Conservation Management Plan

Salk Institute for Biological Studies

La Jolla, California

October 2016 [Redacted May 2017]

This report has been redacted by Wiss, Janney, Elstner Associates, Inc., on behalf of the Salk Institute for Biological Studies, in May 2017 for public viewing. The Conservation Management Plan was completed in October 2016.

Cover image:
Leslie Schwartz Photography (2015)
Salk Institute Courtyard, La Jolla, California, USA
Digital Photograph

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Introduction

> At its simplest, a conservation plan is a document which sets out what is significant in a place and, consequently, what policies are appropriate to enable that significance to be retained in its future use and development. For most places it deals with the management of change. . . . . "Conservation plan" has become a convenient generic term covering a variety of productions. The type of place, needs of owners, range of problems encountered and skills available all mean that the scope and approach must be flexible if the contents are to be both useful and succinct. The structure of such plans should therefore be tailored to resolve relevant issues in the most direct way. . . . The actual structure and scope of the plan has to evolve to suit the particular place and its problems.[1]

Project Objectives

The intent of this project is to assist the Salk Institute for Biological Studies in the preparation of a Conservation Management Plan for its buildings and their setting, focusing on the buildings and plaza designed by Louis I. Kahn for its site in La Jolla, California. The site's other structures and site features are addressed as part of the campus-like cultural landscape setting for the iconic buildings.

Previous page: Aerial view, 1979.

The Institute was founded by Jonas Salk, the developer of the polio vaccine. Salk had sought to create a beautiful campus in order to draw the best researchers in the world. Salk and Kahn, both descended from Russian Jewish parents who had immigrated to the United States, had a deeper connection than just mere partners on an architectural project. The results of their connection are seen in the design that resulted from their collaboration. Recognized throughout the world as a seminal work of modernist architecture, the Institute is both a riveting object and a place tied to its unique coastal site. The buildings are outstanding structures of their time and are of international importance. As with many of Kahn's buildings, they are much appreciated by their occupants and owners. The Kahn-designed buildings of the Salk Institute were designated a Historical Landmark by the City of San Diego in 1991. The entire 27-acre site was determined eligible by the California Historical Resources Commission in 2006 for listing on the National Register of Historic Places. In 1992, the Salk Institute received a 25-Year Award from the American Institute of Architects (AIA) and was featured in the AIA exhibit, "Structures of Our Time: 31 Buildings That Changed Modern Life."

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[1] James Semple Kerr, *Conservation Plan: A Guide to the Preparation of Conservation Plans for Places of European Cultural Significance*, seventh edition. (Australia ICOMOS, 2013), section 3.0, 1.

Kahn was initially approached about the project in 1959; the earliest surviving drawings for the building date from August 1960. Construction started in January 1963 and was completed in May 1965. Some alterations were made in May through December 1972, while Kahn was still living.

Additional buildings to house more laboratories as well as organizational administrative offices were constructed in the 1990s. These buildings were designed by Jack MacAllister of Anshen + Allen; MacAllister had been involved in the original construction of the Kahn-designed Salk Institute buildings.

The Kahn-designed Salk buildings have experienced deterioration due to weather and daily use over the last fifty years, as well as modifications to accommodate changing user needs. Repairs are now needed to ensure that the buildings continue to function in good condition. The Institute also needs to develop additional accommodations on its campus, which will need to be carefully considered so that they are compatible with the existing architectural expressions and cultural landscape and respect sensitive environmental conditions.

With this in view, the first step is the preparation of this Conservation Management Plan, so that both repairs and development can be carried out within the framework of conservation policies adopted by the Institute.

Project Approach and Methodology

The Conservation Management Plan reflects a simple concept: a thorough understanding of “Place” is essential to the assessment of cultural significance and development of a Statement of Significance that can be agreed between all parties. At the Salk Institute, The Conservation Management Plan not only captures the essence of the Place, but also identifies vulnerabilities that could potentially affect the historic fabric and heritage values of the resources, and presents policies to protect the site’s significance from those vulnerabilities. To continue to meet emerging needs, the Conservation Management Plan is envisioned as a living document that can be revised and updated over time in the light of new information or as changing circumstances arise. It is anticipated that the plan will be revisited in five years and subsequently, every ten years.

The first step in the process of developing the Conservation Management Plan was to gather information by studying the buildings on site and consulting archival material. From this effort, the project team developed an analysis of fabric that forms an inventory of each element of the building in the context of its historic development. The Conservation Plan provides a structure for considering future proposals for repair and development, and for formulating mitigation strategies as needed.

For this project, the understanding of the “Place” covers the historical development of the Salk Institute from inception of the idea by Dr Jonas Salk through its realization in the present buildings. This assessment places the Salk within the context of its mission and its importance within Kahn’s overall body of work.

Each element of the buildings is considered in detail for its particular significance, while vulnerabilities or threats are also identified. Matters of physical conditions are an important part of this evaluation; for example, the deterioration of the teak windows poses a threat to the significance of one of the character-defining elements of the design. Given the unique importance of the Salk Institute and its prominent sense of Place, the campus represents a cultural landscape that must be considered holistically by the Conservation Management Plan.

The work plan for accomplishing the tasks necessary to prepare the Conservation Management Plan included the following steps: review of original written documentation, photographs, drawings, and maps at the Salk Institute and the University of Pennsylvania Kahn archives, as well as published documents related to the design and context of the Salk Institute; site visits by the project team to understand the evolution of the design and as-built construction, as well as alterations since original construction, and to assess existing conditions and mechanisms of deterioration (including selective materials studies); review of findings of a study of the teak windows by the Getty Conservation Institute and repair/restoration of the teak window systems and repair of exterior concrete, designed by Wiss, Janney, Elstner Associates, Inc., in progress concurrently with the development of this report; meetings by the project team with representatives of the Salk Institute and other stakeholders identified by the Salk Institute; development of the draft Conservation Management Plan; a working meeting with representatives of the Salk Institute and the Getty Foundation and Getty Conservation Institute to review findings of the study, issues, and proposed policies; and preparation of the final Conservation Management Plan.

Potential impacts on the value of the Salk Institute as a historic place are assessed, including impacts related to preservation, rehabilitation, or restoration of physical fabric, as well as regulatory factors related to planning and building regulation. Understanding potential impacts is paramount so that the potential negative impacts of interventions can be addressed and mitigated by the policies developed in the Conservation Management Plan. Factors that may impact the historic fabric and the heritage values and significance of the resource range from necessary repair and maintenance programs, such as to address deterioration of the teak window systems, travertine paving, and concrete facades, to accessibility and code compliance upgrades, interior improvements to accommodate contemporary users, extensions to meet space planning requirements, systems upgrades, and restoration (or replacement) of deteriorated character-defining elements. Vulnerabilities are identified and potential impacts considered in terms of requirements for retaining or recovering significance, client needs, physical condition (based in part on the findings of the condition assessment performed as part of this project and in the concurrent projects noted above), and external factors (such as building codes).

The Conservation Management Plan formulates policies that guide the mitigation of the potential impacts identified. The policies are consistent with the guidance afforded by the Secretary of the Interior's Standards for the Treatment of Historic Properties, and other relevant guidelines, and address in particular the role of character-defining elements. These policies specifically address heritage values and issues of concern at the Salk Institute. They will inform the protection of the Salk Institute's particular sense of place and architectural significance when mitigating the potential effects of physical interventions on character-defining features to accommodate proposed changes in use, materials, or form.

The Conservation Management Plan has been prepared in accordance with the published international guidelines of UNESCO, ICOMOS, and the Burra Charter, together with Secretary of the Interior's Standards for the Treatment of Historic Properties, and other standards as appropriate.

Understanding the Place

The Site

San Diego was recognized as a pueblo by the Mexican government in 1834, and this secular designation gave the community self-governing status as well as a generous amount of land for housing lots, municipal lands, and common grazing. After 1850, San Diego's leaders argued that the city should inherit the entire Pueblo Lands of 48,556 acres that had been assigned to it under Mexican law.[2]

In 1849, two years after the end of the Mexican-American War, the boundary between the two nations was established. In the following year, California was admitted to the Union; San Diego County was established as one of California's twenty-seven counties and San Diego was incorporated as a city. In 1867, Alonzo Horton purchased 960 acres of land and started to develop New Town. Rampant real estate speculation followed completion of the first railroad connection to Los Angeles in 1884. By 1887, the population of San Diego was 40,000. The property boom collapsed in 1888 and after a prolonged depression, San Diego gradually began to grow again in the early twentieth century, capitalizing on the region's Mediterranean climate and spectacular scenery.

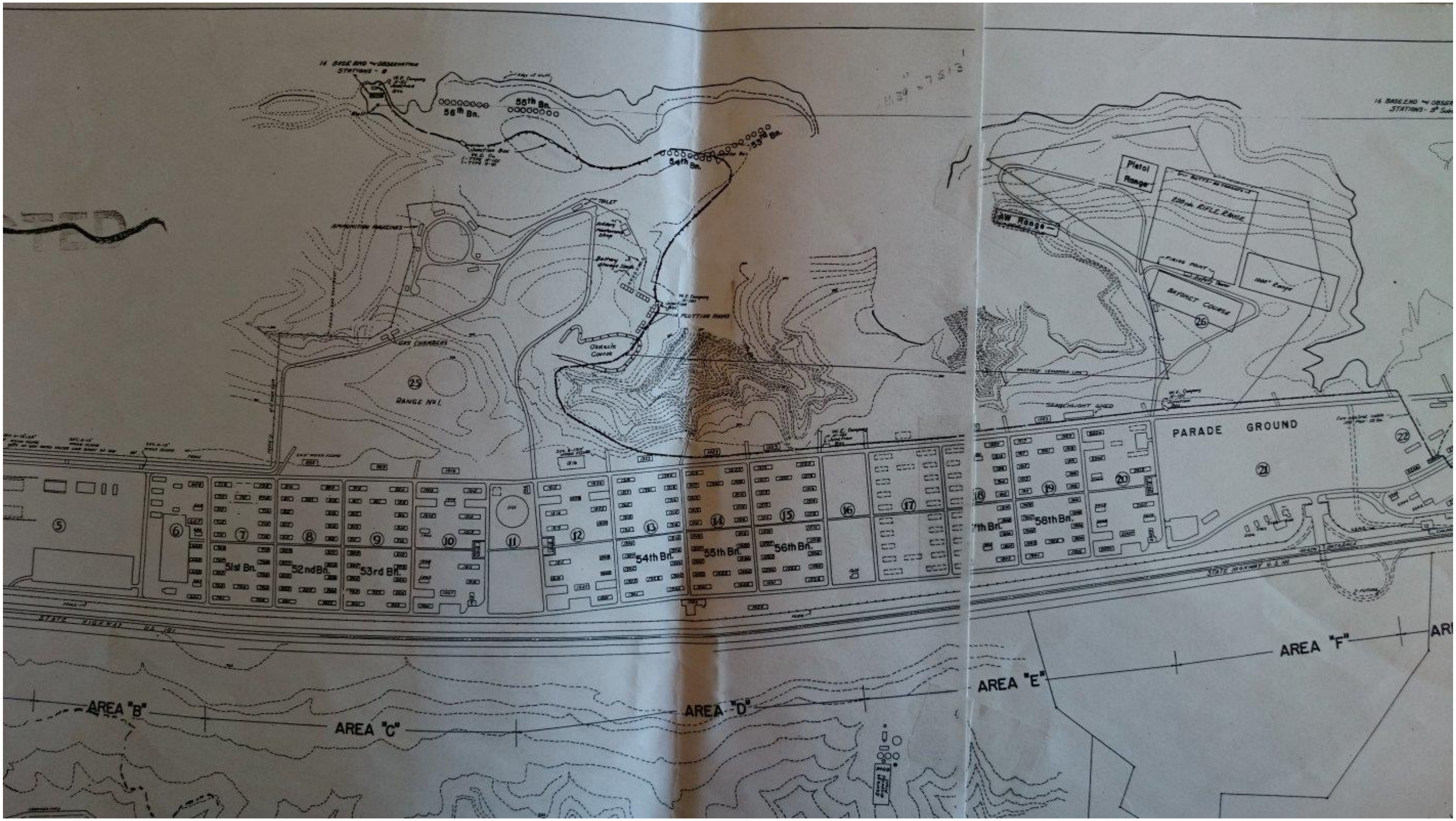
Although the claim for the Pueblo Lands was filed in 1854, San Diego did not receive a patent until 1874, at which time the city was granted nearly the entire area. It used this new property to attract investors, including railroads in the nineteenth century, and major institutions such as the U.S. Navy, the U.S. Army, the University of California, the defense contractor General Atomics, and the Salk Institute in the twentieth century.

Another driver of the local economy was tourism, which flourished after the Panama-California Exposition of 1915–1916 was held in the city, introducing many to its scenic and climatic charms. Tourists, retirees, and artists smitten by the attractions of the scenery and climate took up residence in apartment blocks constructed to meet the demand. During the 1920s and 1930s, increasing popularity of the locale led to the development of winter resorts for Hollywood executives, and the population of San Diego doubled from 74,000 to 148,000.

The development of La Jolla reflected the growth of tourism, with the population rising from 350 to 4,000 in the 1920s. The California Pacific International Exposition of 1935–1936 further encouraged interest in the region.

Front page: Sky, Plaza, and Pacific Ocean, 2015.
Facing page: The site of the future Salk Institute looking eastward across the bluff to the Eucalyptus Grove and Camp Callan, 1941.

[2] The historical background is based on *Salk Institute for Biological Studies Historic Resources Technical Report*, Page & Turnbull, March 2007.


56th Bn.
55th Bn.
54th Bn.
53rd Bn.
Obstacle Course
RANGE No. 1
Pistol Range
AW Range
200 yd. RIFLE RANGE
BAYONET COURSE
SEARCHLIGHT SHED
PARADE GROUND
51st Bn.
52nd Bn.
53rd Bn.
54th Bn.
55th Bn.
56th Bn.
58th Bn.
AREA "B"
AREA "C"
AREA "D"
AREA "E"
AREA "F"

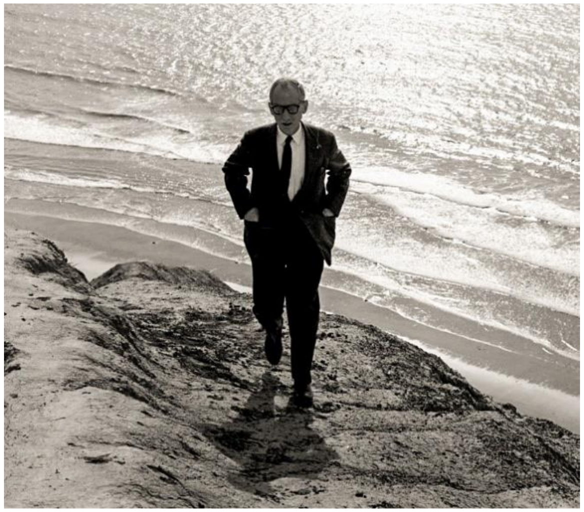
For the first half of the twentieth century, San Diego prospered due to the presence of numerous military installations: the Army established Camp Kearney as its administrative center for the U.S. Southwest in 1917; and Navy officials attracted to San Diego's large natural harbor designated the city as the location of the Pacific Fleet headquarters in 1919. The undiminished military presence and the growth of tourism meant that San Diego avoided the worst of the Great Depression in the 1930s, though real estate development was temporarily hindered. In the years leading up to the Second World War, the number of military installations in San Diego County increased significantly, leading to dramatic increases in the community's population. One major impetus was the influx of military personnel following the opening of Camp Callan on the north side of La Jolla in 1940; part of its site would be later occupied by the Salk Institute. The camp was used to train military personnel in weaponry, and accommodation was in single story, temporary buildings that extended along the plateau parallel to the highway. Several coastal defense structures and anti-aircraft guns were positioned on the canyon rim near the present-day North Parking Lot. Because of this, by 1943 about 8,000 residents lived in La Jolla, and the hillsides around the village and northward along the coast were gradually being developed.

After the Second World War, San Diego experienced a temporary recession as the region's aerospace and other defense-related industries readjusted to peacetime conditions. However, the Cold War and the Korean War again provided well-paying jobs that encouraged the growth of the city, and agricultural communities were transformed into suburban cities. San Diego remained vulnerable to cutbacks in military expenditure, and the perils of being a one-industry town inspired city leaders to seek new industries. During the 1950s two seeds were planted that would eventually form the core of San Diego's biotechnological industry. These were the University of California, San Diego, and the Salk Institute for Biological Studies.

The Salk Institute is constructed on a portion of Pueblo Lot No. 1324, which the City owned from the 1874 patent granted it by the State Land Commission, until June 1960 when the property was voted as a gift to the Salk Institute in order to secure its establishment in San Diego rather than Pittsburgh. The land had been leased for grazing in the 1890s, but in 1899 the City designated 364 acres of Pueblo Lands of the coastal lands as a public park. This was extended by gifts by Ellen Browning Scripps in 1908 and 1911, and in 1924 the City added more acreage, enlarging Torrey Pines Park to nearly 1,000 acres of coastline. In 1928 the League to Save Torrey Pines successfully fought a proposed cliff top road that would have filled in several canyons, including the one to the west of the Salk Institute.

In 1928, Torrey Pines Gliderport was established on city-owned lands to the northwest of the Salk site. It was listed in the National Register in 1993 because of its pioneering role in the development of gliding, and because of its association with aviator Charles Lindbergh, who identified its site as being ideal for launching and landing gliders; Lindbergh is said to have landed a plane in the area. The gliderport is listed in the California and National Registers of Historic Places and is a San Diego City Historic Site.

Facing page: Camp Callan, plan, circa 1941.



Jonas Salk on site at La Jolla, 1964.

The Salk Institute

The Salk Institute was established in the early 1960s by Jonas E. Salk, M.D. (1914–1995), the developer of the polio vaccine. His goal was to establish an institute that would explore questions about the basic principles of life. Dr. Salk wanted to make it possible for biologists and others to work together in a collaborative environment that would encourage them to consider the wider implications of their discoveries for the future of humanity. He had a distinct vision for the Salk Institute as he worked with scientists and architects to create a new paradigm for research and collaboration, and the buildings were a key part of this vision. The funding was largely promised by Basil O'Connor of the March of Dimes, the National Foundation for Infantile Paralysis. The organization was founded by President Franklin D. Roosevelt in 1938, recognizing that research was one of the cornerstones of the effort to defeat polio.

Research started in July 1963 when two temporary laboratories were opened at the new Institute, staffed by five senior scientists and their research teams. This distinguished group of fellows formed members of the Salk Institute's first faculty group and, in addition to Jonas Salk, included Melvin Cohn, Renato Dulbecco, Edwin Lennox, and Leslie Orgel. The first non-resident fellows selected were Leo Szilard, Francis Crick (co-discoverer of the structure of the DNA molecule), Salvador Luria, Jacques Monod, and Warren Weaver, with Jacob Bronowski representing the humanities.

The permanent Laboratory Complex was completed in 1965, and today the major areas of study at the Salk include molecular biology and genetics, neurosciences, and plant biology. Salk research provides new understanding and potential new therapies and treatments for a range of diseases—from cancer, AIDS and Alzheimer's disease, to cardiovascular disorders, anomalies of the brain, and birth defects. Discoveries by plant biologists at the Salk pave the way to improving the quality and quantity of the world's food supply and to addressing pressing environmental problems, including global warming.

Facing page:
First Design, model of proposal presented to the city of San Diego, March 1960: scheme planned around a north drive; predominant Meeting House by ocean; recreation and housing placed either side of canyon; laboratory towers by highway.

First Design, model view east from ocean; Meeting House on left and laboratory towers in distance, March 1960.

First Design, 1959–1960

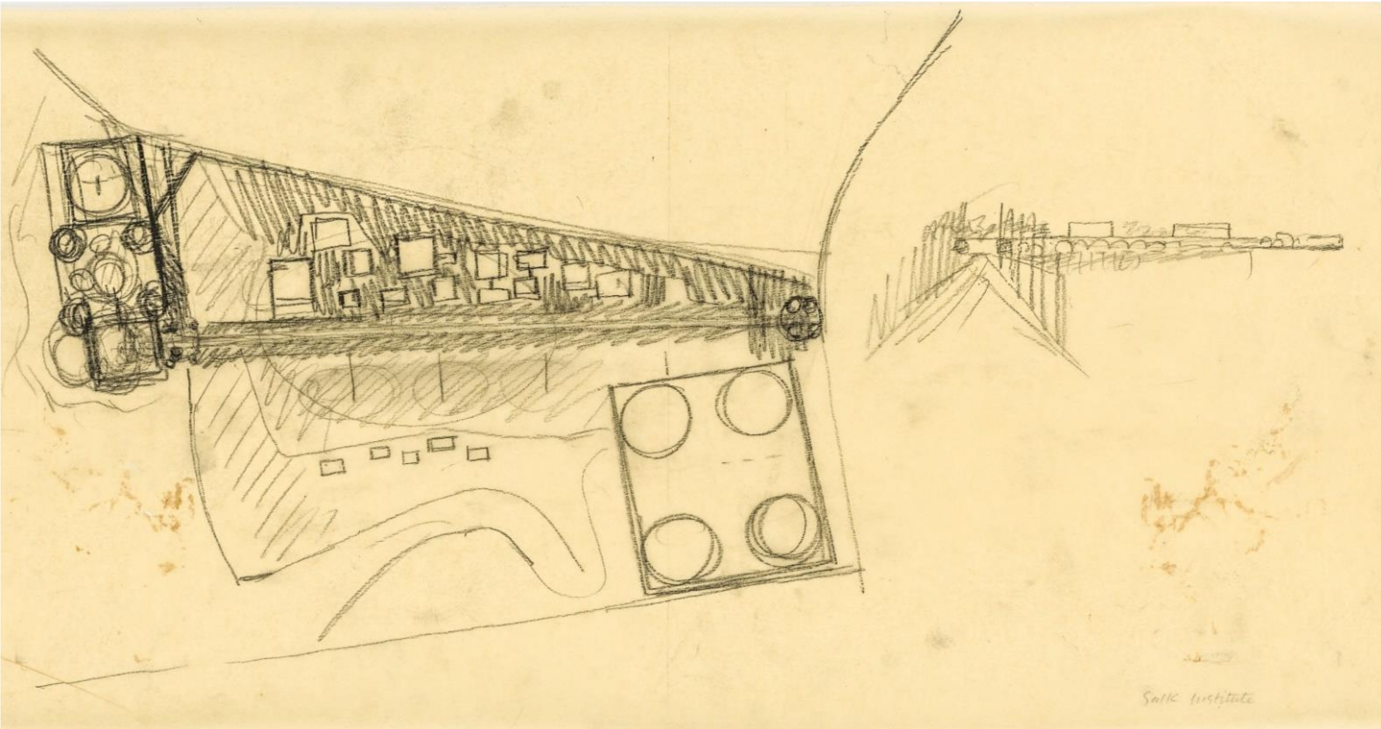
Following the recommendation of a colleague who had attended a lecture by Louis Kahn entitled “Order in Science and Art” at the Carnegie Institute of Technology in Pittsburgh, Dr. Salk contacted Kahn for advice on the choice of architects for the Institute. He visited Kahn in Philadelphia in December 1959. As well as discussing the Institute and Salk’s ideas about the relationship of science and the humanities, they visited the Richards Medical Research Laboratories, which the architect was just completing. Salk admired the building, and said that at 100,000 square feet, divided among approximately ten research groups, the laboratories were about the size that he required. Salk had already designed his own laboratories in Pittsburgh and wanted to be an involved client. The visit marked the beginning of the friendship and collaboration between the two men that was to last until the architect’s death in 1974.

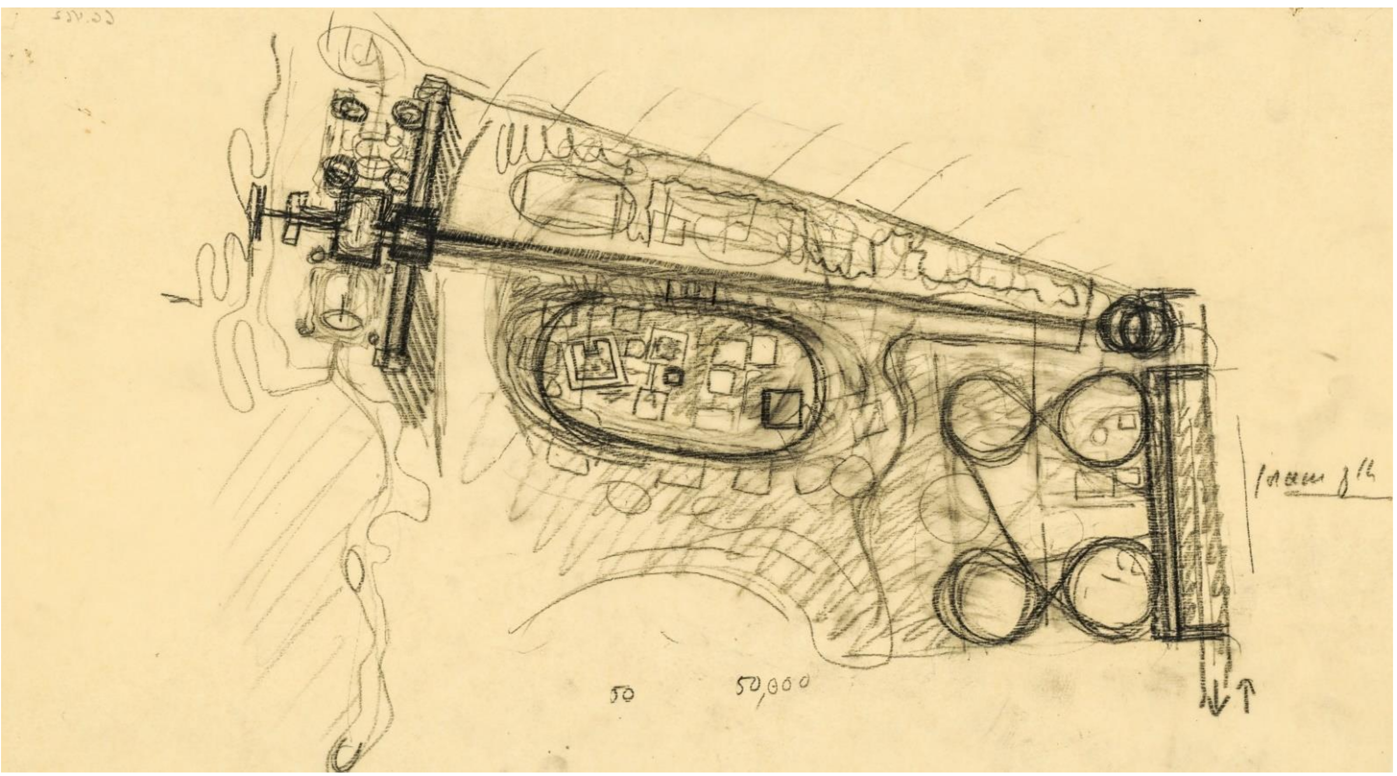
Having visited San Diego twice to assess the feasibility of being based in California, Salk paid his third visit to La Jolla in January 1960 and met with officials from the City of San Diego. At the meeting, he was invited to prepare a presentation in support of the proposed gift by the city of land for the research institute. In February he paid his fourth visit, this time accompanied by Kahn and O’Connor.

Kahn admired the 27-acre site overlooking the Pacific Ocean, which was penetrated by a canyon which ran deep into the area. He recognized that the natural terraces around the canyon could accommodate a scheme amongst the rugged coastal land, much of which was unbuildable.

Salk’s presentation to the City Council in March 1960 was illustrated with a model of Kahn’s initial proposals for the site, labeled *Academy of Biology for Jonas Salk*. It consisted of four elements: the Meeting House, the Laboratory, the Recreation Center, and the Living Place.

From Kahn’s earliest sketches onward, the site was planned to address a new road that was to run along the north side of the site. This concept focused on the Meeting House, which was given prominence by being placed overlooking the Pacific Ocean at the end the straight drive that passed the Recreation Center and apartments before bridging part of a further ravine. The Meeting House itself was shown as a single rectangular block fronting the sea—its plan divided into four, each section with a court facing the sea and one planned to contain an amphitheater.





Kahn: First Design, preliminary sketches organized with drive direct to Meeting House, early 1960.

