

BURROUGHS WELLCOME HEADQUARTERS
(Elion Hitchings Building)
3030 East Cornwallis Road
Durham
Durham County
North Carolina

HABS NC-418
HABS NC-418

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY
National Park Service
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240

HISTORIC AMERICAN BUILDINGS SURVEY
BURROUGHS WELLCOME HEADQUARTERS

(Elion-Hitchings Building)

HABS No. NC-418

Location: 3030 East Cornwallis Road, Durham, Durham County, North Carolina

The former Burroughs Wellcome Headquarters is located at latitude: 35.911971, longitude: -78.869282. The coordinate was taken at the main entrance and was obtained in 2018 using Google Earth (WGS84). There is no restriction on its release to the public.

Present Owner: United Therapeutics

Present Use: Vacant, renovation and extension planned

Significance: The Burroughs Wellcome Corporation Headquarters in Research Triangle Park, North Carolina was designed by Paul Rudolph starting in 1969 and completed by the Daniels Construction Company in 1972. Planned as an “M.I.T. of North Carolina” this area between Raleigh and Durham was developed starting in the 1950s as a center for high-tech corporate research to attract and keep a highly educated, white-collar population in a Jim Crow state.¹ Research Triangle’s ability to lure the pharmaceuticals giant Burroughs Wellcome, a company with roots in nineteenth century England, away from their suburban New York headquarters solidified the area’s status as a significant economic center no longer merely on the regional, but now also on the national scale. The design and construction of the new Wellcome Headquarters building was a significant affair and was meant to make a statement regarding the company’s new modern image and illustrate the advanced state of laboratory research and pharmaceutical work in the Research Triangle.² Paul Rudolph worked with the corporation to design facilities that would accommodate a wide range of functions, including administrative rooms, animal quarters for testing, chemical laboratories with appropriate ventilation equipment, training facilities and an extensive library, among other spaces. The relationship that the architect developed with the Burroughs Wellcome

¹ For a history of Research Triangle Park and broader developments of high-tech research enclaves, see Alex Sayf Cummings, “‘Brain Magnet’: Research Triangle Park and the Origins of the Creative City, 1953-1965,” *Journal of Urban History* 43 (3) (2015): 470-492.

² Indeed, the Corporation’s 2005 institutional history notes that “with soaring inner spaces and a dramatic exterior, the building became a local landmark and a symbol not only of the company’s futuristic vision but also the high-technology park itself.” See Mirinda J. Kossoff, ed., *History of the Burroughs Wellcome Fund, 1955-2005* (Durham: Burroughs-Wellcome, 2005).

Corporation leadership was unusually long-standing and the business commissioned Rudolph's office to design the headquarters' expansion in the 1980s.³

The building is notable for its futuristic design, frequently described as Brutalist, marked by an exposed concrete and aggregate exterior and slanted steel columns that intersect in V-shapes and give the structure its distinctive appearance.⁴ While spatially liberating and architecturally provocative, the distinctive structural system also uncomfortably restricted workers' movements and necessitated custom-designed furniture to fit the unusual interior volumes and structural protrusions. The design is informed by Frank Lloyd Wright's Fallingwater (1935) and echoes aspects of Rudolph's late 1960s design for the Lower Manhattan Expressway (1967-1972).⁵ The structural system employed in the building also showcases the architect's interest in industrial construction methods and the use of prefabricated panels for exterior and interior partitions. Rudolph likewise experimented with the integration of novel materials and exterior treatments, including new welding processes, use of Plexiglas and Boncoat exterior coating, which at times caused considerable maintenance challenges.

In terms of interior design, the building offers expansive multi-story gathering spaces with spot lighting exposing the irregular structural system. Bright carpets that blended red, orange, and pink colors were installed in communal areas to add to the drama of the headquarters. Other spaces that received extensive attention include research laboratories with state of the art equipment and custom-fitted cabinetry, and animal quarters, which quarantined and housed mice, dogs, cats, and rabbits. The grounds that surround the headquarters, both the plantings as well as the parking lots, were likewise studied extensively and arranged thoughtfully to display the building in the most flattering circumstance. Before the construction workers even broke ground, some hailed the structure to be a milestone in the country's business architecture.

Historian:

Vyta Baselice, The George Washington University, 2018 HABS-SAH
Sally Kress Tompkins Fellow

³ According to Tim Rohan, Paul Rudolph was commissioned to expand his original designs only by two funding bodies, the University of Massachusetts, Dartmouth, and Burroughs Wellcome. See Tim Rohan, *The Architecture of Paul Rudolph* (New Haven: Yale University Press, 2014), 222.

⁴ The futuristic nature of the building was most notably employed in the 1983 science fiction film *Brainstorm*, directed by Douglas Trumbull and produced by Metro-Goldwyn-Mayer.

⁵ See Paul Goldberger, "Architecture: Show of Rudolph's Work," *The New York Times*, 5 July 1979, 14.

PART I. HISTORICAL INFORMATION

A. Physical History:

1. **Date of erection:** 1969-1972
2. **Architect:** Paul Rudolph (1918-1997).

Paul Rudolph was born in Elkton, Kentucky to a Methodist minister and educator, the Reverend Dr. Keener L. Rudolph and amateur artist, Eurie Stone Rudolph (1890-1981). Although he learned discipline early through regular practice of piano, painting, and drawing, Rudolph terminated his music pursuits after placing second at a national competition in Chicago at the age of fourteen. The young man became more interested in architectural design after his father commissioned plans for a new church. The Rudolph family's frequent relocations (estimated fourteen times) also added to the teen's familiarity with different architectural styles and forms of urban development. In high school, Paul Rudolph also took after-school classes in painting and sculpture with Ida O'Keeffe, sister of the modern artist Georgia O'Keeffe.⁶

Paul Rudolph enrolled at Athens College to study art and then transferred a year later to the Alabama Polytechnic Institute in Auburn, Alabama (now Auburn University) to study architecture. The curriculum was based on the Beaux-Arts instructional methods, which focused on classically-inspired ideas that emphasized balance, order, and symmetry.⁷ While Rudolph claimed the approach had little influence on his design, he confessed later in life that European design shaped his thinking about urban development, scale, and monumentality. Rudolph also admitted, for example, that he visited the Acropolis, an ancient citadel in Athens, Greece, at least once a year.⁸ Despite the focus on classical traditions, Rudolph was also exposed to modernist design and was especially influenced by Frank Lloyd Wright. The famed designer was an inspiration both in terms of his sensitive approach to movement through space as well as in his thoughtful crafting of a provocative self-image. Despite his classical training, Rudolph's undergraduate thesis interrogated questions of ornament – a central issue for modernists. Many modernist architects believed that ornament was an antiquated relic that had no place in modern aesthetics, which ought to focus on efficiency and purity of form.⁹ The project also afforded the young

⁶ Rohan, 8-9.

⁷ Beaux-Arts was initially taught at the Ecole des Beaux-Arts in Paris, where architects learned how to organize their designs based on classical principles of symmetry, order, and balance. Many notable American architects, including Henry Hobson Richardson, Daniel Burnham, Julia Morgan, and Louis Sullivan, studied under this system. The instruction method was later adopted by countless American programs training architects. One of the most renowned design efforts that embraced Beaux-Arts traditions was the Chicago Columbian Exposition of 1893. For more information on the origins and manifestations of Beaux-Arts, see Arthur Drexler and Richard Chafee, eds., *The Architecture of the Ecole des Beaux-Arts* (New York: Museum of Modern Art, 1977); Jean Paul Carlhian and Margot M. Ellis, *Americans in Paris: Foundations of America's Architectural Gilded Age: Architecture Students at the Cole des Beaux-Arts, 1846-1946* (New York: Rizzoli, 2014).

⁸ Paul Rudolph, *Writings on Architecture* (New Haven: Yale University Press, 2008), 133.

⁹ This attitude was largely based on a lecture given by Adolf Loos in 1910, in which he referred to ornament as a crime. The lecture and Loos' other writings were published widely in the West and informed many architects,

architect an opportunity to learn about new materials like Lucite and Plexiglas, with which he would continue to experiment throughout his life and rather extensively at the Burroughs Wellcome building.

Following the 1940 completion of his first project, a residential design for one of the professors at API that won him a prize from the American Institute of Decorators, Rudolph took a year off before starting graduate school at Harvard University on a scholarship. He first worked for a large Birmingham architecture firm, E. B. Van Koeren, before moving to Florida to work on modernist residential houses with architect Ralph Twitchell. At Harvard, Rudolph studied with Walter Gropius, a German architect and founder of the Bauhaus School, who promoted a design approach that embraced industrial forms and manufacturing methods. However, Rudolph only stayed at Harvard for two semesters as the United States entered World War II after the attack on Pearl Harbor on December 7, 1941.¹⁰ Rudolph worked for the Navy, spending his time primarily on ship design and construction, an experience he later reflected was particularly important for his development and thinking about materials, industrial construction methods, and labor.

After the war, Rudolph returned to Florida, where he became Twitchell's associate and later partner. He also returned to Harvard briefly in 1946 to complete his degree in only one semester. Upon graduating, Rudolph received the prestigious Wheelwright Travelling Fellowship, which took him on an architectural tour of Europe. Upon his return, Rudolph continued his work in Florida and began teaching at architectural schools across the country. By 1954, the young architect was well-known nationally for his regional residential design and innovative applications of new materials, like spray-on plastics. Maintaining his personal architectural practice that now included larger institutional commissions (including a high-profile embassy project in Jordan) and continuing with teaching, Rudolph was appointed as chairman of Yale University's Department of Architecture in 1958.¹¹ The 1960s was a particularly fruitful decade for Rudolph, during which he designed many notable architectural works, including the Government Service Center in Boston (1962-71), Orange County Government Center in Goshen, NY (1963-71), University of Massachusetts – Dartmouth campus buildings (1964-66), and his own residence in New York City (1967-97), among many others. As some scholars have noted, Rudolph benefitted greatly from the governmental funding of urban renewal projects in various American cities that aimed to eliminate so-called slums and free up space for public spaces and infrastructure.¹² He served as Chair of the Department of

including Walter Gropius and his Bauhaus school. See Adolf Loos and Benedetto Gravagnuolo (ed.), *Adolf Loos: Theory and Works* (New York: Rizzoli, 1982). For a broader history of this debate, see Debra Schaffer, *The Order of Ornament, the Structure of Style: Theoretical Foundations of Modern Art and Architecture* (New York: Cambridge University Press, 2003); Antoine Picon, *Ornament: The Politics of Architecture and Subjectivity* (New York: Wiley and Sons, 2013).

¹⁰ Rohan, 13-14.

¹¹ Rohan, 14-54.

¹² For a specific discussion of Rudolph and urban renewal, see Lizabeth Cohen and Brian D. Goldstein, "Paul Rudolph and the Rise and Fall of Urban Renewal," in *Reassessing Rudolph*, ed. Timothy Rohan (New Haven: Yale School of Architecture, 2017), 15. For a general history of urban renewal in the United States, see Christopher

Architecture for six years, returning to private practice in the early 1970s after a fire destroyed his Art and Architecture building at Yale (1958-1964).¹³ The building was later restored and expanded by Gwathmey Siegel & Associates in the 2000s. With the growing popularity of postmodernism, and Brutalism falling out of fashion (and even signaling authoritarian politics that were actively protested on university campuses across the country), Rudolph spent the rest of his career designing large-scale residential and corporate buildings in Asia.

3. Original and subsequent owners, occupants, uses:

Burroughs Wellcome (1969-1995): Burroughs Wellcome & Co. (USA) Inc. is a member of the international group of companies owned by the Wellcome Foundation, Ltd., London, England, which is wholly owned by the Wellcome Trust. Since its 1955 founding in the US with headquarters in Tuckahoe, New York, it manufactured the Empirin Compound and more than 90 other medicinal products, including analgesics, antihistamines, anti-malarial drugs, cardio-vascular drugs, muscle relaxants, and drugs used to treat diabetes, gout, leukemia, and forms of cancer. In the late 1960s, the company proudly advertised that its products were so widespread that astronauts Armstrong, Collins, and Aldrin carried their supplies on their historic moon flight.¹⁴ At the time the company hired Paul Rudolph to design its new headquarters, Burroughs Wellcome was experiencing encouraging growth with profits more than doubling since 1964. In addition to its headquarters, the company maintained a branch office and warehouse in Burlingame, California, and a subsidiary company in Monterrey, Mexico. In 1988, the company changed the name of the building to the Elion-Hitchings Building to honor Nobel prize-winning chemists Gertrude Elion and George Hitchings.

