

#GasFreeNYC Campaign Memo: Examples of Fossil Free Buildings in NYC

The #GasFreeNYC campaign urges Council Members to co-sponsor and enact Intro 2317 to end gas in new construction and gut renovations. This memo is meant to help establish the feasibility and practicality of such a requirement by highlighting examples of large New York City buildings and projects that meet the criteria of the legislation. The evidence is right before our eyes: Intro 2317's requirements can be achieved with the technology and designs at hand.



For further reference, please see: our [bill memo](#) to support Intro 2317, which includes links to additional analysis; a [letter from industry professionals](#) to the Council endorsing the legislation; and a list of almost [80 fossil free and passive house buildings](#) in New York City, which include a wide range of types and uses of buildings including already-completed projects, projects under development and projects under construction. This memo describes five building projects that do not rely on fossil fuels:

- **100 Flatbush Ave, a 44 story mixed use tower** in downtown Brooklyn with 441 residential units and 30,000 square feet of retail.
- **37 Hillside, a 164 unit, 9 story and 100% affordable residential building** for low-income seniors in Inwood.
- **The House at Cornell Technion, a 26 story building with 352 apartments** on Roosevelt Island.
- **255 Columbia Street, a mid-size residential building with 13 units on 7 floors** on the Columbia Street Waterfront in Brooklyn.
- **555 Greenwich, a 16 story, 270,000 square foot commercial building**, part of the Hudson Square area in the West Village.

There are other large projects in New York City that do not rely on fossil fuels. It's also important to know that fossil free (all-electric) small residential and commercial buildings, including row houses and one and two family homes, are now commonly developed. They typically rely on mini-split heat pumps and electric water heating. This memo provides examples of more complex, larger projects.¹

¹ The views expressed in this memo are the views of the #GasFreeNYC campaign, unless otherwise noted. The campaign's core groups are New York Communities for Change, New York Public Interest Research Group (NYPIRG), Food & Water Watch, and WE ACT for Environmental Justice.

100 Flatbush Ave

In 2018, Alloy Development was designing 100 Flatbush Ave, pictured on the first page of this memo, when National Grid declared its gas “moratorium” on new gas hook ups. The utility’s moratorium was a strong-arm political tactic meant to force then-Governor Cuomo to approve the proposed Williams NESE pipeline. The ploy backfired spectacularly, as developers began to consider non-gas alternatives. National Grid’s business has suffered as developers forged ahead by moving to heat pumps and higher energy efficiency -- and off of gas. Similar moratoriums on gas by utilities in other parts of New York have also spurred shifts to electric.

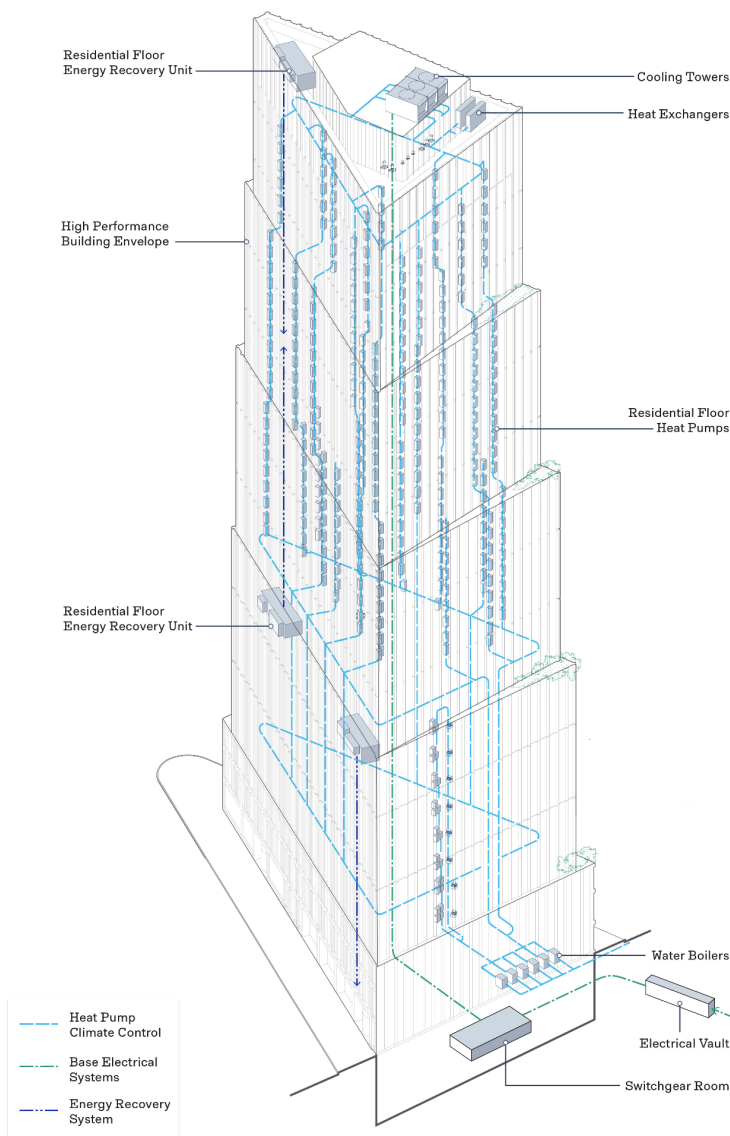
Alloy Development is run by architects. Its leadership has a holistic, green and forward-thinking

