ARCHITECTURAL FACT SHEET

Jerome L. Greene Science Center
Columbia University Manhattanville Campus

Project Description

The Jerome L. Greene Science Center was designed by Renzo Piano Building Workshop to be a hub for the distinguished neuroscience researchers of Columbia University's Mortimer B. Zuckerman Mind Brain Behavior Institute. The Institute, cofounded by Nobel laureates, comprises specialists ranging from molecular biologists and biomedical engineers to psychologists and data scientists. Like the rest of Columbia's new Manhattanville campus, the building is intended to be a University-wide facility, which will provide a platform for neuroscience researchers to engage with fellow scholars in the arts and humanities, the social sciences and the professional schools. In keeping with Columbia's goal of creating an urban campus that connects with its surrounding neighborhood, the building is open to the public at ground level and is home to a community Wellness Center and an Education Lab, as well as retail stores and restaurants.

LOCATION AND RELATIONSHIP TO THE CAMPUS

The Jerome L. Greene Science Center is one of the three buildings that define the southeastern quadrant of the new 17-acre Manhattanville campus. It is located immediately west of Broadway between 129th and 130th Streets. To its west stands the Manhattanville campus's new Lenfest Center for the Arts. To the south, at the triangular corner of 125th Street and Broadway, stands the University Forum (opening in fall 2018), which completes this initial ensemble of campus buildings.

Like all other new buildings that will be developed for the Manhattanville campus, the Jerome L. Greene Science Center, Lenfest Center for the Arts and the University Forum are glass-enclosed and open to the public at street level. Above street level, the predominant skin of the Jerome L. Greene Science Center is glass; of the Lenfest Center, metal panel; and of the University Forum, prefabricated concrete and glass. The contrasting materials serve the different functions of the three initial buildings while also establishing the architectural palette for the campus.

DESIGN

Renzo Piano Building Workshop

ARCHITECTS OF RECORD

Davis Brody Bond LLP, Executive Architects
Body Lawson Associates, Associate Architects

PROJECT SIZE

450,000 square feet

- 340,000 square feet above grade (nine floors)
- 110,000 square feet below grade (four floors)
- Building footprint: 43,780 square feet
- Building height: 163 feet 9 inches

KEY DATES

Planning initiated: 2003
City Council approval of Manhattanville campus plan: 2007
Beginning of site work: 2008
Manhattanville campus dedication: October 24, 2016
Opened: spring 2017

FLOOR-BY-FLOOR PROGRAM

- **Below Grade:** Research facilities and mechanical support
- **Ground Level:** Entrance, security desk, elevator lobby, temporary loading dock and public spaces: retail stores, Wellness Center, Education Lab and Synapse

  Wellness Center: 1,960 square feet for community health-screening services under the direction of Dr. Olajide A. Williams, chief of staff/chief medical officer of neurology at Columbia University Medical Center and founder of the internationally recognized public health intervention programs Hip Hop Public Health and Hip Hop Stroke

  Education Lab: 1,500 square feet for neuroscience education for the community and K-12 schools, including six lab benches, one teacher's lab bench and a media wall

  Synapse: An interactive, artistic installation where the public can learn more about the brain research being conducted in the building
- **Level 2:** Mechanical support space
- **Levels 3 through 9:** Laboratories, offices, meeting rooms, interaction spaces and support spaces; outdoor terraces on Levels 8 and 9; lecture space on Level 9 for up to 320 people
- **Roof:** Mechanical space

PRINCIPAL DESIGN FEATURES

• Open-Floor Concept and Corner Interaction Spaces

The design of the Jerome L. Greene Science Center allows new ideas to flow through the building's open spaces, stairways and corridors. It fuels scientific discoveries by clustering meeting rooms around the core at levels 3 through 9 and ringing them with open-plan laboratory areas, with interactive spaces (including kitchens and open staircases) situated at the corners.

• Double Wall System

To shut out noise—an imperative for a research facility built immediately next to a busy truck route and elevated train—and to control temperature, the curtain wall on the northeast, southeast and southwest sides is made up of a double wall system. Glass of different compositions is used for the inner and outer layers to achieve light, noise and thermal requirements. Air that is exhausted from the main HVAC system passes through a 16-inch cavity between the layers to help cool the building during the summer and heat it in the winter.

• Urban Layer

To promote a walkable city and forge connections with the neighboring community, the ground floor's "street wall" is characterized by reversed setbacks, widened sidewalks, height limitations and the complete transparency of a custom-glazed curtain wall system. Canopies framed within the exterior steel columns project from the façade at two quadrants, extending both shelter and a welcome.