The laboratories were sited on the east of the site, taking advantage of the flat plateau and ready access directly from what is now North Torrey Pines Road. They would have obliterated the existing Eucalyptus Grove and were arranged on four circular platforms, two of which contained research towers, possibly reminiscent of the Richards Laboratories. The other two platforms held low structures for special facilities.

To ensure that the Institute was a scholarly community, small groups of apartments were sited to the south of the drive. Some individual houses were to be placed beyond the canyon, approached by a subordinate drive along the south boundary.

This preliminary scheme established the general disposition of the buildings on the site that remained constant throughout the development of the design over the next three years.

The City Council welcomed the proposals, and on 24 May 1960, agreement on the site was reached between the City, the University of California San Diego, and Dr. Salk. A fortnight later, on June 7, the council voted to confirm the gift of the site, viewing it as part of its ambition to make San Diego the “Scientific Capital of the World.[3] At about the same time, the March of Dimes pledged funds for operations and endowment of the Institute; part of that money allowed Kahn to be commissioned to start work on a more detailed design

[3] Bourgeois, 69.

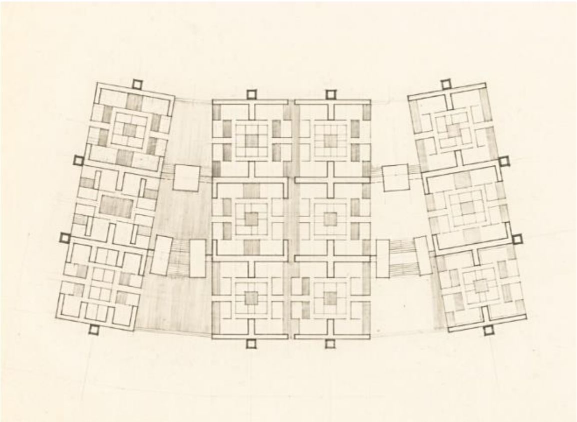
Second Design, 1960–1962

The Salk Institute was designed by Kahn in consultation with August Komendant, the structural engineer, and Fred Dubin, the building systems engineer, with whom he was completing the Richards Medical Laboratories.

There does not appear to have been a formal, written program for the Institute, but the scheme evolved through an iterative process between the client and his architect. Both men shared a vision that the Institute was a community that encouraged the exchange of ideas. The design developed throughout 1961, but it was not until as late as 1962 that, as part of a major review of the scheme, Kahn's office produced an "Abstract of Program" that summarized discussions regarding the Institute's space requirements in both qualitative and quantitative terms.[4] The language of the document is recognizably Kahn's, but it includes reference to scientific patterns of use that could only have come from Salk. It demonstrates the collaborative approach that was to continue throughout the project.

While the general disposition of the four parts of the Institute had already been established, the fundamental change in the Second Design was the development of low-rise laboratories. Not only was this possibly considered more appropriate to the wide open spaces of the site, but regional planning policies were limiting the height of coastal developments. The Eucalyptus Grove was retained and the laboratories were sited between it and the head of the canyon, leaving the east section of the plateau clear. Initial space planning studies found that the width of the site could accommodate four parallel laboratory buildings. The buildings were grouped in pairs set either side of two garden courts and served by three service roads running through the center and along the north and south sides. Another study suggested that the outer laboratories be splayed in relation to the central ones to create two tapered garden courts that faced the ocean. The courts were terraced to accommodate the fall in the grade to the west.

By 20 August 1960, the laboratories were arranged on two stories set at constant heights above the lowest part of the garden courts, with light wells providing daylight to those in the lower story where they were located below grade. Rows of studies, lining the two garden courts, were disengaged from the laboratories to provide a retreat for the fellows from their research. The studies were raised on columns so as not to obscure views outward from the laboratories

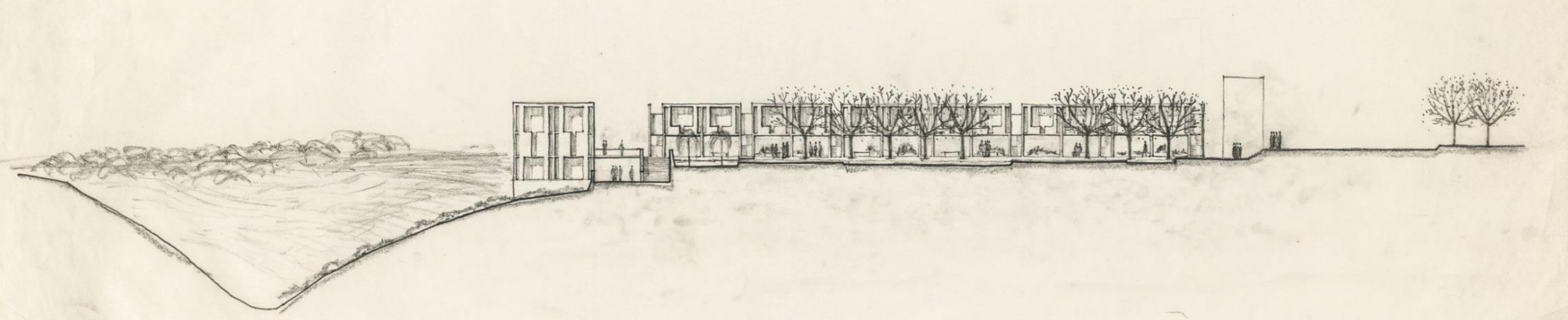


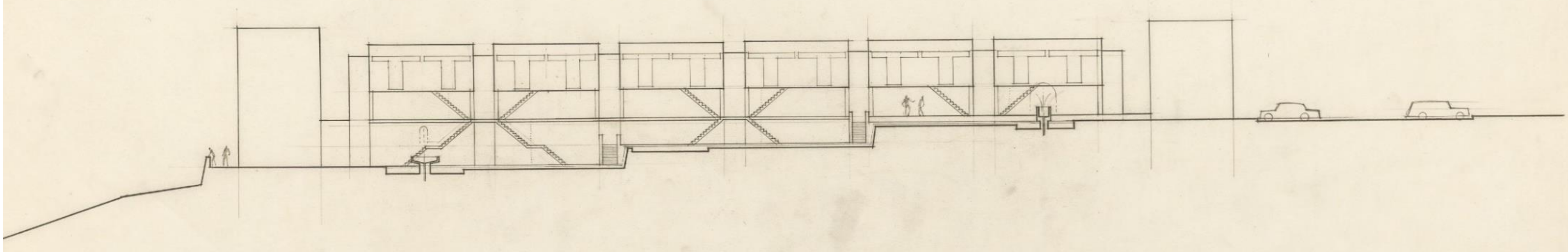
Louis I. Kahn: Second Design, preliminary sketches organized with drive direct to Meeting House, early 1960.

Facing page: Second design final proposal, June 1961 model.

[4] *Abstract of Program*, Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.2716. Copy provided in Appendix.

Facing Page
Second Design
Top: Kahn: Laboratory Complex, section with a three-story administrative building and library across the west side, late 1960.
Bottom: Kahn: Laboratory Complex, east-west section through stepped court, August 1960.





east west section through court   salk laboratories   scale 1/16" = 1'0"   20 aug 60

This scheme was further developed by September 1960: the stepping of the court was eliminated and the courts raised to the highest level of the grade. While this improved the garden courts, it resulted in the lower laboratories being totally reliant on sunken light wells for views and daylight.

The September drawings also show the introduction of a three-story building across the west side of the complex containing a double-height library set between reception and administrative offices. This closed the garden courts and laboratories from the ocean. The change confirmed that the entrance to the laboratory complex was at its northwest corner, approached from the new road to the north, and not directly from North Torrey Pines Road.

The design of the Meeting House had also progressed to become a cluster of collegiate buildings, garden structures, and courts; its site was adjusted eastwards and avoided crossing the ravine. The recreational facilities were integrated into the Meeting House and the housing was concentrated on the south mesa.

A site plan dated 5 January 1961, entitled *The Institute for Biology at Torrey Pines*, records these three elements. The Meeting House and laboratories were given prominence by being placed on platforms, contained within bastion-like retaining walls, and were approached from a shared entrance in the form of a linking esplanade that ran along the edge of the canyon.

Although smaller than the laboratories in plan, the Meeting House was developed as a citadel supported by a freestanding auditorium. Despite the falling ground, the large scale of the building, with walls 50 feet high, meant that it was the same height as the laboratories that were set higher up the bluff. The dominance of the Meeting House in views, both from the sea and from land, confirmed the hierarchy of the buildings and was reinforced with formal plantings overlaid on the natural landscape. The housing was treated as an informal settlement on the south mesa related to the site topography.

In the January 1961 site plan, the principal development in the laboratory complex was that the three-story building across the west front was replaced with a single story structure below a roof garden, which no longer blocked the views towards the ocean. The reduced height of the west building, however, meant that a double-height library was not possible, and instead the library was articulated with a series of inverted bays facing the ocean.

The Institute for Biology at Torrey Pines was incorporated in December 1960, but at the request of the City the name was changed only a month later in January 1961 to the Institute for Biology at San Diego. However, financial problems continued and no funds had yet materialized.[5] On 28 February 1961, Salk wrote about the

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5 Salk to Ted Puck, in Suzanne Bourgeois, *Genesis of the Salk Institute* (Berkley: University of California Press, 2013).

possibility of setting up his Institute in Pittsburgh, where it might be established in vacant space at the Municipal Hospital, as "... the matter of financing appropriate facilities for the Institute would be resolved."[6] By April, he even considered abandoning the Institute plan altogether as he "... had failed to raise even $1 for construction."[7]

Meanwhile, design work continued on each of the elements. So that Institute's research could be carried out as soon as possible, Salk instructed that the laboratory complex was to be given priority. A large-scale preliminary set of design drawings dated 14 June 1961, crystallized the arrangement of the laboratories in four, two-story blocks, with the lower laboratories partially excavated into the rising ground and the courts levelled to serve as a mezzanine between the two laboratory floors.

The upper laboratories were free of columns and taller than those in the lower story, in response to Dr. Salk's requirement for unobstructed space to achieve flexibility; with only the loads of the roof and services to consider, deep transverse girders spanning between the staircases and exhaust towers were able to support the folded plate structures covering the area. However, columns were necessary in the lower laboratories to ensure that high loadings would be possible on the floor above.

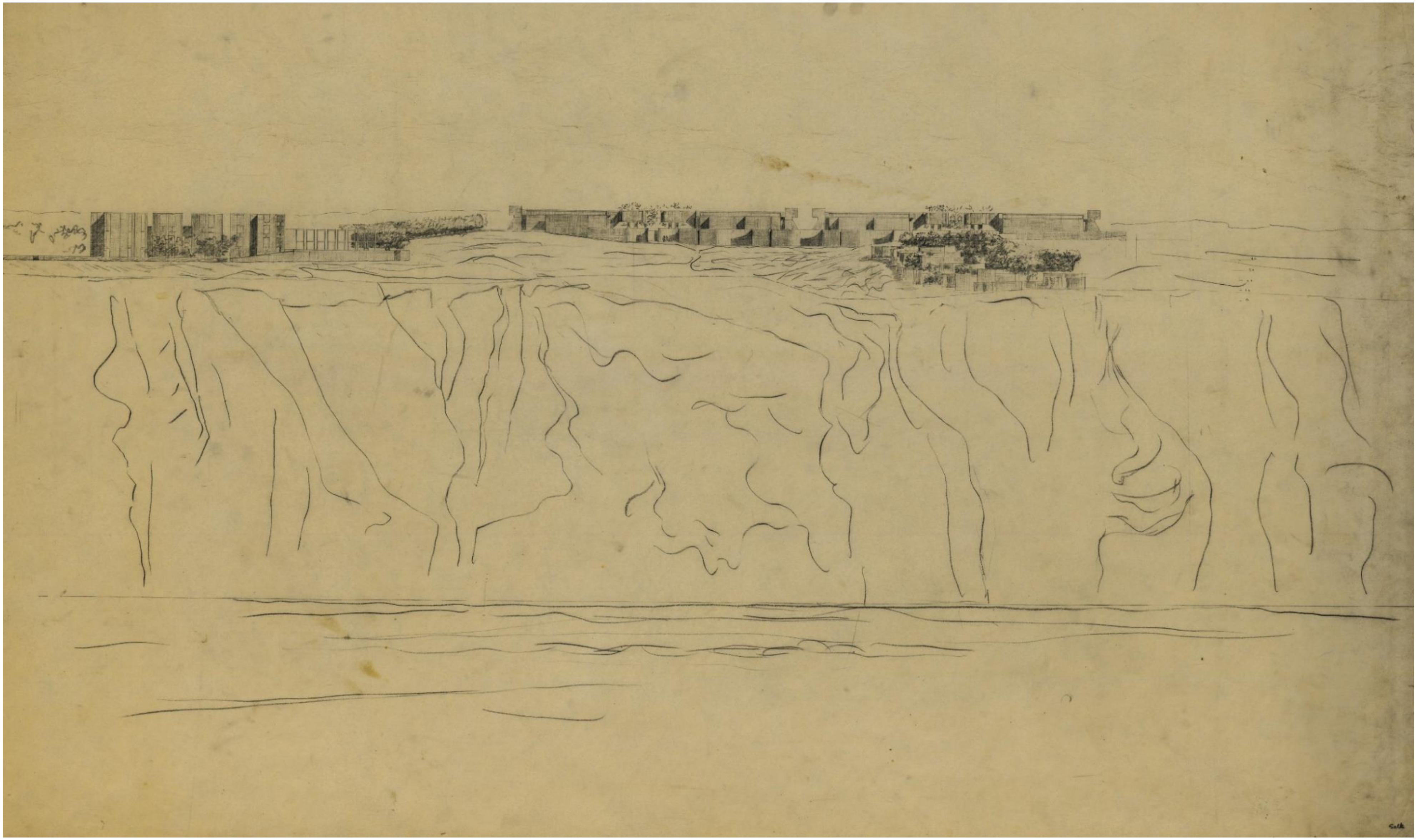
The planning of the garden courts as a mezzanine ensured the availability of the courts to both levels of laboratories, and also distanced them from the work on the bench. Raising the studies above a cloister not only allowed views out from the laboratories, but equally distanced the private studies from the work place and the courts.

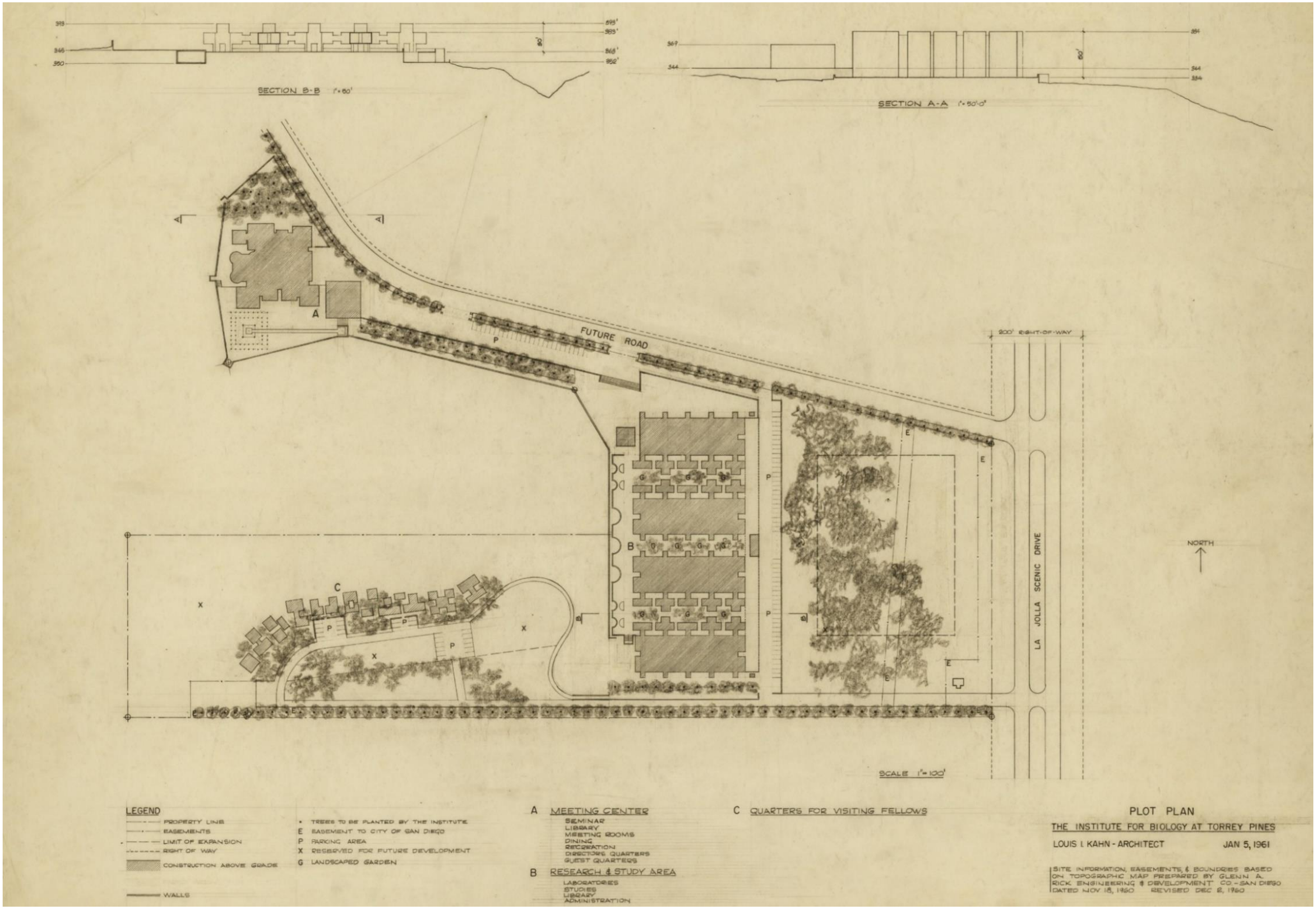
Alternatives continued to be drawn in October and November 1961 and indicated the germination of the idea of opening up the studies with canted bay windows to take advantage of ocean views. The services were also being further developed with the introduction of major air distribution ducts below the building.

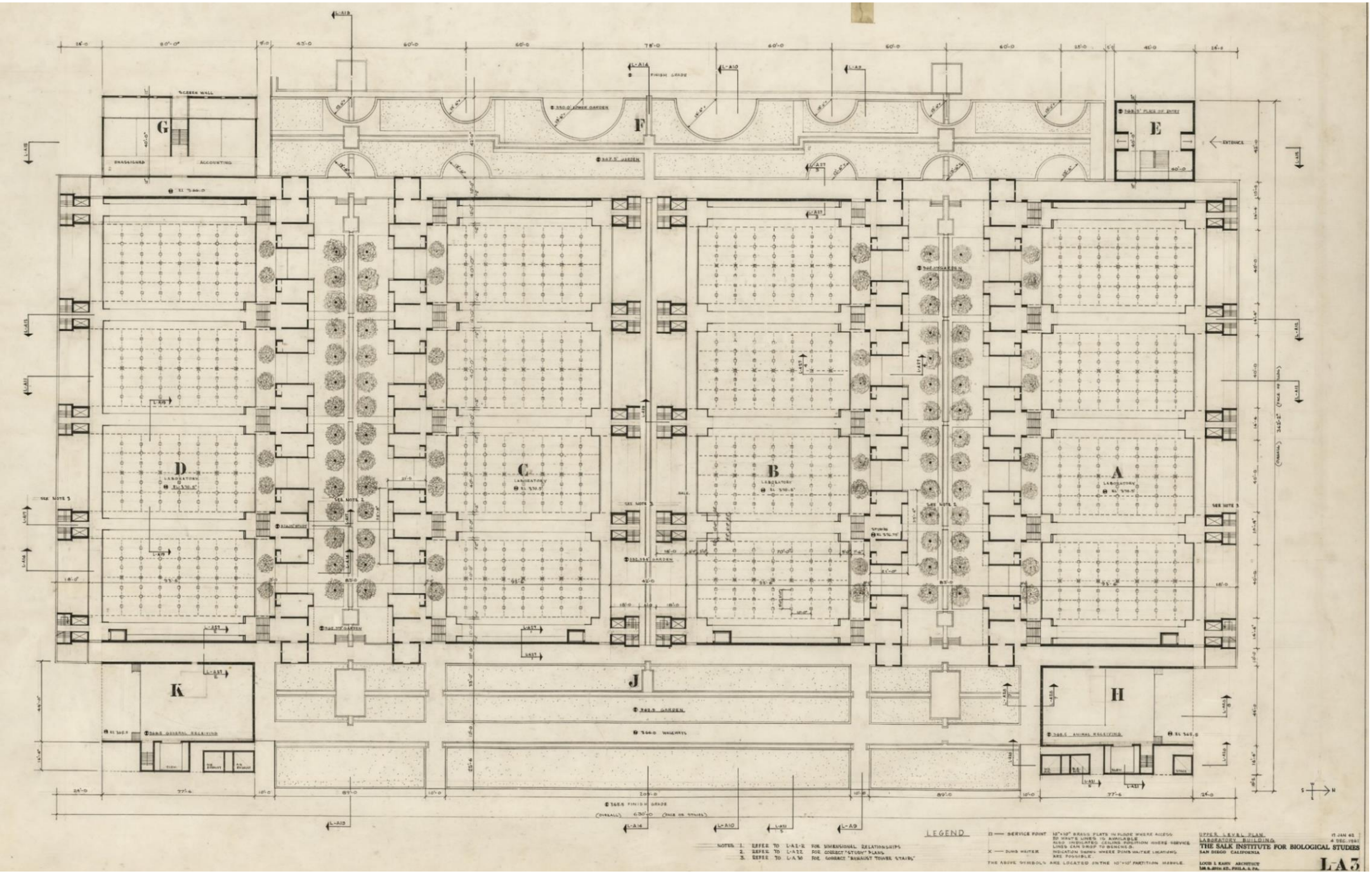
Although clearly presented as part of the overall 14 June 1961 scheme, the design of the Meeting House followed slightly behind that of the laboratories, with drawings produced between July 1961 and February 1962. The same was true for the Living Place, with drawings for the housing dating from November 1961 to March 1962.

Page 24: Louis I. Kahn: Second Design, perspective from ocean, late 1961.
Page 25: Kahn: Second Design, plot plan, 5 January 1961.
Page 26: Kahn: Second Design, Laboratory Building, upper level plan, 17 January 1963.
Page 27: Kahn: Second Design, Laboratory Building, longitudinal section, 17 January 1962.
Page 28: Kahn: Large scale section through laboratories.
Page 29: Kahn: Second Design, Laboratory Building, perspective of a garden court looking west.

[6] Bourgeois.
[7] "Annual Report of Director," in Bourgeois, 108.


Salk


SECTION B-B 1" = 60'
SECTION A-A 1" = 50'-0"
A
FUTURE ROAD
P
200' RIGHT-OF-WAY
B
G
E
C
X
LA JOLLA SCENIC DRIVE
NORTH
SCALE 1" = 100'
LEGEND
PROPERTY LINE
EASEMENTS
LIMIT OF EXPANSION
RIGHT OF WAY
CONSTRUCTION ABOVE GRADE
WALLS
• TREES TO BE PLANTED BY THE INSTITUTE
E EASEMENT TO CITY OF SAN DIEGO
P PARKING AREA
X RESERVED FOR FUTURE DEVELOPMENT
G LANDSCAPED GARDEN
A MEETING CENTER
SEMINAR
LIBRARY
MEETING ROOMS
DINING
RECREATION
DIRECTORS QUARTERS
GUEST QUARTERS
B RESEARCH & STUDY AREA
LABORATORIES
STUDIES
LIBRARY
ADMINISTRATION
C QUARTERS FOR VISITING FELLOWS
PLOT PLAN
THE INSTITUTE FOR BIOLOGY AT TORREY PINES
LOUIS I. KAHN - ARCHITECT
JAN 5, 1961
SITE INFORMATION, EASEMENTS, & BOUNDRIES BASED ON TOPOGRAPHIC MAP PREPARED BY GLENN A. RICK ENGINEERING & DEVELOPMENT CO. - SAN DIEGO DATED NOV 18, 1960 REVISED DEC 2, 1960



G
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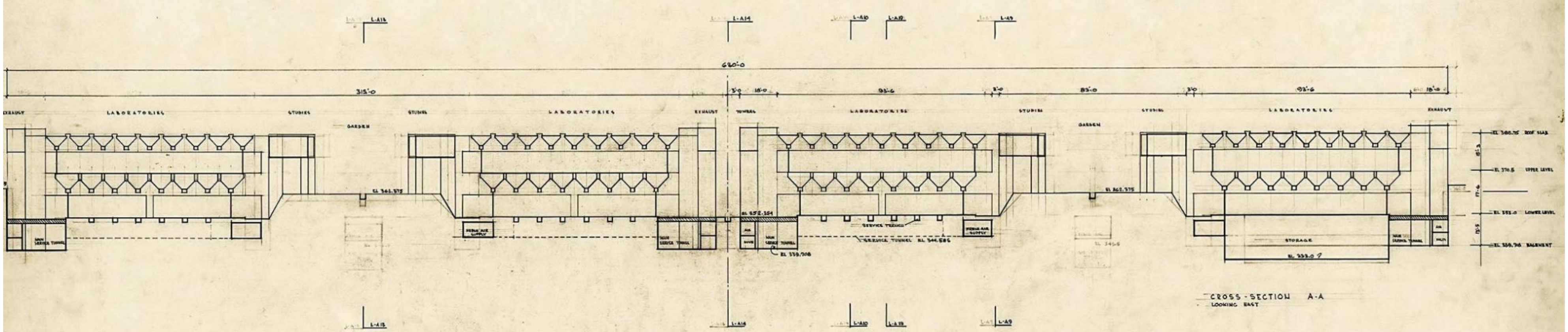
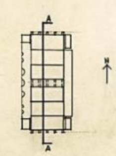
H
ENTRANCE
SCREEN WALL
ACCOUNTING
NOTES 1. REFER TO L-A1-R FOR DIMENSIONAL RELATIONSHIPS
2. REFER TO L-A22 FOR CORRECT "STUDY" PLANS
3. REFER TO L-A30 FOR CORRECT "EXHAUST TOWER STAIRS"
LEGEND
SERVICE POINT
DUMB WAITER
UPPER LEVEL PLAN
LABORATORY BUILDING
THE SALK INSTITUTE FOR BIOLOGICAL STUDIES
SAN DIEGO CALIFORNIA
LOUIS I. KAHN ARCHITECT
17 JAN 62
4 DEC. 1961
L-A3



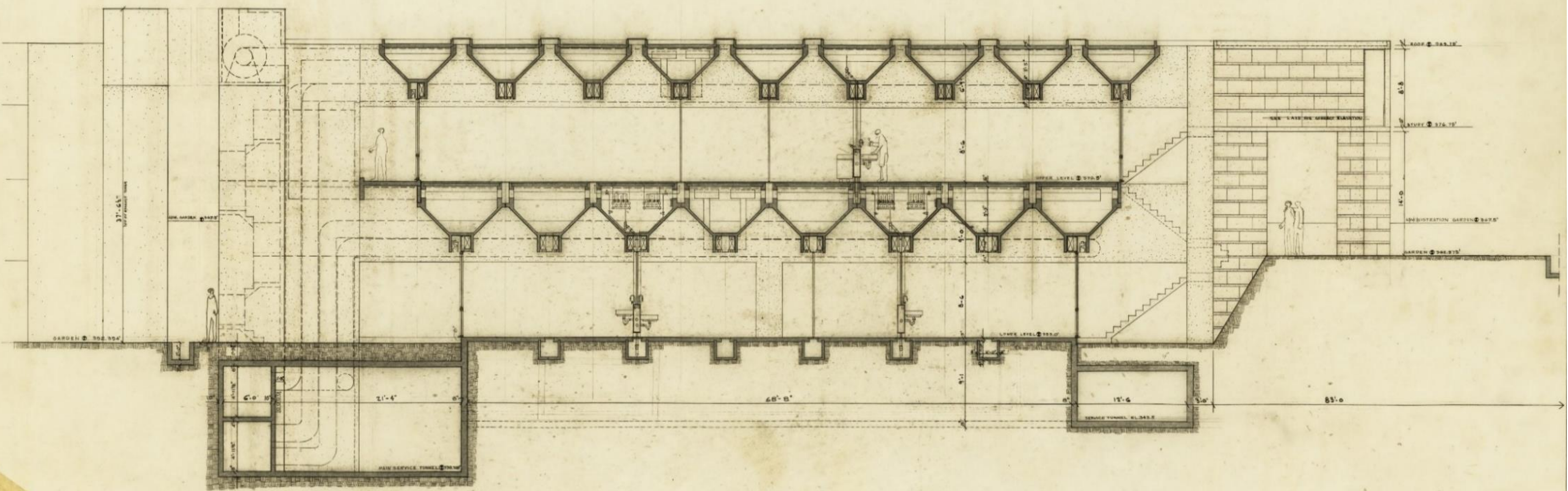


LONGIDITUDINAL SECTION A-A 11 JAN 62
LABORATORY BUILDING 1/16"=1'-0"
THE SALK INSTITUTE FOR BIOLOGICAL STUDIES
SAN DIEGO CALIFORNIA

LOUIS I. KAHN ARCHITECT
138 S. 20TH ST., PHILA. 3, PA.

