



FOR IMMEDIATE RELEASE:

KPF and Columbia University Unveil First Purpose-Built, All-Electric Academic Research Lab Building in New York City

The new biomedical research building grows the University's research capacity with laboratory and office space while reducing energy consumption.

New York, New York – April 3, 2024 – Kohn Pedersen Fox (KPF) is pleased to unveil New York City's first purpose-built, all-electric academic research lab building, designed for Columbia University's Vagelos College of Physicians and Surgeons. The new eight-story building will house biomedical research and lab facilities as well as symposium and community engagement spaces. Designed to use significantly less energy than similar buildings of its kind, the new biomedical building will outperform emission limits set by New York City's Local Law 97 and support Columbia University's Plan 2030 greenhouse gas reduction goals. The new building will connect to the Columbia University School of Nursing and Russ Berrie Medical Science Pavilion, creating a unified academic and research facility.

"We are thrilled to be working with Columbia University's Vagelos College of Physicians and Surgeons on this truly cutting-edge research lab facility that is a first for New York City," said **Jill Lerner, FAIA, KPF Principal**. "As a firm, it is our mission to elevate the building blocks of the city through impactful projects like this, and as architects we are keenly aware of the positive impact a program-driven building can have on not only its institution, but also its community and city at large. By increasing Columbia's capacity for research in a state-of-the-art, efficient building, the new building is a win for not only the University, but for all of New York City."

"We are so proud to be laying the groundwork for this innovative new research building at Columbia," said **Katrina Armstrong, MD, Dean of the Faculties of Health Sciences and the Vagelos College of Physicians and Surgeons, Executive Vice President for Health and Biomedical Sciences, Columbia University**. "To create a space that will advance biomedical science, bring us closer to our local community, and help our medical center reduce its carbon footprint all in one is truly remarkable. Our purpose as a university is to drive discovery, educate next-generation leaders, and create inclusive partnerships with our community. This new space will offer the best environment for our people to do all three."

Download images [here](#).

New Electric Research Building Is the First of Its Kind

Aligning with Columbia University's Plan 2030 climate goals to introduce no new fossil fuel infrastructure into campus buildings and to achieve campus-wide net-zero emissions by 2050, diverse sustainable design strategies are embedded into the building's design. Its cutting-edge sustainable design is the result of close collaboration between KPF; Columbia University; and AKF, the project's engineer. The building is expected to perform 30% more efficiently than the ASHRAE 90.1 2010 standard.

"As New York State works toward decarbonizing its electricity grid through investments in renewable energy spurred by legislation such as the New York State Climate Act and Clean Energy Standard, it's vital

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that buildings in our city get ready for this transition,” said **Carlos Cerezo Davila, KPF Director and Head of Sustainability**. “KPF, Columbia, and New York City are showing that it is possible to get there. As an all-electric research lab building in a cold climate, the biomedical research building presented a particular challenge given high heating loads brought on by the ventilation requirements of the building’s program. This required us to design a building where the architecture and the mechanical systems work together in an integrated, energy-efficient whole, demonstrating that all building types—even the most complex—can be a part of a decarbonized built environment.”

Heating and cooling are handled by electric air source heat pumps (ASHPs) that allow for energy recovery between the heating and cooling fluids to provide periods of free tempering during the year. Similarly, air-side energy recovery systems leverage waste heat to reduce the total energy needed to condition the building. A high-performance façade features an optimized window-to-wall-ratio below 50%, while strategic exterior shading and a system of louvers help minimize solar heat gain and glare.

KPF developed an innovative, integrated design process to address the unique challenges of developing a first-of-its-kind electric research laboratory in New York City. Because laboratories have greater ventilation requirements than other building typologies, they require more robust mechanical systems, which typically result in increased energy usage. Working with Columbia University to meet budget and schedule, and sustainability consultant Atelier Ten, the project team introduced a new scope: a pre-design sustainability and energy charrette, designed to evaluate alternative building options and validate project goals. It involved reviewing the existing facilities, comprehensive energy modeling, and benchmarking against local regulations and peer institutions to set sustainability criteria that shaped every subsequent phase.

Putting Science on Display for the Columbia Community

The new biomedical research building’s design integrates biophilic elements such as green walls and natural, renewable materials in collaboration spaces, while a large connecting stair encourages active circulation. Corner lounges promote connectivity and inspiration among researchers. Access to daylight is prioritized with light shelves that minimize glare and reflect natural light into the labs. This ethos extends to the community engagement spaces, where inclusive design at street level connects the research institution to the city and puts science on display.