PRINCIPAL STRUCTURAL AND MECHANICAL FEATURES

• Foundation

To mitigate vibration—a necessity for a facility in which researchers use minutely calibrated instruments—the foundation is reinforced, poured concrete with a mat slab. The foundation also features a slurry wall, load-bearing piles to support columns and a drainage course with a structured slab above.

• Structure

The building's structure is a steel frame with metal decking. Exposed architectural and structural steel elements such as columns and girders are painted with intumescent paint within the occupied floors.

• Chilled Beams

Cooling systems using chilled water are hung from the ceilings at the perimeter of the floors and within the major open laboratory spaces. The chilled water is produced by two electric-power-driven chillers located in a below-grade central energy plant.

• Radiant Heat

To help reduce the energy load, radiant heat from hot water supplied from the central energy plant circulates through polypropylene tubing embedded in the concrete floor slab at the perimeter of the building on each floor.

• Air Handling System

The air handling units located on the roof and in the second-floor mechanical room are equipped to recover heat from the exhausted air and add it to the supplied air.

• Motorized Shades

The inner layer of the double curtain wall houses motorized shades that are controlled by sensors on the roof. The automated shades minimize the solar heat gain entering the building's perimeter areas.

• Daylight Harvesting

Lighting control systems dim the electric lights in response to changing conditions of daylight, reducing energy consumption.

MANHATTANVILLE CAMPUS

The largest and most ambitious capital project undertaken by Columbia University since its landmark Morningside Heights campus (McKim, Mead and White, dedicated 1896), the Manhattanville campus was proposed by University President Lee C. Bollinger in 2003. It is designed to provide the innovative academic space that will keep Columbia at the forefront of the world's research universities and fulfill its mission to address society's challenges through the creation of new knowledge. Defining Columbia's building footprint for decades to come, the 17-acre campus is intended to create a different kind of space than in the past, with facilities that encourage the University-wide, cross-disciplinary interaction that is crucial to advances in all fields, and reflective of New York's dynamism. At the same time, the open, sustainable campus is designed to deepen the connections between Columbia and its local community, so that the City and the University can enliven and strengthen each other. The Manhattanville campus plan will enable Columbia to extend beyond its beloved but enclosed Morningside Heights setting with an open, welcoming campus, embedded in New York's existing street grid without traditional gates or barriers. The long-term plan will eventually create 6.8 million square feet of new academic space, as well as more than an acre of publicly accessible green space, landscaped paths and street-level commercial and civic facilities open to the public.

Situated a few blocks northwest of Morningside Heights, the Manhattanville campus occupies an area from 125th Street to 133rd Street, and from either side of Broadway to 12th Avenue. The site was characterized since the late 19th century by industrial buildings, some of which will be adaptively reused amid the new construction. Distinct from the campus, but directly connected with it and financially supported by Columbia, is the West Harlem Piers Park on the Hudson River.

DESIGN AND CONSTRUCTION TEAM

Design: Renzo Piano Building Workshop
A. Chaaya (Partner in charge), S. Drouin (Associate), K. Doerr (Associate), R. Tse, with L. Coreth, E. Garnaoui, C. Ruiz, and W. Antozzi, F. Becchi, A. Belvedere (Partner), M. Busk-Petersen, E. Chassang, P. Colonna, N. Delevaux, A. Fritzlar, C. Issanchou, B. Malbaux, A. Saoud, T. Zamfirescu, J. Lim, K. Songkittipakdee, R. Subramanian; O. Aubert, C. Colson, Y. Kyrkos (models)

Architect of Record: Davis Brody Bond LLP
Associate Architect: Body Lawson Associates
Landscape Architect: Field Operations
Structural Engineer: WSP/Parsons Brinkerhoff
MEP and IT Engineer: Jaros Baum & Bolles
Façade: IBA
Geotechnical Engineer: Mueser Rutledge Consulting Engineers
Civil Engineer: Stantec
Transportation Engineer: Sam Schwartz Engineering
Code Consultant and Lighting Consultant: Arup
Sustainability Consultant: Atelier Ten
Security Consultant: Aggleton and Associates
Lab Planning Consultant: Jacob Consultancy
Waterproofing Consultants: WJE Engineers & Architects
Acoustic and Vibration Consultants: Shen Milson & Wilke, Inc.
Materials Handling Consultant: SEA Consultant Inc.
Vertical Transportation Consultant: Van Deusen & Associates
Cost Consultant: Davis Langdon
Construction Manager: Lendlease US Construction