Glaxo-Smith-Klein (1995-2012): Burroughs Wellcome and Glaxo merged in 1995 to form Glaxo Wellcome plc.¹⁵ The company merged again in 1998 with SmithKline Beecham, becoming the world's second-largest company after General Electric.¹⁶ GlaxoSmithKline sold the headquarters building and a total of 140 acres of land to United Therapeutics for \$17.5 million in 2012.¹⁷

Klemek, *The Transatlantic Collapse of Urban Renewal: Postwar Urbanism from New York to Berlin* (Chicago: University of Chicago Press, 2011); Francesca Russello Ammon, *Bulldozer: Demolition and Clearance of the Postwar Landscape* (New Haven: Yale University Press, 2016); Lawrence J. Vale, *Purging the Poorest: Public Housing and the Design Politics of Twice-Cleared Communities* (Chicago: University of Chicago Press, 2013).

¹³ For a chronology of Paul Rudolph's work, both built and unbuilt, see

http://prudolph.lib.umassd.edu/chronological_list (accessed June 11, 2018).

¹⁴ News Release, Burroughs Wellcome Co., August, 21, 1969, pg. 4, Library of Congress, Paul Rudolph Papers, PR13 CN 2001:126, PMR 3003-1, Box 13, Folder 8.

¹⁵ Richard W. Stevenson, "Glaxo Offers \$14 Billion for Wellcome," *The New York Times*, 1995,

<https://www.nytimes.com/1995/01/24/business/company-news-glaxo-offers-14-billion-for-wellcome.html> (accessed August 26, 2018).

¹⁶ "The Mother of All Mergers," *The Economist*, 5 February 1998,

<https://www.economist.com/business/1998/02/05/the-mother-of-all-mergers> (accessed August 26, 2018).

¹⁷ Amanda Hoyle, "Deed Records Reveal Sale Price, Billionaire Buyer of GSK's RTP Campus," *Triangle Business Journal*, 1 June 2017, 3:53 pm, <https://www.bizjournals.com/triangle/news/2017/06/01/deed-records-reveal-sale-price-billionaire-buyer.html> (accessed August 26, 2018).

United Therapeutics (2012-Present): United Therapeutics was founded in 1996 as a biotechnology company with headquarters in Silver Spring, Maryland and offices in North Carolina; Quebec; Melbourne, Florida; and New Hampshire. Some of the company's major products include the pulmonary arterial hypertension drugs Remodulin, Tyvaso, and Orenitram. The company has been expanding its research interests and manufacturing technologies from drugs to transplantable organs through subsidiary Lung Biotechnology. United Therapeutics also owns the US arm of the Roslin Institute, which created Dolly the Sheep, the world's first mammal to be cloned from an adult cell.¹⁸ After purchasing the structure in 2012, the company demolished 400,000 sq. ft. of the building due to maintenance costs, retaining 150,000 sq. ft. of the original 1969 design. United Therapeutics plans to transform the campus and rehabilitate the remaining Rudolph design with sustainability in mind, eliminating the site's carbon footprint.

4. Builder, contractor, suppliers:

Builder: Daniel Construction Co. of Greenville, North Carolina

Engineer: Lockwood Greene Engineers, Inc., New York City and Greenville, North Carolina

Structural steel and miscellaneous metal: Peden Steel Company

Reinforcing steel and wire mesh: Florida Steel Company

Concrete material: Concrete Service Company

Sprayed-on asbestos fireproofing: Tomlinson Engineering Company

Crematorium for animals: Kellogg Mann

Elevators: Southern Elevator

Cold rooms and special rooms: Freezer Box Division of Annapolis Yacht Yard

Drywall: Partitions, Inc.

Hardware: Cook and Boardman

Metal deck, paint, carpet, millwork: Inland-Ryerson

Electrical: David Electrical Constructors

HVAC: Bahnsen Service Company

Pipe insulation: Covil Insulation Company

5. Original plans and construction:

Paul Rudolph conceived the 300,000 sq. ft. project to be a manmade extension of the hill, following the contours of the 66-acre site (Figures 1 & 2).¹⁹ Visitors were to walk up to the building using an ascending flight of stairs, leading to a spacious terrace and front entrance, meant to reference the influence of Southern Greek Revival architecture.

Although the starkly modernist building appears to share few similarities with antebellum houses of the Old South, it borrows several key features, like the celebratory procession to the entrance, rich interior colors, and the prominent columns that shelter a large plaza.

¹⁸ Tine Reed, "United Therapeutics Upping the Ante on R&D Spending," *Washington Business Journal*, 27 October 2017, <https://www.bizjournals.com/washington/news/2016/10/27/united-therapeutics-upping-the-ante-on-r-dspending.html> (accessed June 13, 2018).

¹⁹ Per the Research Triangle Park's zoning regulations, only 15 percent of a site could be used to build upon. The 1969 plan expected the building to occupy only three acres of the massive site, leaving nine acres for future expansion (already anticipated in the early planning stages of the structure).

The hike to the entrance was also meant to expose visitors to a monumental 30 ft. tall sculpture of a unicorn, the corporate symbol of Burroughs Wellcome that was never built. On the interior, the three-level lobby was intensely textured with the brightly-colored red-orange-pink carpet and impressive layering of forms that intended to imitate the natural contours of the ridge.²⁰ Rudolph stated that the interior ought to “create an impression not unlike a growing tree – angles, light, and shadow, flexibility. The building will impart a sense of being a living organism, rather than a box-like form” (Figure 3). This approach was undoubtedly inspired by the work of Frank Lloyd Wright and particularly his design for Fallingwater (1935), as shown in one of Rudolph’s sketches (Figure 4). The famed project, much like Burroughs Wellcome, also emerges from the natural rock to cantilever over the falls.

The 1969 plan followed an S-shape, allowing one leg of the “S” to wrap itself around the main entry court while the other would wrap around a service court (Figure 5). The project hinged on the careful organization of the building’s two major wings, administrative offices and research facilities in two extensions, the former in the northeastern end and the latter in the southwestern extension of the lobby. The research wing was substantially larger than the administrative section, occupying two-thirds of the entire structure (Figure 6).²¹ In terms of worker numbers, Burroughs Wellcome Headquarters was expected to accommodate 300 researchers in 140 laboratory rooms and 150 administrative staff. The company distributed a questionnaire to workers regarding their preferences, spatial needs, technological equipment, efficient organization and other issues, thus ensuring that the building accommodated the most advanced research practices.²² Although research facilities occupied the most square footage, three-fourths of all the offices in the building were planned to be either immediately adjacent to the lobby or only a few steps away. The structure containing the lobby also housed several other important functions, including a library information center with approximately 20,000 volumes, and a 208-seat auditorium with a projection booth at each end, which could be subdivided into two smaller viewing spaces (Figure 7 and 8). A 288-seat cafeteria was planned to be located on the fourth floor of the administration wing. The lobby was intended to function as the center of communication for the building, while the library was so placed as to encourage constant passing and thus contact among colleagues and a general atmosphere of scientific scholarship (Figure 9).

To accomplish an architectural form that borrowed from the natural world, Rudolph devised a unique structural system for the Burroughs Wellcome Headquarters. The front and back walls slope inward following a 22.5-degree angle to form modified A-frame

²⁰ While the red-orange-pink carpet was initially planned to adorn all public spaces, the material’s sizeable cost precluded the realization of the plan. Instead, Rudolph employed cheaper materials for hallways and less visible gathering areas, keeping the bright carpet restricted mainly in the lobby.

²¹ The research portion of the headquarters building was particularly large because it accommodated not only laboratories (pharmacology, biochemical pharmacology, parasitology, toxicology, and tissue culture), but also large mechanical equipment and animal research. The latter would involve different procedures, including quarantine (for cats, dogs, and monkeys), housing, and cremation for numerous animals. The animal quarters were designed to accommodate 50 monkeys, 75 dogs, 20 cats, 10,000 mice, 10,000 rats, 200 hamsters, 48 fowls, 30 pigs and 200 guinea pigs. Library of Congress, Paul Rudolph Papers, PR 13 CN 2001: 126, PMR 3003-5, Folder 3.

²² Library of Congress, Paul Rudolph Papers, PR 13 CN 2001:126, PMR 3003-5, Folder 3.

structural members that are connected with a horizontal system of beams at the roof. The design was likely informed by Rudolph's Lower Manhattan Expressway (1967-1972) project, a megastructure proposal that embraced a flexible yet unspecified A-shaped structural system, as well as continuous ribbon windows (Figure 10). Permanent structural elements for Burroughs Wellcome were planned to be coated with beige-colored limestone aggregate both on the interior and exterior of the building, while temporary partitions, or so-called flexible components, would be finished in a variety of surfaces, from paneling to drywall. Rudolph intended the structure to be honest and read according to the materials used.²³ The issue of natural light also received ample attention – an important concern for a research institution. Skylights and solar glass windows were positioned strategically throughout to bring natural light even into the deepest interiors of the building. One of the major design challenges that Rudolph faced in designing the Burroughs Wellcome Headquarters was locating the extensive mechanical systems, necessary for the research wing. They were housed in both vertical and diagonal shafts so that all systems converged at a common location on the penthouse. Rudolph later worked carefully at designing forms to hide these mechanical elements with surfaces that matched the look of the rest of the building.

6. Alterations and additions.

In 1982, Paul Rudolph was hired as a consultant architect to plan the South Building Expansion Project, involving the construction of a new 4 ½ story, 130,000 sq. ft. office building linking the existing administration building and the toxicology building.²⁴ The new design followed the same visual aesthetic as the 1969 original with its embrace of concrete panel exteriors and A-frames, though the latter no longer performed structurally. Indeed, interior sections presented a radically different form – the 22.5-degree angle was abandoned as an organizational principle and instead a series of interconnected rectangular offices with regular and predictable floorplans were planned to ease operations and furnishing (Figure 11). Construction started in 1987 and the additions were completed in 1988. This addition has subsequently been demolished.

The new expansion of interior space was complemented with a drastic reconfiguration of landscaping that focused on workers' movement through the property. Perhaps most radically, a 56,000-sq. ft. reflecting pool was constructed in front of the new office building to bring together the old and new structures into a coherent whole (Figures 12 & 13). Contrary to conventional shallow pools of water that are continuous, the pool at Burroughs Wellcome includes three paths that cut across the water, allowing workers to enter their offices in a more contemplative manner. Additionally, Burroughs Wellcome hired Zion & Breen Associates, Inc. to prepare a survey of plantings, pavements, and other landscape features on the grounds and propose improvements which would aid the company in planning its new 540 space parking lot. The landscape architects concluded

²³ The issue of the honesty of buildings could be traced back to arguments made by English architect Augustus Pugin and art historian John Ruskin. They both focused on Gothic architecture to examine the deterioration of the quality of architectural design when builders employ cheaper materials to mimic more expensive ones. See John Ruskin, *The Stones of Venice* (New York: Crowell) and *The Seven Lamps of Architecture* (New York: Wiley, 1891).

²⁴ "Monthly Progress Report for Burroughs Wellcome Company South Building Expansion Project," February 1988, Library of Congress, Paul Rudolph Papers, PR13 CN 2001: 126, PMR 3042-3.

that while the relationship between the site and the building was commendable, circulation through the property and increasing parking demands represented the most serious problems. Zion & Breen suggested the integration of treed greenways, plantings, sculptures, bridges, and small patios to create pleasant curated walks from the parking lots to the structure.²⁵ Some of these suggestions, particularly the integration of plantings and trees were implemented as part of the expansion effort. This is also when Paul Rudolph proposed a design for the Burroughs Wellcome unicorn, which had been planned in 1969, but fully designed only in 1988 (Figure 14). Despite what appeared to be a finally realizable project, the statue was scrapped.

B. Historical Context:

In the mid-1950s, political and educational leaders in North Carolina convened to discuss opportunities for what in 1959 became the Research Triangle Park. It was a cross-disciplinary effort to bring together businesses and educational institutions to both diversify the state's furniture, tobacco, and textiles economies and to materialize its "industrial potential."²⁶ The leaders selected a triangular area bordered by Duke University in Durham and the Chapel Hill and Raleigh campuses of the University of North Carolina that would provide research space and an educated workforce to national and even global businesses (Figure 15). The leaders of the Research Triangle also hoped that the effort would resolve the racial tensions that pervaded the state during this period and transform the livelihood of black citizens. A contemporary newspaper article explained that "in the changing South the Negro must be an integral, normal, and continuing factor in the culture of the Southeast."²⁷ In other words, industrial research would become the force that would resolve racial conflicts and integrate minority residents into the workforce, thus rendering North Carolina a nationally competitive economic center. The profits acquired from the efforts at the Research Triangle would be used to elevate the standard of living across the state – a highly desirable move since the state's annual median family income of \$4,000 was the second lowest in the country.²⁸ Despite the egalitarian intentions of integration and overall uplift, the area remained an isolated enclave in an otherwise struggling state for years to come. Indeed, numerous articles throughout the 1970s referred to this juxtaposition as "PhDs among the possums."²⁹

²⁵ Zion & Breen Associates, Inc., "Landscape Survey Prepared for Burroughs Wellcome Co.," Library of Congress, Paul Rudolph Papers, PR13 CN 2001: 126, PMR 3042-3.

