes to column Automobile Dealership - Gross Floor Area (ft²)
display name changed from Automobile Dealership - Gross Floor Area (ft²) to Vehicle Dealership - Gross Floor Area (ft²)

Inserted: 33684 rows | Deleted: 0 rows | Omitted as Errors: 0 rows

[Completed! Click to Download.](#)



What is the raw data form?



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NYC Building Energy and Water Data Disclosure for Local Law 84 2023 to Present (Data for Calendar Year 2022-Present)

Environment

Local Law 84 of 2009 (LL84) requires annual energy and water benchmarking data to be submitted by owners of buildings with more than 50,000 square feet. This data is collected via the Environmental Protection Agency's (EPA) [Portfolio Manager website](#)

...

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Last Updated
November 25, 2025

Data Provided By
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About this Dataset

<p>Updated November 25, 2025</p> <p>Data Last Updated: November 25, 2025 Metadata Last Updated: November 25, 2025</p> <p>Date Created August 10, 2023</p> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="text-align: left;">Views 40K</div> <div style="text-align: left;">Downloads 32.8K</div> </div> <p>Data Provided by: Department of Buildings (DOB) Dataset Owner: NYC OpenData</p>	<p>Data Collection</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Data Collection</td> <td>Local Law 84</td> </tr> </table> <p>Dataset Information</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Agency</td> <td>Department of Buildings (DOB)</td> </tr> </table> <p>Update</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Update Frequency</td> <td>Annually</td> </tr> <tr> <td>Data Change Frequency</td> <td>Annually</td> </tr> <tr> <td>Automation</td> <td>No</td> </tr> <tr> <td>Date Made Public</td> <td>08/30/2023</td> </tr> </table> <p>Attachments</p> <p>NYC_BuildingEnergyWaterData_LocalLaw84_DataDictionary.xlsx ✓</p> <p>Topics</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Category</td> <td>Environment</td> </tr> <tr> <td>Tags</td> <td> local law 84, local law 97, energy benchmarking, buildings, ggbp, greener greater buildings plan, water, ghg, emissions, electricity, natural gas, steam, heating oil, fuel oil </td> </tr> </table>	Data Collection	Local Law 84	Agency	Department of Buildings (DOB)	Update Frequency	Annually	Data Change Frequency	Annually	Automation	No	Date Made Public	08/30/2023	Category	Environment	Tags	local law 84 , local law 97 , energy benchmarking , buildings , ggbp , greener greater buildings plan , water , ghg , emissions , electricity , natural gas , steam , heating oil , fuel oil
Data Collection	Local Law 84																
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Update Frequency	Annually																
Data Change Frequency	Annually																
Automation	No																
Date Made Public	08/30/2023																
Category	Environment																
Tags	local law 84 , local law 97 , energy benchmarking , buildings , ggbp , greener greater buildings plan , water , ghg , emissions , electricity , natural gas , steam , heating oil , fuel oil																

Complete Dataset Paralysis

- 265 Columns with multiple subcategories for fine grain reporting
- Great as an internal database... not great as an exploration tool
- Cannot run comfortably on most computers due to large size
- Contains plenty of misreported values, many buildings with area of 1 sqft, etc...

The image shows a large, dense table of data with many columns and rows. The text is very small and difficult to read, but it appears to be a list of building records with various attributes. The table is oriented vertically, with columns running from top to bottom and rows running from left to right. The data is organized into several distinct sections, likely representing different categories of building information.

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How can some use this data at scale?

Overview

The Department of Citywide Administrative Services (DCAS) submitted benchmarking results for City government properties for calendar year 2024 to the Department of Finance (DOF) for publication on September 1, 2025, in compliance with Local Law 84 of 2009 (LL84). Since 2009, DCAS has coordinated with City agencies each year to benchmark nearly 3,000 public properties including libraries, police stations, firehouses, schools, colleges, courthouses, hospitals, community centers, and government offices. EDC and DOE benchmark their properties and share the data with DCAS to include with City submission.

The following report discloses energy performance metrics for calendar year 2024 for City government properties that are covered by LL84. It also includes data from calendar year 2010, which was published in the original New York City Government Building Energy Benchmarking Results, as required by LL84. The performance metrics included in the report are: [ENERGY STAR score](#), [energy use intensity \(EUI\)](#), and [greenhouse gas \(GHG\) emissions intensity](#). The U.S. EPA ENERGY STAR Portfolio Manager Tool calculates ENERGY STAR scores for certain common property types. For property types that are ineligible for an ENERGY STAR score, or for which property or energy consumption data was not available, the report indicates “Not Available.”

Summary of Results

EPA Portfolio Manager calculates the following energy metrics based on EPA Methodology and EPA Greenhouse Gas Emissions Factors: ENERGY STAR score, Source EUI and GHG Intensity indicated in the table below. The average ENERGY STAR score for eligible City properties in calendar year 2024 was 63, which is 5% higher than in 2010³, the first year of benchmarking City properties. The average Source EUI and the average GHG intensity in 2024 dropped by 14% and increased by 5% respectively as compared to 2010. Please see Table 1 for additional details.⁴

Table 1: Comparison of Benchmarking Results, 2024 vs 2010*

Years	Average ENERGY STAR Score	# of Properties ³	Average EUI (kBtu/ft ²)	# of Properties ³	Average GHG Intensity (kgCO ₂ e/ft ²)	# of Properties ³	Cooling Degree Days (CDD)	Heating Degree Days (HDD)	Total Degree Days
2010	60	1,212	174.3	1,711	6.6	1,718	1,712	4,227	5,939
2024	63	1,347	150.6	2,047	6.9	2,045	1,465	3,898	5,363
% Change	5%	11%	-14%	20%	5%	19%	-14%	-8%	-10%

For additional information on these benchmarking results, contact NYC DCAS Energy Management at energy@dcas.nyc.gov.





DCAS Portfolio Evaluation

Summary of Results

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A quick way to evaluate many buildings...

Borough	Block	Lot	BIN	Building	Agency	2010*			2024		
						Score*	Source EUI (kBtu/ft²)*	GHG Emissions Intensity (kgCO2e/ft²)*	Score*	Source EUI (kBtu/ft²)*	GHG Emissions Intensity (kgCO2e/ft²)*
1	446	20	1006208	M751	DOE	81	121.4	4.5	92	84.5	3.82
1	447	47	1006254	9th Precinct	NYPD	Not Available	292.6	9	Not Available	218.2	9.45
1	453	34	1006478	M019	DOE	91	89.2	3.7	62	87.1	4.8
1	454	52	1006502	Sirovich Senior Center	DFTA	Not Available	Not Available	Not Available	Not Available	214.4	9.88
1	457	7	1006537	Classified DHS Location	DHS	Not Available	126.4	3.3	Not Available	85.4	3.51
1	458	4	1079828	Classified DHS Location	DHS	Not Available	266.1	9	Not Available	118.8	4.88
1	458	11	1006546	Classified DHS Location	DHS	Not Available	211.6	5.7	Not Available	202.8	11.24
1	479	1	1007156	Mott Street Neighborhood Senior Center	DFTA	Not Available	Not Available	Not Available	Not Available	13.8	0.7
1	491	16	1007378	M615	DOE	96	103.7	3.5	75	85.5	3.9
1	495	7	1007523	Ladder Co. 20 and Medical and BFI Division	FDNY	Not Available	265.5	8.3	Not Available	185.9	8.03
1	531	49	1008526	Engine Co. 33 & Ladder Co. 9	FDNY	Not Available	233.3	8.5	Not Available	184.1	8.24
1	544	16	1008774	The Public Theater	CIG > PT	Not Available	349.8	9.1	Not Available	444.9	18.8
1	563	20	1009129	Classified NYPD Location	NYPD	77	149.9	5.8	92	31.7	1.3
1	577	19	1009713	M883	DOE	Not Available	Not Available	Not Available	68	105.1	4.55
1	579	11	1009739	FDNY Museum	FDNY	Not Available	192.7	6.2	Not Available	117.7	5.29
1	581	54	1009757	M641	DOE	Not Available	Not Available	Not Available	79	98.6	4.56
1	582	18	1009760	Hudson Park Branch Library	NYPL	Not Available	134.1	4.1	Not Available	134.1	6.15
1	582	50	1088894	Tony Dapolito Recreation Center	DPR	Not Available	288.8	10.8	Not Available	26.4	1.08
1	585	41	1009872	M003	DOE	86	65.6	2.7	94	59.7	2.71
1	596	7501	1089625	Manhattan Community Districts 1, 2 and 5 Garage	DSNY	Not Available	Not Available	Not Available	Not Available	167.6	7.84
1	603	49	1010407	M323	DOE	Not Available	Not Available	Not Available	19	161.6	6.97
1	606	1	1082668	Jefferson Market Branch Library	NYPL	Not Available	210.8	6.9	Not Available	196.1	8.62
1	606	49	1010543	M041	DOE	98	70.1	1.9	87	70.6	3.98
1	620	33	1011192	6th Precinct	NYPD	Not Available	334.2	11.7	Not Available	208.8	9.38
1	644	1	1012181	Gansevoort Meat Market	EDC	Not Available	Not Available	Not Available	Not Available	163.7	6.88
1	644	10	1089240	High Line Maintenance and Operations Building	DPR	Not Available	Not Available	Not Available	4	319.2	13.4
1	651	105	1012247	Marine Co. 1	FDNY	Not Available	Not Available	Not Available	Not Available	292.5	12.44
1	665	14	1012262	Ferry Terminal - Pier 79, Manhattan	EDC	Not Available	Not Available	Not Available	Not Available	419.3	18.11
1	670	50	1012267	Manhattan Borough Repair Shop	DSNY	Not Available	87	2.8	Not Available	169.9	7.57
1	722	57	1012811	Chelsea Recreation Center	DPR	Not Available	311.3	10	Not Available	157.7	6.93
1	724	23	1012829	M033	DOE	33	165.7	6.3	59	129.1	6.11
1	724	82	1012830	Chelsea Health Center	DOHMH	Not Available	321.7	11.3	Not Available	263.8	11.46
1	724	100	1089479	Chelsea Park Comfort Station	DPR	Not Available	Not Available	Not Available	Not Available	637.1	26.19
1	741	10	1079152	M070	DOE	97	68.6	1.8	93	70.1	3.91
1	742	7	1013096	M440	DOE	81	118.2	4.7	69	108.5	5.05
1	744	24	1013260	M011	DOE	80	108.2	5.5	83	92.3	5.57
1	759	8	1013564	14th Precinct (Midtown South)	NYPD	Not Available	295.4	9.9	Not Available	279.2	12.67
1	767	68	1013858	M451	DOE	26	172.7	5.2	63	102.8	4.25



S.A.M.E. Lab Approach:

- 1. Removes Columns Extra Data*
- 2. Adds False Color Range to Preview Reporting*
- 3. Adds Browsing Tools for Non-Technical Users*
- 4. Separates Data By Year*
- 5. Multiple Data Sets for Different Problems*

And provide it for everyone to use!