SK-14

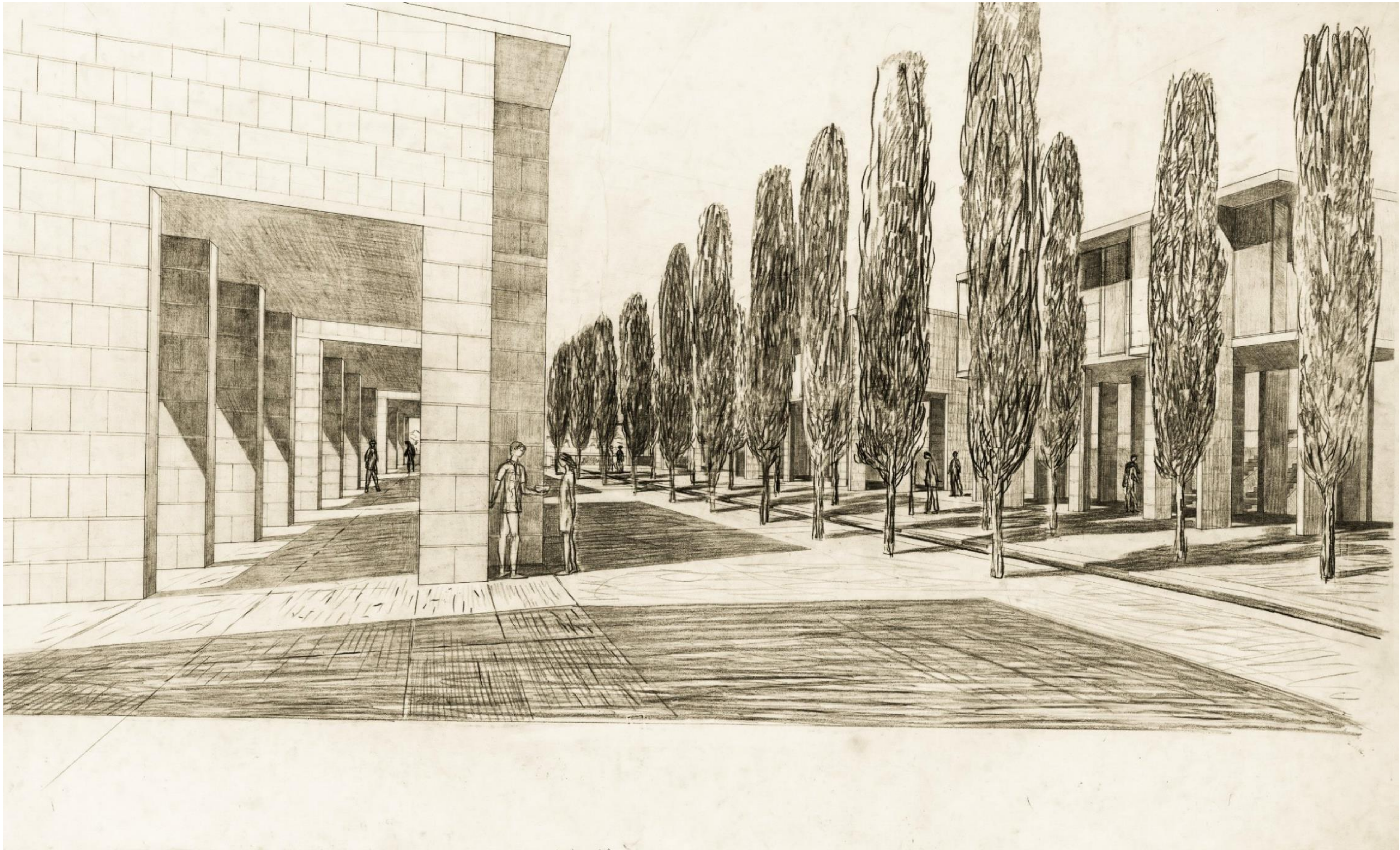
L-A11



SECTION THROUGH TYPICAL LAB. 19 JAN 62
LABORATORY BUILDING 1/8" = 1'-0"
THE SALK INSTITUTE FOR BIOLOGICAL STUDIES
SAN DIEGO CALIFORNIA

LOUIS I. KAHN ARCHITECT
138 S. 20TH ST., PHILA. 3, PA.
SK-34

L-A16



Facing page: Kahn: Meeting House elevation.

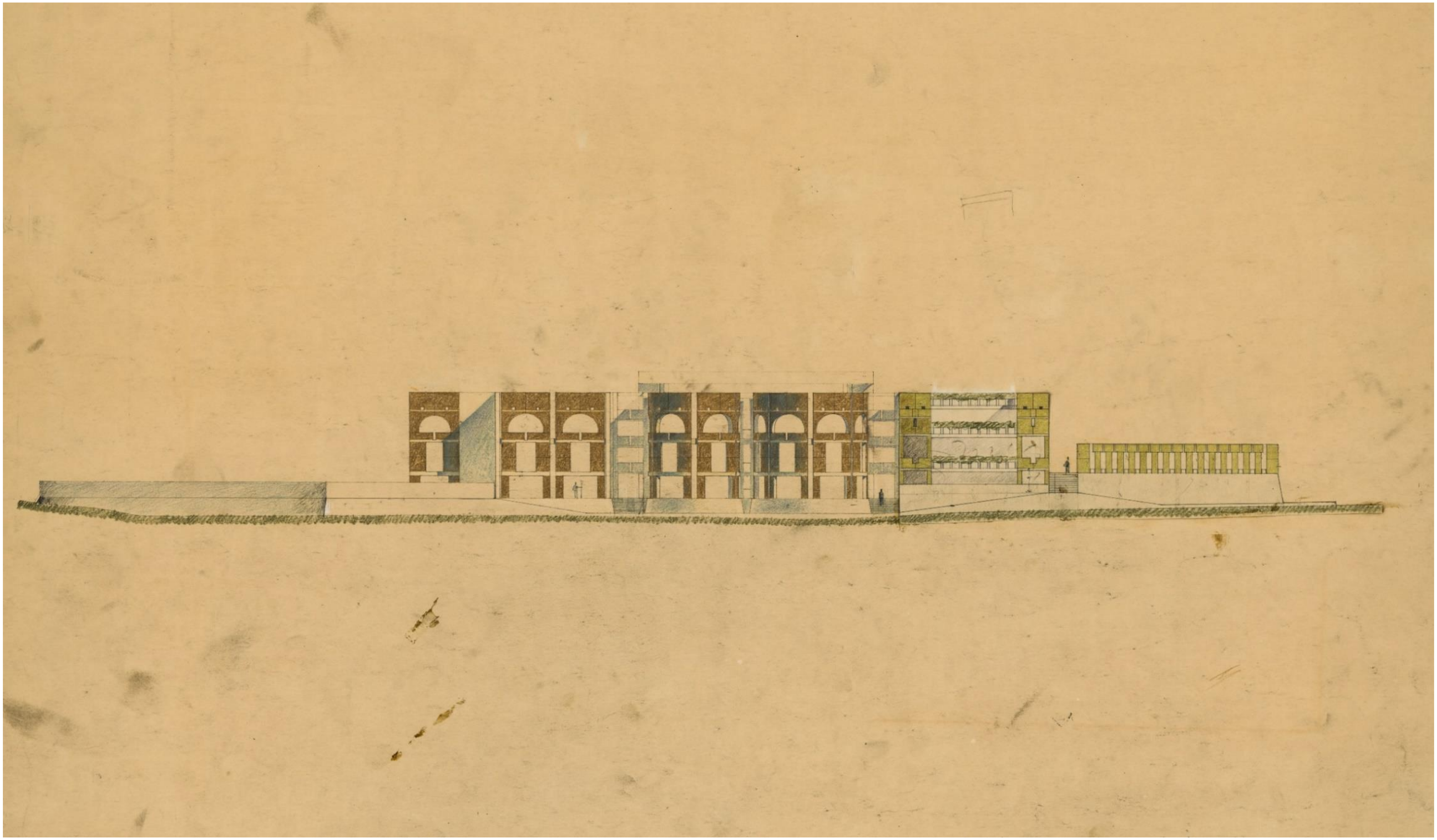
The Meeting House was arranged as a cluster of buildings grouped around a central hall with an auditorium structure to the east. Noisy and quiet functions were separated by the main body of the buildings, with a swimming pool court to the north. A large entrance court and contemplative garden centered on a formal water feature lay to the south, taking advantage of the high ground to form a great bastion looking out to the Pacific Ocean.

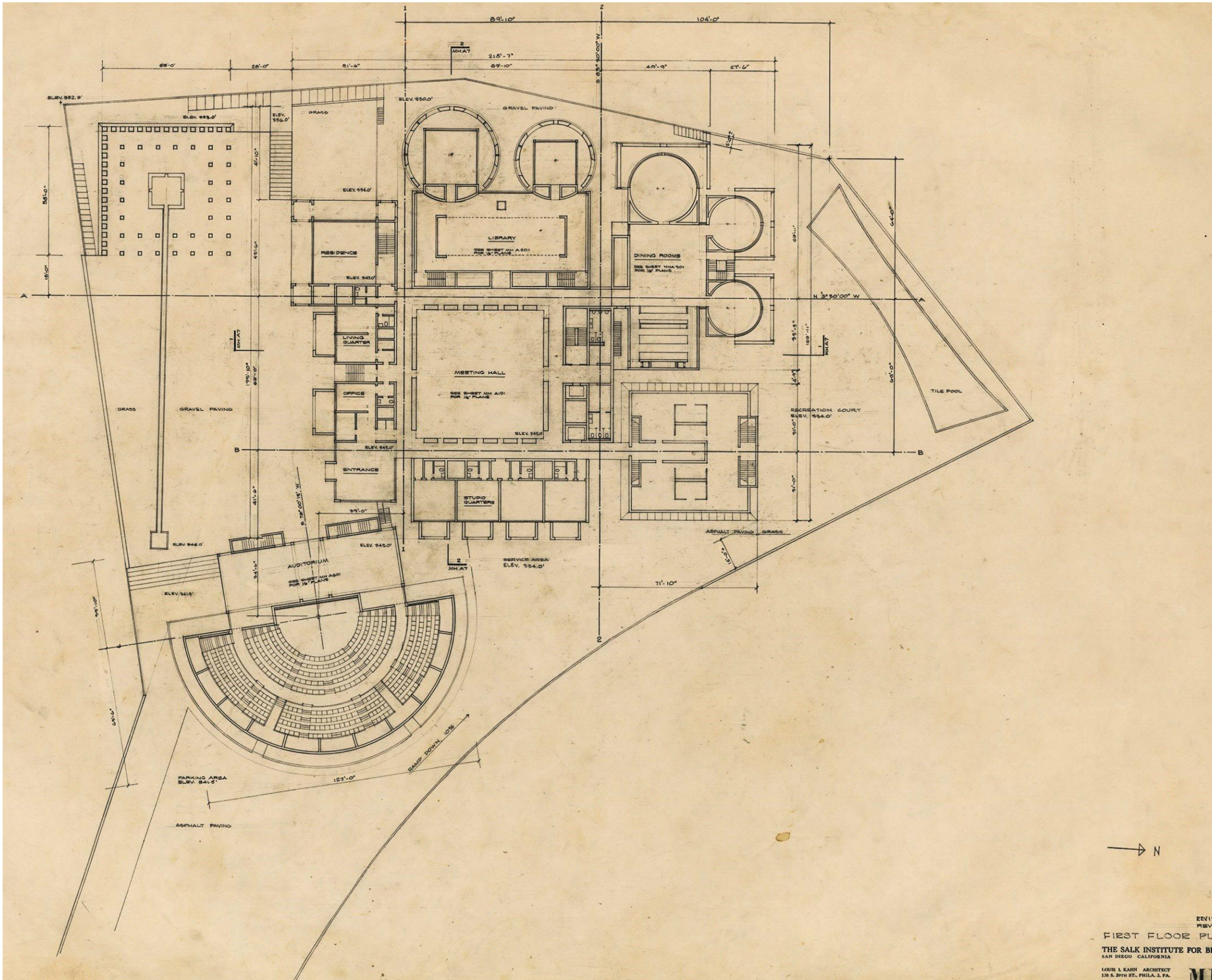
With the lack of funds for construction problematic, O'Connor had offered to raise funds for the building through the March of Dimes, but on condition that the Institute should bear Salk's name. He felt that this would be good for public fundraising, but Jonas Salk was very reluctant, as having an institute named after a living scientist could be a problem for the scientific community and might detract from recruiting outstanding fellows. However, on 1 December 1961, the Institute was discreetly renamed, "The Salk Institute for Biological Studies, San Diego, California." On 14 December, the March of Dimes was authorized to fund a drive for $15 million for the buildings, and on 19 December 1961, the deed of land was granted by the City to the Salk Institute.

A complete set of general arrangement drawings for the Laboratory Complex was developed by Kahn's office during November and December 1961 and finalized in a presentation set dated 17 January 1962 labelled, *The Salk Institute for Biological Studies*. The scheme was generally identical to that of June 1961 but the lower laboratories were increased in height and treated in a similar way to the upper floor. Both were designed to have 8 feet 9 inches clear internal height beneath the transverse main (lowest) girders, which spanned between the freestanding study and stair towers and also acted as the principal services distribution ducts, and both floors were to be serviced in a similar way, with the main girder ducts distributing air to folded plate structures running east-west. The 6 foot 9 inch deep service zone that Kahn provided allowed the laboratory space to rise to a height of over 15 feet 6 inches between the folded plates. On the upper floor, skylights between the individual sections admitted light across the whole of the laboratory floor. Above the lower floor an extra zone of service space allowed access to the floor of the upper laboratories, while the lower laboratories had their own floor ducts. It was a solution strongly supported by both Komendant and Dubin.

Columns were still present in the lower laboratory because of the need to support the loading above, but they were restricted to the center of the plan, aligned with the staircases on the outside of the building. The columns divided the work space of each laboratory into four zones.

The Laboratory Complex was articulated as two distinct building typologies through the use of materials: reception, administrative buildings, and studies were clad in coursed, stone ashlar with timber (teak) windows, while the laboratories and the supply and exhaust towers were characterized by poured concrete and steel windows.





REVISED 23 FEB 1962
REVISED 29 JAN 1962

FIRST FLOOR PLAN 17-JAN-62
1/16" = 1'-0"

THE SALK INSTITUTE FOR BIOLOGICAL STUDIES
SAN DIEGO CALIFORNIA

LOUIS I. KAHN ARCHITECT
138 S. 20TH ST., PHILA. 3, PA.

MH A3

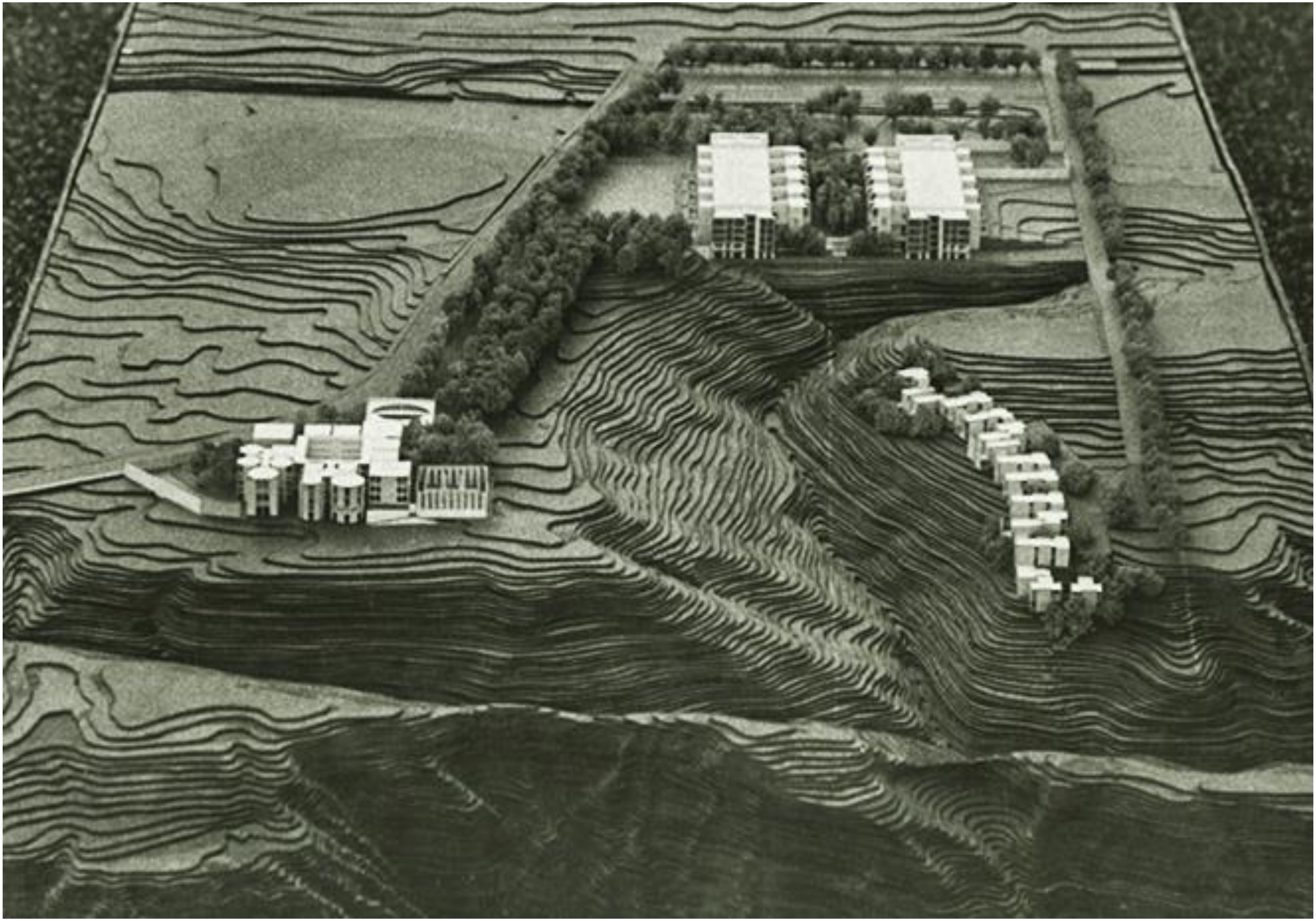
The design was presented by Kahn to Dr. Salk in Philadelphia on 17 January 1962. However, there was growing dissatisfaction from the client. Salk was concerned about two issues: he felt that the scheme with two garden courts would split the laboratory personnel into two groups, and the laboratory space was not as flexible as he had envisaged.[8]

On 27 March 1962, Salk and Kahn met prospective construction management teams in San Diego with the intention of preparing for construction of the Second Design, but the day after Jonas Salk walked the site and "became terribly unhappy."[9] Following the visit, the two men met O'Connor in San Francisco. Salk objected to the narrow garden courts and questioned the flexibility of the laboratories. He told Kahn that the project needed to "start over."[10]

To address Salk's concerns, Kahn agreed to have all the studies in one court and doubled the width of the court itself. However, the main issue was the design of the laboratories. Kahn studied how to improve their flexibility with Komendant and Dubin. The consultants preferred the folded plate solution that had already been developed and were keen to ensure that it worked. In addition, by April 1962, the development of the servicing strategy had progressed from service tunnels below the lower level to a full basement story of service space extending below all four laboratory buildings and the central service court. The design team, therefore, pursued two paths: Komendant and Dubin continued to try to make the folded plate meet Salk's requirements, while Kahn's office worked on alternative concepts with reconfiguration options for the laboratory block.

Facing page: Second Design, Meeting House, first floor plan, 17 January 1962.

[8] Earl Walls, Bourgeois 2011 interview.
[9] Richard Wurman. *What Will Be Has Always Been: The Words of Louis I. Kahn* (New York, Rizzoli, 1986).
[10] Thomas Leslie, *Louis I. Kahn, Building Art, Building Science* (New York: Braziller, 2005), 28.



Third Design, 1962–1965

A major change in Kahn's plans was instructed by Jonas Salk on 3 May 1962 and soon after, Kahn presented a new direction to the consultants and the contractor.[11] Kahn, ever responsive to his client's philosophical approach, had developed radical proposals of which he wrote:

> Two major changes from our collaboration: the two laboratory gardens and four laboratory buildings have become a single garden flanked by two laboratory buildings.
>
> I realized that two gardens did not combine in the intended meaning. One garden is greater than two because it becomes a place in relation to the laboratories and their studies. Two gardens were just a convenience. But one is really a place: you put meaning into it; you feel loyalty to it.
>
> The original concept of the three parts which expresses the form of the Salk Institute
>
> - The Laboratory
> - The Meeting Place
> - The Living Place
>
> has remained. The acceptance of the separation has made Dr. Salk my most trusted critic.
>
> Dr. Salk, when his belief in what must constitute the nature of laboratory space was fully realized, could not turn back to something that was less than what we finally accepted, even though it meant drastic change. I felt loss of the folded plate construction. My structural engineer was not for change. The mechanical engineer still believes that the folded plate could work. Yet study and new architectural potentialities finally gave rise to everyone's belief in the validity of the last choice.[12]

Facing page: Third Design, model, circa January 1963.

[11] Earl Walls, Suzanne Bourgeois 2011 interview.
[12] Heinz Ronner, Sharad Jhaveri, and Alessandro Vasella, *Louis I. Kahn: Complete Works, 1935–1974* (Boulder, Colorado: Westview Press, 1977), Salk Research Institute reference 73.

Third Design
Facing page: Aerial perspective.

[*Additional Photographs Redacted*]

In such situations, Kahn redesigned his schemes with remarkable speed. Revised proposals for the three-centered Institute were presented to Jonas Salk on 9 June, and a preliminary set of construction drawings for the Laboratory Complex, dated 16 June 1962, followed. Komendant's structural design was complete in July and was issued in phases so that construction could start as soon as possible.[13]

As Kahn had described, the laboratories in the Third Design were accommodated in two blocks on either side of the single garden court that Dr. Salk had advocated. Each block was now three stories, one of which was set below grade to keep the building within the coastal height limitations. This revision was achieved by the adaptation of the basement service story for the third laboratory, made possible by a radical new servicing strategy. In effect, the height of the building remained virtually unchanged.

The plans reduced the eight laboratories of the Second Phase down to six, resulting in a provision of approximately 70 percent of the research space presented in January 1962 and reducing the overall laboratory space from 139,000 to 93,600 square feet, just short of the 100,000 square feet originally discussed at the Richards building. However, it was also recognized that the reduction in space would save money at a moment when the fundraising drive to secure $15 million for the Salk construction was struggling.

To provide laboratory space totally clear of columns on each of the three floors, Komendant used 9-foot-deep concrete Vierendeel trusses that spanned 62 feet between columns arranged at 20 foot centers along the side walls The 9 foot zone occupied by the trusses was the basis of the new servicing strategy and was treated as a separate interstitial floor above each laboratory, through which all pipes, ducts and electrical cabling could be rerouted, the largest ducts running centrally where the largest openings in the Vierendeel trusses occurred. It also allowed easy access for modification and replacement to suit particular technical and scientific needs in the laboratory below with minimum disturbance to adjacent areas. The strategy released the basement story, which had been intended for the mechanical systems, for laboratory space as the interstitial floors were to be served by mechanical wings that connected directly into the east end of each floor.

Each truss was cantilevered out to support walkways allowing communication outside the laboratories at every level.

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[13] Leslie states that Komendant was briefed on the Third Design on 24 May 1962.

The rearrangement of the service zones had only a modest effect on the height of the building, as the new pipe floors mainly replaced the zone over each laboratory previously planned with the folded plates. The overall dimension of finished floor to finished floor of the laboratories increased only slightly, from 17 feet 6 inches to 20 feet 0 inches (11 feet clear for the laboratory itself and 9 feet for the service floor and its structure). Rather than doubling the number of floors from three to six, as it is sometimes described, the rearrangement of the section only increased the overall height of the building by 7 feet 6 inches.

Using what had been intended for a basement service floor set 20 feet below grade for one of the three laboratory floors meant that daylight and views needed to be brought down to the lowest level. To meet this goal, Kahn developed lower garden courts contained within high retaining walls outside both the north and south elevations of each basement laboratory. While those on the outer side were divided by the service towers into individual gardens, those adjacent to the court had an added richness because of the transparency of the study stairs running up from them. Suzanne Bourgeois recalls that Kahn's desire to bring daylight to the basement ". . . created very enjoyable sunken light wells and patios."[14]

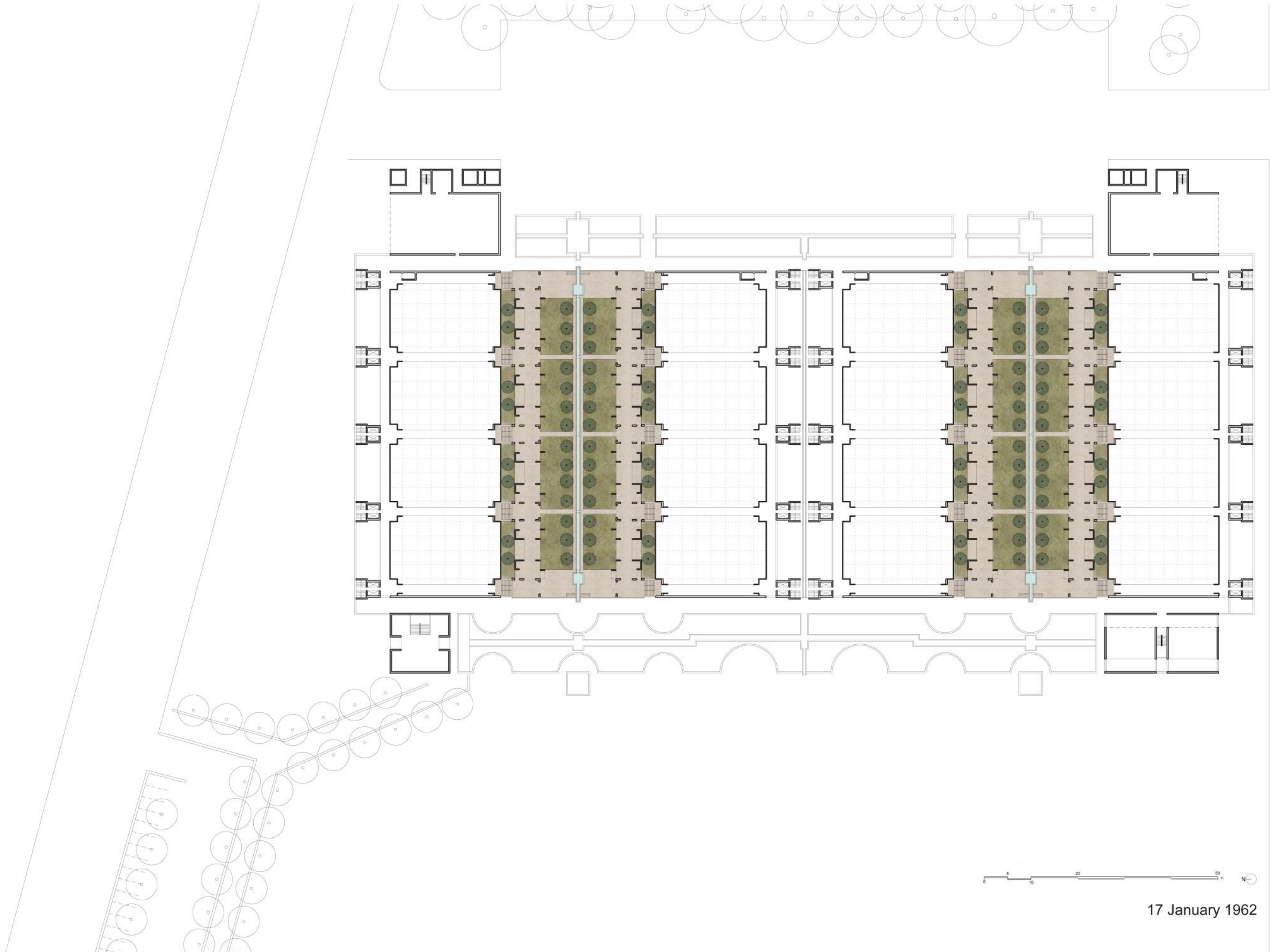
The other major change with the Third Design was that the court itself was significantly enlarged by being doubled in width, conveying a sense of monumentality that previous schemes had not possessed. The length of the court remained constant, leaving the building comfortably sited between the head of the canyon and the Eucalyptus Grove. However, the resulting overall width of the single court Laboratory Complex was considerably narrower than in the two court scheme and the change released space that provided gardens on the north and south sides of the building.