²⁶ Luther H. Hodges, "Dream Becomes Exciting Reality," *The Raleighite*, 18 (4) (1965), University of North Carolina – Chapel Hill, 5081 Research Triangle Foundation, Box 194, Folder 3447.

²⁷ The quote was taken from an article published in *The New York Times*, "The South in the Sixties," 24 April 1960, 8 E. For a discussion of the roots of the complicated racial politics in North Carolina, see Kent Redding, *Making Race, Making Power: North Carolina's Road to Disfranchisement* (Urbana: University of Illinois Press, 2003).

²⁸ "Research Triangle Seeks High-Technology Industry," *Science*, 150 (3698) (1965): 868, University of North Carolina – Chapel Hill, 5081 Research Triangle Foundation, Box 194, Folder 3447.

²⁹ Several national outlets discussing the surprising success of North Carolina's Research Triangle continued to reference possums to represent the backwardness of the state and its people, deeply connected to agricultural work rather than modern science efforts. "PhDs Among the Possums," *The Economist*, 1970s, University of North Carolina – Chapel Hill, 5081 Research Triangle Foundation, Box 194, Folder 3448.

The idea of a research park as an economic engine was by no means new.³⁰ The first of such arrangements was created in the early 1950s by Stanford University, attracting firms like General Electric, Control Data Corporation, and Backman Instruments, Inc. to Stanford, California. This inspired similar technological districts and by the mid-1960s, there were over 80 such developments in the United States.³¹ Research parks were commonly associated with universities or technical colleges, but the North Carolina case provided a much deeper connection. Indeed, university administrators played an unusually central role in the economic development of the state, starting with the founding of the Research Triangle Institute through a significant fundraising effort – the Park’s first occupant and an academic research center at the heart of the entire enterprise.³² More tellingly, the so-called brains of the entire project was George L. Simpson, Jr., a sociology professor in the UNC system, who later became the chancellor of the university system of Georgia.³³

By 1969, when Burroughs Wellcome decided to relocate their headquarters from Tuckahoe, NY to the Research Triangle due to limited space for expansion, the Park had attracted some important businesses, including the Chemstrand Corporation, American Association of Textile Chemists and Colorists, Technitrol, Inc., IBM, and the federal government (with its intent of locating the National Environmental Health Sciences Center in the Park). Records from 1966 show that there were enough tenants in the development to support 700 employees with an annual payroll of \$7 million. Average annual family income for the Park’s employees also climbed substantially to \$15,000 per year in comparison to less than \$5,000 for the state as a whole.³⁴ Nevertheless, Burroughs Wellcome’s decision to relocate brought exceptional enthusiasm from state leaders, prompting Luther Hodges, former Secretary of Commerce and Governor of North Carolina, to appear on closed circuit television to share his joy for the new addition, stating “this is a great day for the people of North Carolina and the Research Triangle area.”³⁵ Similarly, Governor Bob Scott proclaimed that by attracting a company with a humanitarian mission, the state could enjoy some of the limelight: “I am proud that as Burroughs Wellcome continues its efforts to curb and remove disease, North Carolina will now be associated with that effort.”³⁶ Indeed, Burroughs Wellcome would elevate the Park’s standing not only on the regional or national scale, but also globally. And, while not entirely thanks to Burroughs Wellcome, the Park did become the most notable

³⁰ For a history of research parks, see Michael I. Luger and Harvey A. Goldstein, *Research Parks and Regional Economic Development* (Chapel Hill: University of North Carolina Press, 1991).

³¹ “Research Triangle Seeks High-Technology Industry,” *Science*, 150 (3698) (1965): 868, University of North Carolina – Chapel Hill, 5081 Research Triangle Foundation, Box 194, Folder 3447.

³² For a brief history of the Research Triangle Institute, see W.B. Hamilton, “The Research Triangle of North Carolina: A Study in Leadership for the Common Weal,” *The South Atlantic Quarterly*, LXV (2) (1966): 255-278, University of North Carolina – Chapel Hill, 5081 Research Triangle Foundation, Box 194, Folder 3447.

³³ “Research Park Thrives in Academic Neighborhood,” *Business Week*, 10 December 1966, University of North Carolina – Chapel Hill, 5081 Research Triangle Foundation, Box 194, Folder 3447.

³⁴ Wayne King, “North Carolina’s Research Triangle is Now the Biggest and Brightest,” *Dispatch*, February 7, 1977, University of North Carolina – Chapel Hill, 5081 Research Triangle Foundation, Box 194, Folder 3448.

³⁵ News Release, Burroughs Wellcome Co., August 21, 1969, pg. 2, Library of Congress, Paul Rudolph Papers, PR13 CN 2001:126, PMR 3003-1, Box 13, Folder 8.

³⁶ Alvin Taylor, “It’s Official: Burroughs Wellcome Is Coming,” *The Daily Reflector*, 5 February 1969, University of North Carolina – Chapel Hill, 5081 Research Triangle Foundation, Box 194, Folder 3448.

example of the potential success of the research park concept, replicated internationally starting in the 1980s.

The Research Triangle's ability to attract the major international corporation rested not only on the merits and prestige of the Park itself, but also on its marketing efforts. For example, to attract Burroughs Wellcome, Park officers arranged to have groups of 40 employees fly to North Carolina for weekend visits and also sent Triangle residents to New York for social exchange, since some company employees "thought Southerners didn't wear shoes" and that "we were all one big swamp."³⁷ Favorable articles promoting both the Park and available lifestyles were published in national outlets like *Science*, *The National Geographic*, *Business Week*, the *New York Times*, and others. They commonly commented on the local "labor climate," highlighting that North Carolina had the lowest rate of non-farm workers organized, the lowest hourly rate, and the highest birth rate.³⁸ And marketing efforts were indeed successful in attracting a highly educated workforce. By 1973, the Research Triangle ranked first among the nation's 100 largest metropolitan areas in the number of PhD scientists and engineers per 100,000 population.³⁹

Paul Rudolph was selected soon after the company decided to relocate its headquarters due to his impeccable reputation as a star-architect who radicalized both design practice and education. Throughout the 1960s, Rudolph was commissioned to design numerous high-profile buildings that gained him the reputation of one of the "ten most outstanding architects in the world today." His projects, which included housing, offices, government buildings, laboratories, and urban planning schemes, received more than 30 awards and were broadly featured in hundreds of articles and books on design, art, and construction for their aesthetic and structural innovations. Furthermore, raised in the South, the architect had the ideal background to design a world-class building in North Carolina that was global and radical in its approach yet sensitive to local work and life patterns. In addition to his professional expertise and reputation, Rudolph brought excellent customer service. Burroughs Wellcome leadership noted the architect's "bedside manner of a sympathetic physician" and his ability to "cushion us against the shock-waves of certain mundane realities that have a habit of looming larger and larger."⁴⁰

Burroughs Wellcome moved to the Research Triangle enthusiastically and confidently. The company's 600,000 sq. ft. manufacturing plant was the first to be constructed in Greenville in 1969, while the headquarters structure soon followed. Before any building could start, the site had to be cleared of existing trees, shrubs, organic litters, root mats and top soil at least 10 ft. outside the building perimeter where structural fill was to be placed. Pumps were also installed by the contractor to ensure that the construction area was free of water from all sources. Once the caisson opening was cleared of debris and

³⁷ Wayne King, "North Carolina's Research Triangle is Now the Biggest and Brightest," *Dispatch*, February 7, 1977, University of North Carolina – Chapel Hill, 5081 Research Triangle Foundation, Box 194, Folder 3448.

³⁸ "North Carolina Factors Favorable to Industry," 1965 report, University of North Carolina – Chapel Hill, 5081 Research Triangle Foundation, Box 194, Folder 3459.

³⁹ "N.C. Triangle Leads Nation in Brain Power," *The New York Times*, 6 February 1974, University of North Carolina – Chapel Hill, 5081 Research Triangle Foundation, Box 194, Folder 3447.

⁴⁰ News Release, Burroughs Wellcome Co., August 21, 1969, pg. 2, Library of Congress, Paul Rudolph Papers, PR13 CN 2001:126, PMR 3003-1, Box 13, Folder 8.

water, concrete slabs were poured using the free fall method with an “elephant trunk.” In addition to slots and inserts for anchoring masonry and wood sleepers, equipment foundations, pads, and other similar items were built into the concrete work. Once the concrete foundation was completed, the steel superstructure was erected in its entirety in November of 1969 for the research building and in March of 1970 for the administrative building (Figure 16). To absorb the substantial bending movements, floor beams and columns were linked in the transverse direction by rigid movement connectors. Tie beams, below grade, took up the horizontal component of all gravity loads.⁴¹ Following the major structural components, water, and gas lines were installed; tube bents, door frames, and masonry soon followed. The month of June of 1970 was devoted to the positioning of dry wall partitions, hung ceilings, elevator installations, windows and skylights, and Boncoat. Then followed painting and plastering jobs as well as the installation of ceramic tile and waterproofing of the mechanical equipment room floors. In August of 1970, construction crews built curbs and gutters, V.A.T. floors, toilet partitions, and installed the crematory destructor, and in September they finished the blacktop road. The following months of 1970 were dedicated primarily to removing trees, landscaping the roads, and delivering equipment. The year of 1971 saw the finalization of the project, including the completion of the roof, plastering, Boncoat, painting, HVAC tests, millwork, lighting fixtures, and interior finishes, including kitchens and carpets.⁴²

The construction process did not proceed entirely smoothly. Two major challenges delayed the completion of the project and even culminated in a lawsuit between Paul Rudolph and the contractor. The first issue was regarding the quality of workmanship and management of labor. Supervisors from Burroughs Wellcome stated that most immediate corrective action had to be taken in the installation of the insulation in the exterior walls and the erection of the drywall partitions, whereby the insulation did not fill the space between the studs. Another issue centered on the workers leaving debris on the roof or pushing it completely through the base sheet into the All-Weather-crete, which could cause serious leaks.⁴³ In 1970, site managers also discovered that workers had not been following safety protocol while working on the fourth floor. Due to construction, many exits were blocked or unavailable and considering the numerous flammable materials and tools in use, labor conditions were dangerous and had to be mediated immediately.⁴⁴ The most important falling out was between Paul Rudolph and the contractor regarding the failure of the Boncoat surface material, which was a fire retardant made up of magnesium oxide, fibrous fillers, magnesium chloride, and water (Figure 17).⁴⁵ In 1970, a minor fire

⁴¹ “Sculptural Forms for Pharmaceutical Research,” *Architectural Record*, June 1972: 95-100. Library of Congress, Paul Rudolph Papers, PR 13 CN 2001: 126, PMR-3078-3, Box 9, Folder 1.

⁴² Construction schedule, Library of Congress, Paul Rudolph papers, PR 13 CN 2001:126, PMR-3069-5, Box 13, Folder 5.

⁴³ Burroughs Wellcome Memorandum, July 16, 1970. Library of Congress, Paul Rudolph Papers, PR13 CN 2001:126, PMR 3062-4, Box 4, Folder 4.

⁴⁴ Letter from Lockwood Greene Engineers, Inc. to Paul Rudolph, Library of Congress, Paul Rudolph Papers, PR13 CN2001:126, PMR 3062, Box 4, Folder 4.

⁴⁵ Boncoat was first manufactured in 1965 and used on a small Baptist Church in Oklahoma City. The spray-on material’s properties and strength made Boncoat a good plastering material for exposed aggregate finishes. Dealers from across the country adopted the material and marketed it for a range of products. Before Rudolph employed Boncoat for Burroughs Wellcome, the material had been used in at least 300 other structures. Selection of Boncoat

broke out at the job site, which revealed deterioration of the zinc construction joints in the exterior sheathing. Upon further investigation, greater degrees of deterioration were discovered along with various degrees of softening, crazing, and buckling in 20-50% of the sheathing.⁴⁶ This was due to the leeching of chloride ions into the substrata of cement plaster; other possible contributing factors included variances in mixing, application, factors of weather at the time of application, human error, etc. Much of the Boncoat exterior paneling had to be replaced with Arlite.⁴⁷

Despite the challenging construction process, Burroughs Wellcome was nonetheless completed in 1972 and applauded instantly for its bold appearance. The structure's distinctive architectural character is most clearly visible at the entrance to the building. The façade is a playful arrangement of angular forms that appear to grow out of the core structure. While visually provocative, the façade fails to reveal its organizational logic. It instead suggests that the sculptural complex must serve an intrinsically futuristic and forward-thinking function whose true nature cannot be fully comprehended from the exterior. One therefore must enter the structure and learn about its activities in order to understand the architectural arrangement. In this way, Rudolph's design contradicts the famous "form follows function" rule, first suggested by Louis Sullivan in the nineteenth century.⁴⁸ The exterior's formal gymnastics are accomplished through a careful arrangement of exposed structural members. Indeed, the bold white columns that sit at a 22.5-degree angle are particularly important in breaking up the building's forceful horizontality. Other design elements, like the white window beams, repetition of the concrete panels, and even the flag pole, echo the slanted verticality of the structural columns and add to the productive tension of the design (Figure 18). The more conservative Burroughs Wellcome employees who "wanted innovation but wondered why innovation has to look so 'different'" were perplexed by the architectural drama of the building.⁴⁹ However, soon after its completion the structure came to embody the overall ambition of the Research Triangle Park.⁵⁰

Report, April 17, 1975. Library of Congress, Paul Rudolph Papers, PR 13 CN 2001: 126, PMR-3069-3, Box 11, Folder 10.