mentality. As the moratorium was imposed, Alloy assessed all-electric projects and technology worldwide. The company concluded it could affordably build an all-electric tower, and re-designed its project. Even when the moratorium was lifted, Alloy stuck to its new plan: a 100% electric building.

100 Flatbush Ave relies on high energy efficiency, including heat recovery, heat pumps, and a high performance building envelope. Domestic hot water is electrically-heated. Despite the high cost of electricity in NYC, the building’s energy bills are expected to be below or within the normal range of comparable buildings because energy usage will be much smaller due to high energy efficiency.

100 Flatbush Ave is currently under construction. The building was recently the backdrop for a news conference hosted by the Architects Institute of America - New York, Passive House NY, and the #GasFreeNYC campaign to demonstrate the practical, affordable nature of Intro 2317’s requirements. Alloy Development supports Intro

2137. For more information: David McCarty of Alloy at dmccarty@alloyllc.com



37 Hillside

RiseBoro Community Partnership, a social services organization, has developed several thousand units of affordable housing, including single-family homes and large mixed use developments. The organization has been on the cutting edge of energy efficient practices. RiseBoro's newest development, 37 Hillside, is a 100% affordable 164 unit, 9 story building in Inwood that is 100% electric-powered, including for hot water.



37 Hillside will be a home for low-income seniors, who will be guaranteed maximum energy payments of \$80 a month. RiseBoro is able to track energy use across its HUD-financed properties because its installed heat pumps deliver real-time data and adjustment in each room with a head (the part of the unit that delivers conditioned air). With this data, RiseBoro has determined through real-world experience in its energy-efficient buildings that these systems' reduced energy use translates into financial savings, which can be passed onto residents.

Seniors domestic energy use is typically higher than younger people because seniors are usually home during the daytime, requiring more air conditioning and electricity use, and are more likely to rely on medical equipment that also consumes energy. RiseBoro's real-world experience with energy efficient buildings allows the organization near-certainty over the energy profiles of the seniors who will live at 37 Hillside, which will be so energy efficient that energy use will be vastly lower than most current buildings that rely on gas for heat and hot water.

Averaged out across 164 units, RiseBoro knows that it can deliver affordable energy in the building.



The project's development has an instructive arc: when 37 Hillside was being designed in 2018/2019, RiseBoro wanted to build it all-electric, but was deterred by the relatively untested nature of newer products for heating/cooling and water heating. However, by 2021 newer technology -- larger air source heat pump systems -- had been proven in the real world. As a result, RiseBoro directed its team to re-design the project to eliminate all fossil fuels. 37 Hillside is now under construction in Inwood completely fossil fuel-free. More

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The House at Cornell Technion