Facing page: Laboratory Complex, Lower Garden Courts, 2015.

Comparative analysis
Page 42: Second Design, Laboratory Building with garden courts, January 1962.

[*Additional Photographs Redacted*]

[14] Bourgeois, 115.



17 January 1962

[*Photograph Redacted*]

The number of studies required was also reduced from forty to thirty-six. To contain them within one court, Kahn organized the accommodation on two levels, but the studies remained elevated above an open arcade. The initial proposals placed the studies on adjacent floors in pairs joined by an open balcony. However, as the Third Design developed, the balconies were discarded, and by August 1962 a floor of open porticos was inserted between the two study floors. This revision increased the separation of the studies from one another and opened up the space between them, allowing the court to extend back to the face of the laboratories. It also resulted in the court and porticos being aligned with the middle and upper laboratories respectively.

The single story administrative building across the west front was also reconsidered and the accommodation was divided into two individual blocks that terminated the North Laboratory and South Laboratory buildings. The study court was thus no longer contained by the raised west roof garden and acquired its direct relationship with the Pacific Ocean, which was celebrated with the west fountain cascading to an additional west court introduced at the level below.

[*Photograph Redacted*]

The change to the west buildings also reflected a change in the requirements, and again was probably driven by the need to reduce costs. An early scheme dated 23 July 1962 showed the south wing solely dedicated to a double-height library while a larger wing to the north housed the administrative offices. However, shortly afterwards the two wings were drawn as identical buildings and a much-reduced library was limited to one standard office floor in the north wing. The dramatic reduction in the size, scale, and importance of the library must have been thought possible because the main library was still intended to be built as part of the Meeting House. Similarly, the conference rooms shown in the west building throughout the Second Design were omitted altogether, apparently as such facilities were to be a major part of the Meeting House.

The Third Design also reconsidered the use of materials. The studies, the four administrative and mechanical wings, and the service towers at the corners of the complex were no longer articulated in stone ashlar. Instead, all of these elements were given concrete elevations. The fenestration still provided articulation to the external elements, with timber used on the studies and administrative blocks and steel on the laboratories. Preliminary construction drawings were issued between August 1962 and January 1963. The Meeting House was of the same language and should it have proceeded, doubtless its detailing would have developed in parallel with the Laboratories.

Facing page: Laboratory Complex, Plaza, 2016.

Top: Temporary Building No. 1 under construction, 1963.
Bottom: Dr. Salk explaining the Third Design to Trustees in the temporary buildings, 1964.

Monthly logs prepared by the George A. Fuller Co., the contractor, follow the start of construction of the Laboratory Complex on site in June 1962.[15] In December 1962, Dr. Salk moved to La Jolla. The Institute site had been cleared and general grading and bulk excavation had already been carried out, but the issue of information to the contractor was slow and a Western Union telegram from Dr. Salk to Kahn on 2 January 1963 showed how demoralized he was with the delays by the architect and his engineer. However, encouraged by the completion in February 1963 of the foundations and excavations, the Salk Fellows turned down an offer of an interim base for the Institute in new buildings at UCSD in favor of constructing temporary laboratories on their own site, The first temporary building was completed in May 1963 and two further buildings were in place by the end of the year. By the fall, thirty-three employees of the Salk Institute were working in the "Barracks."

In March 1963, the March of Dimes pledged to cover research and organizational expenses until 1966, as well as making a grant of $8 million toward construction, leaving the Institute to raise $7 million. Because of the shortage of funds, the fitting out and services installations for the whole of the South Building were omitted from the contract in April 1963, with the exception of the south section of the Mechanical Wing, which was to be completed. Kahn's work on both the Meeting House and the Living Place was halted. Although these two key elements were formally omitted from his commission in August 1963, Kahn continued to include them in his drawings, certain that they would be constructed since they were integral to Jonas Salk's vision for the Institute.

In January 1964 a construction loan of $10 million was negotiated using endowment funding as collateral, and on 8 December of that year, the building was celebrated with an open day for the March of Dimes. By July 1965, $15 million h ad been spent and construction stopped. Suzanne Bourgeois notes that the North Laboratories were complete but still required outfitting, the south buildings were empty shells without services or finishes, the Courtyard was a muddy mess, and there was no endowment left.[16] The fitting out of the North Laboratories and offices followed, and early in 1966, the Institute moved from the Barracks into the North Building.

The whole of the South Building remained unused, but in July 1969, Ayres, Cohen & Hayakawa, Engineers, submitted *A Report on Possible Alternatives for the Activation of the South Wing at the Salk Institute, La Jolla, Calif*. It noted J. MacAllister as Consulting Architect to the Salk Institute. As a result of this study, the South Laboratories were occupied as temporary accommodation: the middle level held two prefabricated seminar rooms that were used as a conference center, and offices and meeting rooms lined the perimeter against the glass walls; the top floor was used as a recreation area; and the bottom floor contained storage. It

[15] Salk Institute Archive, George A. Fuller Co., Monthly Construction Logs, 1962–1966.
[16] Bourgeois, 116.

was not until 1995 that Laboratory L3 South was vacated by the administration and the outfitting of the South Laboratories did not occur until 1997. The completion of the south studies and offices started at the same time and was carried out by the Salk's own construction team over a number of years.

The realization of the Plaza was achieved earlier as the result of a gift from one of the trustees, Theodore Gildred, Sr. When construction was stopped in 1965 only the paving around the perimeter of the Plaza had been installed, but Kahn continued to develop the scheme for its completion, and Gildred's generosity facilitated its construction in 1967. It was Luis Barragán's recommendation to Kahn that changed the image of the court; Barragán noted, "There should be no garden, it should be a plaza."[17] Throughout the development of the design the study courts were intended to be formally planted with trees, and even the "as built" drawings of 1965 show the area laid down to lawn, divided by the rill and irrigation channels, and shaded by trees. However, the number of sketches illustrating alternative treatments for the court confirm that Kahn was not sure how it should be handled. Impressed by Barragán's work, Kahn invited him to review the design. Barragán visited La Jolla with Kahn and Salk on 24 February 1966, returning again in May 1966 when the two architects took a helicopter flight around the area.

Barragán told Kahn that he should ". . . not add one leaf, nor plant, not one flower, nor dirt. Instead, make it a plaza with a single water feature." To Kahn, Barragán's advice was a breakthrough and MacAllister noted that "[Lou] was thinking of the open space as a 'garden' from the start, and he couldn't get past that because of the word. When Barragán said 'plaza,' Lou was free to make the change."[18]

The Institute's reaction was, however, mixed, and there was no agreement for another ten months. Kahn wrote, ". . . to those present at the time . . . a totally paved plaza seemed a harsh solution."[19] The impasse gave rise to Lawrence Halprin's involvement in the summer and fall of 1966 to develop alternative proposals. Halprin presented his Master Plan in November 1966 with restricted planting and San Miguel stone paving Kahn, however, continued to advocate an empty courtyard, and Halprin finally withdrew, recognizing Kahn's commitment to the plaza free of trees.

[*Photograph Redacted*]

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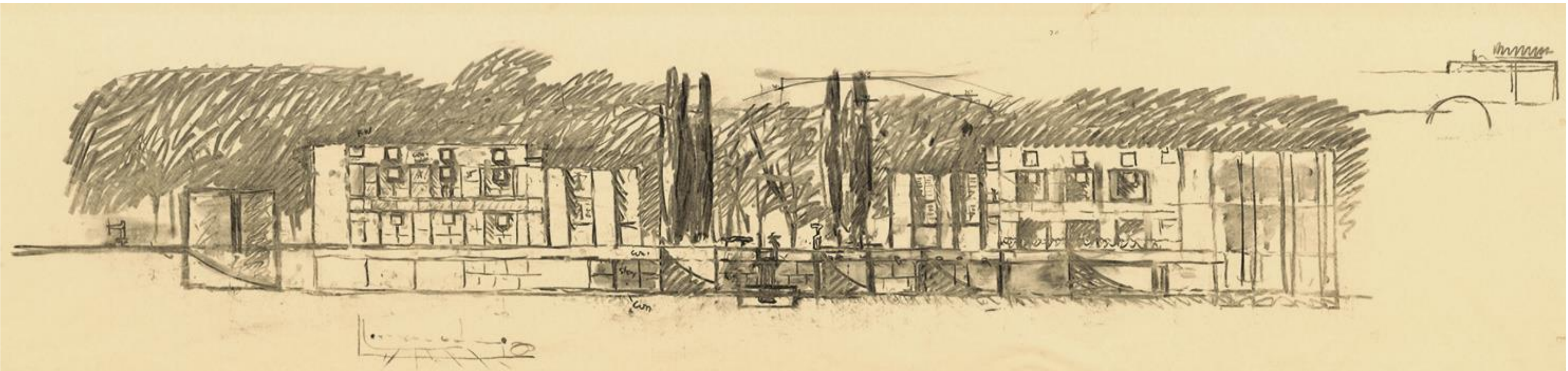
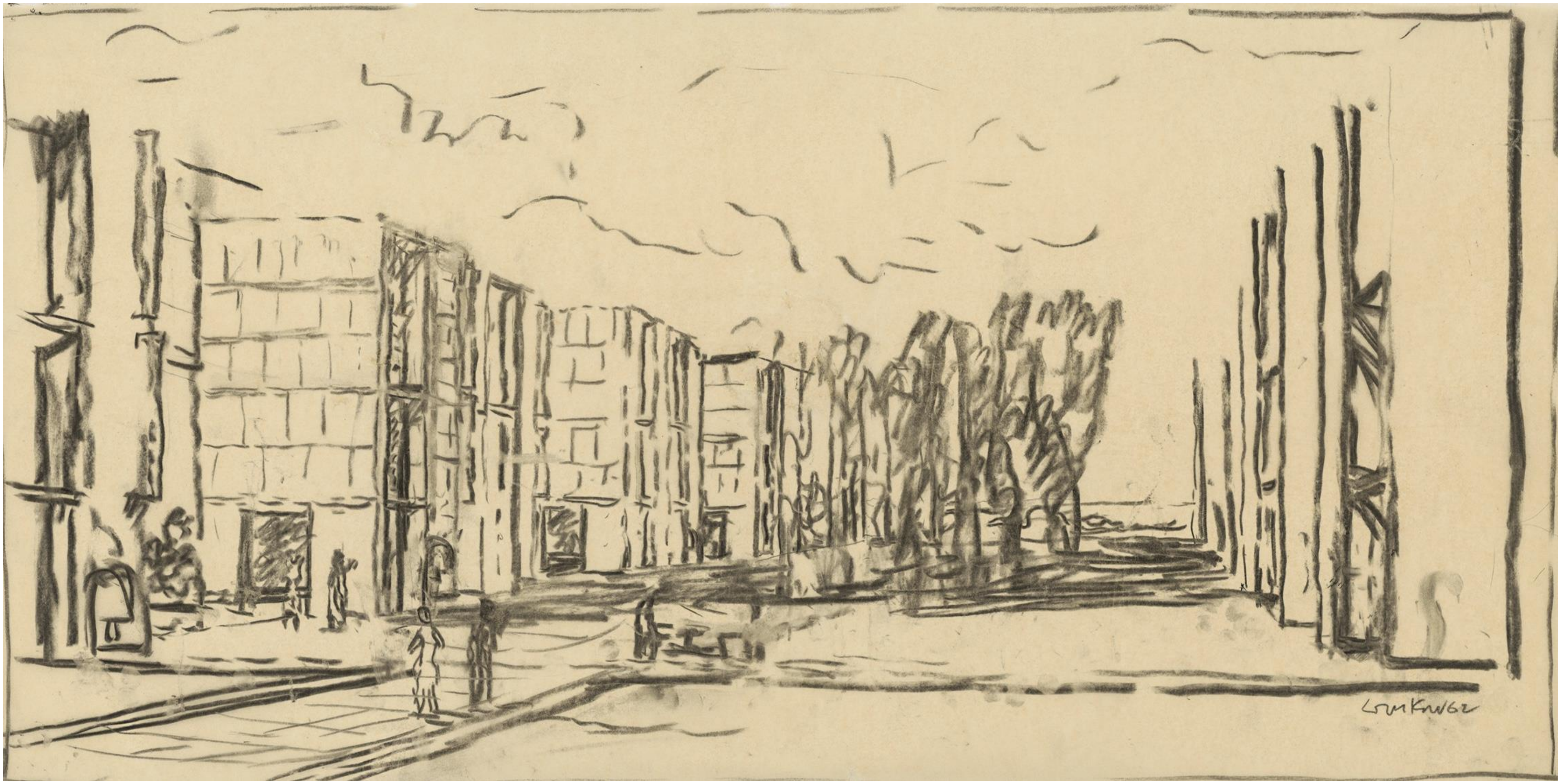
[17] Wurman, in Carter Wiseman, *Louis I. Kahn: Beyond Time and Style: A Life in Architecture* (New York: Norton, 2007), 128.
[18] MacAllister interview, in Wiseman, 128.
[19] Kahn to Salk, 19 December 196, Louis I. Kahn Collection, University of Pennsylvania, Box P-26. File marked "Salk – Garden."




Lou Kahn 62

Post Construction

Although deleted from his commission in 1963, Kahn's drawings for the Third Design continued to include the Meeting House and Living Place as he believed that the complete scheme would eventually be realized, and the development of the Laboratory Complex and the east half of the landscape was always identified as "Phase 1." The "Program of Action," a report to the Trustees prepared by Jonas Salk with Jack MacAllister in May 1968, describes the need for additional facilities, proposing additions to the east, both across the Eucalyptus Grove and above the parking lot, as this would also facilitate the completion of the laboratories in the South Building.[20] At the same time, it faithfully underlined the importance to the Institute of constructing the Meeting House and residential accommodation as intended by Kahn. The architect's death in March 1974 changed the situation. The Plaza had already given the Salk Institute a world famous image with which it could be identified as an outstanding organization, and this usurped the symbolic role that the Meeting House would undoubtedly have played if the full development had been realized.

Over its fifty year history, the Salk Institute has evolved and its requirements have changed not only in terms of the type of space, but also the nature of the Institution. Nothing came of the 1968 report, as its proposals were again plagued with fund raising difficulties.

However, after Kahn's death, a number of schemes did proceed under Jack MacAllister and David Rinehart, who had been Kahn's principal site architects for the construction of the Salk and who had remained in California after completion. The commissions were carried out by the practices with whom the two architects were associated at the time. Jonas Salk noted in 1993 in connection with the East Building that "[David Rinehart and Jack MacAllister] worked with Kahn on the original building, and continued to have a relationship with us over the years. There was no thought at all about who we ought to have, as if we should have tried to get another Lou Kahn."[21] The Animal Quarters were constructed beneath the north half of the South Garden in 1975, with Deems Lews & Partners as architects. The quarters were extended to the south beneath the complete garden in 1997 by NBBJ.

The major development at the Salk since Kahn's death has been the construction of the East Building, designed by Jack MacAllister and David Rinehart, then with Anshen + Allen. The $21 million, 113,000-square-foot addition, to the east of Kahn's original structures, was approved by the San Diego Planning Commission and City Council in 1991, but received strong opposition because of fears that the East Building

Facing page
Top: Third Design, Laboratory Complex, preliminary design, Undated.
Bottom: Third Design, Laboratory Complex, Plaza, view to the west, 1962.

[20] Salk Institute Archive, Garry Van Gerpen file.
[21] Salk interview, *Progressive Architecture*, October 1993.

East Building, 2015.

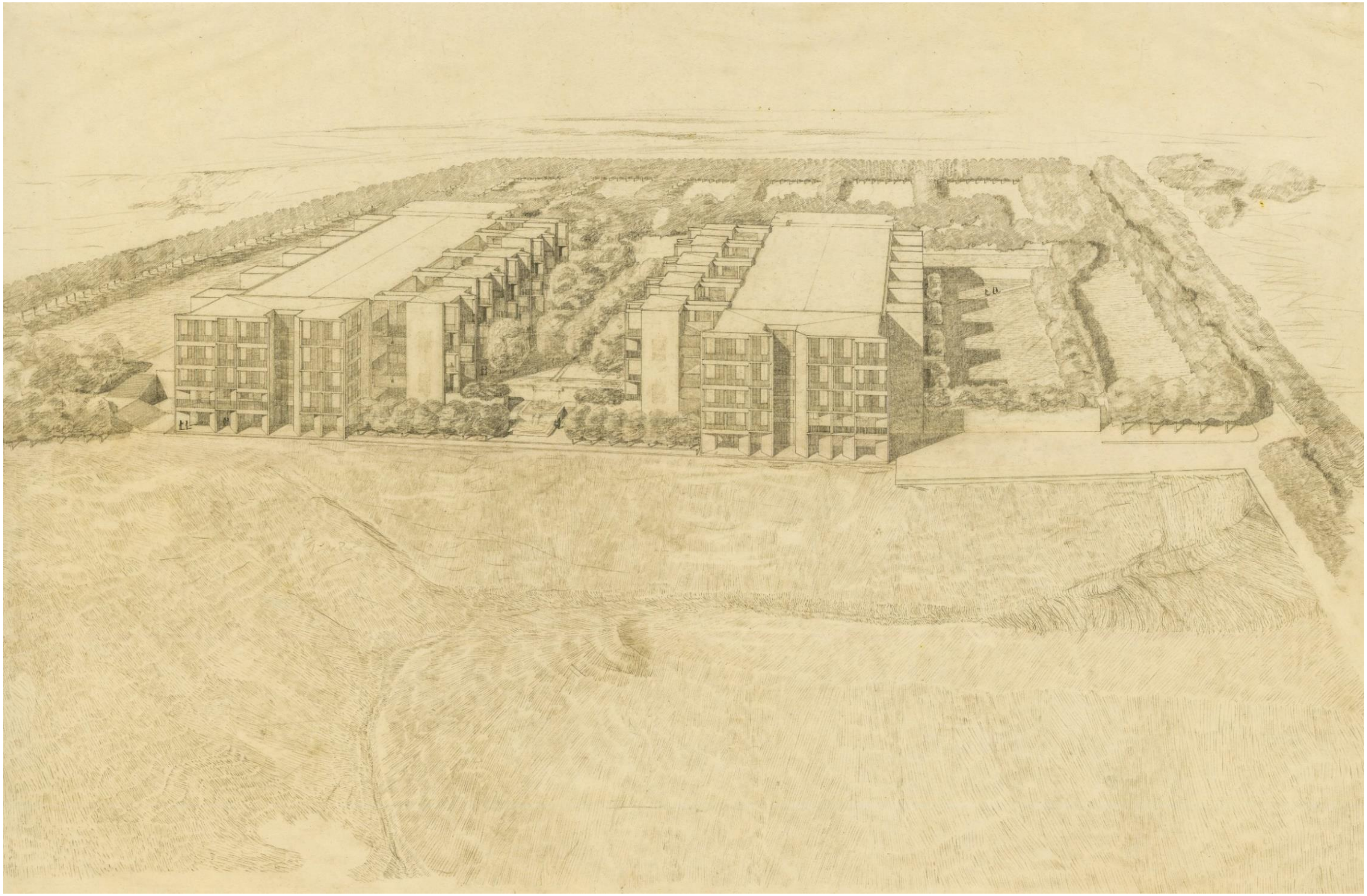
would damage views of, and the approach to, Kahn's original buildings. A large portion of the Eucalyptus Grove was removed in the spring of 1993 and construction was started in May. The East Building was opened in 1995 and its completion allowed the South Building to be vacated and refitted as laboratories by the same architects.

In 2012, a major refit of the building systems was carried out and solar panels were constructed on the roofs of the laboratory buildings.

Although the Barracks were intended as temporary structures and due to be removed when the permanent building was occupied, the West Interim Facility remains in use and has been supplemented with further structures and glass houses. In 1985, the Salk Institute exchanged two acres of land along the western edge of the south mesa for an equivalent amount of City-owned land on the southern edge of the north mesa on which the Barracks had been built. The transaction regularized the retention of the temporary buildings and the North Parking Lot.

Similarly, the East Interim Facility consists of a series of temporary structures erected over the past fifty years, all of which the Institute intends to remove when alternative space becomes available.

Assessment of Cultural Significance



As a Work by Louis Kahn

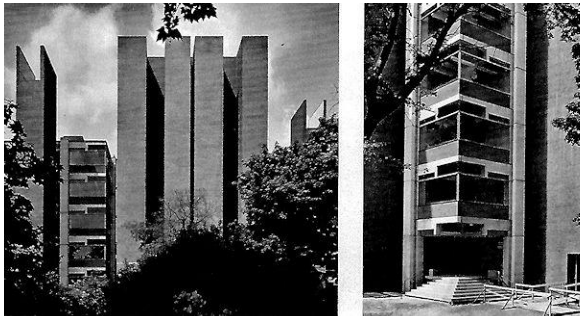
Although Kahn was born in 1901, his fame and best work really belong to the next generation. All of the buildings that made him famous and gained him international recognition as one of the great innovative figures of world architecture were designed when he was over fifty years of age.

Louis Kahn's earlier work, which focused around the city of Philadelphia, had mainly been low-cost housing projects of the Garden City type, but little was realized. By 1939, his work as a partner of George Howe had gained him some recognition as an expert on low-cost housing. In addition, he had completed some projects for individual houses and a small synagogue.

After the war, Kahn established his own Philadelphia office. He again focused mainly on the design of private houses, but with his partner Oscar Storonov he developed plans for an underdeveloped area of Philadelphia known as the "Triangle" for the City Planning Commission; this project confirmed his interest in public space.

At the same time Kahn became recognized as an inspiring teacher through his reviews of student work at Harvard, and after 1945 at Yale where he accepted a permanent appointment. It was through Kahn's introduction that Howe became head of the School of Architecture at Yale, and in 1951 it was Howe who urged the University to commission Kahn for a modest extension to the Yale University Art Gallery.

During the 1960s Kahn received a series of commissions for public buildings, the type of architecture he had longed to design, and developed relevant ways of representing the institutions of society and the nature of public space. Over a period of twenty-five years, up to his death in 1974, he completed projects that included the Yale University Art Gallery in New Haven (1951–1953); the Alfred Newton Richards Medical Research Building at the University of Pennsylvania in Philadelphia (1957–1961); Erdman Hall at Bryn Mawr College in Bryn Mawr, Pennsylvania (1960–1965); the Library at Phillips Exeter Academy in Exeter, New Hampshire (1965–1971); and the Yale Centre for British Art (1969–1975).



Top: Yale University Art Galley extension 1951–1953.
Bottom: Richards Medical Research Laboratories, University of Pennsylvania, 1957–1961.

Facing page: Salk Institute, Third Design, perspective, undated, circa 1962.

However, it was the commission for the Salk Institute in 1960 that allowed Kahn to prepare a master plan for a public institution on an untouched site. His great schemes in the Indian sub-continent followed and both the Indian Institute of Management at Ahmedabad and the Government buildings at Dhaka were commissioned in 1962. The first provided a school, dormitories, and faculty and servants' housing (the term "servant's" is annotated on the original drawings), while the second comprised a 200-acre site with the National Assembly Building, complete with its assembly chamber, prayer hall, mosque, and offices, together with housing for the president and speakers, members, staff, etc. In each case Kahn used a multi-centered plan, each part covering a different building type. The three projects, starting with the Salk, demonstrate Kahn's importance as an urban planner and architect working on a vast scale. Each has a program with several types of functions, and at each the overall plan is generated by the institutional hierarchy of the different buildings.

Indian Institute of Management Ahmedabad, 1962–1974.

Kahn's most important buildings are associated with two radical notions to which he attached great importance: the first was that any sound building must be rooted in its materiality and be proudly true to the way it is made; the second was a conviction that however important the house, the factory, or the office might be—both as types and as elements in the configuration of the city—architecture must nonetheless concern itself primarily with the anatomy of society, and therefore with its institutions.

"Every decision in [a building's] making, large or small, represents [for Kahn] a choice between right and wrong, true and false." [22]

At the Salk, this was demonstrated in the quality of the concrete that was achieved. The whole was dependent on the painstaking design of the formwork that was fully detailed by Kahn's office, and carefully made by the contractor; the choice of aggregates, and the way that the concrete was poured. Trial panels and thorough site supervision ensured that the concrete met the architect's requirements, and evidence of how it was made was retained and not removed as blemishes. Similarly, the clarity of the servicing of the building with servant and serviced spaces gave an architectural legibility to the servicing of the laboratories.

Facing page: Indian Institute of Management, Ahmedabad, model, undated, circa 1962.

The scheme as developed for the Laboratory Complex gave it not only a monumentality but it also ensured that the building represents the Institution and its work for society with the plaza connecting the sky to the earth and the earth to the ocean.

[22] Jules D. Prown and Karen E. Denavit, *Louis. I. Kahn in Conversation: Interviews with John W. Cook and Heinrich Klotz, 1969–1970.* (New Haven: Yale University Press, 2014).

Kahn's buildings always celebrated that "A room is not a room without natural light. Natural light gives the time of day and the mood of the seasons to enter."[23] The Salk was no exception. The deep-plan laboratories were given large storefront windows to connect them with the exterior, through views to the Plaza and the surrounding gardens. This includes the lower laboratories, where the design of the Lower Garden Courts magically bring air, light and views down to a basement 20 feet below grade.

Similarly, the carefully considered control of daylight extended to the studies and offices where windows were shuttered and canted to control the penetration of light and guide one's view out to the ocean. Kahn noted: "The possibility should be provided for both the photophilic and the photophobic individual, and for one who needs a vista as well as one who does not."[24] However, it was the double walled construction of the library and dining halls of the Meeting House that celebrated light the most, controlling glare and directing views. The Salk, therefore, anticipates the Kimbell Art Museum and the Yale Center for British Art, where one is always aware of the changes in natural light out of doors, while daylight is still controlled to meet the requirements of the building's program.

The design of the Salk is significantly influenced by Kahn's interest in history. The asymmetrical arrangement of symmetrical forms that characterize the plan of the Meeting House was likely to have been inspired by Piranesi's engravings of the plan of Hadrian's Villa and that of the ancient City of Rome; a copy of the latter hung in Kahn's studio, and the same model was to influence his scheme for the Palazzo dei Congressi in Venice, on which he worked from 1968 until his death. The double wall schemes of buildings within buildings, as used in the Meeting House, reflects his interest in fortified castles and continues a theme developed for the U.S. Consulate in Luanda and later used also at Dhaka. However, it is the site layout itself, with a series of self-contained monuments, which recalls his interest in historic sites in Europe like the Monastery of Saint Francis at Assisi and the Acropolis in Athens.

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[23] "The Room," Kahn 1971 charcoal sketch, Louis I. Kahn Collection, University of Pennsylvania.
[24] Charcoal sketch, Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.27.15.

Facing page: Salk Institute, Lower Garden Courts, 2015.

As a Laboratory

> I was seeking a retreat atmosphere for reflection and work, away from the business and noise of the world . . . . And it would be designed in a way that would defy obsolescence. It would be here as long as this cliff remained, looking out into the future. The potential for the future seemed so great—to gather the exceptional minds of inspired people, and give them an inspiring setting in which to work."[25]

Only the Laboratory Complex of Kahn's design for the Salk was constructed, and it is much more than an architectural landmark. It is a working laboratory that is occupied by several hundred scientists, students, and support staff.

As Jonas Salk required, the building provides flexible laboratory spaces through its deep-plan space, free of columns, and the Vierendeel trusses that achieved this also accommodate a service floor over each laboratory through which all mechanical and electrical services are run. The generosity of the pipe space allows reconfiguration to suit changing layouts in the laboratory below with the least disturbance to the research being carried out in adjacent areas, and it also provided an architecturally legible composition for housing services and pipes.