⁴⁶ "Notes Regarding Burroughs Wellcome Lawsuit," Paul Rudolph Architect office, April 14, 1975. Library of Congress, Paul Rudolph Papers, PR 13 CN 2001:126, PMR-3015-1, Box 5.

⁴⁷ Paul Rudolph was concerned that he was at fault for the failure of Boncoat and some prior legal cases had concluded that architects were responsible for the performance of materials they select, especially is the materials are uncommon or experimental. Library of Congress, Paul Rudolph Papers, PR 13 CN 2001:126, PMR-3015-1, Box 5.

⁴⁸ Louis Sullivan articulated his famed phrase in connection to his design of the Wainwright Building in St. Louis that demonstrated the way in which modern architecture ought to express its function through exterior design and structure. See Louis H. Sullivan, "The Tall Office Building Artistically Considered," *Lippincott's Magazine*, (March 1896), https://ocw.mit.edu/courses/architecture/4-205-analysis-of-contemporary-architecture-fall-2009/readings/MIT4_205F09_Sullivan.pdf (accessed July 7, 2018).

⁴⁹ News Release, Burroughs Wellcome Co., August 21, 1969, pg. 2, Library of Congress, Paul Rudolph Papers, PR13 CN 2001:126, PMR 3003-1, Box 13, Folder 8.

⁵⁰ The Burroughs Wellcome building was used as illustration for multiple articles on the Research Triangle Park, even though the articles themselves did not discuss the company itself. Further, all proposed construction projects had to receive approval on environmental and aesthetic grounds, which suggests that the Park's officers were not tolerant, but actually enthusiastic about the type of attention and publicity Rudolph's design might generate.

In addition to the structure, Rudolph's careful selection of construction materials, which were limited primarily to metal, glass, and concrete, add to the building's distinctive appearance. As discussed above, the metal superstructure, comprised of A-frames that are painted white, breaks up the building's horizontality. Rudolph did not treat the building's windows in a conventional manner – instead, they appear as entire surfaces that follow and accentuate the building's shape. At times, they wrap around the structure, much like Le Corbusier's ribbon windows at Villa le Lac (Figure 19).⁵¹ The glass is also tinted and the scale and positioning of the windows follows a rhythm established by the concrete panels. Finally, the precast concrete panels with a carefully selected medium-size grey tint gravel contribute most significantly to the design's distinctive character. And the concrete mix is employed not only on the façade, but all throughout the building's interior as well as some of the sidewalks that are immediately adjacent to the structure. Most notably the aggregate was also used for the reception desk (Figure 20).

While the panels and sidewalks use different concrete recipes that accommodate unique structural needs, they nonetheless employ the same aggregate to maintain a strictly uniform surface look. The production of such panels was broadly popular in the 1950s and '60s and they were used to economically enhance a building's appearance. Typically, the gravel had to first be washed, then placed on a piece of canvas lined with a water-resistant adhesive and rolled back and forth several times (sometimes using a hopper tool). The liner would then be vibrated horizontally to ensure evenness of aggregate distribution. After a drying period, the liners could then be positioned and connected to forms into which concrete would be poured.⁵² This method of panel construction would have been too time consuming for a building the size of Burroughs Wellcome. Rudolph therefore employed a more experimental method, whereby the limestone aggregate was sprayed in place to a plastic binder. The panels by themselves are rather colorful and distinctive, while together they blend and appear as one continuous surface. The design principles described above continue throughout the building, but the remaining sides of the façade are less visually complex and feature more consistent solid volumes with a few extrusions to accommodate standard office functions.

Although the building is visually compelling, Rudolph's interest in curating the visitor's experience by playing with scale and volume is significant and typically understated, especially in photographic representations. However, this is an important aspect of the overall architectural experience, particularly the entrance, and reflects the influence that Frank Lloyd Wright had upon Rudolph's work.⁵³ Upon climbing up a set of concrete stairs up to the level of the structure (or by exiting one of the two executive carports), the visitor will encounter the large structural columns. The first columns and space encountered are distinctly smaller and compressed. As the visitor proceeds to the

⁵¹ In particular, the south façade included a ribbon window that ran the length of the sitting room, revealing views of the Alps. Le Corbusier later repeated this feature more famously at Villa Savoy. See Stephen Eskilson, *The Age of Glass: A Cultural History of Class in Modern and Contemporary Architecture* (London: Bloomsbury, 2018).

⁵² Portland Cement Association, *Color and Texture in Architectural Concrete by Aggregate Transfer* (Skokie: PCA, 1956), Smithsonian National American History Museum.

⁵³ For a deeper discussion of Frank Lloyd Wright's expert use of volumes to aggrandize space and shape visitor experience, see Joseph Siry, *Unity Temple: Frank Lloyd Wright and Architecture for Liberal Religion* (New York: Cambridge University Press, 1998).

entrance, both the volumes and columns progressively increase in scale until the first major gathering space opens up to reveal the grand scale of the building. The third-floor balcony, which hovers over this front plaza, adds to the drama and spectacle of the design (Figure 21). Archival photographs reveal that the main plaza was used as an events space with seating arranged facing the glazed wall (Figure 22). The door to the building is notably missing from this grand space and instead is situated to the side out of sight, underneath a sizeable horizontal plane. Upon entering the building, the visitor's movement and experience are once again carefully curated in a familiar arrangement of volumes that progressively increase in size, finally revealing an impressive lobby whose height extends three levels. While undoubtedly striking, the lobby appears to be taller than it actually is due to Rudolph's design of openings that employ the 22.5-degree angle and decrease progressively thus heightening the visitor's sense of verticality. The lobby is an architecturally distinctive space, notably different in character from the exterior forms, that creates a cave-like environment. The laboratory wing of the structure contains a similarly open multi-level communal space.

Modernist architects often hoped that unusual architecture that challenged common work and living practices would encourage greater creativity and efficiency. Paul Rudolph and Burroughs Wellcome were not an exception. The design integrated some novel solutions for creating multi-purpose spaces. For example, the large auditorium located off the lobby had a mechanism that would have brought about partitions to bifurcate the large space into two for smaller viewing audiences. While actual creative output is difficult to measure, the company's attitudes were clearly displayed in photographs of workers and their daily activities. For example, company photographs commonly featured the building as a framing device, which in one case took up more of the portrait than the workers themselves (Figure 23). Similarly, when advertising one of the company's products, employees were shown interacting with the building in a creative way, climbing atop the different layered roofs and hanging out with their colleagues (Figure 24). Even when engaging in other types of work-unrelated leisurely activities, like participating in company-sponsored health programs or playing softball, workers could not avoid the presence of the distinctive structure (Figure 25). The building's design therefore served as a tool to maintain company presence throughout the workers' daily experiences.

In 1995, Burroughs Wellcome was acquired by Glaxo and in 1998 it merged with SmithKline Beecham to form the world's second-largest company after General Electric. In 2011, the company decided to sell off much of its real estate in the Research Triangle Park. United Therapeutics purchased the headquarters and the 40-acre site in 2012, demolishing 400,000 sq. ft. of the 1982 additions and a portion of the 1972 research wing. With additional offices nearby, United Therapeutics plans to renovate the historic design and expand its laboratory space, employing most recent standards for research and sustainability. In 2018 the Burroughs Wellcome Headquarters building stands vacant, sealed and disconnected from the power and other utility grids. The company continues to maintain the structural components and roofs to ensure that no permanent structural damage occurs.

PART II. ARCHITECTURAL INFORMATION

A. General Statement

1. **Architectural character:** This Modernist structure features a continuous rectangular form that is occasionally interrupted by protruding formations. It also features large expanses of prefabricated concrete panels with grey-colored aggregate, white steel supports, and dark glass windows. The building represents Rudolph's effort to "break the box" and generate a more naturalistic form for the functional structure.⁵⁴ Following this line of thinking, typical architectural features, like doors, windows, and roofs, are intentionally not articulated and instead are abstracted to perform as continuous surfaces. Explicit effort was also exerted to hide the structural logic of the building. As a result, the bulky building appears to defy gravity, thus contributing to the overall spectacle the design generates.
2. **Condition of fabric:** Good to fair. The building has weathered generally well and the maintenance it has received, especially on the roofs, has left portions of the building in a particularly good shape. Therefore, the building is structurally sound, the vast majority of windows are in good shape, and floors and stairways are likewise stable. Despite the overall satisfactory condition, material deterioration is visible nearly in every room. Some pervasive issues related to concrete include cracking and crumbling of the material, warping, discoloration, and chipping. Finally, while the building overall is in good shape, the landscaping has deteriorated substantially, from the ditch that crosses diagonally across the field behind the structure to the spaces immediately surrounding the building, which are overgrown with trees, shrubs and other vegetation that is slowly deteriorating the vertical and horizontal concrete surfaces.

B. Description of Exterior:

1. **Overall dimensions:** The footprint of the lobby and administrative portion of the building currently measures 260' x 92' while the remaining portion of the research wing measures 130' x 160'.
2. **Foundations:** The foundations are generally not visible following the perimeter of the building and the concrete sidewalks and panels meet at a clean seam. However, one area near a laboratory wing exit exposes the concrete foundation that sits on pillars with dirt and large rocks underneath it. Another area in the back of the

⁵⁴ Frank Lloyd Wright was the first to describe modern architecture as an effort to not break out of the box but instead "break the box" itself, thus giving permission for architects to rid of cultural norms and experiment with interior and exterior arrangements. This account was first published in *Architectural Record*, May 1914.

- building provides access to the basement and exposes the foundation's concrete construction.
3. **Walls:** The building's exterior walls are made of sprayed-on light concrete panels and glass while interior walls consist of similar concrete panels, glass, or drywall. The exterior walls are constructed using metal frames that are insulated and then covered with prefabricated concrete panels, which were selected to make the building as light and flexible as possible. Indeed, Burroughs Wellcome planned to expand the structure before it was even built. The same paneling approach is also used in public areas inside the building and those offices that follow the perimeter of the building. The attachment of the exterior panels to the metal frame was a challenge in some cases – workers had to drill holes to hang the covers and then mask them by adding additional concrete and aggregate. Although the panels are up and stable, the different concrete mixtures stand out noticeably. Most extensive window wall treatment appears in the lobby, where the three-story space is spanned by glass (Figure 26).
 4. **Structural system, framing:** Paul Rudolph considered employing a concrete frame for the structure, but the company's desire to complete the project quickly meant that a steel frame was the best structural system. The simple repetition of A-frames in different sizes depending on spatial needs also allowed for greater flexibility, especially with regards to construction time. Unlike concrete, which needs to be poured in particular weather conditions, steel frames can be erected under most climatic circumstances. The frames, which run through the height of the building and also provide structure for the roofs, are also used to conceal and distribute piping throughout the height of the structure (Figure 27). In addition to the steel A-frames, the building features a sub-assembly of steel studs, insulation, water-resistant gypsum board, wire lath, two coats of cement plaster, and then the exterior finish. A combination of structural footings and shallow concrete slabs were used to distribute the weight of the building over a large area. Concrete slabs were also used for floors and roofs, the latter of which were also covered with additional sheathing for protection from the elements.
 5. **Plaza, roof terraces, and balconies:** The building features several designated outdoor spaces and the structure's irregular roof system is particularly amenable for such an arrangement. Although as a Modernist design, the building does not include conventional porches or balconies, the arrangement of forms creates spaces serving both of these functions. The main plaza is accessed using a particularly notable staircase that leads up to the building from the road. Its design employs the same aggregate used in the exterior and interior wall surfaces of the building, a low rise, and decreasing length. The entrance plaza is sheltered by an extensive covered area that features large white structural beams, a staircase to the auditorium, and two areas designated for vegetation in the corners of the plaza. A large concrete platform runs the length of the building's front-facing perimeter, providing seating and also preventing visitors from approaching the glass too closely. The plaza also features distinctive stairs that lead to the exterior entrance to the auditorium. They are built using the notable aggregate, are rectangular in shape, and decrease progressively in

size. The first level back plaza, located beside the secondary entrance to the lobby, is significantly smaller than the main plaza. It similarly features the white structural columns and is shaded by upper floors. Three recessed lights were installed to provide lighting for the plaza.

The third level features the building's only balcony, accessible off a large lounge space used likely as a kitchen area for workers on the third level. The balcony is rectangular in shape, is held up by the large white beams, and it projects above the first-floor plaza. The balcony's walls are made up of the typical concrete aggregate and features the 22.5-degree angles. However, unlike the other spacious outdoor spaces, this one appears to be rather compressed and entirely shaded by the floor above. The balcony contemporaneously features devices the company employed to keep birds from landing in the area.