NYIT SAME LAB DATA SETS



README MIT license

We are happy to be able to present some compacted data sets that reinterpret the data available [HERE](#)

For city related buildings, this report simplifies the data: [NYC Energy Benchmarking Report](#)

A few notes:

These data sets can include multiple years worth of data for one BIN number. Be mindful when searching in the dataset that "averages" can be influenced by this

Our four datasets are available via the below link.

Here is what you will see when you unzip the folder:

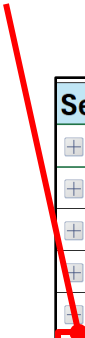
- 2022_2024_BPS_DATA_ONLY.xlsx
- 2022_2024_BPS_DATA_PIVOT_TABLES.xlsx
- 2022_2024_Complete.xlsx
- 2022_2024_Complete_RowsHidden.xlsx
- 2022_2024_Complete_YearlyBreakdowns.xlsx

1. Simplified Data with our Building Performance Relevant Columns (see below)
2. Simplified Data with our Building Performance Relevant Columns (see below) with informative Pivot Tables
3. The Complete Data Set, for safe keeping!
4. The Complete Data Set, with irrelevant rows hidden but still available.
5. The Complete Data Set, parsed by year for quick look ups.

[HERE](#) is the download link, good until March 2027!



Identify Property Type



Self Reported Property Type	Average of ENERGY STAR Score	Average of Target ENERGY STAR Score
Bank Branch	93	78
Distribution Center	50	87
Financial Office	67	75
Hospital (General Medical & Surgical)	47	81
Hotel	44	86
K-12 School	61	75
Manufacturing/Industrial Plant	83	85
Medical Office	62	89
Mixed Use Property	57	76
Multifamily Housing	65	85
Non-Refrigerated Warehouse	47	83
Office	71	81
Pre-school/Daycare	88	75
Refrigerated Warehouse	51	79
Residence Hall/Dormitory	65	80
Retail Store	54	82
Self-Storage Facility	59	100
Senior Living Community	54	77
Supermarket/Grocery Store	57	77
Vehicle Dealership	82	85
Wholesale Club/Supercenter	8	100
Worship Facility	47	83
Grand Total	64	82



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Bank Branch	93	78
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8829	78	75
9204	18	75
9260	71	75
9779	45	75
10800	19	75
10860	65	75
12060	26	75
12710	77	75
12804	83	75
13200	25	75
13260	16	75
13860	70	75
14400	39	75
14460	46	75
14604	97	75
15000	88	75
16160	56	75
17340	69	75



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9779	45	75
10800	19	75
10860	65	75
12060	26	75
12710	77	75
12804	83	75
13200	25	75
13260	16	75
13860	70	75
14400	39	75
14460	46	75
14604	97	75
15000	88	75
16160	56	75
17340	69	75

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Review Relevant Information About This Specific Project

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Calendar Year	2024	2023	2022
Property ID	4978693	4978693	4978693
Property Name	Dream Hotel: 224 West 49th St	Dream Hotel: 224 West 49th St	Dream Hotel: 224 West 49th St
Parent Property ID	Not Applicable: Standalone Property	Not Applicable: Standalone Property	Not Applicable: Standalone Property
Year Ending	45657	45291	44926
NYC Borough, Block and Lot (BBL)	1010200051	1-01020-0051	1-01020-0051
NYC Building Identification Number (BIN)	1024782	1024782	1024782
Primary Property Type - Self Selected	Hotel	Hotel	Hotel
National Median Reference Property Type	CBECs - Hotel & Motel/Inn	CBECs - Hotel & Motel/Inn	CBECs - Hotel & Motel/Inn
List of All Property Use Types (GFA) (ft ²)	Hotel (102720.0)	Hotel (102720.0)	Hotel (102720.0)
Largest Property Use Type	Hotel	Hotel	Hotel
Metered Areas (Water)	Whole Property	Whole Property	Whole Property
ENERGY STAR Score	31	35	41
National Median ENERGY STAR Score	50	50	50
Target ENERGY STAR Score	85	85	90
Reason(s) for No Score	N/A	N/A	N/A
ENERGY STAR Certification - Year(s) Certified	N/A	N/A	N/A
Eligible for Certification for Report PED (Y/N/No)	No	No	No
ENERGY STAR Certification - Last Approval Date	N/A	N/A	N/A
ENERGY STAR Certification - Application Status	N/A	N/A	N/A
Site EUI (kBtu/ft ²)	123.2	118.7	115.6
Weather Normalized Site EUI (kBtu/ft ²)	126.8	125	116.1
National Median Site EUI (kBtu/ft ²)	106	105.7	107.5
Site Energy Use (kBtu)	12659240.6	12191139.6	11878848.4
Weather Normalized Site Energy Use (kBtu)	13025995.2	12839893.5	11927417.6
Electricity - Weather Normalized Site Electricity	1611004	1523629.6	1499454.4
Electricity - Weather Normalized Site Electricity	15.7	14.8	14.6
Percent Electricity	43.6	43.3	
Natural Gas - Weather Normalized Site Natural Gas	75292.5	76412.7	68112.8
Natural Gas - Weather Normalized Site Natural Gas	0.7	0.7	0.7
Source EUI (kBtu/ft ²)	223.5	214.5	211.2
Weather Normalized Source EUI (kBtu/ft ²)	226.8	219.8	209.1
National Median Source EUI (kBtu/ft ²)	192.3	191.1	196.3
Source Energy Use (kBtu)	22955186.4	22032178.9	21693800.9
Weather Normalized Source Energy Use (kBtu)	23296599.6	22579481.7	21477031.7
Total (Location-Based) GHG Emissions (Metric Tons CO ₂ e)	1014.59	940.9	796.5
Total (Location-Based) GHG Emissions Intensity (Metric Tons CO ₂ e/ft ²)	9.88	9.2	7.8
Direct GHG Emissions (Metric Tons CO ₂ e)	379.11	367.3	351.1
Direct GHG Emissions Intensity (kgCO ₂ e/ft ²)	3.69	3.6	3.4
Indirect (Location-Based) GHG Emissions (Metric Tons CO ₂ e)	635.48	573.5	445.5
Indirect (Location-Based) GHG Emissions Intensity (kgCO ₂ e/ft ²)	6.19	5.6	4.3
Net Emissions (Metric Tons CO ₂ e)			796.5
National Median Total (Location-Based) GHG Emissions Intensity (kgCO ₂ e/ft ²)	872.95	838.3	740.4
Avoided Emissions - Onsite Green Power (Metric Tons CO ₂ e)	N/A	N/A	N/A
Avoided Emissions - Offsite Green Power (Metric Tons CO ₂ e)	0	0	0
Avoided Emissions - Onsite and Offsite Green Power (Metric Tons CO ₂ e)	0	0	0
Percent of Electricity that is Green Power	0	0	0

17384

18000

ENERGY STAR Score

9
5
6
4
4
7
1
7
4
1
6
2
7
8
2
1
7
3
4
9
8
5
6
3
8

Data Ready for Pivot Table Graphic Creation

Energy data
history
buildings & energy
standards
NYC laws

NYC building data

NYC tools
examples

SaME Lab datasets

Other cities

Academia

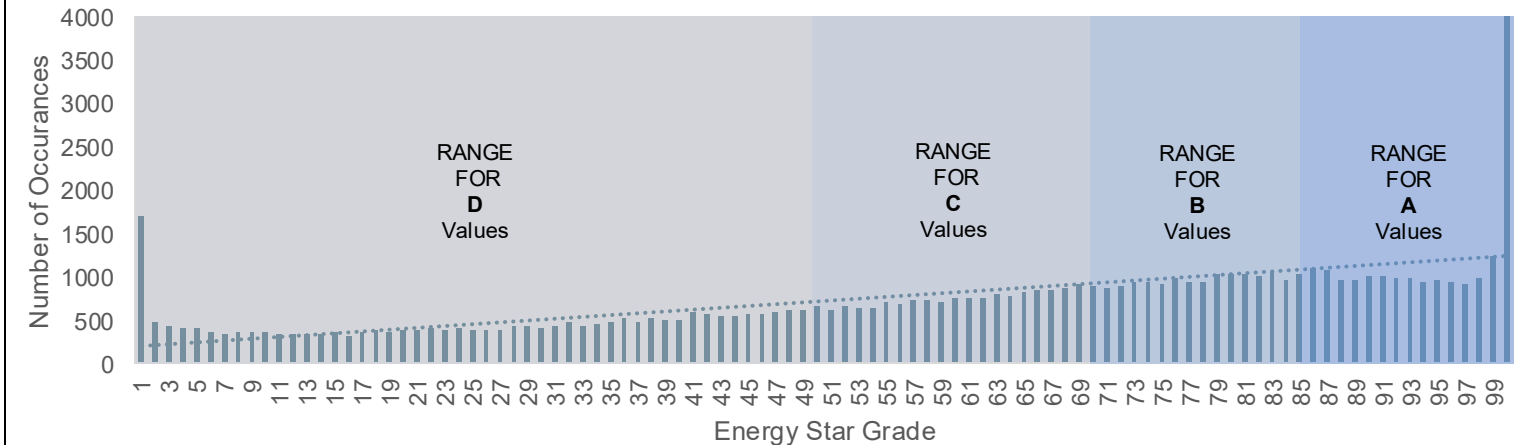
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NYIT