Kahn's services strategy was innovative. His Richards Medical Laboratories had appealed to Jonas Salk because the scale was the same as that which he sought, but their servicing was restricted and the space was fairly inflexible. Kahn's proposals for flexible space gradually developed through the Second Design, but they were still limited by columns, and services were housed in the folded plate structures with restricted crawlspace. The executed design was, therefore, a radical departure. It was designed by the same team of consultants as had worked on the Richards Laboratories, August Komendant (structure), Fred Dubin (building systems), and Earl Walls (laboratory design), but in addition, at La Jolla, there was also an extremely involved client who had designed his own laboratory at the University of Pittsburgh. Salk noted,

"Those labs were clear span with movable walls. You could differentiate them as needs changed. I had discovered something that worked, tried to make it better, and Lou was an ideal playmate with whom to tinker."[26]

Facing page: Salk Institute, North Building, Laboratory prior to out-fitting, 1965.

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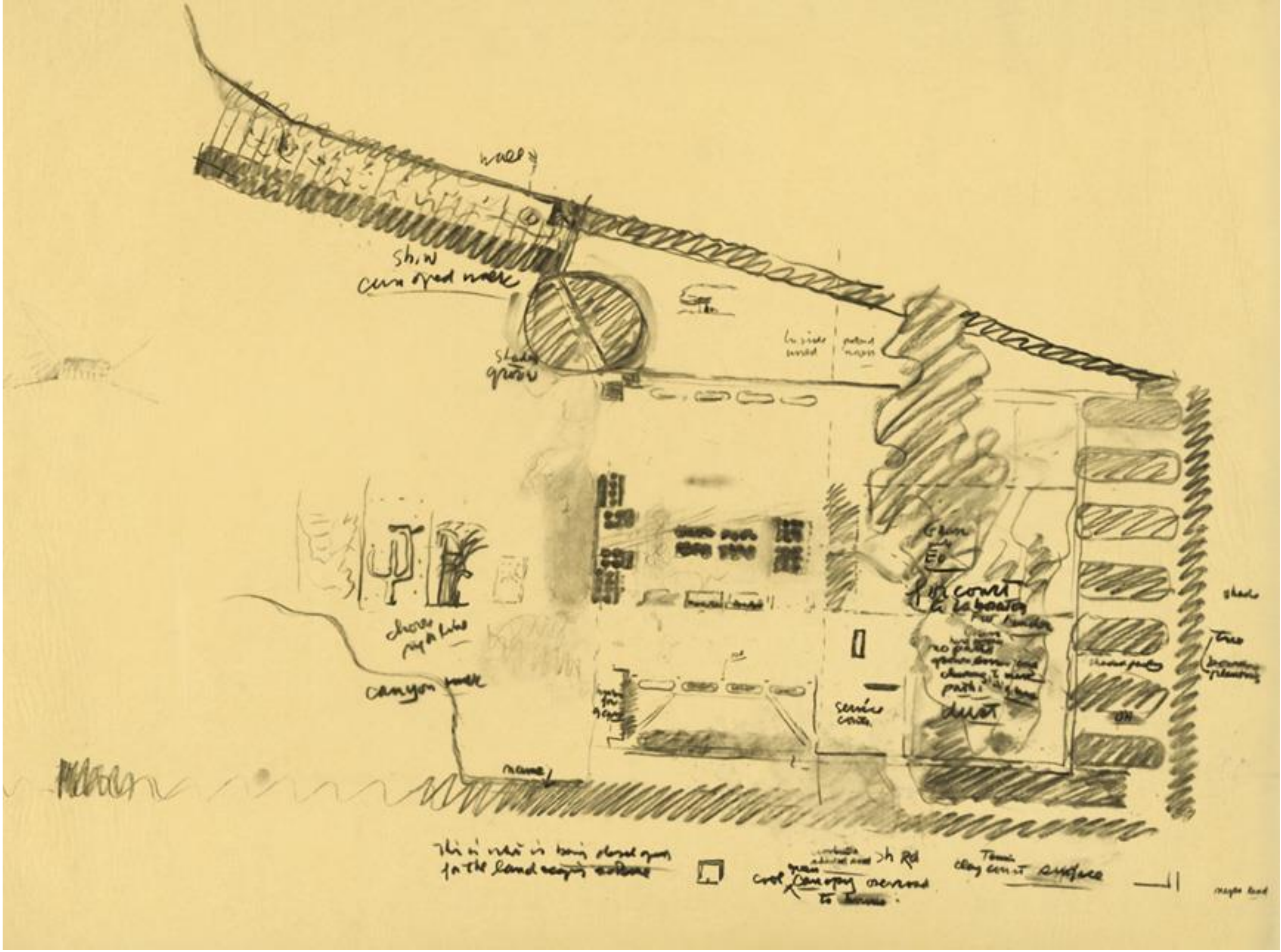
[25] Salk Interview, *Progressive Architecture*, October 1993.
[26] Ibid.

Laboratory in use, 1960s.

As of 2016, Salk personnel report that layouts that fully exploit the potential of the column-free space provided have not yet been required and layouts have generally remained close to those first devised. However, the ability to alter utilities and services has been a great advantage and the laboratories can be refitted more quickly and with less disruption than conventional laboratories. The laboratories have also been able to adapt readily to increasing numbers of occupants and density of equipment. When the East Building was constructed in 1995, neither the freedom of plan nor the servicing strategy of Kahn's design was adopted and reconfiguration of laboratories there requires the dismantling of dropped ceilings and is limited by the column grid. Whilst capital costs would have been lower, the disruption is greater and the cost of alterations is often two and a half times higher than the same exercise in the Kahn buildings.[27]

The Salk also introduced open laboratories, which allowed ease of communication between different groups of scientists. The lack of barriers or walls between units encourages a flow of ideas and processes: ". . . sparks fly at the margins when young researchers in a state of experimental thinking rub elbows because there are no walls."[28] Staircases, porticos, and courts give opportunities for casual meetings outside the laboratory, and private studies are places of retreat and thought away from the work bench.

[27] Tim Ball, Senior Director of Facilities, to P. Inskip, July 2016.
[28] Tom Albright, Salk CMP Meeting, 12 April 2016.



wall
show
canopied walk
shade
grove
canyon walk
service
court
court
dust
shade
tree
canopy
clay court surface

As a Landscape

At the Salk, Kahn used a tripartite organization to structure and integrate the buildings with the site. The locations on which he had previously worked were invariably flat, but the site at La Jolla provided him with the opportunity of working on a challenging, and remarkably beautiful, landscape. The western half of the site was a bluff set 350 feet above the Pacific Ocean and divided by a canyon that extended eastward into the middle of the property. The principal building was the Meeting House, which from the earliest sketches onwards was set at the end of the road across the north side of the site that formed the major frontage to the whole scheme. Set on the north mesa on a promontory commanding views of the sea, it was an assembly of meeting halls, dining rooms, recreation space, and residential accommodation for the director and visiting scholars. The Laboratory Complex—the work place requiring a large area—took advantage of the flat ground on the east side of the site, which was readily accessible from the main road. The Living Place was on the pattern of a traditional Mediterranean hillside village, with housing arranged to follow a walking path that snaked along the contours of the south mesa to a clubhouse overlooking the ocean. Each element was designed as a self-contained area but linked as an entity by Kahn’s design for the landscape, with an overlay of formal, built, and landscape features on the existing, rugged terrain. A tree-lined esplanade, along the north side of the canyon, joined the Meeting House and the Laboratory Complex, and acted as the main entrance into the whole site that addressed the frontage to Torrey Pines Scenic Drive. With the Salk, contextualism was just as important as the way in which the Erdman Hall dormitories had respected the intricacy of the Neo-Gothic detail of the 1930s campus of Bryn Mawr College, or the library was to work within the red brick, Colonial-style architecture of Philips Exeter Academy.

Kahn’s sketches demonstrate that he was instrumental in originating the landscape schemes, using trees to assist in structuring the site and control how one would move through it. The planting was carefully drawn by Kahn’s office in each set of presentation drawings. While Hoyt and Halprin contributed through the development of the planting detail, and Barragán transformed the study garden to a plaza through advocating that there should be no planting within it, the landscape is an essential element of Kahn’s design. As such, the character-defining features of the historic designed landscape traced to Kahn’s ideas and principles contribute to the international significance of the Salk campus.

Facing page: Louis I. Kahn: Third Design, sketch proposals for landscape, undated.

As a Fragment

The fragment of the Institute that was constructed gave us the Laboratory Complex and its central Plaza. The view toward the ocean is outstanding, and the spatial layering of each side of the court with the study towers standing sentinel in front of the laboratories is memorable and unknown elsewhere in collegiate architecture. It was this fragment of a project that Kahn chose to show his potential client, Paul Mellon, as an example of his work when courting the commission for the Yale Centre for British Art in April 1969.

However, throughout the design, the Meeting House was given the greatest importance in the hierarchy of the site and in response to the humanist aspects of the Institution as championed by both client and his architect. This is evident in the scale and complexity of its planning, and the monumental massing that were assembled around two foci—the assembly square and the recreation garden—and set within a fortified enclosure. The external spaces were of comparable scale and promised as much as the Plaza achieved. The primacy of the Meeting House also came from its dramatic prominence on the headland, looking out across the ocean to infinity. Sometimes the Meeting House is referred to as ancillary to the Laboratory Complex, but that misses the point of the Salk Institute and ignores the fact that it was to be a community and not just a workplace.

With the permanent postponement of both the Meeting House and the Living Place, the Salk project became solely the Laboratory Complex. However, the program for that building was also reduced. The omission of two of the eight laboratories was a simple reduction of space, but the omission of the library and conference rooms that looked out through inverted bay windows to the Pacific meant that there are no honorific spaces in the Laboratory Complex, and these would only be found in the Meeting House. The laboratory building, therefore, lacks the interiors that might expected in a public institution that its monumental expression leads one to anticipate.

The revision of the scheme around with a single monumental court might have conflicted with the hierarchies of Kahn’s master plan because of the duality between the two principal centers to which it gave rise However, with the loss of the Meeting House, the monumentality that the Plaza had conveyed to the workplace meant that it could take on the role of representing the public institution. It is hard to know whether this was in the back of Salk’s mind when he instructed the amendment of the scheme, rather than simply to ensure that the staff was unified. However, it was clearly not in Kahn’s mind, as he continued to draw the Salk complete with the other two centers, anticipating that they would eventually be realized. If that had been the case, it is likely that the design of the Meeting House would have developed further when it was taken to the next design stage.

The hierarchical balance between the parts was amended with introduction of the single court scheme, and it is possible that further changes to the Meeting House would have been made by Kahn if the scheme had progressed. No sketches addressing this question have come to light, but in the time between the completion of the Laboratories around 1967 and Kahn's death in 1974, plans continued to illustrate the two other original buildings as intended later phases.

[*Photographs Redacted]*

Survival of What Was Built

The Laboratory Complex as realized in Stage 1 survives externally substantially intact and well cared for. It is hoped that the fenestration in the South Office Wing will eventually be completed to Kahn's details. Minor additions to the mechanical wing, alterations on the North Front to improve universal accessibility, and the introduction of photovoltaic panels on the roof have only served to diminish integrity slightly.

However, while the famous view to the west remains intact, and is irresistible to every camera that enters the Plaza, the Arcadian view to the east has been compromised with the development of the adjacent campus by the University of California, San Diego, and the construction of the East Building in the Eucalyptus Grove. The use of fiberglass linings has given the reflecting pool and the fountain basin the appearance of a swimming pool.

Inside the North Building, changes to the partitioning have diminished the generosity and spatial quality of the original layout of the offices and the pressure of additional staff has meant the introduction of work benches across window walls in the laboratories, reducing the connection of the laboratories with the outer world

The same issues in relation to office and laboratory planning are found in the South Building, which was left as a shell in 1965, and was fitted out to a reduced specification over a period of thirty years as funds became available.

The temporary buildings that were to be removed within a year of the occupation of the laboratories are still in place and have been extended.

The major changes to the Salk have been the construction of extensions in the last two and one-half decades of the twentieth century. The Animal Quarters fails to provide accommodation responding to Kahn's tenet of the importance of daylight and awareness of the changing moods of the day. The same is true of the East Building (1991–1995), where two wings join with a large conference center belowground. Construction of the East Building also resulted in the clearance of much of the Eucalyptus Grove that Kahn had striven to maintain. Rather than strengthening the Plaza, the repetition of the space between the buildings in the later block has weakened Salk's concept of the single Plaza unifying the Institute.

The 100-foot buffer zone around the Laboratory Complex, imposed by the city planning authority, is a failure as Kahn's building cannot be taken in isolation and needs to be understood within the structure of the whole site, not in isolation.

Within the landscape, the loss of the majority of the eucalyptus grove has diminished the integrity of Kahn's design. While the North Garden and East Parking Lot survive substantially intact, the proposed site of the Meeting House has been developed as a parking area, diminishing the integrity of this portion of the campus landscape

Statement of Significance

The Salk Institute is culturally significant as:

- An outstanding building by one of the most important architects of the late twentieth century.
- An outstanding example of an innovative research laboratory.
- An outstanding example of landscape design. The juxtaposition of the Central Plaza and West Court, with their beautifully paved hard landscape, with the ocean beyond the canyon left in its natural state, is of outstanding significance as a landscape that is enhanced by the layering of formal and informal landscape elements across the whole site.

The significance of the Salk Institute is enhanced through its association with Jonas Salk and other leading scientists.

The cultural significance of the building and site are vulnerable due to:

- The need for expansion of the institution and its research programs.
- Incremental change that has occurred in the landscape.
- The quality of alteration and use of reduced specifications (i.e., less expensive materials and lesser quality of detailing).
- The changing setting of the site in relation to the University and the growth of the City of San Diego.

City of San Diego Historical Landmark

The Salk Institute was designated a City of San Diego Historical Landmark on 27 February 1991. The resolution that provided this designation indicated that the Historical Site Board found the property significant for the following reasons:

> . . . (1) its association with Louis I. Kahn, master architect, and Dr. Jonas Salk, renowned scientist, founder of the institute and design collaborator; (2) its pivotal role in the metamorphosis of the economy of San Diego from near total dependence upon the military and aircraft manufacturing to a diverse one with a strong and growing medical and scientific research element; and (3) its architectural significance. It is internationally renowned as an important work of modern architecture both for its dramatic siting atop the bluff with the ocean view framed by the paired

> buildings, and for its innovative design concepts, especially in the function of the laboratories and in the symbolism of the elegant central plaza.[29]

The resolution also notes that the designation includes ". . . all facades of both buildings, the view to the west which they frame, the upper terrace entryway with its ornamental grove concept, the central plaza with its watercourse, the lower terrace with its fountain, and the original amenities of these spaces such as the steel gates and terrazzo seating areas."[30]

The resolution concludes that the designation is ". . . in no way intended to curtail the future development of other areas of the site as was originally intended."[31] As part of the same resolution, the Historical Site Board approved the proposed construction of a new East Entry and Multipurpose Building as indicated in the design shown to the Board, and directed staff to prepare a National Register nomination for the Salk Institute.[32]

National Register of Historic Places Determination of Eligibility

The Salk Institute was determined eligible for listing on the National Register of Historic Places by the California Historical Resources Commission in 2006. The National Register of Historic Places is the official list of the nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.[33] The process of nomination a historic property to the National Register often begins with a Determination of Eligibility to assess the significance and integrity of the resource. A Determination of Eligibility for the Salk Institute for Biological Studies was prepared in 2004.[34] Developed in the form of a National Register nomination, this documentation was not submitted for purposes of nomination to the National Register.; however, it incorporates an assessment of significance and integrity in accordance with National Register guidelines, and essentially supports the findings of the City of San Diego resolution conferring Historical Landmark Status.

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[29] City of San Diego Resolution Number R-9102272, adopted 27 February 1991.
[30] Ibid.
[31] Ibid.
[32] Ibid. It is assumed that the "staff" mentioned in the Resolution refers to staff of the City of San Diego Historical Site Board.
[33] National Park Service, "National Register of Historic Places" available at http://www.nps.gov/nr/ (accessed 29 January 2016).
[34] Professor Jeffrey Shorn, AIA, and Vonn Marie May. *National Register Nomination Determination of Eligibility for the Salk Institute for Biological Studies*, 28 April 2004.

The significance evaluation identifies the important historical associations of the property, and comments on its architectural, archeological, and social value as they relate to the National Register of Historic Places. A property's significance is tied to a discrete period of time in which its important contributions were made and to relevant national, state, and local historic contexts.

In order for a property to be eligible for inclusion in the National Register of Historic Places, it must possess significance under one of four criteria. The Criteria for Evaluation for listing in the National Register of Historic Places state:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B. That are associated with the lives of persons significant in our past; or
>
> C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D. That has yielded, or may be likely to yield, information important in prehistory or history.

The Determination of Eligibility identifies the primary area of significance for the property as Architecture for its design by Louis I. Kahn, and establishes a period of significance of 1965. The original buildings, courtyard, designed landscape, and configuration of the natural environment are identified as significant under Criterion C. The statement of significance is summarized as follows:

> The Salk Institute for Biological Studies, built in 1965, is of exceptional national importance. The architecture is an expression of the late 20th century Modernist architectural movement. Founding Director of the Institute, Dr. Jonas E. Salk, and master architect Louis I. Kahn, were the creative nuclei and spirit behind the creation of this American architectural icon. It is at the Salk that Kahn's pivotal journey towards his later outstanding buildings, such as the capitol Building at Dhaka, Bangladesh, the Phillips Exeter Academy Library and the Yale Center for British Art begins. The Salk is the wellspring from which the architectural composition of ruins, containment, the measured and unmeasured, structure and space flow forth. Kahn also felt that the Salk In statute buildings and their contextual setting were aesthetically interdependent within the exceptional natural and scenic coastal environment functioning as a yin/yang relationship. The sum of these two elements and their synergy is greater and more profound than the individual elements would have been.

> The Salk Institute . . . represents Kahn's unique, extraordinary and individualist approach to architectural design.

The significance assessment provided in the Determination of Eligibility notes the importance of the Salk Institute within Kahn's design oeuvre, discusses the tripartite master plan for the Salk Institute developed by Kahn in collaboration with Jonas Salk in 1960–1962, and the importance of the landscape setting and the role of Roland Hoyt in its design.

The assessment also comments on the significant features of the Institute's built and natural landscape. The historic nature of significant buildings and structures is defined by their character, embodied in their identifying physical features. For example, character-defining features can include the shape of a building; its materials, craftsmanship, interior spaces, and features; and the different components of its surroundings.[35] These features are clearly understood and articulated at the Salk Institute, as further discussed later in this study.

Also, a part of the evaluation of significance is assessment of integrity, which is based on an evaluation of the existence and condition of the physical features that date to a property's period of significance, taking into consideration the degree to which the individual qualities of integrity are present. The seven aspects of integrity as defined in the National Register Criteria for Evaluation are location, design, setting, materials, workmanship, feeling, and association. As noted in the National Register Bulletin, *How to Apply the National Register Criteria for Evaluation*:

> Location is the place where the historic property was constructed or the place where the historic event occurred. . . . Design is the combination of elements that create the form, plan, space, structure, and style of a property. . . . Setting is the physical environment of a historic property. . . . Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. . . . Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. . . . Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. . . . Association is the direct link between an important historic event or person and a historic property.[36]

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[35] Lee H. Nelson, FAIA, *Preservation Brief 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character* (Washington, D.C.: National Park Service, Technical Preservation Services, 1988).

[36] National Register Bulletin, *How to Apply the National Register Criteria for Evaluation* (Washington, D.C.: Government Printing Office, 1997), 44–45.

In order to have integrity, a property must retain the essential physical features that enable it to convey its historical significance. The essential physical features are those features that define both why a property is significant (National Register criteria) and when it was significant (period of significance). The National Register Bulletin, *How to Apply the National Register Criteria for Evaluation*, defines integrity as "the ability of a property to convey its significance."[37] Although alterations to the buildings and site have occurred over time, in general the Salk Institute retains a significant degree of integrity and strongly conveys its historic character. Alterations and additions that are considered intrusive (i.e., that potentially diminish the overall integrity of the historic resource) are identified below and discussed further in the Conservation Policies chapter.

Salk Institute Master Plan

In 2006, an update to the 1960s master plan for the Salk Institute was initiated, led by architects Jack MacAllister and David Rinehart, who had worked with Kahn on the original design for the Salk Institute. Following extensive review by the Salk Institute, consultants, and stakeholders, the master plan update was approved by the San Diego City Council in October 2008. The updated plan was developed to provide guidance for the Institute's growth and development over the next fifty years, and incorporated new buildings, expanded laboratory and support space, and underground core facilities and parking.

The master plan update identified the following approach and goals:

> The Campus Master Plan update will allow the Institute to respond to the changing needs of science and plan for the scientific and support facilities that are needed to attract the top scientists of the world.
>
> The goals of the Campus Master Plan update are to provide the following:
>
> - Modest growth of 15 percent of research programs, laboratory space and related staff.
> - Flexible facilities to house emerging technologies and specialized equipment.
> - Centralized facilities on campus to house all Institute support departments and personnel.
> - Additional and improved support services for Institute staff.

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[37] Ibid.

- Campus-wide improvements to the physical environment.
- Preservation and enhancement of the site's remaining undeveloped natural resource once the Campus Master Plan build-out is completed.
- Protect and preserve the architecturally significant buildings and historically significant site features.
- Removal of all temporary buildings.[38]

In conjunction with development of the master plan update and permits for the proposed work, an Environmental Impact Report (EIR) was prepared by the City of San Diego Environmental Analysis Section under the direction of the Director, Development Services Department. The EIR, completed in June 2008, evaluated potential environmental impacts to land use, visual quality/neighborhood character, biological resources, historic resources, traffic/circulation, air quality, noise, hydrology/water quality, geology, and paleontology. The EIR further recommended mitigation measures where construction recommended by the master plan would entail impacts to the historic and natural resources of the site, with specific reference to features of the property identified as contributing features in the National Register eligibility documentation.[39]

[38] NBBJ, Architect, et al. *The Salk Institute for Biological Studies Coastal Development Permit/Site Development Permit, La Jolla, California.* 19 January 2007, revised 27 June 2008, approved 21 October 2008.
[39] City of San Diego Environmental Analysis Section, Development Services Department. *Environmental Impact Report for Salk Institute Master Plan.* June 2008.

Levels of Cultural Significance

The assessment of levels of significance helps justify a measured approach to the treatment of the place: the greater the significance, the greater the need for careful decision making. The corollary is also valid: the lesser the significance, the greater the range of available treatment, always provided that aspects of greater significance remain unchanged. As these assessments are made without regard to conservation and management issues, there is no formal link between the level of significance and the subsequent policies. Significance is, however, the most important of the factors to be considered when developing policies.

Four levels of significance have been identified as part of the Conservation Management Plan specific to the history and treatment over time of historic building and landscape resources within the Salk Institute campus. The highest level, referred to herein as *exceptional significance*, pertains to those resources that can be tied directly to Louis Kahn's design concepts and principles for the property, and retain a high degree of integrity. The second level, referenced herein as *considerable significance*, is indicated for resources that can be tied to Kahn's overall vision for the property, but have either been modified slightly, or were completed at a later date with some interpretation of the original design required for implementation. The third level of assessment indicates resources with *some significance*. These features are later additions that support the ongoing use of Kahn's design without intruding on, or diminishing the integrity of, historic built features that possess higher levels of significance. Other features are assessed as possessing *no significance*. These features are later additions that have no relationship to Kahn's original design, but also are not considered intrusive. Features that interfere with the understanding of Kahn's design, impact the intended patterns of spatial organization, views, and/or contrast with the intended palette of materials are indicated herein as *intrusive*. The final category of resource assessment is *removal*. Those features that were indicated as temporary additions to the campus are examples of resources suggested for removal as part of the Conservation Management Plan.

****	Exceptional significance
***	Considerable significance
**	Some significance
*	No significance
Int	Intrusive
[]	Removal

The Kahn Buildings

Laboratory Complex ****

East Gate and Roof Garden	***
Paving and concrete wall	***
Travertine dwarf walls to steps	[]
Light wells	***
Citrus grove	***
Inscription and dedication	**
Ornamental railings and gates	***
Lighting	***
Fire hydrants	**
Ad-hoc addition of building services	Int
The Plaza	****
Rill and channels	****
Paving, benches, and steps	****
Co-ordination of built-In services	***
Sunken pit	****
Reflecting pool	****
Fiberglass treatment of pools	Int
View west to Pacific Ocean and sky	****
Views east to university	Int
Stainless steel handrails	**
Corten gates	***
West Court (Lower Laboratory Plaza)	****
Pools and seating	****
Fiberglass treatment of pools	Int
Sunken pit	****
Furniture, umbrellas, trash/recycling cans etc	Int
Low and high level planting	**
Lighting	***
Stainless steel handrails	**
Views through arcades to Office Wings	Int
Low level planting in paving grids	Int
Fire lane to rim of canyon	Int
North and South Office Wings	***
Exterior	***
Elevations	***
Roof	**
Rainwater dispersal system	***
Arcades and Porticos	****
Concrete structure	****
Teak and glass millwork	***
Railings	***
External travertine paving	****
Furniture, mats, trash cans etc	Int
Solar films etc	Int
Services in moats	Int
Interiors	
Millwork (original)	***
Toilets (original)	**
Staircases	**
Lighting (original)	**
Flooring (original)	**
Furniture (original)	**
Elevators (north office wing)	**
Elevators (south office wing)	*
Replacement door hardware	[]
North Office Wing	
Fifth and fourth-floor executive offices	**
Third and second-floor offices, and library	**
First floor-offices (current)	Int
First floor (original entrance to Laboratory complex)	****
Basement-offices	*
South Office Wing	*
Cafeteria (original)	**
Laboratories	***
Flexible plan	****
Pipe spaces and Vierendeel trusses	****
Laboratory servicing	***
Steel-and-glass window walls	****
Shelving against window walls	Int
Loss of symmetrical arrangement of entrances	Int
External and internal concrete structure, floors, ceilings, and slots	****
Lighting – external and internal (original)	***
Roof	**
Steel mesh to slit windows	Int
Blinds, films, solar control etc	Int
North Laboratories Interiors	***
Laboratory research spaces (original)	**
Partitions (original)	**
Furniture (original)	**
South Laboratories Interiors	*
Laboratory research spaces	*
Partitions	*
Furniture	*
Study Towers	****
Exterior	****
Concrete	****
Travertine paving, steps etc	****
Teak and glass millwork	****
Steel and oak doors (north)	****
Doors (south)	*
Railings	**
Slate duct covers	**
Replacement door hardware	Int
Lighting	**
North Study Towers	****
Interior	***
Built-in joinery	***
Slate and oak finishes	***
Elevators	**
Surface-mounted electrical and lighting	Int
South Study Towers	
Interior	*
North and South Service Towers and their retaining walls	***
Exterior	***
Concrete	****
Fenestration	**
Gates	**
Steel drinking fountains, paneling	**
Prox readers, etc	Int
North Service Towers Interiors	**
Circulation, staircase	**
Toilets	**
South Service Towers Interiors	*
Circulation, staircase	**
Toilets	*
Lower Garden Courts	****
Views through the courts	****
Relationship of courts to laboratories	***
Brick paving and travertine margins	***
Planting tubs	Int
Furniture, bbqs, fittings	Int
Use as open-air storage facility/laundry	Int
Cycle racks	*

Mechanical Wings	***
Concrete	****
Fenestration	***
Blockwork infill	**
Plywood infill	Int
Transformer wings to north mechanical wing	*
Interior	
Steel doors, paneling	**
Glazed steel doors	Int
Glazed walls	**
Toilets	**
Fire escape stairs	**
Ancillary use of corridors for office, storage	Int
Replacement door hardware	Int
Subdivision/adaptation to laboratories/offices	Int

Roofs and Roof Structures	
Photovoltaics	*
Replacement boiler flue	*

Site of the Meeting House ****

North Parking Lot, lighting	Int

Site of the Living Place ****

Pumping Station / sewage treatment plant	Int

The Kahn Landscape

East half of the site	
North Garden	***
South Garden	**
Service Yard	**
South Parking Lot	**
Curb painting	Int
East Garden	
Eucalyptus Grove	****
Trench	**
Transverse paved path	Int
Stone swales	Int
Planting by trench	Int
Lighting	Int
Visible services in trench	Int
Signage	Int
East Parking Lot	***
Site of sewage pumping station	*
Torrey Pines Scenic Drive	***
North Torrey Pines Road	**
Salk Institute Road	**
Signage	Int
Utilities	Int

West half of the site	
Canyon, Pacific Ocean and Sky	****
North Mesa	
The Esplanade (unrealized)	****
Site of Meeting House (unrealized)	****
North Parking Lot	Int
South Mesa	
Site of Living Place (unrealized)	****
Mound	**
New pumping station	Int

Post Kahn Structures

Animal Quarters and cooling towers	*
New sewage pumping station	Int
East Building	Int

Temporary Buildings

West Interim Facility	[]
Building Nos. 1 – 3	[]
Building Nos. 4 – 5	[]
Building No. 6, associated structures and greenhouses	[]
East Interim Facility	[]
Accessory Building	[]
Temporary Offices	[]
Temporary buildings to south of East Building	[]

Characteristics

Furniture	**
Daylight and Sunlight	***

Conservation Policies

This chapter articulates an overarching conservation policy for the Salk Institute property intended to guide future management and change within the internationally significant work of architecture and landscape architecture. The vision that follows establishes a framework for more specific recommendations to meet current and anticipated future needs and address issues of concern. A principal focus of the conservation policy information conveyed below is guiding future change reflective of the fact that the Institute will need to grow and change to meet evolving scientific research needs. Rather than a preserved museum site, the Salk Institute is a vibrant living community. This suggests that the framework for future conservation may need to identify areas where change is appropriate, and where it is not. The guidance afforded herein is also intended to be consistent with the Secretary of the Interior's Standards, a set of guiding principles used by federal and state historic preservation officers to evaluate treatment of significant historic properties. As a masterwork of design and planning, the Salk Institute merits the highest level of stewardship in terms of preservation treatment. The specific stewardship standards are presented below, and form the basis for all site-specific treatment recommendations included in the Conservation Management Plan.

