

TEAM, CONSTRUCTION AND BUILDING FACTS

THE TEAM

- Owner: Howard Hughes Medical Institute—Robert H. McGhee, Institute architect and senior facilities officer
- Architect: Rafael Viñoly Architects PC, New York City—Rafael Vinoly, Jay Bargmann, Charles Clements, Sami Basuhail, Charles Blomberg, David Hodge, Tsune Tsuda
- Structural Engineer: Thornton Tomasetti Group, Washington, DC
- Mechanical/Electrical/Plumbing (Landscape Building): Burt Hill Rittleman Kosar Associates, Washington, DC
- M/E/P (Guest rooms and Housing Village): Flack & Kurtz, New York, NY
- Glass: Enclos, Eagan, MN
- Landscape Design, Civil Engineering: Dewberry & Davis, Fairfax, VA
- Owner's Representative: The Mark Winkler Company, Washington, DC (now Duke Realty, Alexandria, VA)
- Project Manager: Jacobs Facilities Inc., Washington, DC
- General Contractor: Turner Construction, Washington, DC

CONSTRUCTION FACTS

THE SITE

- 689 total acres, wooded and meadows
- 60 acres developed
- Cost: \$500 million
- Completion: September 2006
- Approximately 400,000 cubic yards total excavated material
- Approximately 200,000 cubic yards of stone excavated
- Approximately 110,000 cubic yards total stone crushed on site for backfill and road beds

- Excess excavated earth and stone used to create naturalized meadows on site
- 2 acres of wetland mitigation area
- Public road improvements: extended Riverside Parkway and improved Rte. 7 intersection
- Preservation of 17-acre home lot, Manor House, and associated historic vista. The Manor House is listed on the National Register of Historic Places.

100% RECYCLING OF TREES CUT ON SITE

- Stumps and softwoods ground into mulch
- Small trees and limbs chipped for waste-to-energy plant
- 35,000 board feet of hardwoods milled into random-width plank flooring for guest rooms and visitor housing

TOTAL CONSTRUCTION MAN-HOURS FOR THE PROJECT

- Approximately 2,750,000

COMPARABLE FOOTPRINTS

- Landscape Building: 317,000 gross square feet
- Dulles International Airport main terminal: 240,000 square feet (1,200' x 200')
- Flight deck of the USS John F. Kennedy aircraft carrier: 265,000 square feet (1,052' x 252')
- If stood on end, the Landscape Building would equal the height of an 85-story building and would exceed the height of the Eiffel Tower (986')

BUILDING FACTS

STRUCTURE

- Hybrid steel frame and reinforced concrete to allow for clear span requirements and low floor vibration needed for labs

CONCRETE

- 66,000 cubic yards of concrete
- 4,700 tons of reinforcing steel
- 4 tower cranes and 2 on-site batch plants utilized at peak of concrete placement

STEEL

- Total of 3,200 tons
- 90-foot clear span for column-free labs, giving an unobstructed view into and from the labs. In conjunction with the glass corridors, this creates a unique building without an apparent structural frame.
- Cross-section size comparable to highway bridge sections

MECHANICAL

- Central plant (100,000 square feet on two levels) within building footprint
- 3 gas-fired steam boilers (two 1,500 horsepower and one 900 horsepower)
- 5 cooling towers at 1,200 tons each
- 5 chillers at 1,200 tons each
- 15 air-handling units at 45,000 cubic feet per minute

ELECTRICAL

- Three 35-kilovolt-ampere substations
- Emergency power: three 2,000-kilowatt generators with catalytic converters power all critical equipment as well as telecom switches, lab lighting, and some lab outlets
- Street lighting: custom-designed, light-emitting diodes (LEDs) manufactured in Krakow, Poland

STONE FLOORING

- First-floor stone: approximately 43,000 square feet of Italian Basaltina, the same material used in Roman sidewalks and portions of the Vatican
- Stone treads for Feature Stairs: black granite from India

GLASS

- One of the largest installations of structural glass in the United States (147,000 square feet)
- Installation time: 85,000 man-hours
- Manufactured in Belgium
- Assembled in Albany, New York and New Brunswick, Canada
- Design demanded the outer limits of glass-production capabilities
- 60 custom dies manufactured for aluminum extrusions
- Glass doors from Singapore, later assembled in California
- System's performance and design validated by one year of independent testing

MILLWORK AND WOOD FLOORING

- Hand-selected maple veneers from Michigan trees
- Veneers laid up (layered) in Indiana and assembled into finish work in Providence, Rhode Island
- End-grain hornbeam harvested from Germany and Austria and cut in France
- End-grain mesquite used in flooring in the pub

LANDSCAPE

- Low-impact, drought-resistant plants and design
- 180,000 square feet of green roof with cell gardens (second largest green roof in the United States)
- Storm water retention provided by two man-made lakes fed by roof drainage, ground run-off, spring, and deep well; water used for irrigation and wildlife
- Preservation of third farm pond as amenity along new public roadway

SCIENTIFIC EQUIPMENT AREAS

- 37' clear height by 13,000 square feet for large equipment, with isolated slab construction
- Additional 30,000 square feet of non-programmed space for electron microscopy and other scientific uses to be determined

LABS

- Thirteen 3,000-square-foot lab units and 8 smaller units at approximately 1,200 square feet each, with equal amounts of adjacent support space
- Custom-designed, flexible, and interchangeable lab bench system, UL listed
- All areas quickly convert from bench system to computer labs or robotics uses
- Open design to facilitate interaction and collaboration between researchers
- All labs have north-facing glass walls for natural light and unobstructed views of cell gardens
- Column-free 90' clear-span open plan
- Finished ceiling height: 11 feet
- Floor-to-floor height: 17'-6"
- Seamless epoxy rubber flooring in all laboratories
- Stainless steel and maple casework
- Epoxy bench tops
- All utilities are fed to lab benches from below the floor, with no horizontal runs of utilities above the floor

PUBLIC AREAS AND CONFERENCE FACILITIES

- Full conference facilities including library, 250-seat auditorium, 100-seat seminar room
- Full commercial kitchen
- Dining facility: seats 250-plus
- Two large structural glass and stainless steel staircases to enhance visual and physical connection between lower public floor and conference facilities and two upper floors of labs

DATA CENTER

- 10,000 square foot capacity; 5,000 square feet fitted out
- 142 tons air conditioning
- 100 watts per square foot of power

COMMUNICATIONS

- Two independent access points to offsite facilities for redundancy
- Hardwired and wireless systems in building for tele/data/network
- Voice-over-IP technology for telephone system
- Approximately 1,300,000 linear feet of fiber and copper cabling