On the executive level, there are three points of access to exterior recreation areas. The largest rooftop terrace was located off the level's conference room and was used as a lounge/dining area for the floor's employees (Figure 28). The area includes six circular concrete planters. The other two outdoor areas are substantially smaller and were likely used primarily by the occupants of those specific offices. Unlike the large lounge space, which maintains some of the original concrete tiles, though very precariously supported by wooden and plastic foundations, the two smaller terraces are covered with asphalt roof panels. The two smaller terraces also feature the white metal columns, which unfortunately block movement and views.

6. Chimneys: While there are no visually distinguished chimneys, mechanical exhaust systems are located in concrete paneled towers that blend into the overall aesthetic of the building.

7. Openings:

a. Doorways and doors: The main exterior two-leaf doors feature full-length glazing with metal frames, and are located on the ground level at the front and back entrances to the building's lobby. Similarly, one-leaf exterior doors to the upper-level terraces include metal frames and glass. On the interior, many of the doors have been removed for scrap. There is also evidence of later modifications, like new glass doors to laboratory spaces and wooden doors into the conference room at the executive level. Many of the doorways still have their original frames that expose original color schemes, sizes, and even materials. For example, the door leading visitors to the auditorium would have been made of hollow metal, painted white, and would have featured a Plexiglas top – an arrangement that was very standard in the building as many offices also had such doorways. Another notable set of doors were located immediately off the lobby, where the set of four double-panel closet doors hid away mechanical equipment and provided storage. These closets were custom-built to highlight the 22.5-degree angle of the walls and were repeated in other parts of the building, most notably in the demolished

laboratory section. Archival photographs illustrate visitors to the building resting comfortably on these angled surfaces (Figure 29).

- b. **Windows and skylights:** The fixed metal sash windows throughout the building follow three sizes and are nearly always installed at the 22.5-degree angle and arranged in ribbons or bands. Windows in the lobby are the largest at 8' 11" by 4' 10" and provide a continuous glass surface. The glass is generally tinted to prevent excess natural light from flooding the office, though extensive skylights continued to pose glare problems and many of such windows have coverings, either plastic blinds or shades made of fabric. Hooks that are positioned on the exterior of windows also suggests that alternative methods to prevent glare were experimented with.

8. Roof:

- a. **Shape, covering:** The Wellcome building has a complex variety of flat roofs surmounting the various forms of the building. Each roof is generally surrounded by a low concrete parapet with aluminum coping and sheathed with asphalt roof panels or tiled for use as a roof terrace.
- b. **Skylights:** Offices that have access to windows typically feature an angular wall profile that accommodates a large glazed area as well as a continuous band of skylights (Figure 30). Some of these skylights created an abundance of glare and were an obvious problem that users attempted to ameliorate, especially when the use of computer technology became widespread and expectations for interior lighting changed.
- c. **Drainage:** Runoff gutters are attached awkwardly to the façade of the building, following the horizontal roof lines and running vertically down the façade to the ground, where the water is caught by concrete slash blocks and directed away from the building. While some of the gutters terminate with a break in the façade, many of them, particularly on the face of the laboratory building, extend throughout the height of the structure (Figure 31). This approach is employed throughout the perimeter of the building, except for the main entrance where to keep appearances, drainage systems were integrated into the building itself, hidden in the large white columns or covered by walls themselves. Rooftops were likewise shaped to accommodate runoff – the slanted angles would direct the runoff toward an integrated drainage system. Plans also reveal the extent to which drainage on the land more broadly was complex and had to be carefully engineered.

C. Description of Interior:

1. **Floor plans:** The S-shaped plan does not follow the conventional double-loaded corridor office format, whereby a long hallway connects offices on each side. Instead, it is the exterior perimeter that dictates interior organization. Standard-size offices are

thus positioned along the perimeter of the structure to get access to natural light, while some offices, storage, and large-scale laboratories are located deeper in the building. This arrangement at times creates a maze-like network of hallways, for example in the administrative wing where the main hallway narrows and connects to another hallway. In contrast, the research wing maintains more consistency and two connecting hallways organize all the office and laboratory spaces. The wing also has four stairwells in comparison to the administrative wing's singular access. Across the building, offices have access to kitchenettes and bathrooms are situated in close proximity to water fountains, staircases, and elevators.

While the building maintains a standardized spatial arrangement, two unusual spaces disrupt the general organization: the three-level lobby open space, and a gathering area in the laboratory wing that starts on the third level. Both spaces feature concrete panels, distinguished staircases, irregular protruding shapes, and in the latter case, skylights that provide primary access to natural light. Finally, the executive level located on the fifth floor likewise presents some anomalies: the floorplan is significantly smaller and contains only one hallway with offices on both sides and three points of access to rooftop terraces. The offices are notably larger and each includes built-in cabinets.

- 2. Stairways:** The research and administrative buildings originally contained ten interior staircases; three of them have been demolished. Three of the remaining staircases are particularly notable, both in their positioning and use of sculptural concrete forms. One is located in the corner of the lobby, traveling from that level to a mezzanine floor. It is a closed string, open rise straight run stair with concrete sides that form both the stair string and handrail (Figure 32). The treatment of the railing and wall surfaces includes extensive aggregate coating as well as an integration of planters in the corners of the staircase. The second significant staircase, located in the research wing in a stairwell behind the auditorium, features half turn landings, extensive aggregate treatment of the walls, and exterior windows at every landing. As the only staircase that connects the outdoors and main level to the executive level on the fifth floor, it was likely used as a private entrance for company directors and their guests. Finally, a two-level gathering space on the third level also features an impressive closed string open rise staircase rising to a mezzanine level. Similar in design to the lobby stair, the concrete string/handrail encloses a half turn stair with metal treads. (Figure 33). It stands independently, providing an additional connection from the research areas to the executive level.

The remaining four staircases, one in the administrative and three in the research wing, are located near elevators and bathrooms in enclosed cinder block stairwells and provide access to the main four floors. The stairs here are utilitarian in nature with metal treads, risers, and handrails. The spaces themselves are utilitarian in design, constructed with cinder blocks (painted several colors over the years, currently showing up light blue with red paint exposed underneath), without access to natural light, and feature standardized metal stairs with a half turn landing.

- 3. Flooring:** Concrete subflooring is visible throughout the building due to severe deterioration of coverings. Perhaps the most notable flooring materials used historically were the bright red-orange-pink carpet that was installed in communal gathering areas and wood parquet flooring on the executive level. While the carpet has been replaced, for example with a dark pink granite tile in the lobby or a colorful carpet on the second level, parquet flooring has been nicely preserved on the executive level. The latter is particularly distinguished with its single herringbone pattern and in many areas displays markers of tape, which would have held down Persian carpets throughout the office space. Flooring in standard offices has been replaced, likely several times over, many showcasing off-white and even red linoleum tile, likely to match the bright carpet. Other notable materials used for flooring can be found in bathrooms, both on standard and executive levels. The former contains white tile on the floor and black on the walls; the latter employ large green dark marble tiles both on floors and walls.
- 4. Wall and Ceiling finish:** Offices generally feature drywall partitions and some of these walls are continuous from the floor to the ceiling, though many offices also feature an upper portion made of Plexiglas to allow natural light reach adjacent offices as well as to the darker interior spaces. Walls added later to reorganize interior work spaces feature fully glazed partitions to maximize natural light. A significant exception is the executive level, where all office walls are constructed of the signature concrete panels and walls extend fully from floor to ceiling to generate more privacy (Figure 34). Another transgression of the typical interior wall treatment is the installation of glass walls in the gathering space on the third level, which feature wire glass, commonly used as a fire retardant.

Many of the interior walls follow the 22.5-degree angle of the structural A-frames. This angle also gives shape to some functional features, for example storage closets in the laboratory wing or custom-made furniture that accommodates the walls. One adjustment that workers made exposes the inconvenience of slanted walls particularly well – in the executive level, signage had to feature additional structure to attach the labels to the walls. However, the walls were not always a frustrating inconvenience. For example, seating in the lobby employed the slanted walls as backrest for the bench that extended from the low sitting area by the laboratory wing staircase. In another scenario, the 22.5-degree angle was used to create the impression of a more spacious passage on the second level by the main staircase to the second level. The angled wall was also used as inspiration for the design of the reception desk, as well as for numerous planters throughout the building.

The building displays two types of drop-down “Armstrong Travertone” ceilings that hide extensive air conditioning, electrical, and other mechanical units. One type is standard acoustical tile while the other is custom-made with four rectangular divisions. The latter is used in communal spaces in the lobby as well as all over the executive level offices and meeting spaces. The tile and their installation system were selected for their accessibility, removability, and flexibility.

5. Openings:

- a. **Doors and Doorways:** See Exterior Openings above.
- b. **Windows:** See Exterior Openings above.

6. **Decorative features and trim:** Decorative features in communal spaces feature extensive use of concrete panels and some of them also include planters, for example in the main lobby, the main staircase, and by the staircase in the executive level (Figure 35). The standard offices that are located on the perimeter of the building also exhibit the concrete panels on exterior walls. Standard offices, however, maintain a general no-frills appearance with drywall partitions and particle board used to build white cabinets that encase the heating system. On the executive level, however, the designers spared no expense to beautify the offices of company leadership. Concrete panels are used across the space and special lighting was installed in every office to highlight the unique material and its grey tint color. Further, every office, excluding reception areas, feature built-in cabinets made of light brown hardwood that included space for hanging clothes, shelves, and drawers for storage. Some shelves also included lighting to further add to the luxurious look of the office. Heating vents on the executive level were also covered with attractive hardwood to match the built-ins, unlike the particle board used in standard offices.

7. **Hardware:** Some of the original hardware remains in the building, for example in door frames and laboratory rooms.

8. Mechanical equipment:

a. **Heating, air conditioning, ventilation:** Heating and air conditioning units are located at the basement level while specialized mechanical systems for laboratories are positioned on the rooftops. Heating vents in individual offices are located beside windows in enclosed, custom-built cabinets, while air conditioning vents are located in the ceiling and covered by the drop-down ceiling.

b. **Lighting:** There are several different lighting schemes that are consistent throughout the building. Recessed and fluorescent lighting in the drop-down ceiling is the most pervasive. Other original lighting includes a recessed lighting model on the executive level. This floor also features added lighting near the skylights that faced the concrete panels; the lighting was meant to highlight the unique colors of the concrete aggregate – an investment that offices on the lower levels did not receive. On the exterior, lighting is largely featured in patios on the first level and rooftop terraces on the executive level. In case of the former, the back patio on the first level features three recessed lights that illuminate the back entrance. The large rooftop terrace features one small light near the maintenance entrance to the building. Finally, the carports maintain the large original lights

that would have made access to personal vehicles more convenient. Similarly, the pedestrian paths on the campus would have likewise included free-standing lamps, though many of them have been removed or cut off.

- c. **Auditorium equipment:** The large space includes some of the original equipment, including recessed lights, fire equipment, smoke detectors, lighting for the stage, and ventilation above the screen and around the perimeter of the ceiling. The screen also features the original yellow curtains made of thick velvet fabric, and a wooden stage of light-colored hardwood. One of the aisles maintains the 1993 addition of a wheelchair accessible ramp. Finally, the auditorium's control room, accessible on the second level, features the original table and lighting.
- d. **Miscellaneous hardware:** The fourth level includes a computer room with numerous cabinets for wires and storage of computer systems. Some cabinetry was installed in the 2000s to contain mechanical units and appears to be entirely new; likewise, new decontamination chambers and eye-washing stations were installed likely in the 2000s.

D. Site:

1. **Historic landscape design:** In 1969, President of Burroughs Wellcome, Fred A. Coe, Jr. remarked that the company selected the site for the building to be on a little hill that he referred to as the Acropolis, suggesting the scale of both the project and the company's ambition.⁵⁵ Contemporaneously, this hill is less evident due to the leveling that was necessary for later expansions. Some elements of the historic landscape design are still visible on the site. For example, the general location of parking lots, pedestrian paths, the main staircase entrance, and carports are in fine shape. However, the later expansion of the parking area and the reflecting pool have been covered with grass. It is difficult to locate the exact footprint of both, and it is unclear whether contemporary concrete paths cutting across the reflecting pool site were originally positioned in this manner.
2. **Outbuildings:** Two outbuildings remain on site – one is a wooden shed that sits beside one of the parking lots and the other is a former entrance checkpoint that has been removed and dropped on the periphery of the site with its foundation slab still visible. However, the latter structure was built specifically as a security checkpoint to match the aesthetic of the rest of the campus (Figure 36).
3. **Carports:** The site maintained two carports for executive-level employees that are in their original condition and follow the progression of volumes mentioned earlier in the report. They also echo many of the design features used in the building, like the angled posts, notable aggregate, and appear to emerge naturally from the building rather than sitting independently. Plans from the 1980s addition effort show that architects considered demolishing the carports to extend the building in this direction.