Treatment Approach

The policies and preservation strategies presented throughout the Conservation Management Plan are intended to reflect the guidance afforded by the Secretary of the Interior's Standards for the Treatment of Historic Properties, including Guidelines for the Treatment of Historic Landscapes, the national benchmark for heritage resource preservation and management. The Standards are composed of concepts that address issues associated with maintaining, repairing, and replacing historic materials, as well as designing new additions or making alterations. They are supported by guidelines that offer general design and technical recommendations that help site managers apply the Standards to a specific property. Together, they provide a framework and guidance for decision-making about work or changes to a historic property.[40]

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[40] U.S. Department of the Interior, National Park Service, Technical Preservation Services, *The Secretary of the Interior's Standards*, available at https://www.nps.gov/tps/standards.htm (accessed 17 October 2016).

The Secretary of the Interior's Standards are comprised of four approaches put forth as appropriate for managing historic properties: preservation, rehabilitation, restoration, and reconstruction. They are defined as follows:

> **Preservation:** the act or process of applying measures necessary to sustain the existing form, integrity, and material of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction.
>
> **Rehabilitation:** the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.
>
> **Restoration:** the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by removing features from other periods in its history and reconstructing missing features from the restoration period.
>
> **Reconstruction:** the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.[41]

These approaches have been considered for their relevance to the heritage preservation issues associated with the Salk Institute, particularly as they apply to significance and integrity assessments of the Louis Kahn designed campus, and the goals for future development as articulated in the 2008 master plan.[42]

Based upon the goals for the property set forth by the Salk Institute, which include the need to protect historic features and characteristics while accommodating new building program, parking, and environmental imperatives, the recommended overarching approach for the Salk Institute campus is rehabilitation. Because rehabilitation is defined as the act or process of making possible a compatible use for a property, this approach allows for protection of the Institute's historic character and resources while

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[41] National Park Service, "Introduction to Standards and Guidelines," available at https://www.nps.gov/tps/standards/four-treatments/standguide/overview/choose_treat.htm (accessed October 17, 2016).
[42] *Salk Institute Campus Master Plan*, 2008.

carefully addressing the need for change. As part of rehabilitation, stabilization, protection, and preservation of historic and natural resources are assumed even when new uses are accommodated.

The rehabilitation treatment approach allows for both preservation and limited restoration of significant historic resources, based on the goal of enhancing integrity, as well as carefully considered change along a spectrum of continuum. In earlier chapters, the Conservation Management Plan articulates the levels of significance and integrity associated with physical features of the property. Those features that rise to the highest levels of significance are to be treated at the preservation end of the spectrum rather than the rehabilitation end, while features that are assessed as not significant or intrusive are less sensitive to change. Suggestions for treatment of all features as a reflection of the significance and integrity assessments are included below. It is recommended that all future management, maintenance, and physical treatment of the Institute campus conform with the Secretary of the Interior's Standards for Rehabilitation, while also meeting the spirit and intent of the policies articulated in the Conservation Policies of the Conservation Management Plan.

Implications for Management

The Secretary of the Interior has developed standards for rehabilitation as applied to historic properties. There are ten basic principles that comprise the standards. These are intended to help preserve the distinctive character of a historic property, while allowing for reasonable change to meet new needs. The standards (36 CFR Part 67) apply to historic properties of all periods, locations, sizes, conditions, and uses.

The standards create a baseline of guidance to which intended changes to the historic landscape must be compared. These standards are neither technical nor prescriptive, but promote responsible preservation practices as follows:

1. A property will be used as it was historically, or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archaeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.[43]

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[43] Kay D. Weeks and Anne E. Grimmer, *Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for Preserving, Rehabilitation, Restoring, and Reconstruction Historic Buildings* (Washington, D.C.: U.S. Department of the Interior, National Park Service, 1995).

General Conservation Principles for Treatment of Significant Elements

The following principles of conservation should be observed when dealing with the maintenance, repair, or alteration of the Salk Institute

1. To retain much of the original fabric and continue its repair, as a primary principle of conservation/preservation.

2. To retain the historic original fabric in situ where possible.

3. To ensure that conservation is proactive rather than reactive and is founded on the “little and often” principle.

4. To consider replacement only as the last resort, as there is much repair work that can be undertaken before replacement should be entertained. The repair should also be determined by an analysis campaign that leads to a repair program based upon significance, priority, health and safety, and extent of damage.

5. To ensure that all conservation work is safe, environmentally sound, and sustainable as far as practicable.

Treatment of Intrusive Elements

A number of items have been identified as intrusive.

Policy 1

To remove items identified as intrusive in this Conservation Management Plan. Prioritization and a time-based program for the removal or modification of intrusive items should be established and incorporated into any program of work. However, some intrusive items are tolerable if they are only for the short-term.

Repair and Maintenance

Intelligent and prompt cyclical maintenance and repair are the single most important actions of the conservation program. The Salk Institute should be cared for by a planned and detailed maintenance and repair program (Maintenance Plan) based upon a complete knowledge of the building and its materials and physical plant, with regular inspection, and prompt preventative maintenance and repair. Any large establishment needs to guard against slippage in standards of housekeeping and maintenance.

The existing management regime is to be complimented, as it is apparent that much of the knowledge and the resources are in place. Additional pressure is exerted as the building itself is an international landmark for visiting architects and tourists alike, as well as for its scientific research. However, it is the aggregation of minor expediencies that detracts from the presentation of the place, and public areas are downgraded as a result. A continuing vigilant regime of maintenance and repair is vital. Damage is occurring to the building complex, and thus a damage limitation strategy is necessary to respond to known threats to the teak, concrete, graffiti, mechanical damage, etc.

The establishment of conservation-based trials for the teak in the Teak Fenestration System Conservation Project, carried out by the Getty Conservation Institute Conserving Modern Architecture Initiative and Wiss, Janney, Elstner Associates, Inc., had the objective of developing appropriate cleaning and treatment methods for the teak. This is one of the steps in the overall objective of developing the Maintenance Plan.

The development of safe cleaning methods for the various building materials and surfaces, together with other treatments that are generally necessary as a result of deterioration, is paramount to prolonging the life of the complex and its building materials. The methods and treatments can be compiled into the Maintenance Plan. Such an approach also entails appropriate maintenance operations, frequency, program, and costs.

Policy 2
To develop and adhere to a detailed and long-term planned maintenance strategy or Maintenance Plan.

Policy 3
To develop and implement a comprehensive trial strategy of the decay mechanisms affecting the steel, glass, concrete, travertine, brick, concrete block, teak, and oak surfaces to mitigate further damage and to inform the Maintenance Plan. The consequences of remedial treatments necessary to retard the degradation of the materials (steel, glass, concrete, travertine, teak, oak, brick, and concrete block surfaces) should be well understood and fully tested before use.

Policy 4
To formulate appropriate and consistent cleaning, repair, and maintenance standards with all stakeholders and to coordinate and implement a long-term maintenance program.

Policy 5
To carry out any remedial work on steel, glass, concrete, travertine, brick, concrete block, teak, and oak surfaces in such a way that visual continuity with the original surface is retained; any joint between old and new work designed to achieve this should be executed with quality and precision. As well as affording protection, treatments should match the color, texture, and finish of the original adjacent material.

Policy 6
To carry out photographic documentation of the external concrete, steel, travertine, and teak, etc., on an annual basis, for the first five years, then every five years after. In addition, known areas "at risk" should be documented more regularly to help determine their rates of deterioration. This documentation would, in turn, inform any testing for remedial action (present and future) as outlined in Policy *.

The Role of Preservation Professionals

The Conservation Management Plan, with a supporting Maintenance Plan, are documents to guide the future care and development of the Institute, but such documents will not be effective unless they are interpreted and implemented by persons with the relevant conservation-based expertise.

Where technical advice is needed and where work is required to be carried out, it is important to select consultants and contractors with proven expertise and experience in the relevant fields. A low bid that may appear satisfactory can often result in the degradation of the character and quality of the fabric and often proves expensive to rectify.

Continuity of relevant and experienced conservation advice should be provided to ensure that all work on the Salk Institute is compatible with its cultural significance.

Policy 7
To designate a senior officer whose responsibility is to oversee the conservation program of the Salk Institute.

Policy 8
To make decisions and carry out any works or alterations in the light of professional advice from architects experienced in the conservation of buildings and employing experienced contractors.

Policy 9
To employ only persons qualified and experienced in treating the relevant material (concrete, steel, glass, teak and oak mill work, travertine, brick, etc.) Supervision should be consistent.

The Salk Institute for Biological Studies

> A place of the measurable, which is the laboratory, and a place of the unmeasurable, which would be the meeting place.[44]

The Salk Institute is an iconic example of twentieth century modern architecture, and it is very unfortunate that only a fragment of the original project, the Laboratory Complex, was constructed.

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[44] *Abstract of Program*, Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.2716.

Kahn's scheme was designed as an entity, but with a multi-centered plan. The idea of locating the Meeting House, the Living Place (housing), and the Laboratory Complex in discrete areas of the site linked by landscape elements remained constant. This was the beginning of the concept that informed Kahn's later projects on the Indian subcontinent, with a cluster of "citadels," each devoted to functions that would improve the human condition, and all interrelated.

Kahn would have been extremely disappointed by the partial execution of the project. However, it appears that the Meeting House and Living Place still remained part of the long term program for the Salk at the time of his death in 1974. The designs for these components of the master plan were developed in parallel with the Laboratory Complex and each was given equal weight in the key presentations in 1961 and 1962. While the first stage of construction was identified as the laboratories in order that research could be started as early as possible, the second stage was definitely to have been the Meeting House, and the third the housing. Although the last two elements were formally deleted from Kahn's commission in August 1963, they continued to be included in proposals for future development well after the completion of the Laboratory Complex in 1965. They are shown in the Program of Action for new facilities put forward by Dr. Salk in 1968 when the need for extra research space, which resulted in construction of the Animal Quarters in 1977, was considered. [45] Their omission meant not only the loss of what would have been architecturally significant spaces at the Salk, but also much of the philosophical concept of the Institute itself.

When the Salk Institute expanded in the 1990s, further laboratory and administrative space was required, and the more humanistic aspects of the project—the Meeting House and accommodation for visiting scholars—were no longer a priority. Their sites overlooking the Pacific were not developed and additional construction focused on the flat, readily accessible land to the east of the Laboratory Complex.

[45] Salk Institute Archives, Garry Van Gerpen file.

The Kahn Buildings

Laboratory Complex

> The inspiration of such a site should find itself in the Labs, that which serve the labs and buildings which serve the spirit of the Institute.
>
> The spaces of these buildings should have character worthy of the men.
>
> It is the place for gardens, the fountains, the court and for the enjoyment of the dramatic presence of nature and its ever changing moods."[46]

The Laboratory Complex consists of two buildings that are linked by the Plaza that separates them. Each building consists of a three-story laboratory block, which is surrounded by a series of towers that support its functions: office wings to the west, studies toward the Plaza, service towers on the external sides, and the mechanical wing across the east. The mechanical wing is the only building that physically links the two, the north and south sections being joined by two basement stories that run beneath a roof garden. The Institute addressed Torrey Pines Scenic Drive, and the Laboratory Complex was designed to be entered from the northwest through the North Office Wing. The approach through the East Gate has developed since the laboratories became the focus of the Institute in place of the tripartite scheme of Meeting House, Laboratory Complex, and Living Place.

East Gate and Roof Garden

Today, the East Gate with its dramatic view across the Plaza to the Pacific Ocean is perceived as the entrance to the original Institute. However, the tripartite group of buildings was intended to front the road to the north, and the entrance to the Laboratory Complex was to be at its northwest corner. In consequence, the East Gate was the entrance to, rather than from, the East Garden and its Eucalyptus Grove, perhaps a parallel to the arrangement in Oxford colleges where a deer park lies beyond and is entered from within the college gardens. The present approach arose as a result of the gradual abandonment of proposals for the Meeting House, and thirty years later the construction of the East Building with its reception facilities finally confirmed the change.

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[46] *Abstract of Program*, Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.2716.

The travertine path through the gateway is approached by steps up from both the East Garden and the Plaza to accommodate the raised Central Mechanical Wing below. The paving bears a dedication and an inscription. The dedication is located on the risers of the steps, carved in Roman upper case lettering and gilded. It was dedicated as part of the Steps Ceremony on 3 March 1978:

THE NATIONAL FOUNDATION - MARCH OF DIMES
LED BY BASIL O'CONNOR
ESTABLISHED THE SALK INSTITUTE
1960

The inscription is in stainless steel cut letters in Sans Serif type face, set flush with the travertine paving in the middle of the path where it crosses the orange grove:

Hope lies in dreams, in imagination
and in the courage of those who
dare to make dreams into reality.
Jonas Salk

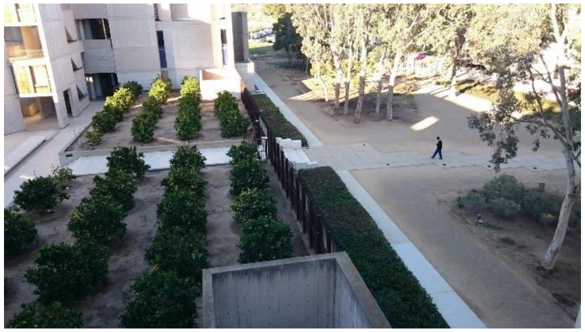
It commemorates the vision of the founder and was installed following Dr. Salk's death in 1995. The location of the inscriptions and their layout reinforce the direction of movement westward into the Plaza.

The ornamental Corten and stainless steel railings that extend between the concrete shafts and the East Gate were designed by Kahn's office in 1963 and erected in 1965. The steps from the grove were constructed in travertine set flush with concrete strings, but the travertine block parapets were introduced to meet code sometime after 1967.[47]

The raised roof of the central mechanical wing is treated as a roof garden planted with citrus. Adjacent to the wings, concrete light wells set within the beds allow daylight and ventilation to the basement stories. A *degagement* separates each shaft from the elevation.

Top: East Gate, 1967.
Bottom: East Gate steps, 2015.

[47] Salk contact sheet 67014, January 1967.



Roof Garden, 2015.

The trench outside the railings was specified as having a gravel base. The planting beds to the east of the trench and the cross path through the Eucalyptus Grove date from the construction of the East Building in 1995. Having decorative planting outside the railings diminishes the perceived enclosure of the court and erodes the "natural" landscape of the East Garden.

The roof garden that links the mechanical wings originates in the Second Design, when Kahn planned gardens above the low blocks that ran across the full width of the west and east fronts—the former above the library and administration building that faced the Ocean, and the latter above the Animal Quarters and mechanical rooms at the back of the building. Like the present roof garden, both were raised a half level above the study courts which they contained.

The beds on either side of the central path were planted with orange trees and kumquats, and respond to the presence of planting in the West Court; together they define the boundaries of the Plaza.

Significance, Survival, Vulnerabilities

The original trees were replaced with limes in 1995. Following removal of the lime trees as part of a structural repair and waterproofing project involving the roofs to the mechanical rooms below, semi-dwarf calamondin orange (*Citrus mitis*) trees were replanted in the space. The lime trees had been determined visually incompatible with aesthetic goals for the landscape due to their tendency to defoliate and turn yellow.[48]

The ends of the roof gardens have been subject to the intrusive introduction of additional building systems.

The East Gate is unsuitable for access by people with disabilities, but level access is provided through the North Front.

Policy 10
To maintain the original approach to landscape planting: maintaining the orange grove, and removing the additional planting outside the enclosure.

Policy 11
To accept that the East Gate is an approach to the Plaza.

Policy 12
To maintain access for people with disabilities via the north towers and not to modify Kahn's design at the east.

[48] Salk Institute Archives, Garry Van Gerpen file.

The Plaza

> The Plaza is entirely paved with San Miguel Stone which is laid tight without mortar joints. The center canal has constantly running water. The east planting and a long bench encourages one to enter the Plaza from the arcades rather than to enter directly from the end. The system of narrow drainage slits tie into existing sub-surface drains and ensures positive runoff of rainwater. A broad sunken area adjacent to the pool is surrounded by low, solid stone benches, a place to stop and enjoy the pool and the plaza . . . .
>
> I believe this solution is good in bringing together the two Laboratory Wings, to encourage free circulation and to inspire use and activity within the Plaza. The sensitivity of the building and this space to the many moods of the sky and atmosphere will make the plaza a place always changing, never static, full of the never ending anticipation of the rising and the setting of the sun.[49]
>
> . . . Courtyard welcomes tourists and architects. It certainly is a nice place to take pictures, but it is not a comfortable place for scientists to meet, sit, and talk . . . in fact, the courtyard stands empty most of the time."[50]

The Plaza is the only part of the Laboratory Complex site that was not excavated, but left at grade and simply leveled. The rest of the site was reduced to accommodate what is in reality a basement story with a subbasement for the lower mechanical rooms at the east end. Photographs showing the excavated site before the start of construction are remarkable, with the court standing proud and looking as if it was a man-made mound, whereas the reverse was the case. The spoil was deposited on the south mesa.

Leaving the court unexcavated ensured that it was readily available to each of the laboratory floors and retained a human scale. In addition, the much shorter study towers maintained the height of the laboratories.

Facing page: The excavated site viewed from the north. The plaza is unexcavated except for a construction access ramp from the west; spoil forming the mound is seen on the canyon rim to the right, 1964.

[49] Kahn to J. Salk, 19 December 1966, Louis I. Kahn Collection, University of Pennsylvania, Box P-26.
[50] Bourgeois, 117.

The Plaza is enclosed on both long sides by the laboratories, in front of which the freestanding study towers give a remarkable depth in the layering of space to the sides of the Plaza. It is an effect unknown in traditional collegiate courts. Within the Plaza, a sheltered walkway passes under the study towers, and the meets Salk's requirement that the idea of the cloister should be brought to the laboratories to reinforce the concept of a community of scholars.

The west end of the Plaza is open to the view to the Pacific Ocean and this is reinforced by the directionality given by the fenestration of the studies. That view, however, was denied in the earliest schemes when the court was enclosed on the west side, but became progressively available as schemes for the west wing were reduced in height and, eventually, were divided into two separate buildings that allowed an unimpeded vista.

Early photographs show that the view to the east was also important.[51] The orange trees on the roof garden, backed by the Eucalyptus Grove and trees beyond, gave the effect of an extensive park to the east that balanced the ocean views to the west. This has been seriously diminished with the intrusive development of the university site and the expansion of the Salk itself with the East Building. Both have resulted in loss of trees, and in their place there is a discordant group of buildings.

Rills running through the courts towards the ocean are a constant in the Second Design, and early in the design process Kahn had suggested that Jack MacAllister should visit Granada to see the Alhambra. Variations are found in the Second Design with rills running through not only the study courts, but also the central service court. In the Third Design, drawings as early as January 1963 show the single rill running from the fountain at the east to discharge through a gargoyle to the court below.[52] As well as the longitudinal rill, the paving is crossed with a series of "irrigation canals." The channels are an important feature of the court, both when dry and when in use.

The pool that extends across the west end of the Plaza acts as a caesura to the view beyond. It does not appear in the early proposals for the Third Design. Photographs show it as a dark reflecting pool when built, but its rendered interior was replaced in 1993 with fiberglass linings that give it the appearance of a swimming bath and destroy all sense of gravitas. Two dry pools lie either side of the rill, east of the large pool, and were initially intended for planting.

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[51] Salk Institute Archives, construction photos, 1977.
[52] Louis I. Kahn Collection, University of Pennsylvania, 010.I.C.540.29_LSD1, and Planting.

The finishing of the court had been left incomplete when construction work stopped in July 1965. By that time, the principal construction access ramps from the west had been removed and the retaining walls and steps to the West Court had been constructed. So that the building could be used, travertine paving was installed along the sides of the Plaza below the study towers and returned across the east end; access at the west was through the West Court. However, the center of the Plaza was left unfinished except for a concrete grid of channels defining earth-filled bays either side of what would be the central rill; as Suzanne Bourgeois recalls it was a “muddy mess.”[53] Paving below the study towers and the retaining wall to the West Court were in place by July 1965.[54]

Schemes for completing the court developed from panels of lawn between the irrigation channels to formal paving. Kahn’s proposals made a virtue out of the changes of grid and pattern between the areas already laid and the new, with circulation around the perimeter clearly differentiated from the paving in the center. Hopeful that the situation would be resolved, Kahn’s office continued to develop the detailing of the paving and water features through 1966, with a linear arrangement of bands of stone set between narrow strips laid parallel with the water channel reinforcing the directionality of the court—the strips tightly butt jointed, the paving laid with 3/8 inch joints. The arrangement of the water channels and the other changes of level in the paving within the open Plaza were not a part of the intended circulation routes; the intended routes do not transverse the court, but stay within the perimeter cloisters.

Benches within the court are integrated with the paving, and are related more to organizing the space architecturally than to providing seating. They are constructed in concrete and clad with the same travertine as that used for the paving. The main benches were positioned with three on either side of the open court and one across the east end, so that circulation was guided to the cloistered sides. They were originally to be supplemented with cubic stone stools, similar to those Kahn had used at the Richards Laboratories, with thirteen stools distributed evenly within each arcade, nestling up to the concrete piers. The stools, however, were omitted with a revision of the drawings in June 1967.[55]

The fully developed scheme for the Plaza is dated May 1966, and a budget estimate was issued on 28 April 1967.[56] A gift from Theodore Gildred, Sr., one of the Fellows, funded the project and the Plaza was completed in 1967. [57]

Plaza left with earth infill between channels, 1965.

[53] Bourgeois; Salk Institute Archives, contact sheet 65084-1, 7 May 1965.
[54] Salk Institute Archives, contact sheet, 65120-1; 1 July 1965.
[55] Louis I. Kahn Collection, University of Pennsylvania, 030.I.C.540.026 LSD-9, 2 August 1967.
[56] Louis I. Kahn Collection, University of Pennsylvania, Box P-26.
[57] Bourgeois.

Kahn: Laboratory Complex, Second
Design, perspective of Study Garden, undated, circa
1961.

Historical Development

The Third Design resulted from two major changes that gave us the iconic Plaza: one at the suggestion of Jonas Salk, the other the recommendation of Luis Barragán.

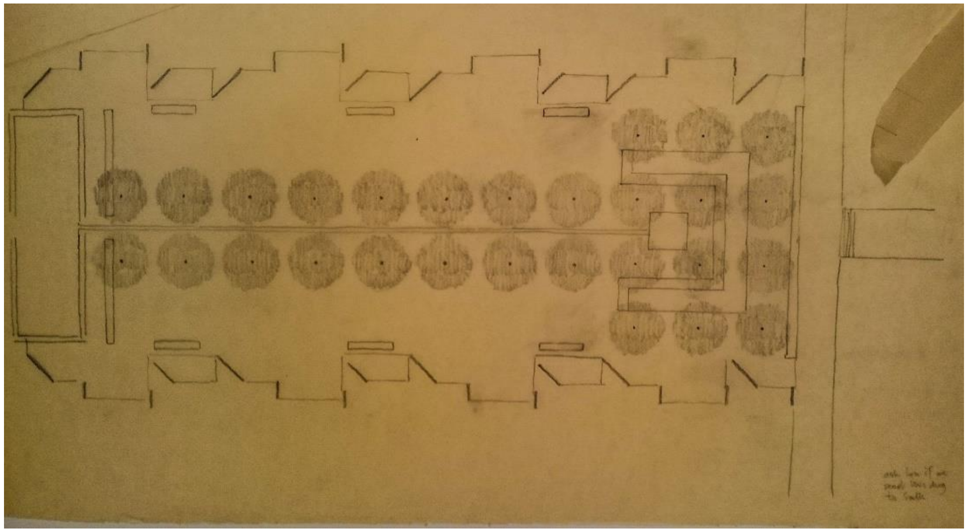
The principal revision, carried out following Dr. Salk's request in 1963, was that all accommodation in the Laboratory Complex be arranged around a single garden court in place of the two previously suggested. Salk believed this would unify staff and symbolize the Institute, and Kahn agreed, "All working bench spaces and oak/rug spaces relate to the plaza."

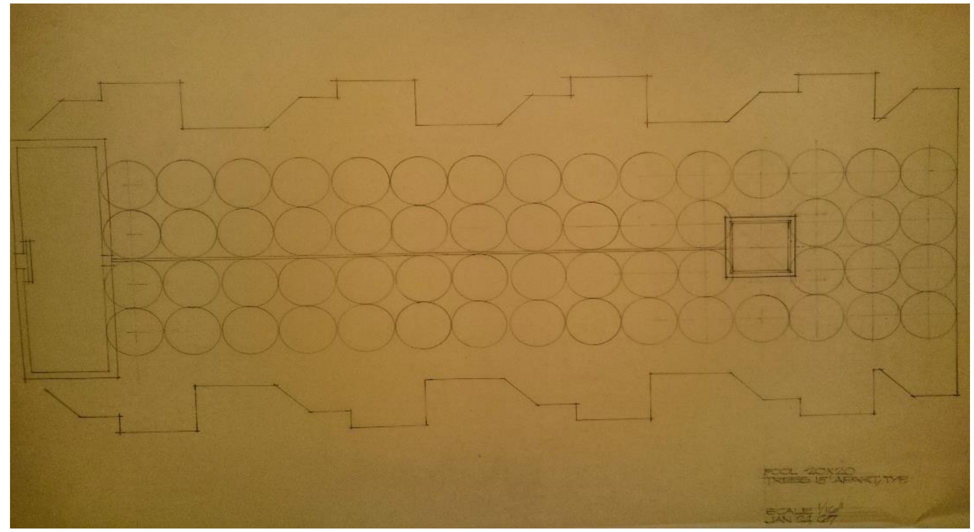
Two of the eight laboratories of the Second Design were omitted, and the remaining six were placed on three stories on either side of the court. The dimensions of the individual laboratories themselves remained constant and the length of the court did not, therefore, alter. The goal of accommodating the fellowship in a single court was achieved by having two stories of studies, rather than one, on each side.