Energy Star Grade Occurrences

as reported in the LL84 2022-2024 reporting





S.A.M.E. Lab Goals:

1. *Provide Simplified Data Set of Community Members*
2. *Demonstrate the value of building performance data*
3. *Publish open data based on Open Data NYC!*
4. *Encourage Critical examination of data sources*
5. *Provide meaningful breakdown of BPS landscape*



[bit.ly/SAMELAB](https://digitalfabricationlab-nyit-soad.github.io/SAME_LAB/)

(full link)

https://digitalfabricationlab-nyit-soad.github.io/SAME_LAB/

Or Google:

NYIT SAME LAB GITHUB



SOME TERMS

Audit Year: important to note because performance changes year by year

BIN: building identification number

BBL: code for property borough, block and lot

Btu: about the amount of energy in a single lit match

Construction year: year building started service life

energy star score: performance rating that compares energy consumption to similar US buildings. 1-100 scale.

GHG: green house gas emissions, usually CO2 in context of building energy use

gross area: total occupied area of a building (in sf)

occupancy type: category of building use, like apartment or office; different types have different CO2 limits/sf.

site energy use (kBtu): total amount of energy used

site EUI (kBtu/sf): energy use intensity, amount of energy used per sf on site

source EUI (kBtu/sf): energy use also considering energy it takes to get the energy to the site

sf: square feet, as in floor area of a building

tCO2e: metric tons of CO2 equivalent emissions, allows for comparison of other GHG sources

Basics. These terms will come up during this talk. They are a subset of a list from this document:

[NYC Building and Water Local Law 84 Data Dictionary](#)

NYC Building Energy and Water Data Disclosure for LL84 2023 to Present
Data Dictionary



NYC OpenData

Data Dictionary - Dataset Information

Dataset Name	NYC Building Energy and Water Data
Dataset URL	https://data.cityofnewyork.us/
Data Provided by	Department of Buildings (DOB)

What's in this Dataset?

Rows	Columns	Each row is a
103K	265	Property

Each row is a
 The unit of analysis

Tr

Primary Property Type - Self Selected

This is the primary property type that you select. You select the type with which you most closely identify and you can change it at any time (on the Details tab, under Basic Information).

primary_property_type_self

[Text](#)

Publishing Frequency
 How often changed dataset

Year Built

This is the year in which your property was constructed. If your property has undergone a complete renovation that included gutting and rebuilding the interior, then you can indicate the date of this renovation as the year built. The year built is not used to calculate the ENERGY STAR Score; it is simply for property information. If you don't know the exact year the property was built, enter an estimate.

year_built

[Number](#)

Data Change Frequency
 How often the data is updated

Frequency Description
 Additional details needed

Dataset Description

Protection Agency (EPA) Portfolio Manager website, <https://www.energystar.gov/buildings/tools-and-resources/portfolio-manager-0>.

Data Dictionary: https://data.cityofnewyork.us/api/views/5zyy-y8am/files/d11b2da1-2b2b-4da8-a3a2-24dea9f10833?download=true&filename=NYC_BuildingEnergyWaterData_LocalLaw84_DataDictionary.xlsx

Does this Building Suck (Energy)?
 Decoding Building Performance with Open Data

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Beyond NYC: Improving Building Performance in Cities Across the United States

City	Law/Program	Metric	Building Size	First Deadline	Penalty
New York City	Local Law 97	CO ₂ emissions	≥25k sq ft	2024	\$268/ton
Washington DC	BEPS	Energy performance (EUI)	≥10k sq ft	2026	\$10/sq ft
Boston, MA	BERDO 2.0	CO ₂ emissions	≥20k sq ft	2025	\$234/ton
Denver, CO	Energize Denver	EUI	≥25k sq ft	2024	\$0.70/sq ft
Seattle, WA	Building emissions standard	EUI + emissions	varies	phased	varies
St. Louis, MO	BPS	EUI	≥50k sq ft	2025	performance penalties

source: Viola

35 U.S. cities and districts have enacted **building performance standards (BPS)** or **emissions-reduction laws** like **Local Law 97**. These policies regulate energy use or carbon emissions from **existing buildings**, typically above a certain size threshold, and impose reporting requirements and penalties for non-compliance. Table and map for **comparative analysis**.



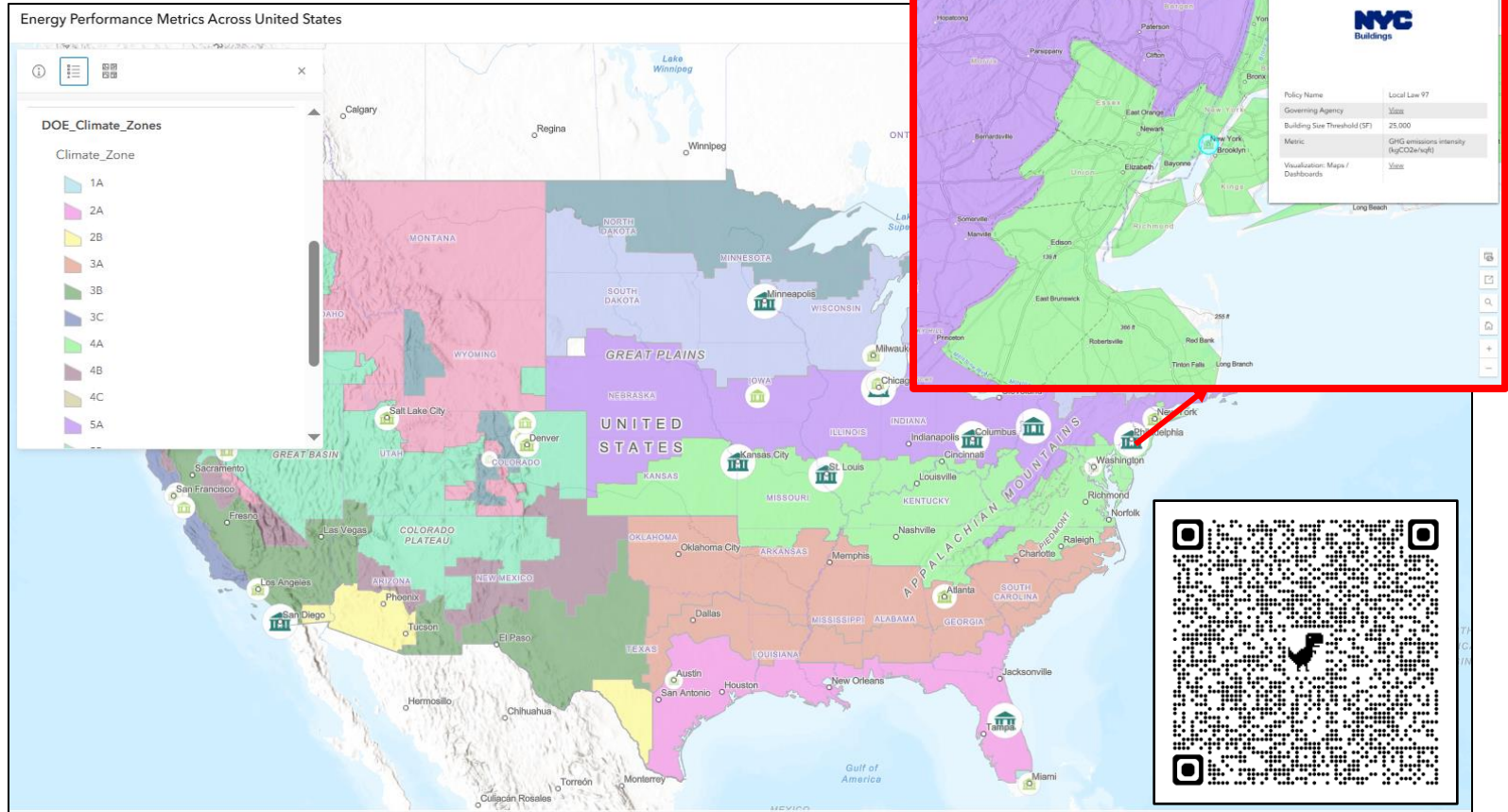
Does this Building Suck (Energy)?
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Beyond NYC: Building Performance in Cities Across the United States



<https://arcg.is/1ujaDT0>

35 U.S. cities and districts have enacted **building performance standards (BPS)** or **emissions-reduction laws** like **Local Law 97**. These policies regulate energy use or carbon emissions from **existing buildings**, typically above a certain size threshold, and impose reporting requirements and penalties for non-compliance. Table and map for **comparative analysis**.