⁵⁵ News Release, Burroughs Wellcome Co., August 21, 1969, Library of Congress, Paul Rudolph Papers, PR13 CN 2001:126, PMR 3003-1, Box 13, Folder 8.

PART III. SOURCES OF INFORMATION

A. Architectural drawings:

The Paul Rudolph Papers collection at the Library of Congress features an extensive collection of original and construction drawings, sketches, and photographs from the original 1969 design and later 1982 additions.

B. Early Views:

The Paul Rudolph Papers collection at the Library of Congress features construction progress reports that include numerous photographs of the building process, both for the original 1969 design and later 1982 additions.

The Research Triangle Park Foundation papers at the University of North Carolina, Chapel Hill contain information about the broader development and growth of the Park. Additionally, the collection features numerous photographs of the Burroughs Wellcome building, staff, and activities that were organized by the company.

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University of North Carolina at Chapel Hill, Research Triangle Foundation Papers

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PART IV. PROJECT INFORMATION

Written Historic American Buildings Survey (HABS) documentation of the former Burroughs Wellcome Headquarters was undertaken as part of the 2018 HABS-SAH Sally Kress Tompkins Fellowship. The Fellowship is jointly sponsored by HABS and the Society of Architectural Historians (SAH) to allow a graduate student to work on a HABS history project. HABS is within the Heritage Documentation Programs (HDP) division of the National Park Service (Catherine Lavoie, Chief, HABS; Paul Dolinsky, Acting Chief, HDP). Project planning was coordinated by Lisa P. Davidson, HABS historian and Chair, HABS-SAH Sally Kress Tompkins Fellowship Committee. Crucial assistance was provided by Avi Halpert, Vice President, United Therapeutics, Amy Rosso-Poisson, United Therapeutics, and Mari Nakahara, Prints and Photographs Division, Library of Congress.

PART V. ILLUSTRATIONS

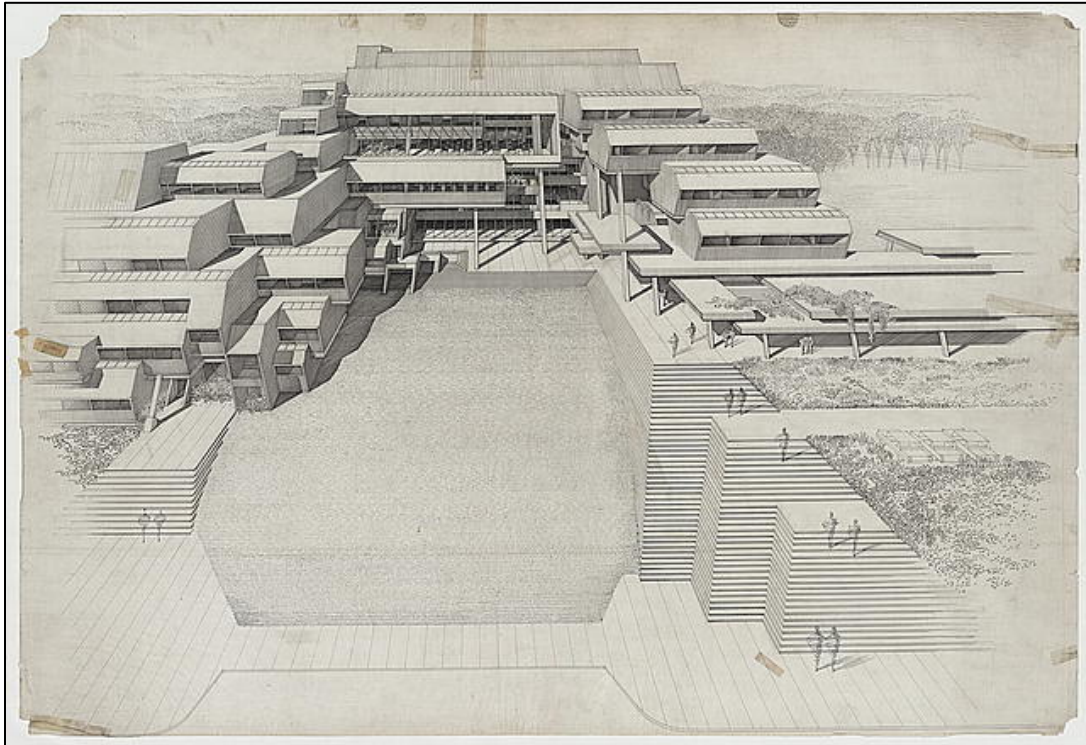


Figure 1: Perspective of the entrance to the Burroughs Wellcome building, 1969. Library of Congress, Paul Rudolph Papers.

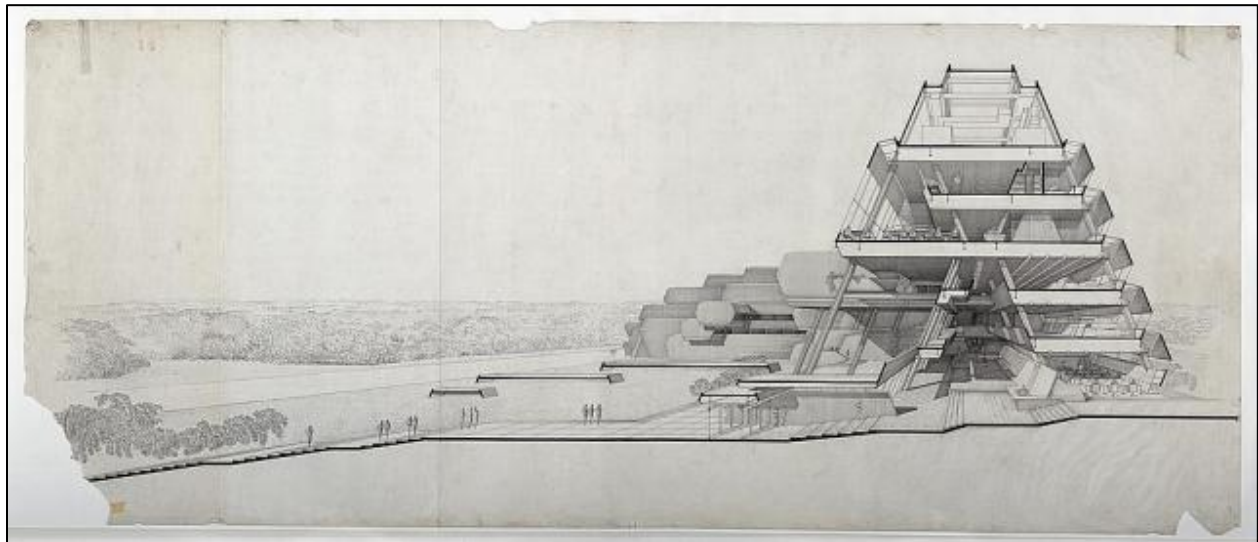


Figure 2: Sectional perspective of the building's blending into the natural ridge and also the interior organization of the cafeteria space with a multi-level foyer. Library of Congress, Paul Rudolph papers.



Figure 3: Photograph of the lobby and reception desk, highlighting the dramatic and uneven shaping of interior space to mimic a naturally developed environment. Library of Congress, Paul Rudolph Papers, PR13 CN 2001:126, Box 10, Folder 9.

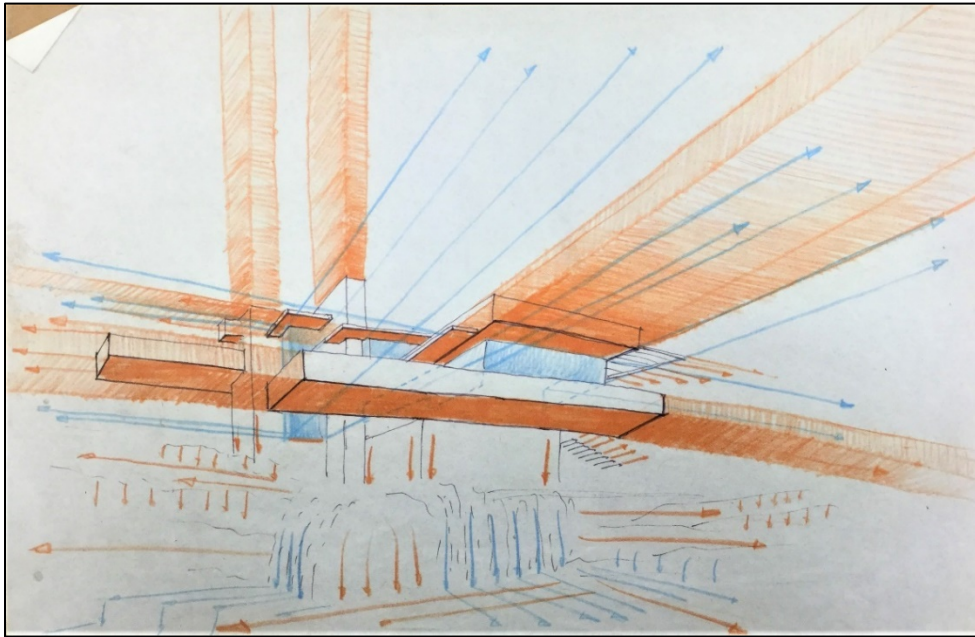


Figure 4: A sketch of Frank Lloyd Wright's Fallingwater (1935) by the Paul Rudolph office, which inspired the firm's thinking about how to design a building that naturally emerges from a mountain. Library of Congress, Paul Rudolph Papers, PR 13 CN 2001:126, PMR 3003-2.

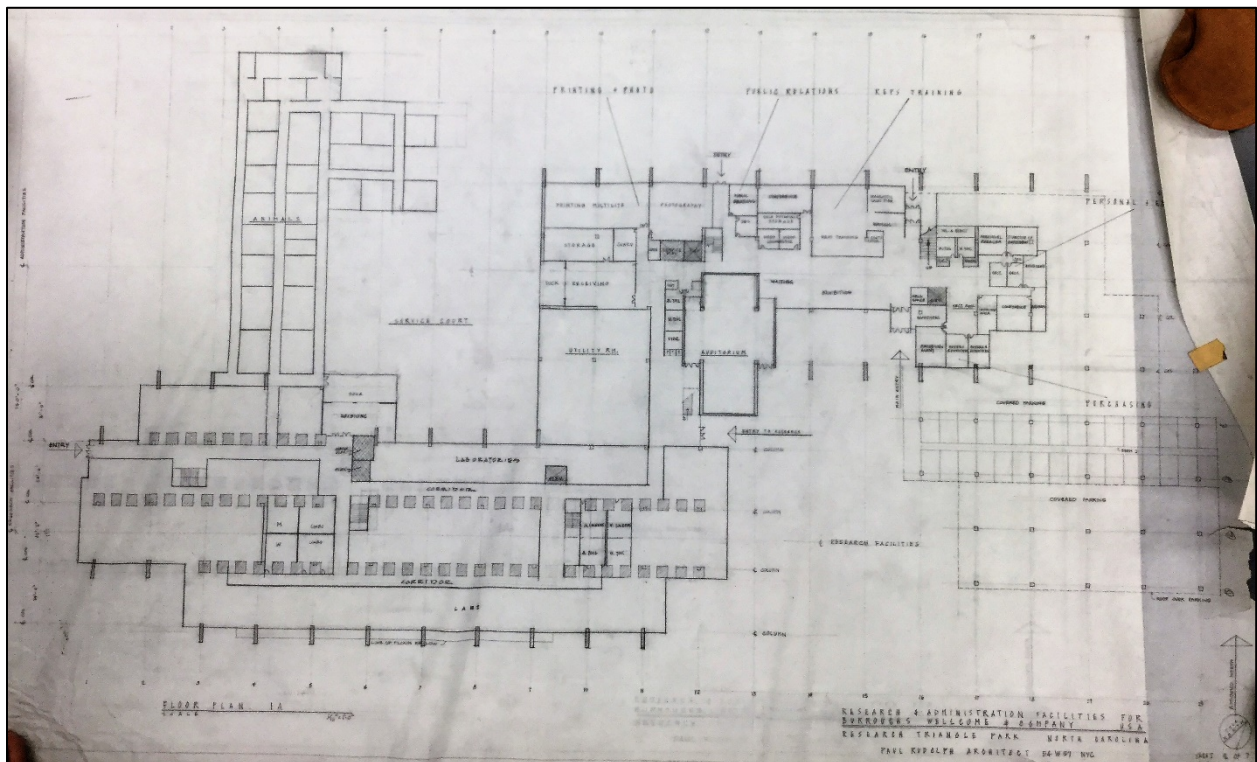


Figure 5: 1969 Plan of the Burroughs Wellcome building, showing the lobby, research and administrative areas. Library of Congress, Paul Rudolph Papers.