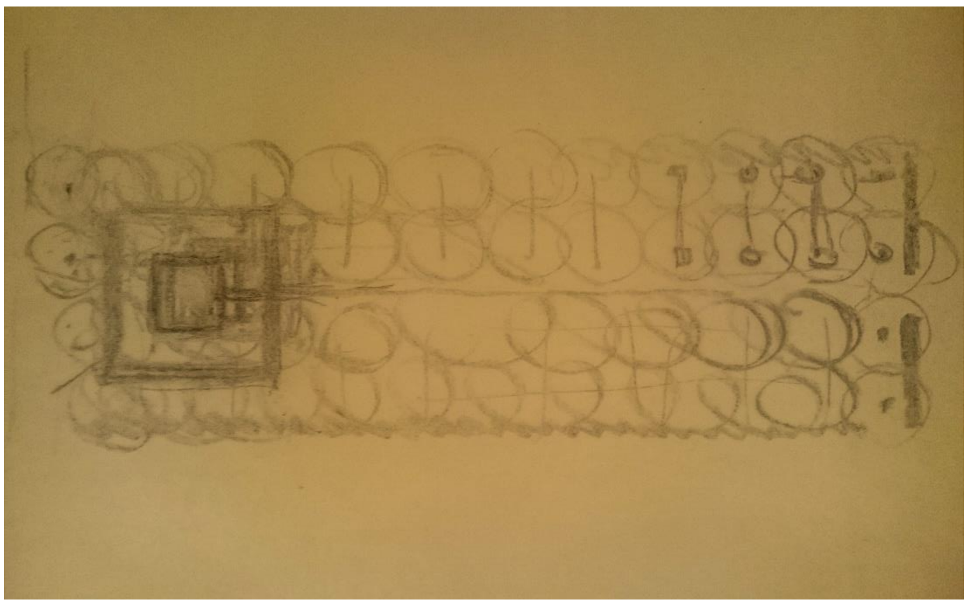
Kahn also took the opportunity to double the width of the court, enlarging it from just over 100 feet to about 190 feet between the face of the laboratories. The width of the court had already been a concern in earlier schemes in association with securing daylight and views for the lower laboratories, and office sketches show the earlier garden courts enlarged to 100 feet in response to the client. The width would have been more than double that of the similar courts Kahn designed between the faculty offices at the Indian Institute of Management at Ahmedabad, but, with the study towers inserted along their sides, the garden courts at the Salk lacked generosity. Planted with trees, the courts were introverted and certainly did not address the Pacific Ocean.

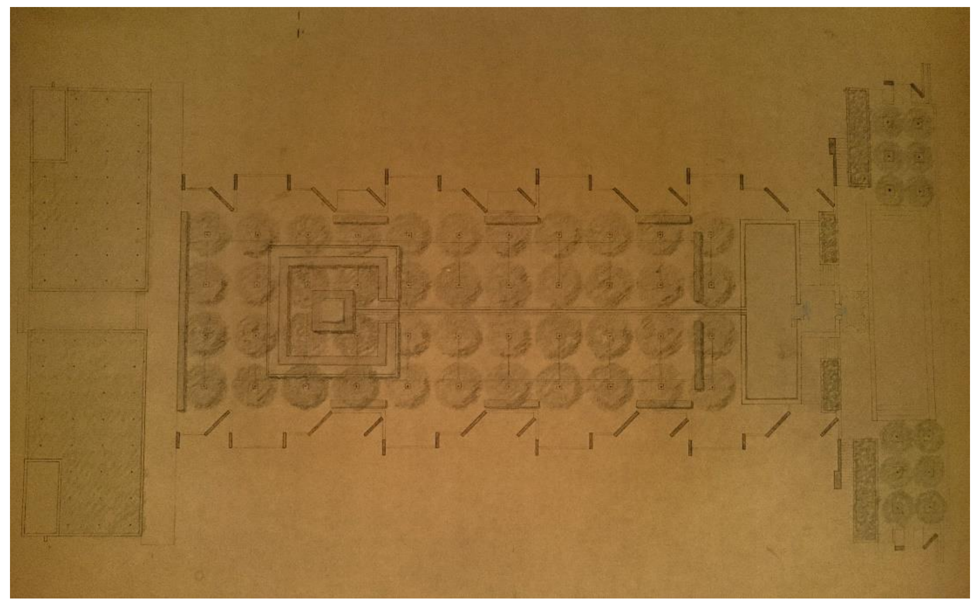
In both the Second and Third Designs, the courts were identified by Kahn as study gardens and were to be formally planted with trees. However, it was Luis Barragán's recommendation that changed the image when he said to Kahn, ". . . there should be no garden, it should be a plaza."[58]

[58] Wurman; Wiseman, 128.




POOL 40X20
TREES 15' APART TYP
SCALE





Construction of the Third Design had started with Kahn still intending to put a garden court between the two blocks. However, as work continued on site, Kahn realized that he did not know what form it should take[59] Kahn had seen Barragán's work in an exhibition at the Museum of Modern Art, and in 1964 the Kahn /Noguchi proposal for the Adele Levy Memorial Playground on Riverside Drive in Manhattan had been included alongside works by the Mexican architect in the book *Modern Gardens and the Landscape*, published by MOMA. Subsequently, Kahn met Barragán in Mexico City in 1965 and invited him to review the design of the court.

Kahn noted that:

> For well over a year, I made studies of the kind of trees and their placement in the garden. I could not decide, partly because of the diversity of advice in regard to what flora would survive the exposure and winds of the Pacific. I called Luis Barragán [sic] of Mexico. I had met him several months before. I saw his house and I sensed his incomparable sensitivity to Nature. I asked Barragán to help select the trees of Garden. He came readily.

Barragán visited site with Louis Kahn and Jonas Salk on 24 February 1966, returning again in May when the two architects took a helicopter flight over the site. The current proposals for the court were shown in the October revision of Kahn's landscape plan dated 26 February 1965. The plan suggested the planting of nine Australian tea (*Leptospermum laevigatum*) trees to line each side of the rill, and two rows of red birch (*Betula nigra*) trees sited perpendicular to the rill that would serve to spatially contain each end of the court—the birches at the west filling the dry pools, and the others immediately to the east of the roof garden. The ground surface was to be lawn, retaining the paving around the perimeter, and subdivided by the rill and drainage channels.[60]

Facing page: Kahn: Laboratory Complex, Plaza studies for planting, updated circa 1964.

To Kahn's surprise, Barragán told Kahn that he should ". . . not add one leaf, nor plant, not one flower, nor dirt. Instead, make it a plaza with a single water feature." Kahn recalled that after the visit, Barragán, ". . . turned to us and said, 'I would not put a single tree in this area. I would make a plaza . . . if you make a plaza, you will have another facade to the sky.' I was so jealous of this idea that I could not help adding to it saying 'then we would get all those mosaics for nothing,' pointing to the Pacific Ocean."[61]

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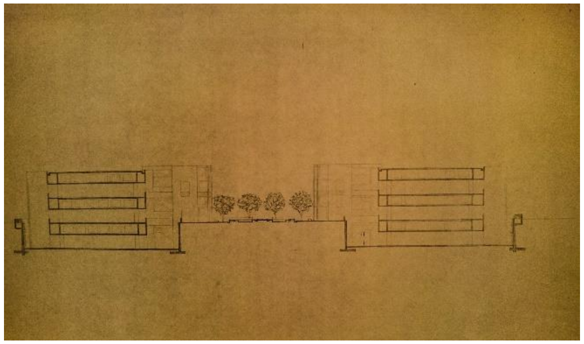
[59] J. MacAllister interview, Wiseman, 128.
[60] Louis I. Kahn Collection, University of Pennsylvania, 030.I.C.540.29_LSDL-1, revised 8 Oct 1965.
[61] Kahn to James Britton, 12 June 1973, Louis I. Kahn Collection, University of Pennsylvania, 0030.II.A.27.31.



Kahn: Laboratory Complex, section with trees, undated, circa 1963.

To Kahn, Barragán's advice was a breakthrough, and MacAllister noted that Kahn ". . . was thinking of the open space as a 'garden' from the start, and he couldn't get past that because of the word. When Barragán said 'plaza,' Lou was free to make the change."[62]

The Institute's reaction was, however, mixed, and there was no agreement for another ten months. Kahn wrote, ". . . to those present at the time . . . a totally paved plaza seemed a harsh solution."[63] The impasse gave rise to Lawrence Halprin's involvement to develop an alternative master plan for the landscape. Compromise schemes with ground cover to soften the expanse of stone were considered, and George Fuller, the contractor, priced one option for Kahn's office using low flowering shrubs. Halprin presented his proposals in November 1966, with restricted planting and San Miguel stone laid as rustic paving.[64] However, Halprin finally withdrew, recognizing Kahn's commitment to a Plaza.

Significance, Survival, Vulnerabilities

The Plaza is of outstanding cultural significance as a great work of architecture that has also been seen as representing the mission of the Institute.

The Plaza survives remarkably intact, given its scale and age. Changes of detail have compromised the original design: the introduction of fiberglass linings has altered the nature of the reflecting pool; the replacement of the travertine margins have changed the character of the water channel, and replacement gratings do not match the originals.

The paving, with its subtle articulation by irrigation channels, is dependent on a sympathetic interpretation of code.

Sometime before December 1969, plants in terra cotta pots were introduced into the court, much to Kahn's dismay. They were arranged along the rill and on the parapet at the west end of the Plaza, Kahn found them pitifully small and their presence an intrusion. He was much relieved when they were removed.[65] If plants were to be introduced, Kahn felt that they should be much larger and his sketch sections illustrate such plants in the study porticos and the lower garden courts, but not the Plaza.

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[62] MacAllister interview, Wiseman, 128.
[63] Kahn to Salk, 19 December 1966; Louis I. Kahn Collection, University of Pennsylvania, Box P-26. File: "Salk – Garden."
[64] Louis I. Kahn Collection, University of Pennsylvania, 030.I.C.540.26, Masterplan_11-30-1966.
[65] Prown and Denavit, 114; Salk Institute Archives, contact sheets.

Views from the Plaza are of great importance. That to the east has been severely eroded by the reduction of the Eucalyptus Grove and the development of the East Building, as well as the buildings beyond by the University of Southern California. The view to the west is vulnerable to inappropriate development on either the north or south mesas. The canyon, which is owned by the city of San Diego, is largely protected and managed as a Multiple Habitat Planning Area (MPHA), which restricts land use and certain activities that may impact native habitat.

Policy 13
To recognize that the Plaza unites the North and South Buildings as an entity.

Policy 14
To ensure that “All working bench spaces and oak/rug spaces relate to Plaza.” (This is important for the extension of building.)

Policy 15
To maintain the Plaza as representative of the Salk Institution; a role which has taken on by default following the abandonment of the Meeting House.

Policy 16
To maintain the Plaza as one of the iconic spaces of the world.

Policy 17
To maintain the view out over the Pacific Ocean.

Policy 18
To mitigate the intrusion of the later buildings of both the Salk Institute and those of the USCSD on the views looking east.

Policy 19
To recover the original design of the water features and rills, thus ensuring that the tanks do not appear to be swimming pools.

Policy 20
To maintain the Plaza free of trees and plants in tubs.

Policy 21
To retain the articulation of the paving with changes of level, direction of paving pattern.


West Court. 1967.

Page 109: North East Entrance to Laboratory Complex, 2015.
Page 110: West Court with paving completed, 1967.

West Court (Lower Laboratory Plaza)

A route across the west side of the Laboratory Complex was important to join the three parts of the Institute and provide access across the head of the canyon. Early schemes achieved this with a street to the east of the west-facing administrative block, while later in the Second Design, the roof garden over the lower administrative building provided the same link. With the division of the offices into two separate wings, the Third Design joined the arcades beneath them with a court that also provides access up to the Plaza. The designs were developed in 1964, working drawings finalized the scheme in May 1966, and the work was implemented in 1967. The use of travertine paving reinforces the importance of the area and associates it with the Plaza.

Water discharges from the Plaza down to a basin on the east side of the court via a large gargoyle dedicated in an inscription to:

ELINOR VON OPEL

Sculptural travertine seats surround the basin and act as a parapet to the pool. Early photographs show the basin as dark and reflective. Its current appearance results from its replacement fiberglass lining installed at the same time as that in the reflecting pool in the Plaza. The mystery of the progress of water from the land to the ocean is removed by the current treatment of the pools. Sadly, the current appearance confirms that the water installation is artificial and circulating rather than natural.

On either side of the fountain, steps rise up to the Plaza; the handrails and gates were introduced in 1972 to meet code updates and improve security.

The West Court focuses on a sunken pit, an element characteristic of Kahn to encourage impromptu meetings and the like, comparable to the porticos within the Study Stairs. Its travertine border extends to form a seat along the west side, and steps lead down into it on the north and south sides. The “as built” drawings of 1965 show the pit and most of the West Court finished with soil and turf lawn, similar to the then-current proposals for finishing the Plaza. However, the scheme for paving the Plaza in 1967 also extended to the West Court, which was finished in travertine. An arrangement of amoebic-shaped objects within the pit found in one drawing recalls the sculptural seats by the basin and suggest the influence of Noguchi.[66]

[66] Louis I. Kahn Collection, University of Pennsylvania, LSD-3 23, July1965.

West Court, with paving and original planting, 1967.

West Court, 1969. Kahn objected to the introduction of pot plants in the Plaza and the West Court.

Two parallel concrete cisterns are sited below the sunken pit for rainwater harvesting in connection with the irrigation of the garden.

Easily accessible from the cafeteria that today occupies level 1 in the South Office Wing, the West Court is one of the most popular areas for people who work at the Salk. However, its use has resulted in the space being colonized by occasional tables and chairs. The over-provision of café furniture masks the differentiation between the court and the sunken pit, rendering the latter an inconvenience rather than exploiting its potential as a meeting place.

The present use has also largely hindered the pedestrian route that was intended across the court. In consequence, the temporary track intended only for the construction phase remains in place, running alongside the west edge of the court, where the planting of the natural bluff should extend up to the paved apron that projects so elegantly between the office wings.[67] In recent years, radiused access ramps have been formed at each end of the court, leading down to the track. The pedestrian route needs to be re-established across the court and a landscape scheme devised that maintains natural planting up to the edge of the paving, while still allowing emergency and disabled access.[68]

Large trees are specified at either side of the building front the office wings, with medium-sized trees in planting stations within the court and small shrubs in planters on the steps to the Plaza.[69] The grid of planting stations within the paving originally contained acacia trees, but each year, two or three of the trees failed because of the wind and had to be replaced. Jonas Salk had these plantings changed to shrubs on the basis that if they did not work, they should be replaced.[70]

Historical Development

The West Court is essentially an element of the Third Design and does not have precedent in the earlier schemes, when an administrative building was planned to extend across the west side of the whole site. Forming the West Court not only connected the Plaza on the upper level to views over the ocean, but integrated the court itself with the canyon rim to which it directly abutted.

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[67] The Salk property line runs close to west front of Laboratory Complex.
[68] Salk Institute Archives, construction photo, May 1977.
[69] LSD-9, 2 August 1967.
[70] Recollection by Garry Van Gerpen, 2015.

Significance, Survival, Vulnerabilities

The West Court is an integral part of the design of the Plaza, which it transformed by connecting it to the ocean. The significance of the juxtaposition of the man-made court to the rugged natural landscape, however, has been reduced by the development of a dirt track between the two elements.

The use of the space in association with the cafeteria makes the space one of the most popular at the Salk, but its success means that the intended route across the court is hindered and consequently encourages movement outside the boundary and across the canyon rim.

Opportunistic route separating the West Court from the Canyon rim, 2015.

Policy 22
To recover the route from the north to the south mesa, between the two arcades, without straying onto the bluff.

Policy 23
To reclaim the dirt path as wild planting on the bluff while maintain access for emergency vehicles.

Policy 24
To recover meaning for the sunken pit as a place for spontaneous encounters parallel to the study porticos.

Policy 25
To reinstate the grid of trees on either side of the steps.

Policy 26
To mitigate the impact of the cafeteria.

North and South Office Wings

> The building faces away from the laboratories towards the Pacific, providing a tranquil setting for concentration.[71]

The buildings across the west end of each laboratory are designed to provide five floors of offices above a basement housing ancillary space. As with the study towers, the upper floors of the office wings are taller than those below, with the fourth and fifth floors 9 feet 6 inches and 10 feet 9 inches high, while the second and third floors are 8 feet 1-5/8 inches. The ground floor was also tall, at 9 feet 8 inches, relating to the arcade and its use as a reception area. Levels 2 and 4 correlate with the middle and upper laboratories, but other floors are out of alignment with the interstitial floors in the laboratory building.

A service core backs both office wings, giving them a blind face to the laboratories that lie to the east; it is similar to the treatment of the cores of the Mechanical Wings. As part of the construction sequence, the cores were cast in advance of the offices and provide stability to the adjacent structures. They contain lobbies, an elevator, and a staircase, as well as rest rooms and services. Not only does the core reinforce the separation of the offices from the laboratories, it also physically separates the structures of the two very different buildings to its east and west.

The elevations, formed with a concrete structure infilled with teak and glass panels, associate the buildings with the world of the studies rather than the working laboratory. Transverse beams span the width of the office wings at close centers, running between the piers forming the pipe shaft on the east side and the canted fins at the west front of the building, thus allowing clear loft space on each floor. The west walls, however, are interrupted by a re-entrant bay that extends halfway back into the block, increasing flexibility in the future rearrangement of the space without loss of daylight.

Facing page: North and South Office Wings, west elevation, 1977.

In each wing, an open arcade runs through the west side of the ground level, overlooking the ravine. The entrances to the arcade are marked by travertine bridges, which cross concrete moats that collect rainwater from nearby chutes. Porticos on the floor above extend across half of the frontage of each wing.

[71] Bourgeois.

Each of the aboveground floors in the North Office Wing was described in 1965 as "office space (partitionable)."[72] Having the technical library on level 2 ensured easy access from the Plaza and the middle laboratory; while Dr. Salk's office on level 4 was adjacent to his personal area at the west end of the Upper Laboratory. The president's office was on the top floor. When first opened, the basement served as the mail room, reproduction facilities, and library stacks.

The original fit-out of the North Office Wing provided a distinguished set of offices, especially on the director's and president's floors at the head of the building. White oak, flush-paneled millwork partitions divided the areas in a sequence of generous spaces that was planned by Kahn's office. Reception and meeting rooms were connected via pocket doors to allow them to combine as larger spaces, while hinged doors gave access to offices and ancillary areas. Travertine paving laid between the canted walls on each of the upper floors denotes a quasi-external space adjacent to the windows that creates the feeling of a glazed veranda overlooking the ocean in each of the main rooms. Daylight was modulated by treating the window openings as glazed or solid millwork panels, and timber shutters ran within the room. The fit-out of the north office core was also carefully considered, with marble paving and glazed brick finishes, planned to relate to the layout of each space.

As envisaged by the architect, over the years the partitions have been rearranged and supplemented to suit the changing requirements of the Institute with its ever growing staff levels. However, the planning has not been as skillful as that laid out in 1966 and the spatial generosity and richness have been lost. The subdivision of Dr. Salk's offices has resulted in the creation of internal rooms dependent on borrowed light that would have been an anathema to Kahn, and on level 1, running a corridor adjacent to the window wall isolates the offices from the elevation. Even the travertine-paved "verandas" are devalued by the addition of built-in furniture and storage.

Growth has also affected the modest library. The bookcases were originally set only between the concrete piers on the east wall; those that project into the space were introduced in an ad hoc manner in the late 1960s onwards.

Executive offices, alteration of millwork partitioning, 2015.

[72] Recorded in the "As Built" drawings.

[*Photograph Redacted*]

Top: North Office Wing, fifth floor office, 2015
Bottom: North Office wing Library with later cases and replacement ceiling, 2015.

Facing page: Annual Meeting of Fellows, 1967.

The major change from the original intentions is that the North Office Wing does not serve as the main entrance to the Laboratory Complex. The Institute was designed to front Torrey Pines Scenic Drive and was to be approached by the diagonal walkway and the monumental flight of steps from the northwest. The fit-out plans prepared in 1966 show the spaces opening off the arcade as the reception office for the Laboratory Complex, and the same area is labeled "Entrance" in the as built drawings of 1965. With the permanent postponement of the Meeting House and the eventual development of the East Building, the entrance to the Laboratory Complex has never been resolved and the reception space has been converted to information technology offices. This has rendered Kahn's design incomprehensible, as the entrance that was planned in both the Second and Third Designs is no longer legible, and arrival in Kahn building is disconcerting.

Because of the lack of funds at the time of construction, the South Office Wing was left as a shell without services in 1965. However, the ground floor was in use as the cafeteria by 1967, with a counter placed against the east wall and globe lights between the exposed beams.[73] The cafeteria has subsequently been refitted with a freestanding counter. The offices on the upper floors were eventually fitted out in 1995 by Anshen + Allen (with Jack MacAllister and David Rinehart). The offices were finished to a reduced specification: vertical roller shades were installed in lieu of the horizontal sliding millwork shutters and windows were treated with applied reflective films to reduce solar gain. Partitions were formed in gypsum wallboard rather than millwork, and flush plywood doors were used in place of cabinetry. The use of standard door sets meant the introduction of infill panels to make-up the shortfall and achieve the dimensions required for Kahn's lobby door openings cast thirty years earlier. Within the office floors, poor planning has resulted in internal offices dependent on borrowed light. Similarly, the south office core is fitted out with cheaper finishes and fittings, standard lavatory partitions, sheetrock walls and ceilings, and vinyl flooring.

Historical Development

At first glance, the two separate office wings appear to be a departure from the earlier schemes. However, the concept of an administrative building fronting the Laboratory Complex and oriented toward the Pacific Ocean had been a constant throughout the Second Design. In the initial studies it was a three-story block running the full width of the site, concealing the laboratories to the east. However, the proposed building was subsequently reduced in height and the accommodation was placed below a roof garden. It was to have contained the administrative offices and seminar rooms, as well as a large library. Kahn provided a series of what promised to be memorable interiors: double-height spaces in the three-story versions, and rooms interspersed with large, inverted-bay windows once the building was reduced to a single story. When the idea of the single court was introduced in the Third Design, Kahn maintained the administrative accommodation on the west, but divided it into two separate blocks. One of the initial schemes placed all the offices in a

[73] Salk Institute Archives, contract 67243 -1.

larger north wing, while a smaller south wing celebrated a double-height library. However, as the scheme developed the North and South Wings were treated as two similar office blocks and the library occupied one standard floor of the North Office Wing, presumably, on the basis that the main library would eventually be accommodated in the Meeting House.

South Office Wing offices with 1990s fit-out, 2015.

Significance, Survival, Vulnerabilities

The Office Wings are a primary element within the Laboratory Complex and were also important to Kahn’s strategy for the whole of the site, providing the principal entrance to the Laboratories and linking together the three elements of the intended Institute. Their facades are prominent in views from the west.

The elevations, materials, and the relationship of the building to the setting, with the spaces looking out to the Pacific Ocean, associate the wings with the study towers as places for thought and contemplation—distanced from the world of the laboratory, yet still connected to the research.

The exterior of the office wings is largely intact, but the staining of the teak is clearly apparent. Solar film disfigures the fenestration of the South Office Wing. The arcades remain unaltered, but changes in their use have diminished their significance: The north arcade no longer has any relationship with the interior and the cafeteria has colonized the south; the result is that the route linking the north and south mesas has largely moved to the west via an ad hoc track that stops the natural landscape from extending to the very edge of the West Court.

The significance of the interior of the North Office Wing is enhanced by its association with Jonas Salk and other outstanding scientists. However, this has been eroded by alterations: the millwork partitioning has been rearranged and the executive offices no longer have the generosity that was found in Kahn’s layout for Dr. Salk; a blind panel within the fenestration in the office occupied by Francis Crick was opened as a window on his instructions, as he wanted an even wider view of the Pacific, but it is intrusive on Kahn’s design.

The interior of the South Office Wing has little of significance because of the poor planning and reduced level of finishes employed when it was completed thirty years after the North Wing.

The abandonment of the northwest entrance to the Laboratory Complex presents a major difficulty in understanding the way the building should be approached.

The cafeteria is now too small for the Institute. Its design is not significant and it has been refitted in recent years.

The offices are vulnerable from the increasing staff levels that have resulted in subdivision of spaces and internal rooms.

Policy 27
To recover the significance of the Northwest Entrance.

Policy 28
To maintain the north-south route through the arcades linking the North and south mesas.

Policy 29
To give the arcades meaning by having associated activities within the building.

Policy 30
To retain the porticos as open spaces that complement the internal use.

Policy 31
To retain the re-entrant bay.

Policy 32
To respect the original fenestration as planned by Kahn with glazing, screens, shutters, and blind apertures, and restore it where changed.

Policy 33
To avoid treating the arcades as a repository for inappropriate items and the like.

Policy 34
To recognize that each floor was planned as “office space (partitionable).” The original allocation to executive offices, library and cafeteria was circumstantial. Should other uses be introduced, any scheme should be carefully planned in line with the principles set up by Kahn.

Policy 35
To plan any partitioning to coordinate with the structure and the external form of the building as envisaged by Kahn.

Policy 36
To optimize daylight to the office spaces throughout the building as planned originally.

Policy 37
To respect the travertine-paved internal “balcony” between the fins within the west elevation.

Policy 38
To utilize the details for the outfitting of the building as drawn by Kahn’s office, restoring the North Offices and refitting the South Offices as the opportunity arises.

Policy 39
To restore the original configuration of the executive suites with white oak millwork partitions and generous spaces as the significant suites of rooms associated with the founders of the Institute.

Laboratories

The laboratories may be characterized as the architecture of air cleanliness and area adjustability.[74]

The Laboratories for the Biological explorations should be designed to give space and services to any of the natural and physical sciences. The enclosed spaces must be free of columns in order to make possible complete flexibility of physical and mechanical layout. The air must be dust free and of the temperature and humidity as required for each scientist. Offices and studies should be provided close to the laboratories . . . The proposals for the expansion should regard the need for those spaces to be close to common facilities of all laboratories. Allowance for expansion should be 50% of the immediate requirement of laboratory space. The main beams which span the laboratory spaces give position to the entrance porticos on one end and the exhaust towers on the other.

The beams are separated to allow space for all exhaust ducts leading to the outside. Below this space service alleys are formed for all fume hoods, autoclaves, refrigerators and large pieces of equipment, keeping the laboratory space free from any obstruction, facilitating complete cleaning.

Main avenues of services run perpendicular to the service alleys and relate back to the service entrances and mechanical equipment room.

The members which span between the main beams admit natural light from above, incorporate the artificial lighting and act as exhaust plenums from the laboratories to the main exhaust space which results in excellent insulation of the laboratory space.[75]

Facing page: North Laboratories and service towers, 2015.

[74] Louis I. Kahn, from Ronner et al., 164–165.
[75] *Abstract of Program*, Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.2716.


North Building, lower level laboratories looking onto the Lower Garden Courts, 2015.

The research space at the Salk is accommodated at the center of the North and South Buildings. It is organized as six laboratories, each 65 feet wide and 245 feet long with an 11-foot-tall ceiling—one laboratory on each of the three floors of the two buildings. Above each laboratory is a dedicated “pipe space” that is 9 feet high, giving an overall height of 20 feet 0 inches for a laboratory unit. The laboratory blocks are treated almost as separate buildings, structurally and aesthetically independent of the administrative, study, and service towers that surround them.

The exteriors of the laboratories themselves are fully glazed with stainless-steel-framed windows that extend from floor to ceiling. The storefronts incorporate doors at the center of each 20 foot bay, but alterations have occurred to accommodate the changing program within laboratories. The choice of the stainless steel not only facilitates rearrangement of openings as needs arise, but also reinforces the differentiation of the laboratories from the studies and administrative buildings where windows are of teak: the contrast between “the workbench” and “the oak table and rug” that Kahn wished to stress. The application of film to some windows, and the fact that others windows are obscured by shelving, has reduced the original transparency that gave views through the laboratories and allowed researchers to relate to the surrounding world.

The transparent laboratory elevations contrast with the concrete elevations of the interstitial pipe floors, which are blind except for occasional, narrow, blank openings that give some daylight to the enclosed walkway surrounding the pipe space. The openings were infilled with stainless steel mesh in 1995; the effect is intrusive.

External walkways on each floor are expressed as balconies outside the laboratories and are enclosed at the level of the pipe spaces. Those on the service levels have tended to become storage space for relegated equipment.

Kahn’s brief was to give the maximum flexibility to accommodate changing technical and scientific needs and was developed beyond that seen in the Richards Medical Laboratories, which Salk had visited with Kahn in 1959.

[*Photograph Redacted*]

To gain a completely uninterrupted floor plate, each laboratory is spanned by Vierendeel trusses supported by concrete columns arranged along the north and south elevations at 20 foot centers. The Vierendeel trusses also facilitated the creation of the 9 foot high service floor above each laboratory. These pipe spaces are served by the mechanical wing at the east end of the building, and major supplies and exhausts were originally designed to enter at the center of each pipe space in line with the largest openings through the Vierendeel trusses. At 20 foot intervals, branch ducts carried hot and cold air to the sides of the labs to blending boxes.