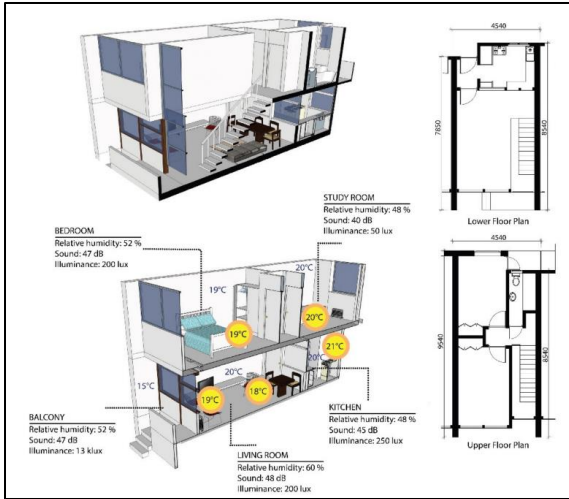
Does this Building Suck (Energy)?
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Highlights from the Literature Review

Expand evidenced based design education



Plan and axonometric view of the Bayer House's typical maisonette with point-in-time environmental measurements (Deependra Pourael, student 2016–17).

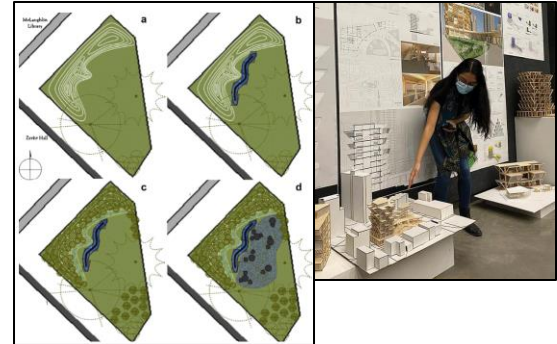
Schiano-Phan, R.; Gonçalves, J.C.S.; Vallejo, J.A. Pedagogy Pro-Design and Climate Literacy: Teaching Methods and Research Approaches for Sustainable Architecture. *Sustainability* **2022**, *14*, 6791. <https://doi.org/10.3390/su14116791>

Supplement education through the invitation of industry experts



SoAD Lecture: Eco Generative Architectures by Raffaella Laezza, who spoke about the foundational role of the ECO nature-architecture relationship: both from the very first design steps to set up the operational processes for socially responsible projects

Integrate building performance standards into curriculum learning outcomes



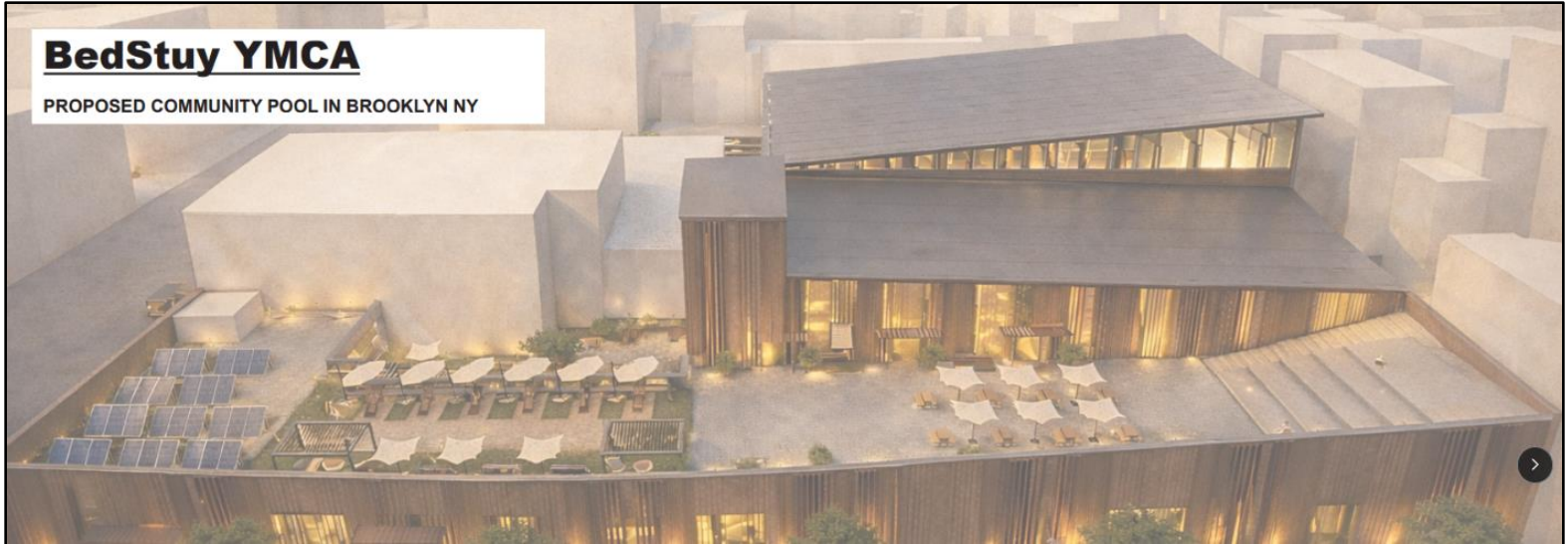
2018 – Lenzholzer and Brown; “Lenzholzer and Brown (2013) advocate for performance-based learning where students test design alternatives through simulation and “educated guesses” rigorously examined by expert tutors.

2023 ‘Students of V. Mitch McEwen presenting bioplastic *brises soleils* in Princeton’s architecture lab (a 1950s glass building designed by then-professor JeanLabatut). *Photography by Sean Rucewicz*. www.architecturalrecord.com/articles/15823-architecture-schools-begin-to-put-embodied-carbon-front-and-center

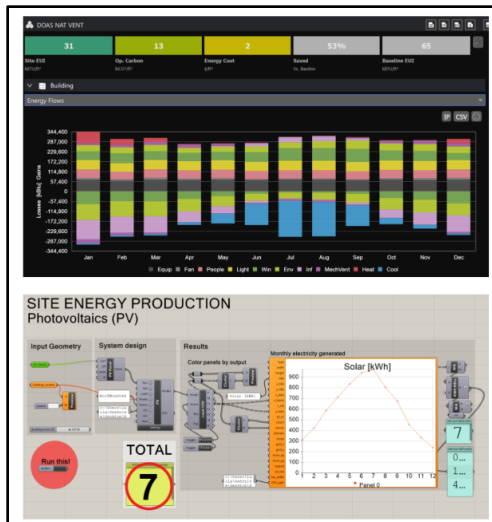
Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

Highlights from the Literature Review

Expand evidenced based design education



Lucia Bauman



Highlights from the Literature Review

Expand evidenced based design education



Energy data

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datasets

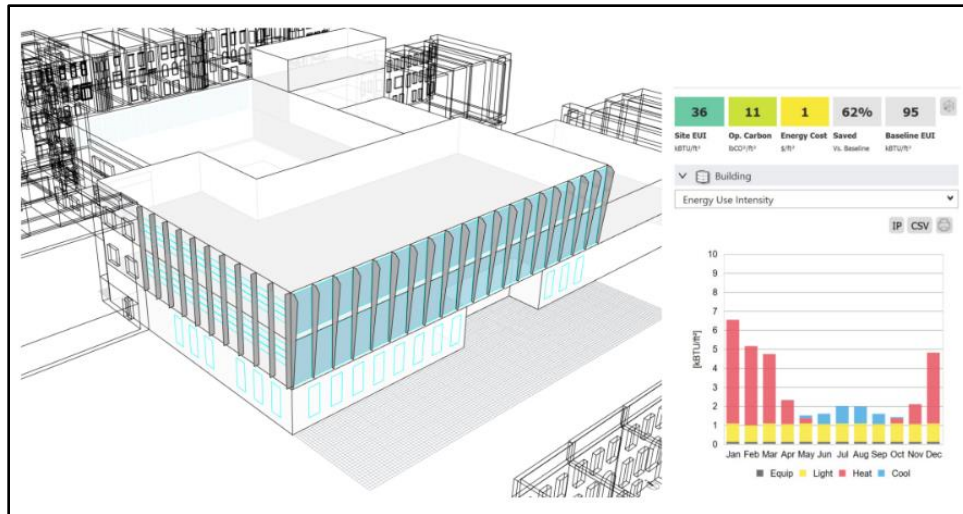
Other cities

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Christian Aguilar





References

Energy.gov. Asset Score/Audit Template. <https://buildingenergyscore.energy.gov/>

Menotti Enterprise. (2026) <https://menottienterprise.com/nyc-extends-2025-benchmarking-deadline-to-june-30-2025/#:~:text=On%20March%203%2C%202025%2C%20the,take%20some%20getting%20used%20to.>

(Map) Department of Energy. *Climate Zones*.

https://services2.arcgis.com/LYMgRMwHfrWWEg3s/arcgis/rest/services/DOE_Climate_Zones/FeatureServer

Further Reading

Aleksandra Jaeschke. *The Greening of America's Building Codes : Promises and Paradoxes*. Princeton Architectural Press, 2022. *EBSCOhost*, research.ebsco.com/linkprocessor/plink?id=07ebff66-9948-3e94-8dd8-df0e3ee96c20.