“Our design for the new building embodies Columbia University’s commitment to innovation, sustainability, wellness, and community,” said **Hana Kassem, FAIA, KPF Principal**. “This was an opportunity to re-envision the lab building as one that invites the community in and gives back to the urban context; most visibly through an engaging street presence, connecting the institution to the neighborhood at the street level. Above, an open stair joins lounge spaces at the corner, fostering collaboration amongst the scientists and maximizing transparency to the research activities taking place within. We are thrilled to have been able to contribute to Columbia’s pioneering vision in delivering the first all-electric academic research lab building in New York City.”

“Early in the design, we employed a highly integrated system of close collaboration to manage an aggressive schedule, market-driven rising costs, comparative analysis, code requirements, height restrictions, and long lead times,” said **Jorge Mendoza, AIA, KPF Principal**. “We’re thrilled with the result, and proud that this project will be the first all-electric academic research lab building in New York City.”

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“AKF and KPF collaborated efforts to develop a facade strategy without overburdening the HVAC systems,” said **Jason Sylvain, AKF’s Partner in Charge** of the project. “Our team developed innovative engineering strategies to take full advantage of heat pump and energy recovery technologies to make sure every kilowatt (KW) introduced to the building is used to its fullest potential.”

“This new building exemplifies both the challenge and opportunity in designing for a zero-carbon future,” said **Nico Kienzl, Director, Atelier Ten**. “By eliminating fossil fuel use for this project, Columbia takes a bold step towards an emissions-free campus and implements the city’s vision of reduced climate impacts today. Combining rigorous analysis, advanced efficiency measures, and an all-electric plant, the building delivers a cost-efficient, high-performance design for such an inherently challenging typology.”

The new biomedical research building is partially funded by a Regional Economic Development Council Grant from the New York State Energy Research and Development Authority (NYSERDA) that supports innovative, low-carbon developments in underserved neighborhoods. Construction on the project is expected to begin in summer 2024.

KPF Expertise

Columbia’s new flagship research building joins KPF’s portfolio of innovative, sustainable projects including **One North Quay**, Europe’s largest and most technologically advanced commercial health and life sciences building, located in London’s Canary Wharf; the **Tisch Cancer Hospital** for Mount Sinai Health System, which repositions the Klingenstein Clinical Center into a state-of-the-art cancer treatment facility; **North Lot 91**, an all-electric supertall tower in Shanghai; **Panorama St. Paul’s**, an office building transformation that takes a circular approach to reusing components of an existing building’s façade in the City of London; and **One Madison Avenue** in New York City, an adaptive reuse project that places a new tower atop an existing building.

About Kohn Pedersen Fox (KPF)

Kohn Pedersen Fox (KPF) is one of the world’s preeminent architecture firms, providing architecture, interior, programming, and master planning services for clients that include some of the most forward-thinking developers, corporations, entrepreneurs, and institutions in the United States and around the world. The firm’s extensive portfolio spans more than 40 countries and includes a wide range of projects from office and residential buildings to civic and cultural spaces to educational facilities. Driven by individual design solutions, rather than a predetermined style, KPF’s mission is to create buildings and places of the utmost quality and contextual sensitivity, providing a valuable impact on the cities they inhabit.

As a global practice with a far-reaching impact, KPF endeavors to design lasting architectural solutions that mitigate their lifecycle impact on environmental resources and that protect and enhance the well-being of the communities they serve. The firm has joined AIA, RIBA, and many of its peers in a joint effort to develop the capabilities to design and deliver carbon-neutral buildings by 2030. KPF has also committed to pursuing science-based greenhouse gas emissions reductions targets across its offices and operations worldwide.



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About Columbia University Vagelos College of Physicians and Surgeons

Columbia University Vagelos College of Physicians and Surgeons (VP&S) is the medical school of Columbia University, and located at Columbia University Irving Medical Center, a clinical, research, and educational campus located in New York City. Founded in 1767, VP&S was the first medical school in the United States to award the Doctor of Medicine (MD) degree. VP&S is committed to providing inclusive and equitable health and medical education, scientific research, and patient care, and working together with our local upper Manhattan community—one of New York City's most diverse neighborhoods. For more information, please visit vagelos.columbia.edu.

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