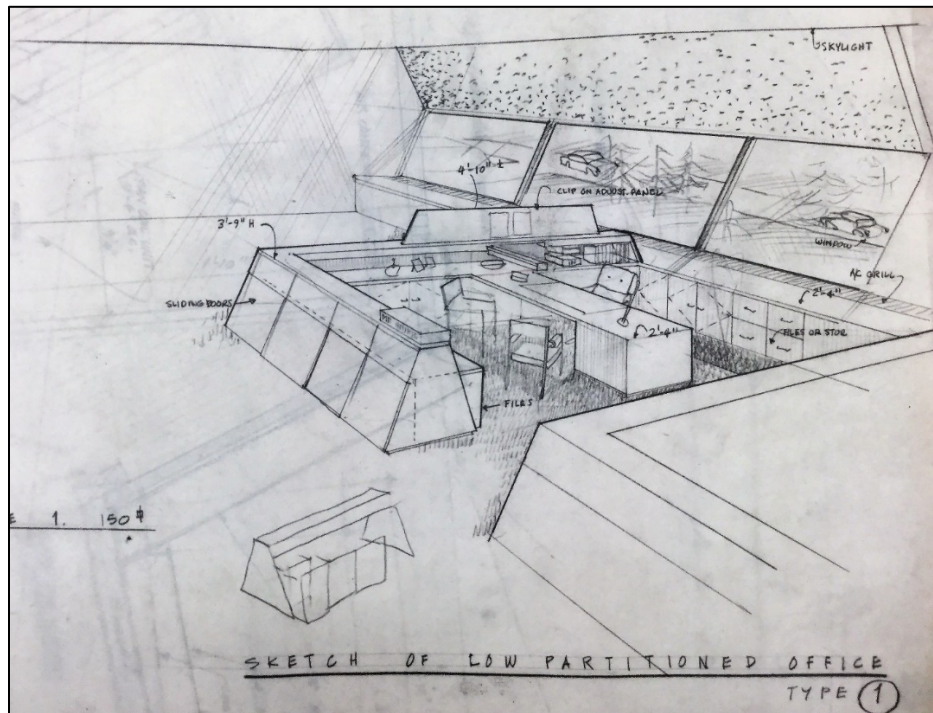


Figure 6: Although the headquarters design focused on research facilities, office spaces were still designed carefully to enable collaboration and views of the outdoors. Sketch of low partitioned office type, Paul Rudolph, November 13, 1969, Library of Congress, Paul Rudolph Papers, DLC/PP-2001: 126, PMR-0350.



Figure 7: Photograph of the two-sided auditorium. Library of Congress, Paul Rudolph Papers, PR13 CN 2001: 126, Box 10, Folder 10.

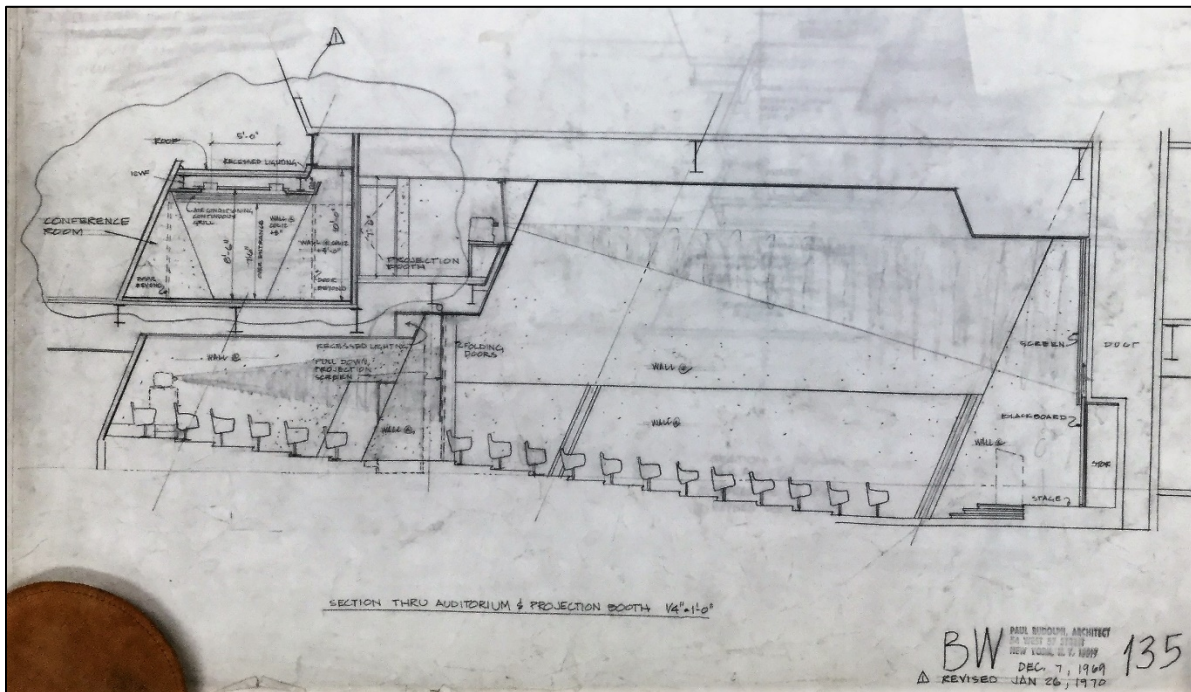


Figure 8: Section of the auditorium, showing the positioning of the two cameras and the partition wall that could be used to create two smaller viewing areas. Library of Congress, Paul Rudolph Papers, DLC/PP-2001:126, PMR-0345.



Figure 9: 1972 Photograph documenting the library's commitment to transparency and knowledge made pleasant by dramatic architecture and strange angles. Library of Congress, Paul Rudolph Papers, PR 13 CN 2001:126, Box 10, Folder 9.

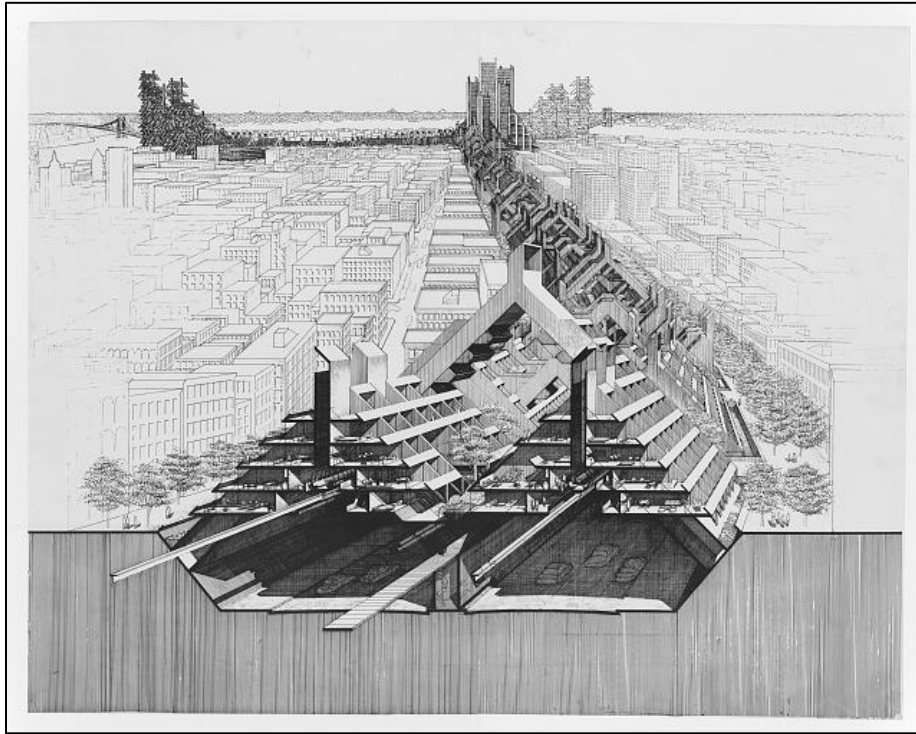


Figure 10: Paul Rudolph's design of the Lower Manhattan Expressway, New York City, 1970. Library of Congress, LC-DIG-ppmsca-26438.

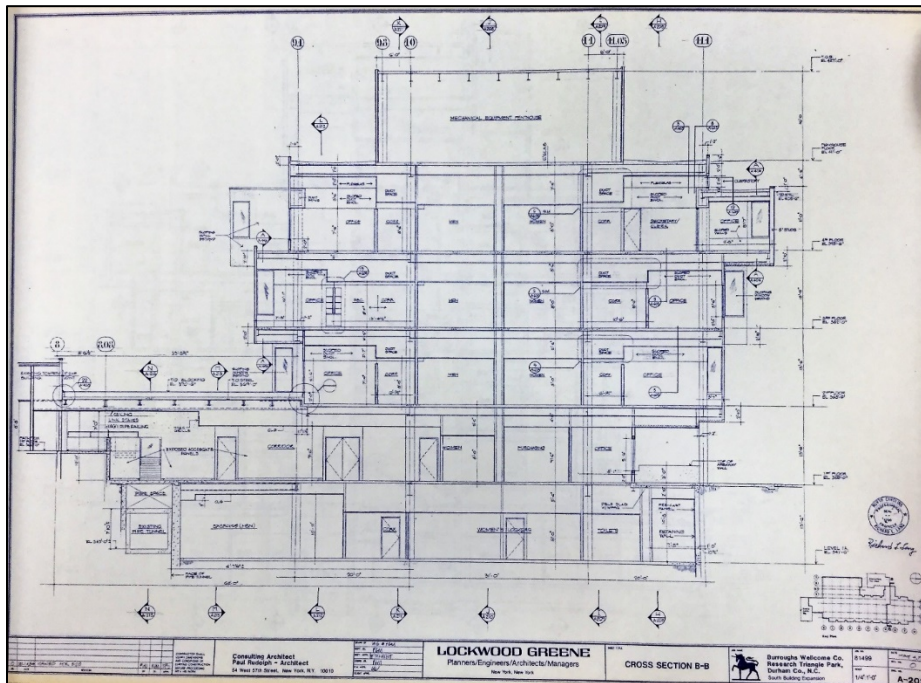


Figure 11: Section of Paul Rudolph's 1988 addition of the North Office Building, which now featured a more conventional rectangular design of office spaces. Library of Congress, Paul Rudolph Papers, DLC/PP-2001:126, PMR-0359.

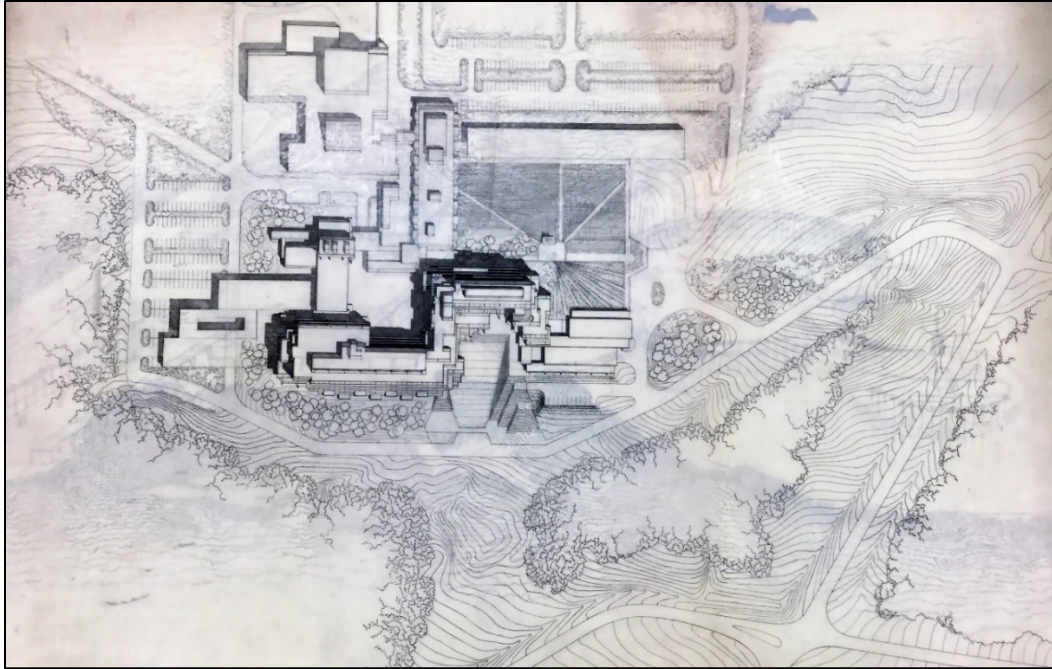


Figure 12: The 1988 addition of the North Office Building also featured a rectangular reflecting pool with three paths cutting across. Library of Congress, Paul Rudolph Papers, DLC/PP – 2001: 126, PMR-0034.