Does this Building Suck (Energy)??: Decoding Building Performance with Open Data

Energy data history buildings & energy standards NYC laws NYC building data NYC tools examples

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STAIR CORE MODELER

INPUTS

- BUILDING SPICES # of floors: 12
- Floor to Floor Distance: 10.0
- Floor area: 1500
- Occupant load factor: 150
- Staircase: 1
- Stair core inputs:
 - Stair width: 3
 - Stair rise: 7.5
 - Stair run: 16.7
 - Handrail offset: 1
 - Handrail diameter: 1.5
- RHINO GEOMETRY

DESIGNED CORE DIMENSIONS

- Height: 124
- Width: 27.0
- Depth: 2.4
- Staircase: 19.5
- Stair width: 3
- Stair rise: 7.5
- Stair run: 16.7
- Handrail offset: 1
- Handrail diameter: 1.5

OUTPUTS

- Core width: 3
- Core depth: 2.4
- Core height: 124
- Core area: 27.0
- Core volume: 3396
- Core perimeter: 57.0
- Core surface area: 1080
- Core volume: 3396
- Core perimeter: 57.0
- Core surface area: 1080

INTERNATIONAL BUILDING CODE®

EGRESS

PROJECT RAINCATCHMENT CISTERN MODELER

WATER USAGE

- Select occupancy: 1000 (Demand: 95 G/Gal)
- Enter total square footage: 1500
- Months of demand: 12
- Inch/month (Jan - Dec): 2.7 To 5.5
- Technology: 46

PRECIPITATION

- Choose climate: 1
- First precipitation: 46

WATER COLLECTION

- Select collection area: 1500
- Choose if months stored: 12

CISTERN SPECS

- Choose diameter: 24
- Choose height: 10
- Percentage of volume holding water: 100

CISTERNS FOR NET POSITIVE WATER

- Choose number of cisterns: 6

3* credits, 92.2% eDA, 6.2% ASHRAE, 783 avg lux

LIVING BUILDING CHALLENGE™

WATER

3* credits, 92.2% eDA, 6.2% ASHRAE, 783 avg lux

U.S. GREEN BUILDING COUNCIL LEED V4

DAYLIGHT

93 kWh/EUI, 23 Op. Carbon, 2 Energy Cost, 11% Saved, 104 Baseline EUI

NYC Energy Conservation Code

ENERGY

Site Energy Production Photovoltaics (PV)

NYC LOCAL LAW 92/94/95/97

CARBON

source: SNELL

Code as design constraint. We embed requirements to meet a variety of professional benchmarks within the project program of a design course and have a coreq building performance simulation course in which students run sims as they design, creating an iterative flow.

**Does this Building Suck (Energy)?
Decoding Building Performance with Open Data**

Zone Space Use Settings

Whole Building Space Use

People

- 0.012 People Density [p/ft²]
- 1.2 Metabolic Rate [met]
- Occupancy Schedule
- AirSpeed 0 Airspeed Schedule [m/s]
- Dynamic Clothing Model ASHRAESS Clothing [clo]

Equipment

- 0.7 Equipment Power Density [W/ft²]
- Equipment Availability Schedule

Lighting

- 0.7 Lighting Power Density [W/ft²]
- Lights Availability Schedule
- 45 Illuminance Target [footcandle]
- Continuous DimmingType

Hot Water

- 1 COP [unitless]
- 50 Inlet Water Temperature [°F]
- 59 Water Supply Temperature [°F]
- Water Schedule
- 0 Flow Rate Per Person [G/ft²/hr]
- Natural Gas Hot Water Energy Source [enum]

Zone Space Use Settings

Whole Building Space Use

People

- 0.012 People Density [p/ft²]
- 1.2 Metabolic Rate [met]
- Occupancy Schedule
- AirSpeed 0 Airspeed Schedule [m/s]
- Dynamic Clothing Model ASHRAESS Clothing [clo]

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- Equipment Availability Schedule

Lighting

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- 45 Illuminance Target [footcandle]
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- 1 COP [unitless]
- 50 Inlet Water Temperature [°F]
- 59 Water Supply Temperature [°F]
- Water Schedule
- 0 Flow Rate Per Person [G/ft²/hr]
- Natural Gas Hot Water Energy Source [enum]



USA_NY_New.York-Central.Park-Obs-Belvedere.Castle.725053_TMYx.2018

North Offset (°) 0.00

Show Compass Display Size 100

USA_NY_New.York-Central.Park-Obs-Belvedere.Castle.725053_TMYx.2

Climate Zone

Koppen climate zone: Temperate, No Dry Season, Hot Summer (Cwa)

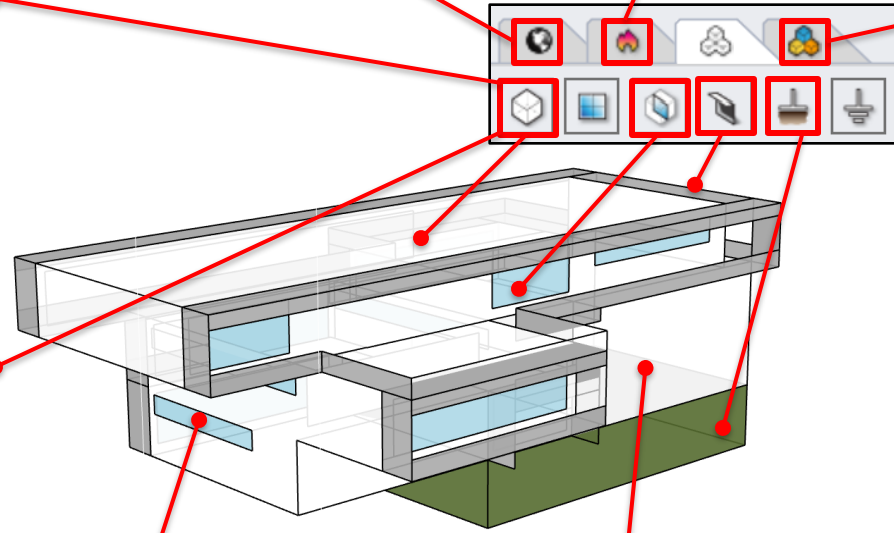
ASHRAE climate zone: Mixed (4)

Average annual temperature: 55 °F

Annual total solar radiation: 473 kBtu/ft²

Average annual wind speed: 7 mph

Fuel Name	Fuel Type	PE	CO2 [lb/MWh]	Price [¢/IP
Electricity	Electricity	3.15	1417.571	18.522
Natural Gas	NaturalGas	1.09	681.228	4.088
Fuel Oil (residual)	FuelOilNo1	1.19	738.548	6.927
Fuel Oil (distillate)	FuelOilNo2	1.19	714.297	6.927
Coal	Coal	1.05	892.871	2.03
Gasoline	Gasoline	1.19	742.957	10.283
Propane	Propane	1.15	650.363	11.902
Diesel	Diesel	1.19	714.297	6.927
Wood Pellets	OtherFuel1	1.1	0	2.419
Custom Fuel	OtherFuel2	1.19	738.548	6.927



Ideal Air Loads HVAC Settings

Heating

- 3.5 HeatingCOP
- Electricity Heating Energy Source [enum]
- NYCHeat5785 Heating Availability [Schedule]
- 1.15 Heating Sizing Factor [Factor]
- 95 Maximum Supply Air Temperature [°F]

Cooling

- 3.5 CoolingCOP
- Electricity Cooling Energy Source [enum]
- NYCCool5785 Cooling Availability [Schedule]
- 1.15 Cooling Sizing Factor [Factor]
- 53.6 Minimum Supply Air Temperature [°F]

Humidity Control

- 80 Max Humidity [RH%]
- 20 Min Humidity [RH%]

Mechanical Ventilation

- NYCMechVent5785 MechVent Availability [Schedule]
- Enthalpy Heat Recovery Type [enum]
- 0.8 Heat Recovery Efficiency Sensible [0-1]
- 0.7 Heat Recovery Efficiency Latent [0-1]
- DifferentialEnthalpy Economizer Type [enum]
- Turn On EMS Fan Energy
- 1000 Fan Pressure Rise [Pa]

Natural Ventilation

- 71.6 Nat Vent SetPoint [°F]
- NYCNatVent5785 Natural Ventilation Schedule
- 32 Nat Vent Min Out Air Temp [°F]
- 86 Nat Vent Max Out Air Temp [°F]
- 90 Nat Vent Max Relative Hum [RH%]

Natural Ventilation

- Stack Driven Flow
- Crossventilation

Constructions

Solarban 72 (2) on Starphire - Solarban 72 (4) =

U-Value[Btu/(ft²·h·°F)] = 0.1

SHGC = 0.216

TWS = 0.312

Embodied Energy[kCal/m²] = 15302.598

Embodied Carbon[kCO2/m²] = 7368

Layers (Outside - Inside)

- Solarban 72 on Starphire: 6mm 0.224 [in]
- Krypton - EN673 0.5 [in]
- Solarban 72 on Starphire: 6mm 0.224 [in]
- Krypton - EN673 0.5 [in]
- Starphire: 6mm 0.224 [in]

Constructions

Phi Roof

U-Value[Btu/(ft²·h·°F)] = 0.015

R-Value[ft²·h·°F/Btu] = 64.729

Thermal Capacitance[Btu/(ft²·°F)] = 23.608

Embodied Energy[kCal/m²] = 365889.257

Embodied Carbon[kCO2/m²] = 17.626

Layers (Outside - Inside)

- Vaporpermeable Felt 0.01 [ft]
- SPS Board 1.25 [ft]
- Concrete 0.666 [ft]
- Acoustic Tile 0.016 [ft]

source: SNELL



LLs 95 and 97: energy use. Through a sequence of tech courses in which they learn fundamental concepts and core technical skills, students should now have the background to set-up, run, and UNDERSTAND a detailed energy use simulation which is easy to set up in a commercial software platform

Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

Energy data history buildings & energy standards NYC laws

NYC building data

NYC tools examples

Same Lab datasets

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LOADS

Open Space Use Settings

Load: **Condition**

Subscheduling: Space Use

People

- 1.02 People Density (p/sf)
- 1.2 Metabolic Rate (met)
- Occupancy Schedule
- Always On

Dynamic Clustering Model AS-BVX55 Clustering (h)

Equipment

- 1.2 Equipment Power Density (kW/sf)
- Always On
- Equipment Availability: Schedule

Lighting

- 1.5 Lighting Power Density (W/sf)
- Always On
- Light Availability Schedule
- Maintenance Target (hours/week)
- Always On
- Overlighting

ENVELOPE

defaultConstruction

U-Value@100°F [W/m²·K] = 0.042
R-Value@100°F [h·ft²·°F/Btu] = 0.024
Thermal Capacitance@100°F [BTU/ft²·°F] = 24.653
Embodied Energy@100°F = 0
Embodied Carbon@100°F = 0