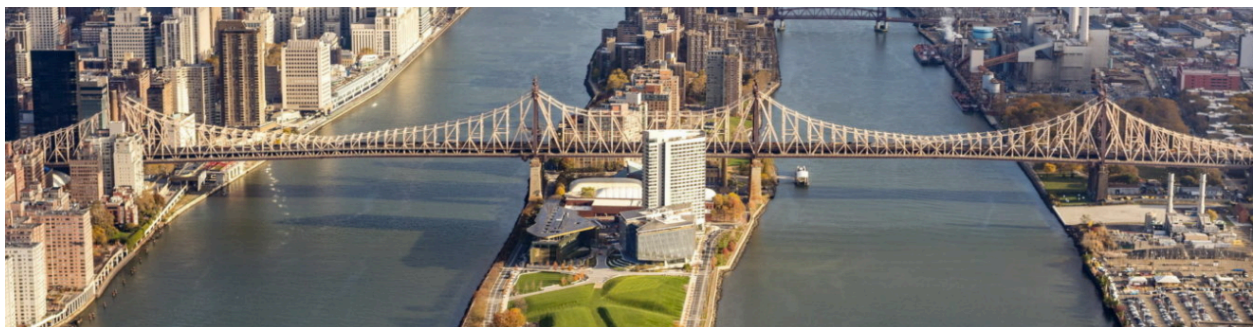
Cornell Technion built the world's first high-rise passive house in 2017. The House, a residence for scholars, has 352 apartments and is 26 floors tall. The project architects, [Handel Architects](#), worked with the Hudson Companies and Related Development to design and construct the building, which was finished on time and on budget.



It's important to note that Intro 2317 does not require "passive house," which is a design certification that strictly limits energy use. Rather, the proposed law requires an end to fossil fuel use only. Affordably maximizing energy efficiency goes hand in hand with achieving this goal: new buildings, developed to be much more energy efficient than existing buildings, lower energy bills. Energy efficient, holistic design and building systems combined with tight air sealing, insulation and good ventilation to drive down energy use. While full "passive house" is not yet the standard in building and energy code, each new comprehensive code update, currently done every three years, helps ensure lower bills.

Due to high energy efficiency, energy bill's are very low in passive houses. At The House, residents often pay less than \$30 per month for heating and cooling, which is fully electrified. Everything from heat recovery systems to a high performance building envelope deliver on passive house construction in a high rise. In this revolutionary case, Cornell Technion undertook the project in part to demonstrate feasibility to the world. The House is now occupied , with students and university employees in residence in about 350 apartments.

Handel Architects [case study of the project](#) helps inform future projects and is a source of further information.



555 Greenwich

This 270,000-square-foot, 16 story commercial development is an addition to the [Hudson Square Properties](#) campus. Developed by Hudson Square Properties, which includes Hines, Trinity Church Wall Street and Norges Bank. The project is designed by COOKFOX architects.

555 Greenwich had its ground-breaking earlier in 2021. It is currently under construction. The building will include retail at the floor level and connect directly to the adjacent 345 Hudson Street.



The project uses low carbon emissive mechanical, electrical, and plumbing systems, and below-grade geothermal piles.

The project will exceed Local Law 97 2030 and 2050 requirements. It is entirely fossil free. It is also the first new office building to rely on its concrete superstructure for thermal energy storage. For more information: Hines development website www.hines.com.



255 Columbia

255 Columbia Street is a more typical size residential building with 13 units in seven stories. It is not a high profile project marketed and hyped by sophisticated media teams. It is simply a normal residential building with extraordinarily low energy bills. It just happens to be a building that a friend of one of the authors of this memo lives in. 255 Columbia previews a cleaner, safer future that's being built across New York City, often under the radar.

255 Columbia relies on electrical heating and cooling through air source heat pumps. Water is also heated electrically. The building used passive house principles in its construction to lower energy use through energy efficiency, including strong insulation and tight air sealing with good ventilation.



The condo board's president, Jenelle Covino, and her husband Elliot Winard own a 3 bedroom apartment with their two kids. Their family's energy use is so low that their heating and cooling costs an average of just \$500 per year. (ConEd bills the building, which passes on the cost to individual units based on their HVAC usage) They also pay about \$1,000 per year for all of their other electrical use, which ConEd bills directly to each apartment, including an induction stove. Janelle relates, "Most of the spring and fall, I don't use any heating or cooling because the building is very well-insulated. My bill for heating and cooling is actually zero those months. In the summer and winter, it is rarely over one hundred dollars."

255 Columbia, located in the Columbia Street Waterfront neighborhood in Brooklyn, is a condominium. HPI Development, a relatively small firm, was the developer. Oddly, the building does use gas in one element: the in-building laundry dryers, incongruously, are gas-fired (which apparently prevented certification for the building as a passive house). Nothing else in the building uses fossil fuels and the gas use is minimal. It is unclear to residents why the developer chose to keep one element on gas, but otherwise the building is entirely fossil free. Regardless, the building is a big success and its residents are pleased with their low energy bills.

For more information contact the building's board: board.255Columbia@gmail.com

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