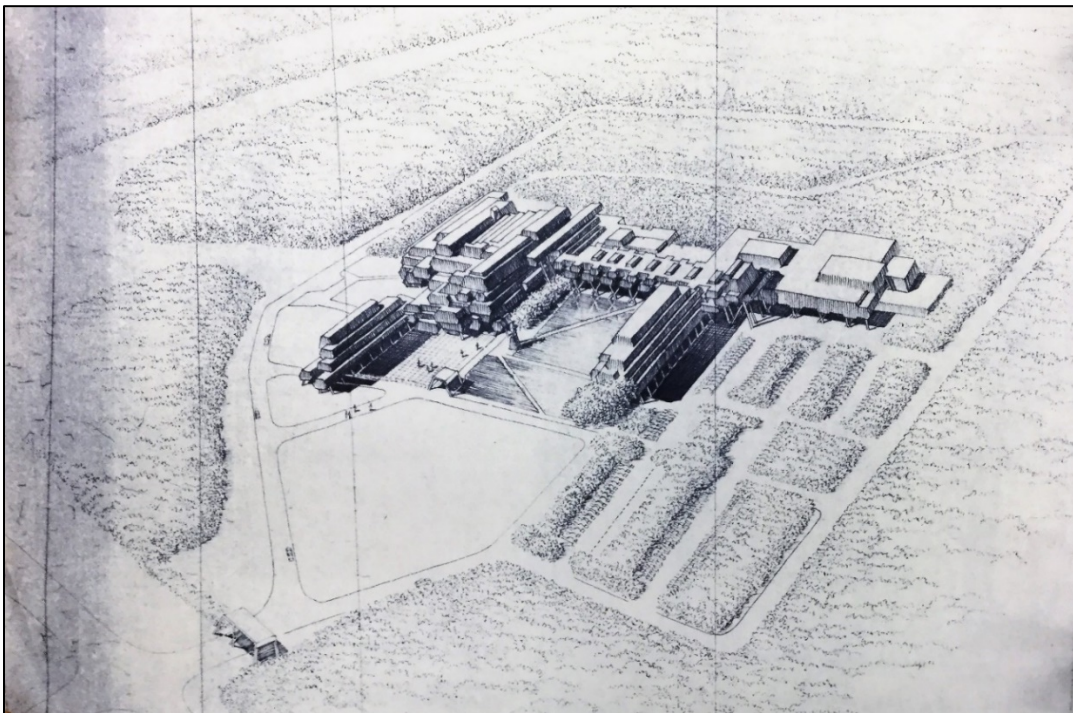


Figure 13: Perspective showing the new entrance to the Burroughs Wellcome Headquarters, including the reflecting pool and featuring a statue positioned on a platform where the paths cutting across the pool intersect. Library of Congress, Paul Rudolph Papers, DLC/PP-2001:126, PMR-0328.

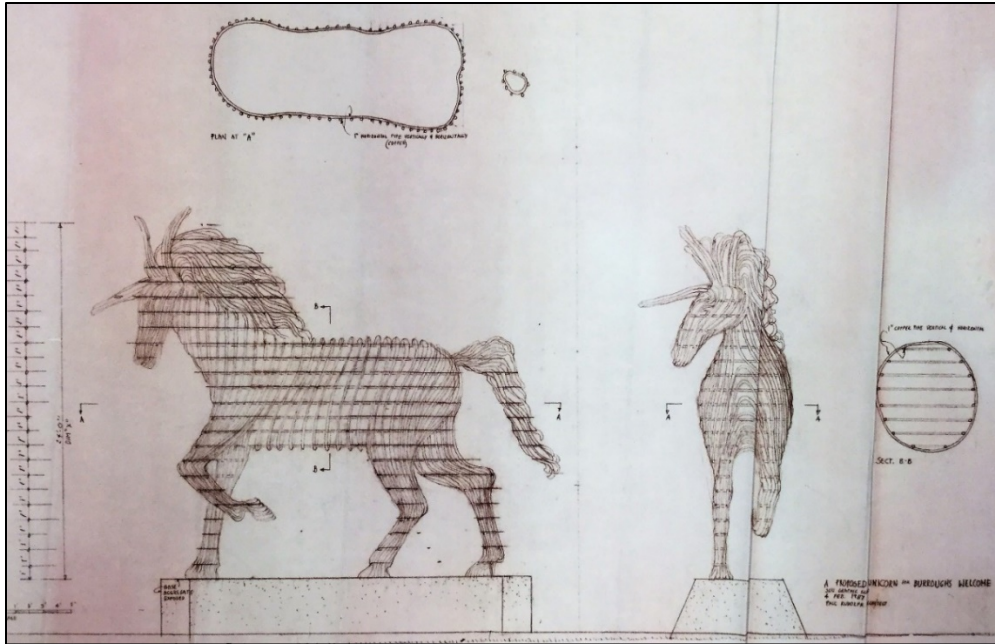


Figure 14: Paul Rudolph's 1988 design of the Burroughs Wellcome unicorn. Although envisioned in the 1969 plan, the sculpture was designed only in the later addition, though again not implemented. Library of Congress, Paul Rudolph Papers, DLC/PP-2001: 126, PMR-0420.



Figure 15: Poster advertisement for the Research Triangle Park published in the *Raleighite* 18 (4), August, 1965, showing the bordering universities and businesses already located to the Park. University of North Carolina – Chapel Hill, 5081 Research Triangle Foundation records, Box 194.



Figure 16: Panoramic construction photograph of the erection of the steel superstructure for the administrative and research wings, circa 1969. Monthly Progress Report, Library of Congress, Paul Rudolph Papers, PR 13 CN 2001: 126, PMR 3042-3.



Figure 17: A Paul Rudolph office drawing showcasing the exterior materials used, including Boncoat. Library of Congress, Paul Rudolph Papers, DLC/PP-2001:126, PMR-0349.



Figure 18: Panoramic perspective of the Burroughs Wellcome building, showing visual balance created by the horizontal and vertical elements, including the angled flag pole on the right. Author's photograph.



Figure 19: Tinted ribbon windows wrap around a part of the Burroughs Wellcome building. Author's photograph.



Figure 20: Reception desk at the Burroughs Wellcome building, built using the same aggregate employed in various exterior and interior wall surfaces. Author's photograph.



Figure 21: The large columns, a hovering balcony, and overhanging offices spaces add to the drama of the main plaza. Author's photograph.



Figure 22: The grand exterior plaza was also conveniently employed as an outdoor auditorium for company presentations and events. University of North Carolina – Chapel Hill, P-5081 Research Triangle Foundation Papers, Series 13.1 Photographs, Box 4, Folder 124.



Figure 23: Office photographs prominently included the building, often employing the design's unique angles to frame workers. University of North Carolina – Chapel Hill, P-5081 Research Triangle Foundation Papers, Series 13.1 Photographs, Box 4, Folder 120.



Figure 24: Burroughs Wellcome employees exploring car port overhangs in preparation for a commercial for one of the company's products in July, 1972. University of North Carolina – Chapel Hill, P-5081 Research Triangle Foundation Papers, Series 13.1 Photographs, Box 4, Folder 112.



Figure 25: Archival records reveal that a softball field was positioned behind the Burroughs Wellcome building for leisure activities. University of North Carolina – Chapel Hill, P-5081 Research Triangle Foundation Papers, Series 13.1 Photographs, Box 4, Folder 120.



Figure 26: Large continuous glass wall, positioned at a 22.5 degree angle in the lobby of the building. Author's photograph.

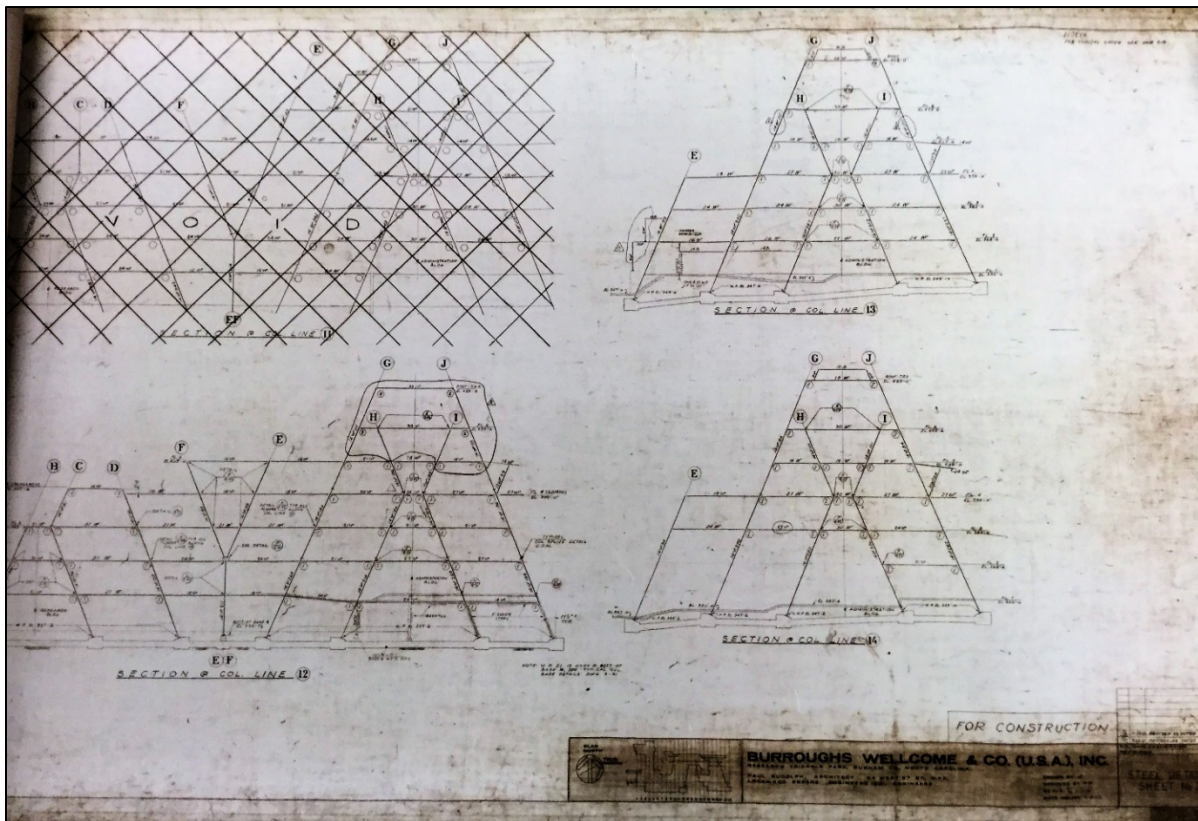


Figure 27: Steel framing for the Burroughs Wellcome Headquarters, 1970. Library of Congress, Paul Rudolph Papers, DLC/PP-2001:126, PMR-0410.



Figure 28: Fifth-level executive terrace, showing original surface treatments, planters, and the deterioration of the foundation. Author's photograph.



Figure 29: Visitors to the building rest on the angled doors off the lobby. University of North Carolina – Chapel Hill, P-5081 Research Triangle Foundation Papers, Series 13.1 Photographs, Box 4, Folder 120.



Figure 30: A typical office with access to windows featured not only the main glazing but also a continuous skylight, which posed problems with glare. Author's photograph.



Figure 31: Drainage fits at time awkwardly within the overall design of the Burroughs Wellcome building, for example extending the length of the façade. Author's photograph.

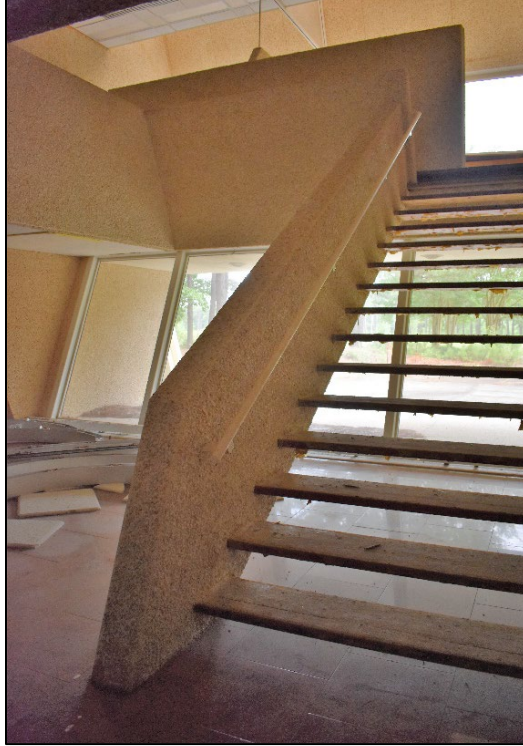


Figure 32: Main staircase off the building's lobby, leading to the second level. Author's photograph.



Figure 33: Staircase in the lounge area on the third level. Author's photograph.



Figure 34: Executive-level offices with open space for secretary space, feature concrete walls floor to ceiling for privacy, whereas typical offices contain a Plexiglas partition at the top to provide more access to natural light. Author's photograph.



Figure 35: Staircase exit/entrance is highlighted and adorned with a large planter. Author's photograph.



Figure 36: Guard post built to resemble the angular protrusions of the Burroughs Wellcome building, currently placed on the periphery of the property. Author's photograph.