Layers (Outside - Inside)

- 1: defaultWall 0.02 [ft]

defaultGlazing

U-Value@100°F [W/m²·K] = 0.037
SHGC = 0.505
TVIS = 0.911
Embodied Energy@100°F = 13176.75
Embodied Carbon@100°F = 2.796

Layers (Outside - Inside)

- 1: defaultGlazingMat 0.236 [ft]

HVAC

Heating

1.1 Heating

1.1.1 Heating

1.1.1.1 Heating Energy System (kW)

1.1.1.2 Heating Availability Schedule

1.1.1.3 Heating Temperature Schedule

1.1.1.4 Heating Supply Air Temperature (°F)

1.1.1.5 Heating Demand Air Temperature (°F)

1.1.1.6 Heating Control

1.1.1.6.1 Heating Control

1.1.1.6.2 Max Heating (kW)

1.1.1.6.3 Max Heating (h)

1.1.1.6.4 Max Heating (h)

1.1.1.6.5 Max Heating (h)

1.1.1.6.6 Max Heating (h)

1.1.1.6.7 Max Heating (h)

1.1.1.6.8 Max Heating (h)

1.1.1.6.9 Max Heating (h)

1.1.1.6.10 Max Heating (h)

1.1.1.6.11 Max Heating (h)

1.1.1.6.12 Max Heating (h)

1.1.1.6.13 Max Heating (h)

1.1.1.6.14 Max Heating (h)

1.1.1.6.15 Max Heating (h)

1.1.1.6.16 Max Heating (h)

1.1.1.6.17 Max Heating (h)

1.1.1.6.18 Max Heating (h)

1.1.1.6.19 Max Heating (h)

1.1.1.6.20 Max Heating (h)

1.1.1.6.21 Max Heating (h)

1.1.1.6.22 Max Heating (h)

1.1.1.6.23 Max Heating (h)

1.1.1.6.24 Max Heating (h)

1.1.1.6.25 Max Heating (h)

1.1.1.6.26 Max Heating (h)

1.1.1.6.27 Max Heating (h)

1.1.1.6.28 Max Heating (h)

1.1.1.6.29 Max Heating (h)

1.1.1.6.30 Max Heating (h)

1.1.1.6.31 Max Heating (h)

1.1.1.6.32 Max Heating (h)

1.1.1.6.33 Max Heating (h)

1.1.1.6.34 Max Heating (h)

1.1.1.6.35 Max Heating (h)

1.1.1.6.36 Max Heating (h)

1.1.1.6.37 Max Heating (h)

1.1.1.6.38 Max Heating (h)

1.1.1.6.39 Max Heating (h)

1.1.1.6.40 Max Heating (h)

1.1.1.6.41 Max Heating (h)

1.1.1.6.42 Max Heating (h)

1.1.1.6.43 Max Heating (h)

1.1.1.6.44 Max Heating (h)

1.1.1.6.45 Max Heating (h)

1.1.1.6.46 Max Heating (h)

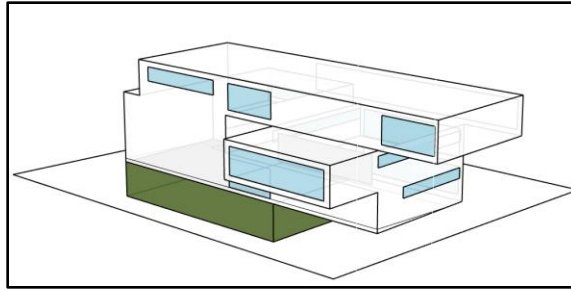
1.1.1.6.47 Max Heating (h)

1.1.1.6.48 Max Heating (h)

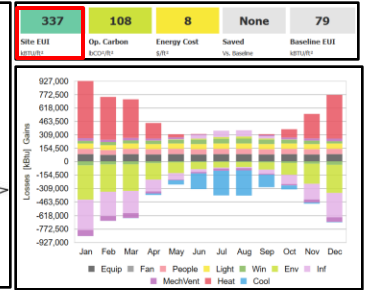
1.1.1.6.49 Max Heating (h)

1.1.1.6.50 Max Heating (h)

MODEL



ENERGY FLOWS



Open Space Use Settings

Load: **Condition**

Subscheduling: Space Use

People

- 1.02 People Density (p/sf)
- 1.2 Metabolic Rate (met)
- Occupancy Schedule
- Always On

Dynamic Clustering Model AS-BVX55 Clustering (h)

Equipment

- 0.7 Equipment Power Density (kW/sf)
- Always On
- Equipment Availability: Schedule

Lighting

- 0.7 Lighting Power Density (W/sf)
- Always On
- Light Availability Schedule
- Maintenance Target (hours/week)
- Always On
- Overlighting

#1-1019 Nonresidential CE 4 Exterior Wall

U-Value@100°F [W/m²·K] = 0.294
R-Value@100°F [h·ft²·°F/Btu] = 0.423
Thermal Capacitance@100°F [BTU/ft²·°F] = 10.652
Embodied Energy@100°F = 11.36
Embodied Carbon@100°F = 11.36

Layers (Outside - Inside)

- 1: Brick 0.02 [ft]
- 2: Concrete 0.09 [ft]
- 3: Mineral Wool 0.28 [ft]
- 4: Paper 0.02 [ft]

Insulation - Single 0.02 (ft)

U-Value@100°F [W/m²·K] = 0.037
SHGC = 0.423
TVIS = 0.628
Embodied Energy@100°F = 10215.06
Embodied Carbon@100°F = 5.172

Layers (Outside - Inside)

- 1: Solution 77 on Staircase 0.228 [ft]
- 2: Paper 0.02 [ft]
- 3: Solution 77 on Staircase 0.228 [ft]
- 4: Paper 0.02 [ft]
- 5: Solution 77 on Staircase 0.228 [ft]

Heating

1.1 Heating

1.1.1 Heating

1.1.1.1 Heating Energy System (kW)

1.1.1.2 Heating Availability Schedule

1.1.1.3 Heating Temperature Schedule

1.1.1.4 Heating Supply Air Temperature (°F)

1.1.1.5 Heating Demand Air Temperature (°F)

1.1.1.6 Heating Control

1.1.1.6.1 Heating Control

1.1.1.6.2 Max Heating (kW)

1.1.1.6.3 Max Heating (h)

1.1.1.6.4 Max Heating (h)

1.1.1.6.5 Max Heating (h)

1.1.1.6.6 Max Heating (h)

1.1.1.6.7 Max Heating (h)

1.1.1.6.8 Max Heating (h)

1.1.1.6.9 Max Heating (h)

1.1.1.6.10 Max Heating (h)

1.1.1.6.11 Max Heating (h)

1.1.1.6.12 Max Heating (h)

1.1.1.6.13 Max Heating (h)

1.1.1.6.14 Max Heating (h)

1.1.1.6.15 Max Heating (h)

1.1.1.6.16 Max Heating (h)

1.1.1.6.17 Max Heating (h)

1.1.1.6.18 Max Heating (h)

1.1.1.6.19 Max Heating (h)

1.1.1.6.20 Max Heating (h)

1.1.1.6.21 Max Heating (h)

1.1.1.6.22 Max Heating (h)

1.1.1.6.23 Max Heating (h)

1.1.1.6.24 Max Heating (h)

1.1.1.6.25 Max Heating (h)

1.1.1.6.26 Max Heating (h)

1.1.1.6.27 Max Heating (h)

1.1.1.6.28 Max Heating (h)

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1.1.1.6.31 Max Heating (h)

1.1.1.6.32 Max Heating (h)

1.1.1.6.33 Max Heating (h)

1.1.1.6.34 Max Heating (h)

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1.1.1.6.38 Max Heating (h)

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1.1.1.6.40 Max Heating (h)

1.1.1.6.41 Max Heating (h)

1.1.1.6.42 Max Heating (h)

1.1.1.6.43 Max Heating (h)

1.1.1.6.44 Max Heating (h)

1.1.1.6.45 Max Heating (h)

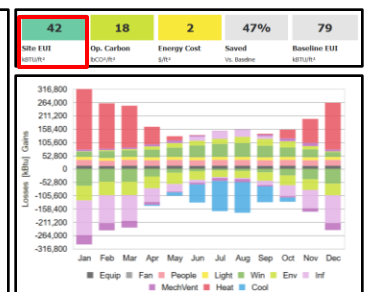
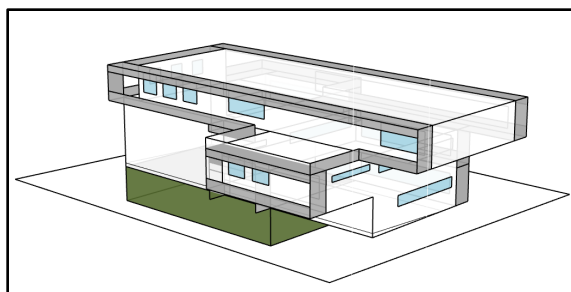
1.1.1.6.46 Max Heating (h)

1.1.1.6.47 Max Heating (h)

1.1.1.6.48 Max Heating (h)

1.1.1.6.49 Max Heating (h)

1.1.1.6.50 Max Heating (h)



Open Space Use Settings

Load: **Condition**

Subscheduling: Space Use

People

- 1.02 People Density (p/sf)
- 1.2 Metabolic Rate (met)
- Occupancy Schedule
- Always On

Dynamic Clustering Model AS-BVX55 Clustering (h)

Equipment

- 0.7 Equipment Power Density (kW/sf)
- Always On
- Equipment Availability: Schedule

Lighting

- 0.7 Lighting Power Density (W/sf)
- Always On
- Light Availability Schedule
- Maintenance Target (hours/week)
- Always On
- Overlighting

PI wall

U-Value@100°F [W/m²·K] = 0.023
R-Value@100°F [h·ft²·°F/Btu] = 43.02
Thermal Capacitance@100°F [BTU/ft²·°F] = 23.279
Embodied Energy@100°F = 20426.93
Embodied Carbon@100°F = 14.475

Layers (Outside - Inside)

- 1: Superinsulation 4.0 (ft)
- 2: SPI Board 0.8 (ft)
- 3: Concrete 0.08 (ft)
- 4: Acoustic Tile 0.018 (ft)

Solution 72 (2) on Staircase - Solution 72

U-Value@100°F [W/m²·K] = 0.1
SHGC = 0.176
TVIS = 0.152
Embodied Energy@100°F = 11202.58
Embodied Carbon@100°F = 1.968

Layers (Outside - Inside)

- 1: Solution 72 on Staircase 0.228 [ft]
- 2: Paper 0.02 [ft]
- 3: Solution 72 on Staircase 0.228 [ft]
- 4: Paper 0.02 [ft]
- 5: Solution 72 on Staircase 0.228 [ft]

Heating

1.1 Heating

1.1.1 Heating

1.1.1.1 Heating Energy System (kW)

1.1.1.2 Heating Availability Schedule

1.1.1.3 Heating Temperature Schedule

1.1.1.4 Heating Supply Air Temperature (°F)

1.1.1.5 Heating Demand Air Temperature (°F)

1.1.1.6 Heating Control

1.1.1.6.1 Heating Control

1.1.1.6.2 Max Heating (kW)

1.1.1.6.3 Max Heating (h)

1.1.1.6.4 Max Heating (h)

1.1.1.6.5 Max Heating (h)

1.1.1.6.6 Max Heating (h)

1.1.1.6.7 Max Heating (h)

1.1.1.6.8 Max Heating (h)

1.1.1.6.9 Max Heating (h)

1.1.1.6.10 Max Heating (h)

1.1.1.6.11 Max Heating (h)

1.1.1.6.12 Max Heating (h)

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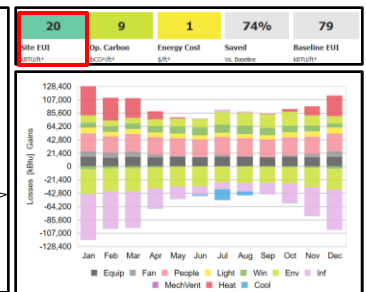
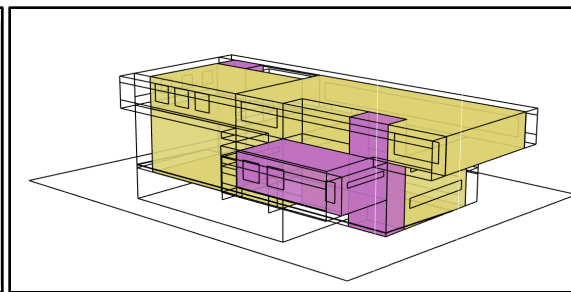
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1.1.1.6.50 Max Heating (h)

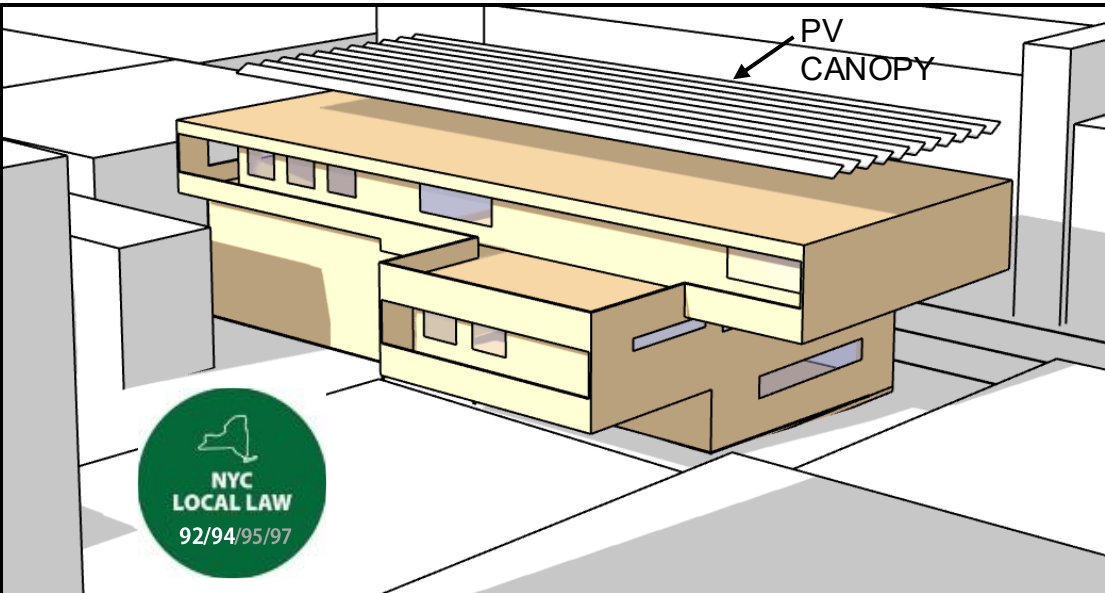
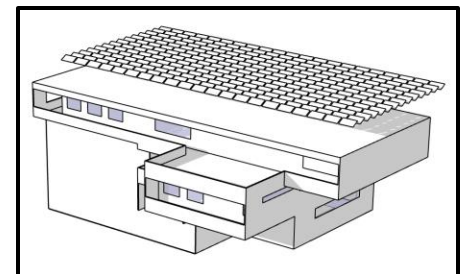
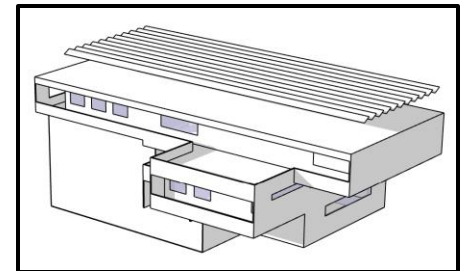
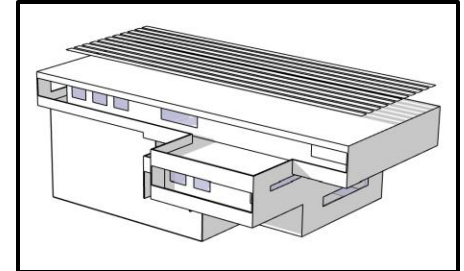
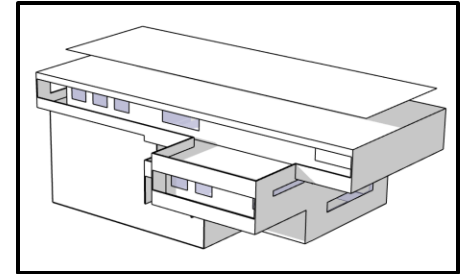
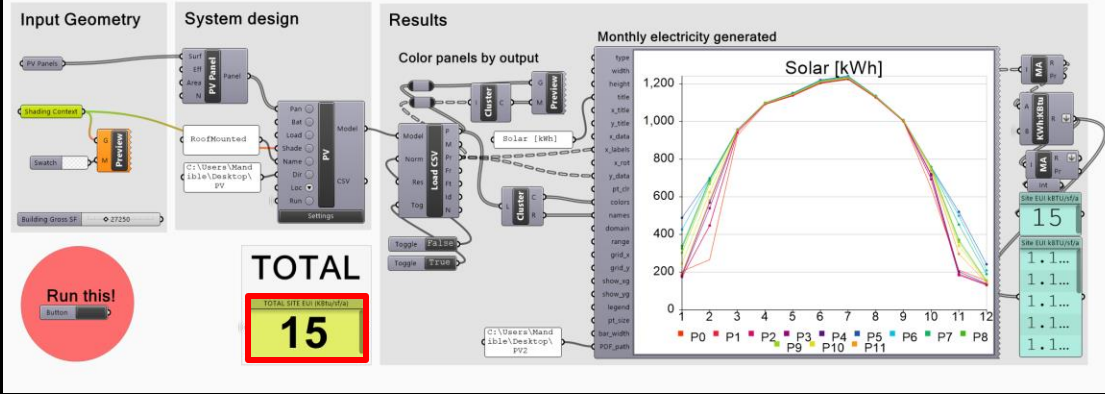


source: SNELL

LLs 95 and 97: energy use. Once set-up, iterations of the thermal analysis simulation are very quick to run, allowing both experimentation with the effect on performance of changing individual variables and a first experience of developing form and performance simultaneously.



SITE ENERGY PRODUCTION Photovoltaics (PV)



source: SNELL

LLs 92 and 94. Using common architectural 3D modeling tools, students can estimate, reconfigure, and iterate photovoltaic energy production for their project at any stage of the design.

Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

Monthly Average Retail Price of Electricity - Commercial

New York - Statewide

Month	2019	2020	2021	2022	2023	2024	2025
January	20.46	18.07	16.04	16.6	14.2	13.1	13.0
February	20.67	18.58	16.48	17.4	15.2	13.3	13.1
March	20.48	17.46	16.80	16.2	15.0	13.3	12.9
April	19.14	17.56	16.24	16.3	15.0	13.2	13.1
May	19.25	17.72	16.47	16.9	15.6	13.5	13.4
June	21.72	19.48	18.47	18.9	17.6	15.7	15.6
July	21.90	20.25	19.00	20.0	18.4	16.8	16.3
August	21.41	20.58	19.81	20.1	18.6	16.9	16.2
September	20.73	20.52	20.22	20.5	19.0	16.0	15.9
October	19.90	18.82	18.0	17.2	15.3	14.6	14.9
November	17.72	17.98	17.9	15.6	14.8	13.4	13.9
December	18.77	16.66	15.9	15.4	14.0	13.4	13.9

Energy data history buildings & energy standards NYC laws NYC building data NYC tools examples

Same Lab datasets

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NYC LOCAL LAW INPUTS

Energy Use Categories

Source	\$\$		CO ₂ e		
	Standard Units	\$/kWh	tCO ₂ e/kBTU	lbCO ₂ /kBTU	kgCO ₂ /kWh
Fuel #2	3.8 \$/g	0.09	0.00007421	0.1636	0.25378065
Fuel #4	3.8 \$/g	0.09	0.00007529	0.1660	0.25747399
NG	11 \$/mcf	0.04	0.00005311	0.1171	0.18162364
Steam	35 \$/mlb	0.1	0.00004493	0.0991	0.15364997
Electricity	0.16 \$/kWh	0.16	0.00008469	0.1867	0.28961977

Building CO₂e Limits (lbCO₂/sf/a)

Code	2024		2029		35-49	2050	
	tCO ₂ e/sf	lbCO ₂ /sf	tCO ₂ e/sf	lbCO ₂ /sf		tCO ₂ e/sf	lbCO ₂ /sf
Occup							
A	0.01074	23.68	0.0042	9.26		0.0014	3.09
B	0.00846	18.65	0.00455	9.99		0.0014	3.09
E	0.00758	16.71	0.00344	7.58		0.0014	3.09
I	0.01138	25.09	0.00598	13.18		0.0014	3.09
F	0.00574	12.65	0.00167	3.68		0.0014	3.09
M	0.01181	26.04	0.00403	8.88		0.0014	3.09
R2	0.00675	14.88	0.00407	8.97		0.0014	3.09
S/U	0.00426	9.39	0.0011	2.43		0.0014	3.09

Legend: user input (blue), LL97 source (yellow), outputs (orange)

Local Law 97 text

LOCAL LAWS OF THE CITY OF NEW YORK FOR THE YEAR 2019

No. 97

§ 28-320.3.1.1 Greenhouse gas coefficient of energy consumption for calendar years 2024 through 2029. The annual building emissions of a covered building in accordance with this section, greenhouse gas emissions shall be calculated as follows for calendar years 2024 through 2029:

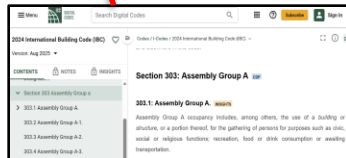
- Utility electricity consumed on the premises of a covered building that is delivered to the building via the electric grid shall be calculated as generating 0.000288962 tCO₂e per kilowatt hour, provided, however, that the department, in consultation with the office of long term planning and sustainability, 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.
- Natural gas combusted on the premises of a covered building shall be calculated as generating 0.00005311 tCO₂e per kbtu.
- #2 fuel oil combusted on the premises of a covered building shall be calculated as generating 0.00007421 tCO₂e per kbtu.
- #4 fuel oil combusted on the premises of a covered building shall be calculated as generating 0.00007529 tCO₂e per kbtu.

§ 28-320.3.1 Annual building emissions limits 2024-2029 For calendar years 2024 through 2029 the annual building emissions limits for covered buildings shall be calculated pursuant to items 1 through 10 of this section. For the purposes of such calculation the department shall provide a method for converting categories of uses under the United States environmental protection agency Portfolio Manager tool to the equivalent uses and occupancy groups set forth in this section. For a covered building with spaces classified in more than one occupancy group, the annual building emissions limit shall be the sum of the calculated values from items 1 through 10 of this paragraph, as applicable for each space.

- For spaces classified as occupancy group A, multiply the building emissions intensity limit of 0.01074 tCO₂e/sf by the corresponding gross floor area (sf);
- For spaces classified as occupancy group B other than as described in item 6: multiply the building emissions intensity limit of 0.00846 tCO₂e/sf by the corresponding gross floor area (sf);

LL97 COMPLIANCE WORKSHEET

Sim #	Allowed Operation Carbon (lbCO ₂ /sf)					Design			Loads			CO ₂			Compliance				PV needed for 2050
	Occup	2024	2029	2035	2050	Run Description	Build area (sf)	LL97 applies	SiteEUI (kBTU/sf)	PV (kBTU/sf)	Total (kBTU/sf)	Co2 (lb/sf)	Coeff CO ₂ /kBTU (lb/sf)	Total CO ₂ (lb/sf)	2024	2029	2035	2050	
a	A	23.68	9.26	TBD	3.09	space use: 1960's; env: concrete; boiler(COP.8); coal	27,250	YES	337	0	337	108	0.32	108.00	NO	NO	TBD	NO	105
b	A	23.68	9.26	TBD	3.09	env: 90.1, .25 cfm/sf	27,250	YES	237		237	82	0.35	82.00	NO	NO	TBD	NO	79



337
Site EUI
kBTU/ft²

15
TOTAL SITE EUI (lbCO₂/ft²)

108
Op. Carbon
lbCO₂/ft²

LL97 compliance modeler. A custom Excel LL97 modeler allows students to understand their designs through the lens of a quantified approach to climate change mitigation... while also giving them a marketable skill in our particular NYC job market.

Does this Building Suck (Energy)?
Decoding Building Performance with Open Data

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NYC laws

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NYC tools
examples
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datasets

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LL97 COMPLIANCE WORKSHEET																			
Sim #	Allowed Operation Carbon (lbCO ₂ /sf)					Design			Loads			CO ₂			Compliance				PV needed for 2050
	Occup	2024	2029	2035	2050	Run Description	Build area (sf)	LL97 applies	SiteEUI (kBTU/sf)	PV (kBTU/sf)	Total (kBTU/sf)	Co2 (lb/sf)	Coeff CO ₂ /kBTU	Total CO ₂ (lb/sf)	2024	2029	2035	2050	
a	A	23.68	9.26	TBD	3.09	space use: 1960's; env: concrete; boil(COP.8); coal	27,250	YES	337	0	337	108	0.32	108.00	NO	NO	TBD	NO	105
b	A	23.68	9.26	TBD	3.09	env: 90.1, .25 cfm/sf	27,250	YES	237	0	237	82	0.35	82.00	NO	NO	TBD	NO	79
c	A	23.68	9.26	TBD	3.09	infil: 0.1cfm/sf	27,250	YES	172	0	172	65	0.38	65.00	NO	NO	TBD	NO	62
d	A	23.68	9.26	TBD	3.09	loads: LPD.7, EPD.7, schedules	27,250	YES	103	0	103	31	0.30	31.00	NO	NO	TBD	NO	28
e	A	23.68	9.26	TBD	3.09	fuel: natural gas	27,250	YES	103	0	103	26	0.25	26.00	NO	NO	TBD	NO	23
f	A	23.68	9.26	TBD	3.09	fuel: electricity	27,250	YES	103	0	103	43	0.42	43.00	NO	NO	TBD	NO	40
g	A	23.68	9.26	TBD	3.09	HVAC: heatpumps	27,250	YES	42	0	42	18	0.43	18.00	YES	NO	TBD	NO	15
h	A	23.68	9.26	TBD	3.09	HVAC: ERV	27,250	YES	39	0	39	16	0.41	16.00	YES	NO	TBD	NO	13
i	A	23.68	9.26	TBD	3.09	natural ventilation	27,250	YES	33	0	33	14	0.42	14.00	YES	NO	TBD	NO	11
j	A	23.68	9.26	TBD	3.09	photocell dimming	27,250	YES	28	0	28	12	0.43	12.00	YES	NO	TBD	NO	9
k	A	23.68	9.26	TBD	3.09	PH optim: gl (U.1,SHGC.22,Vt.51), R-60/40/20	27,250	YES	17	15	2	7	0.41	0.82	YES	YES	TBD	YES	-
l	A	23.68	9.26	TBD	3.09	balconies added (shading)	27,250	YES	18	15	3	8	0.44	1.33	YES	YES	TBD	YES	-

Fuel Name	Fuel Type	PE	CO2 [lb/MWh]
Electricity	Electricity	3.15	1417.571
Natural Gas	Natural Gas	1.09	681.228

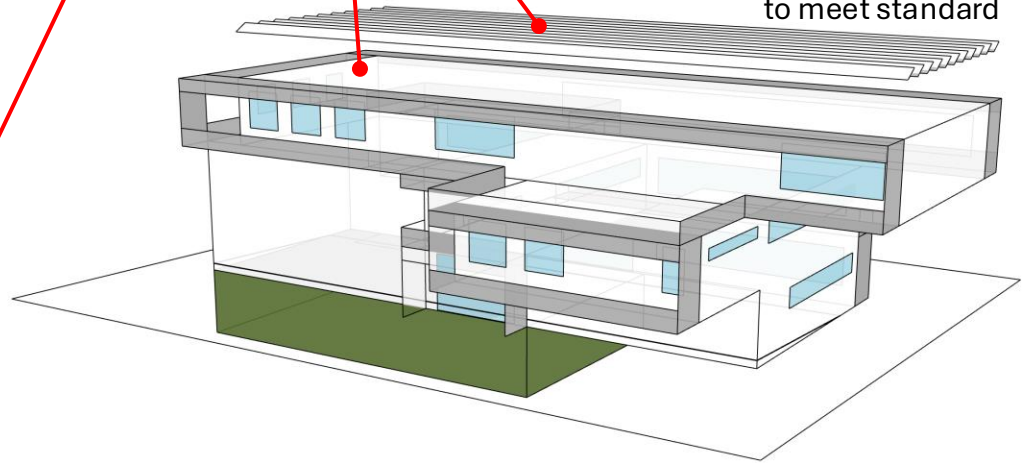
Change	SiteEUI (kBTU/sf)	Co2 (lb/sf)
fuel: natural gas	103	26
fuel: electricity	103	43
HVAC: heatpumps	42	18

Heating

3 HeatingCOP

Electricity

PV production required to meet standard



source: SNELL

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Thank you!



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