With the openings in the trusses, all supporting ducts and pipework could be run through the pipe floor. The height allowed the development of services that could be readily modified to suit the needs of the occupants of particular sections of the floor below while minimizing disturbance to neighboring areas of the laboratory. To achieve a high level of flexibility in servicing, stainless steel framed slots, 10 feet 0 inches long, were cast into the ceiling of the laboratory at 5 foot 0 inch centers, providing access within 2 feet 6 inches of any point. The service slots especially appealed to Kahn, and, although Edison Price, the lighting designer, recommended that his fluorescent light fittings run parallel with the service slots, Kahn overruled him as he felt that the cross-grain on the ceiling would give structure to the space. The flexibility that the pipe space allowed in the running of services eliminated the need to concentrate equipment and fume cupboards in specific areas within the laboratory.


North Laboratory building, circulation adjacent to pipe floor, 2015.

Kahn’s passion for daylight and relating internal space to the world outside played an important role in the design of the laboratories. Windows on the long sides gave views out to the studies and Plaza beyond, or to the lawns that fronted the external elevations. Where laboratories were belowground, a series of integrated sunken gardens, rather than light wells, brought light and external space down into the lower level facilities.

Earl Walls Associates, Laboratory Design Consultants, prepared drawings for the layout of the laboratories in the North Building between June and December 1965, and the laboratories were occupied in 1966. Basic laboratories, relating to the 20 foot structural bay, were placed along each of the north and south window walls, while stores for equipment, cold rooms, warm rooms, and the like extended in a 20 foot wide band through the center of the plan. A series of dry labs ran across the end elevations. The center of the block was marked by a band of service areas across the building containing glass preparation and cleaning, histology and processing, and the lab library/seminar room. This pattern was repeated on each floor, despite the structural and servicing flexibility offered by Kahn’s scheme.

The South Building laboratories, however, were an empty shell without any finishes or services. Because work had also stopped on the south administrative building, and construction of the Meeting House had been postponed, the South Laboratories were adapted to meet some of their functions. The upper floor was in use as a recreation area by 1969; the middle floor was given over to offices around the perimeter and two prefabricated seminar rooms that acted as a temporary conference center; and the lower level was used as storage. Fit-out of the South Building as laboratories did not follow until these facilities vacated the space and moved to new accommodation in the East Building in 1996.

Historical Development

Flexible laboratory space that could be readily tailored to the needs of particular research programs was fundamental to Dr. Salk's vision for the Institute, with the intent of its future adaptation causing the least disruption to scientists working in adjacent spaces. Individual research space was to be 4,000 to 8,000 square feet.

Jonas Salk had sought about 100,000 square feet total area of lab space, and saw that the Richards Medical Laboratories had provided this area when he visited them with Kahn in 1959. In the Second Design Phase, the provision of four laboratory blocks of two stories had resulted in eight laboratories covering a total area of about 128,000 square feet. With the reduction to six laboratories, the Third Design provided a total of 96,000 square feet. Throughout the development stages, the scale of the individual laboratories remained reasonably constant at around 16,000 square feet.

Kahn's refinements to the structure with August Komendant had progressively increased the flexibility of the laboratories by reducing the number of columns within the space and by giving both levels of laboratories equality in terms of height and the limitations imposed by the structure. In the Second Design Phase, internal columns had been removed from within the upper level laboratories by the time of the main presentation to Salk in January 1962, but on the lower level, although the number of columns had decreased, a central row still remained to support the loads of the floor above. Salk's confirmation of his requirement for clear space in order not to limit flexibility brought about a totally new approach to the structure in the Third Design. With the introduction of Vierendeel trusses spanning between columns at 20 foot centers on the north and south walls, it was feasible for the 65-foot-wide laboratory space to be covered without any intermediary supports on any of the floors.

In parallel, the development of the structure was also integral to the way services were distributed in the building. The Second Design had been based on a system of deep transverse girders, spanning between the staircase and exhaust towers that stood outside the long elevations. The girders supported folded plate structures running at right angles to them, and through these structures air had been distributed to the laboratories. The system was developed for both floors, but on the upper floor, skylights separated the folded plates and allowed daylight into the space. The result would have been much richer than the flat ceilings of the Third Design, with the space rising up between the folded ceiling planes to a height of over 15 feet. However, although access to change the services within the girders was possible in the Second Design, it had nowhere near the ease and flexibility that was possible with the later Vierendeel truss solution.

The Vierendeel trusses also facilitated the creation of a 9-foot-high service floor above each laboratory. These floors were served by the mechanical wing at the east end of the building, and major supplies and exhausts were designed to enter at the center of each pipe space, in line with the largest openings through the Vierendeel trusses. This was a significant change from the previous arrangement, where air intake had been from towers arranged as sentinels along the west elevation and exhausted through further towers on the side elevations, having been distributed through a basement story dedicated to services.

Temporary Laboratory, 1966.

Kahn’s passion for daylight and relating internal space to the world outside played an important role in the design of the laboratories. Windows gave the opportunity of views out to the studies and Plaza beyond, or to the lawns that fronted the external elevations. Where laboratories were belowground, a series of sunken gardens was formed to bring light down into the lower level facilities. Sketch drawings illustrating the views available through this approach were made during the early stages of the Second Design and the idea was carried through to the Third. What did get lost in the Third Design were the roof lights that would have occurred between the folded plate structure on the upper floor of the earlier scheme, but were denied by the pipe floors. The Third Design, with the laboratories at a uniform height of 11 feet 0 inches, was probably not as architecturally exciting as earlier, where the space rose between the V-shaped beams to a height of about 15 feet 0 inches; however, it did work very much better and the overall height between the laboratory floors of 20 feet 0 inches was not much more than that in the Second Design, which had very much less flexibility.

Both laboratory buildings were constructed in parallel, but with the contractor working on the north building slightly ahead of the south. However, with escalating costs, much of the fitting out had been omitted, and by the end of May 1965, Fuller was reporting that the works had to be stopped if the target cost of $15 million was not to be exceeded; that figure was arrived at in July 1965 and construction work halted. The North Laboratories were complete, but still needed outfitting. This process progressed over the next year, and in the summer of 1966 the Institute moved into the North Laboratories from the temporary barracks. It was not until 1995 that level 3 south was able to be completed for its intended purpose, when administration vacated the temporary offices that had occupied the floor for thirty years and moved to the East Building and the South Office Wing.

The fitting out of the laboratories was by laboratory consultant Earl Walls, who had also advised at the Richards Laboratories. However, it was developed very much in collaboration with Kahn, who designed the laboratory benches. The “Salk Grey” color of the laboratory furniture was selected by Jonas Salk.[76]

In the Second Design, each lab was divided by Walls into four masses. These sections were separated by 10 foot service zones “. . . reserved for the positioning of all [fume] hoods and other large pieces of equipment”

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[76] Garry Van Gerpen, 2015.

Top: Typical Laboratory, 2015.
Bottom: Intrusive introduction of shelving across the windows, 2015.

and aligned with the studies and service towers.[77] By corralling large, service-intensive equipment into dedicated high air-volume zones, the lab spaces could be reserved for benches, adding a programmatic rigor to the working environment.[78]

For the Third Design, Earl Walls adopted a racetrack model with core services concentrated in the center of the floor plate. Bench space was placed at the perimeter, adjacent to daylight, with service corridor and fume hoods located between the two zones. The layout does not fully exploit the potential flexibility of the plan and services strategy provided by the Vierendeel trusses and the ceiling slots, and none of the space was fully opened up.

A letter from the Salk to MacAllister set out the initial outfitting required in the North Building, and stressed the importance of close coordination between the laboratory consultant and the architect.[79] Earl Walls, therefore, provided the layouts of the laboratories to suit the required assignment of space and the research needs of particular fellows: Dr. Salk would occupy half of the upper level, about 8,000 square feet, while the other half of this floor was divided between Dr. Orgel and an additional fellow. The middle and lower levels were divided equally between two fellows per floor, with Drs. Benzer, Dulbecco, Lennox, and Cohn each being given 8,000 square feet.[80]

Significance, Survival, Vulnerabilities

The laboratories are significant as a model of a highly flexible laboratory and represent the development of a building type.

Lack of barriers or walls between labs is highly important, so that one principal investigator's scientific community adjoins another, encouraging a flow of ideas and processes.[81]

The structure of the laboratories remains in place, but successive fit-outs have replaced nearly all of the laboratory benches and desks. The lighting was renewed in 2012 with highly efficient fittings, but maintains the layering of the ceiling grids intended by Kahn.

The main change over time has been the increase in occupation of the laboratories, which has resulted in more intensive, use with several researchers occupying the space previously allocated to one. Increasing the

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[77] *Abstract of Program,* Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.2716.
[78] Leslie, 141.
[79] Salk Institute Archives, 28 July 1964,
[80] Salk Institute Archives, SG391
[81] Salk Meeting re: Getty CMP, 12 April 2016. Tom Albright.

density of the laboratory outfitting is in line with the flexibility in layout and servicing for which the building was designed, but it has also caused storage and bench space to extend across the windows, eroding the connection with the outside environment that was so important to Kahn and his client. Similarly, re-siting doors within the storefronts to suit the requirements of a specific research program has affected the modulation of the elevation and is considered intrusive.

Policy 40
To maintain the contrast between the “laboratory bench” and the oak and rug elements of the Laboratory Complex.

Policy 41
To maintain the served and servant spaces as intended by Louis Kahn and Jonas Salk.

Policy 42
To maintain the flexibility of both planning and servicing as Jonas Salk’s brief.

Policy 43
To facilitate the division and rearrangement of laboratories to suit the research programs of individual fellows.

Policy 44
To ensure the ease of refitting the services to the laboratories from within the pipe floor as intended.

Policy 45
To keep the pipe floor efficient as a place for the distribution of services from the Mechanical Wings.

Policy 46
To clear the pipe floor of supplementary storage.

Policy 47
To keep windows clear so that the laboratories are humanistic places related to the surrounding world.

Policy 48
To avoid aggregative long-term change to the laboratory space, by reversing temporary change when laboratories are vacated (e.g., repositioning doors in the window walls centrally in a bay after temporary adjustments).

Policy 49
To maintain the two ceiling grids of lighting and service access that Kahn saw as giving a structure to the space.

Policy 50
To preserve surviving laboratory furniture.

Policy 51
To recover the connection with the exterior and the changing environment outside the building.

Study Towers

The architecture of the oak table and the rug is that of the studies.[82]

Design Program for Studies

The studies are intended to be used as private rooms for contemplation and work, free from distraction from outside activities. The atmosphere of the study is to be created by the occupant himself. The possibility should be provided for both the individual who likes light a view, as well as one who wishes to be shut in.

Study relationships to each other and to the laboratory building shall be as isolated as possible both with regard to traffic and proximity. Direct connection to the laboratory building is not essential. View the garden area from the laboratory corridor shall be as open as possible.

The studies were conceived originally as located above a colonnade and have been thought of from time-to-time as a necklace adorning the outside of the buildings and also the periphery of the garden.

Four study rooms shall be provided for each 50’ laboratory division . . . .

Wood paneled with sufficient free wall space for decorating or for additional book storage or cupboard space as desired by individual occupants.[83]

The possibility should be provided for both the photophilic and the photophobic individual, and for one who needs a vista as well as one who does not.

Study rooms shall not be in direct contact horizontally or vertically.

These studies are not to be used as laboratory offices and will, therefore, require such offices and secretary space be provided in the lab area.[84]

Facing page: South Study Towers.

Requirements for Studies, August 1962

Writing of technical papers requiring free writing and/or dictating. Table top space no less than 2.5’ x 5’, reference work top no less than 2.5’ x 10’, book storage space for at least 100 volumes, 96

[82] Louis I. Kahn, from Ronner et al., *Louis I. Kahn: Complete Works 1935–1974*, 164–165.
[83] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A108
[84] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.27.15


North Study Towers.

lineal inches of letter-size file, 2 or 3 chairs, sofa large enough for reclining, chalkboard space no less than 3.5’ x 8’, light control, toilet facilities, provisions for storage of outer-clothing, 12’ of shelving for general storage, individually controlled ventilation and temperature control, wood paneled with sufficient wall space for decorating, or for additional book storage or cupboard space as desired by individual occupants, frequent electrical convenience outlets in walls, half to be controlled by wall switch, conduit provisions should be allow for a five-button telephone. Consideration should be given to the use of Walker duct or similar system for supplying telephone and power outlets to desks or tables away from the walls.[85]

Revised Requirements for Studies, October 1962

. . . book storage space 100 volumes (1’ wide 7½ books), chalkboard 3.5’ x 6’, light control by shutters, toilet – commode and lavatory, storage of outer-clothing 3’8” x 2’, 13’ high shelves adjustable, lower study front 180, lower study back 90, upper study front 210, upper study back 105, individually controlled ventilation and temperature control will be provided by shutter, insect screen, glass, wood paneled with sufficient wall space for decorating, or for additional book storage or cupboard space as desired by individual occupants, Lower FRONT STUDY 192 SQ FT, Lower Rear Study 216 sq ft, Upper front study 246 sq ft, Upper Rear Study 277 sq ft, frequent electrical convenience outlets in walls, half to be controlled by wall switch, conduit provisions should be allow for a five-button telephone. Consideration should be given to the use of Walker duct or similar system for supplying telephone and power outlets to desks or tables away from the walls.[86]

Scheme

An essential part of Salk’s vision for his Institute, the studies provided a retreat for the fellows where they might think away from the laboratory bench. They were also a key part of the Laboratory Complex for the architect, and this is confirmed by the number of drawings and sketches for the studies in Kahn’s own hand, particularly in the Third Design when he was concerned with both the detail of the elevations and the plan.

The study towers form one coherent group and comprise the studies, their stairs, the porticos, and the cloister. The articulation of the study towers as free-standing elements in front of the laboratory space symbolizes their independence from the work in the laboratory. Raising the studies above the level of the courts in which they sat not only supported the idea of a rarefied retreat, but also allowed the Plaza to run beneath them as shaded places for contemplation and encounter. Both ideas appear in the earliest schemes, and the individual

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[85] “Design Program for Studies,” received by Louis Kahn, 9 August 1962.
[86] “Revised requirements for studies, October 1962.”

unit of a study with a closet and a lavatory is a constant throughout the development of the Salk. The study stairs were treated as if sculptures and it appears that the omission of their central walls in July 1963 was influenced by both aesthetics and cost.

The North Studies were completed in 1965 and must be considered amongst the best spaces within the Laboratory Complex. The height of the lower studies was constrained by the need of the portico floor above to align with that of the upper laboratory, while the lift overrun resulted in the taller story that contained the upper studies.

The interiors are mainly in accordance with Kahn's drawings: thoughtfully designed lavatories, ventilation louvers fitted with insect mesh set in metal frames, sliding millwork pocket shutters, and space articulated by its floor finishes, with slate in the bathroom and hall, and timber in the study. However, cost reductions meant that the internal millwork was implemented in white oak rather than teak as planned. Air cooling ducts were integrated with the built-in bookcases. Artificial lighting in the studies was all at low level and no fittings were mounted on the ceiling. The handrails on the staircase landings were increased in height in 1972 to meet revised building codes.

As part of the South Building, the studies on the south side of the court were left unfinished as a result of the cost cutting exercises in 1965. Their interiors were without finishes or services, and outside the built-in millwork shutters were omitted, apart from their tracks, and flush plywood entrance doors were installed. Over the decade since 1988, the south studies have been gradually completed by the Salk's own construction team. The work has maintained Kahn's layout, but materials have been substituted, with bathrooms to a reduced specification, and engineered flooring, half-round baseboards, gypsum wall board on the window wall, and white oak trim. Often this has been in response to the wishes of the current occupant and the studies have lost their consistency.

Historical Development Reputedly, Kahn and Salk originally imagined the studies as rustic beach houses without light or services, but by the time of the Third Design, the *Requirements for Studies* in August and October 1962 describe fully serviced space.[87]

The development of the design was primarily concerned with how the studies clustered and what additional ancillary accommodation was necessary. In all of the proposals the studies are raised above an arcade, a memory of the traditional cloister of collegiate life. For both Kahn and Salk, places where casual encounters and an exchange of ideas might occur were a necessity; even duct access panels were formed in slate to provide blackboards in the porticos for instantaneous jottings. Such spaces appear in many of Kahn's projects,

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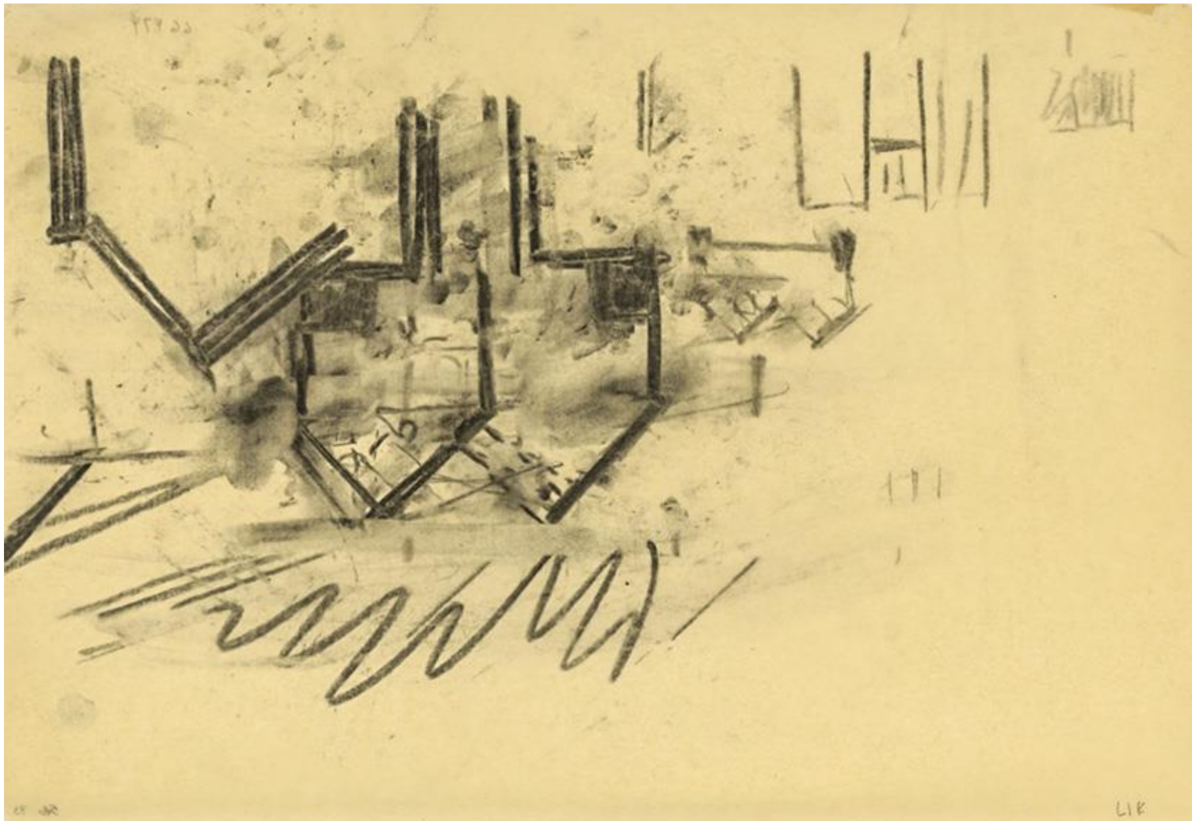
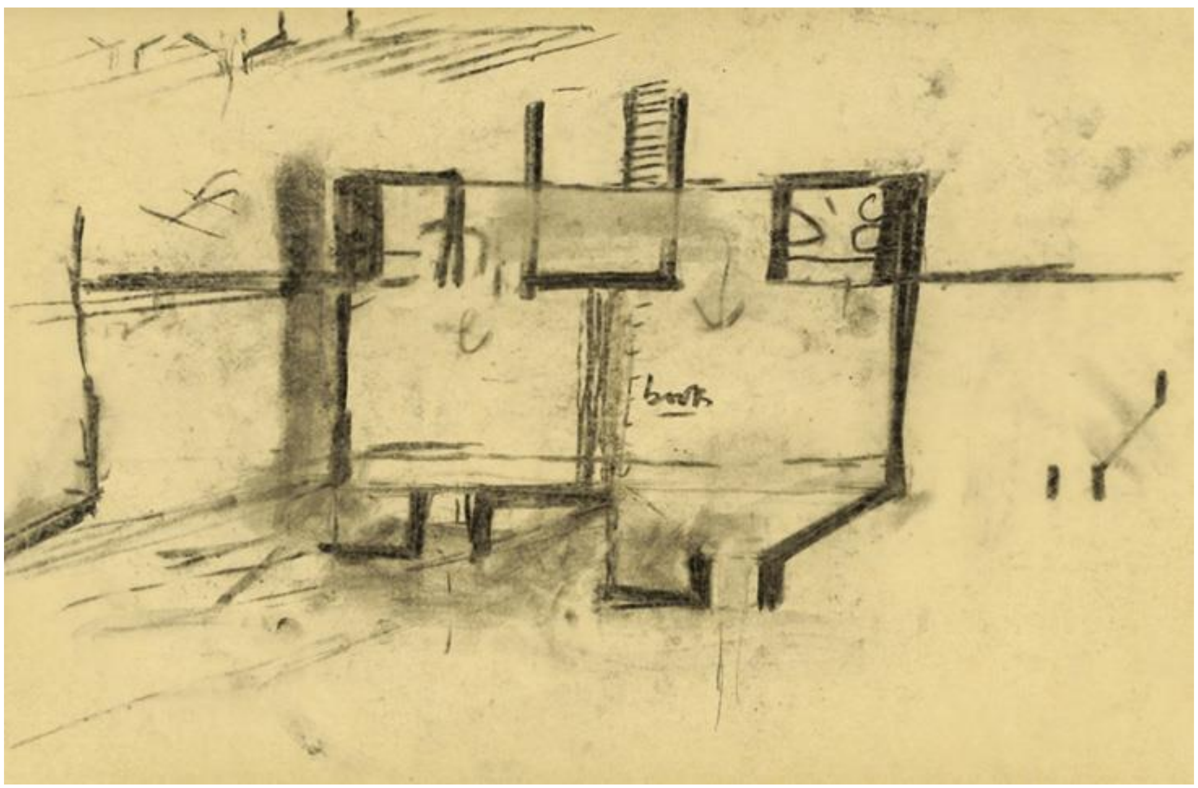
[87] *Progressive Architecture*, October 1993.

including the cloisters at Ahmedabad and the landings at Bryn Mawr. At the Salk, in addition to the cloisters, the initial schemes associated pairs of studies with a shared balcony, or meeting place, sometimes defined by curved walls and unroofed; this plan resulted in an uninterrupted line of accommodation at a high level along the sides of the courts, accessed by a staircase that separated it from the laboratories and underlined its romantic nature as an ivory tower. In the major presentation in January 1961, this approach was developed with an alternative in which two meeting rooms bridged the center of the court, linking two of the five study groups on either side, but the idea was not taken further; presumably it was felt to be making the studies into work areas rather than a retreat, and the effect on the garden below was to subdivide it too much into a series of individual spaces. What does gradually appear is the separation into pairs of studies, to allow the court to extend back between them to the elevation of the laboratories.

The Third Design continued the use of paired studies, but arranged them arranged on two floors in order to accommodate them within the single court that Dr. Salk required. The first proposals achieved this by placing the two floors together, one immediately above the other. Below this Kahn retained a cloister, but its height was reduced to 10 feet. The lower studies were, therefore, at a mezzanine level above the court, while those above aligned with the floor of the upper laboratories. As built, an additional open floor was introduced to provide porticos between the two study floors, displacing the upper studies vertically by 10 feet. Both study floors were thus placed on mezzanine levels, while the porticos provided meeting places immediately outside the upper laboratories. All levels were connected by the study stairs, and an elevator was incorporated adjacent to the central staircases as part of the original construction.

Kahn’s drawings also show a progressive development of the relationship of the studies to the Pacific Ocean. The situation had changed radically with the widening of the court in the Third Design, and in consequence, his sketches explore the use of orthogonally and diagonally organized plans as well as the development of the bay canted towards the view. What is more, the study on the east of each pair is eventually given a larger bay to ensure that its view of the ocean is not obscured by its neighbor.





Louis I. Kahn: Third Design, alternative arrangements for directing study windows toward the Ocean. Undated, circa 1962.

North Study Towers, furnished study with millwork.

The use of stone ashlar with a concrete structure, together with teak windows and millwork, reinforced the separation of the studies from the concrete and steel of the laboratories in both the Second Design and the earliest proposals for the Third. It also associated them with the administrative areas of the laboratory complex, and, more importantly, with the Meeting House where stone was to be used extensively. However, concrete replaced stone in the final scheme.

Significance, Survival, Vulnerabilities

The sculptural quality of the two levels of paired studies, separated by the open portico floor and approached by the open stair, as freestanding towers in front of the laboratories is highly significant in the overall design of the design of the Plaza, and the inflection of the windows contributes to the relationship of the building with the Pacific Ocean

The interiors of the north studies are important because they are among the few surviving interiors at the Salk designed by Kahn and for the consistency of their detailing.

Completion of the south studies to a reduced specification has compromised their significance in relation to those on the north.

Facing page: Study porticos.

Policy 52
To recognize that the studies encompass the study stair and porticos as one entity.

Policy 53
To ensure that the studies remain an independent retreat from the laboratories.

Policy 54
To maintain the relationship of the studies with the view of the Pacific Ocean and their privacy from each other.

Policy 55
To maintain places for casual encounters: the stairs, the porticos, and the cloister.

Policy 56
To respect the cloister and the open porticos and not enclose them in any way.

Policy 57
To maintain the North Studies as important interiors by Kahn, conserving the original fabric and fittings and restoring them where details have been changed.

Policy 58
To complete the South Studies according to Kahn’s known details, following the original specification and drawings for the North Studies.

North and South Service Towers and Retaining Walls

Rather than abandoning the redundant exhaust towers from the Second Design, Kahn retained their form to give shape to the north and south elevations, marking the subordinate entrances at the same time as accommodating access stairs, bathrooms and stores. To ensure that the fortified quality was not disturbed, openings were kept to a minimum, with windows on the stair as narrow slot and the gateway on the external face treated as a recessive blank opening protected only by pivoted iron grills.

In the North Service Towers, bathrooms and service areas are lined with buff glazed bricks as in the office cores. The staircases are in concrete with painted steel balustrades. The height did not have to be raised for safety, in contrast to the study studies, but stainless steel braces were needed at the landings to secure the balustrades and are a later introduction.

North Service Towers, 1966.

The iron gates are original, but emergency call points have been introduced in recent work.

With the concrete retaining walls that run between them, the towers also defined the lower gardens that provided casual meeting places and brought daylight down to the lower level laboratories. Stepping the retaining wall and incorporating a large scale planter also ensured that these basement light wells related to the North and South Lawns that lie beyond, at a story above. From the lawns, the towers, as well as the parapet at the head of the retaining wall, give the laboratories the appearance of having a fortified elevation, with the laboratories set beyond a dry moat.

As part of the South Building, the South Service Towers were not fitted out until the 1990s. Bathrooms are, therefore, to a much reduced specification with plastered walls, sheet vinyl flooring and utilitarian sanitary fittings.

Historical Development

The service towers originate with the design of the mechanical systems for the Second Design. Air was to be introduced through tall air input towers arranged along the west front of the building facing the ocean and, no doubt, celebrating the fresh air being brought in from over the sea. The towers were expressed as freestanding sculptural items in the center of the major inverted bays of the building that was proposed for the whole of the west front. Air was to be extracted through exhaust towers on the service side of each laboratory, i.e., away from the garden courts. Where pairs of extract towers met in the narrow central service court, they virtually closed off and subdivided the space into four individual square courts.

With the rethinking of the servicing of the building made possible by the use of the Vierendeel trusses and the creation of the pipe space over each laboratory, the strategy changed and air input and exhaust were from the Mechanical Wings at the east end of the building, which connected directly to the pipe space. In addition, the support of the Vierendeel trusses along the side elevations meant that the exhaust towers were no longer required as part of the structure of the laboratories in the Third Design.

Significance, Survival, Vulnerabilities

The towers and retaining walls are significant as they define the extent of the laboratory complex, and they locate the subordinate entrances to the Laboratory Complex. The also reflect Kahn’s interest in medieval castles and fortified sites.

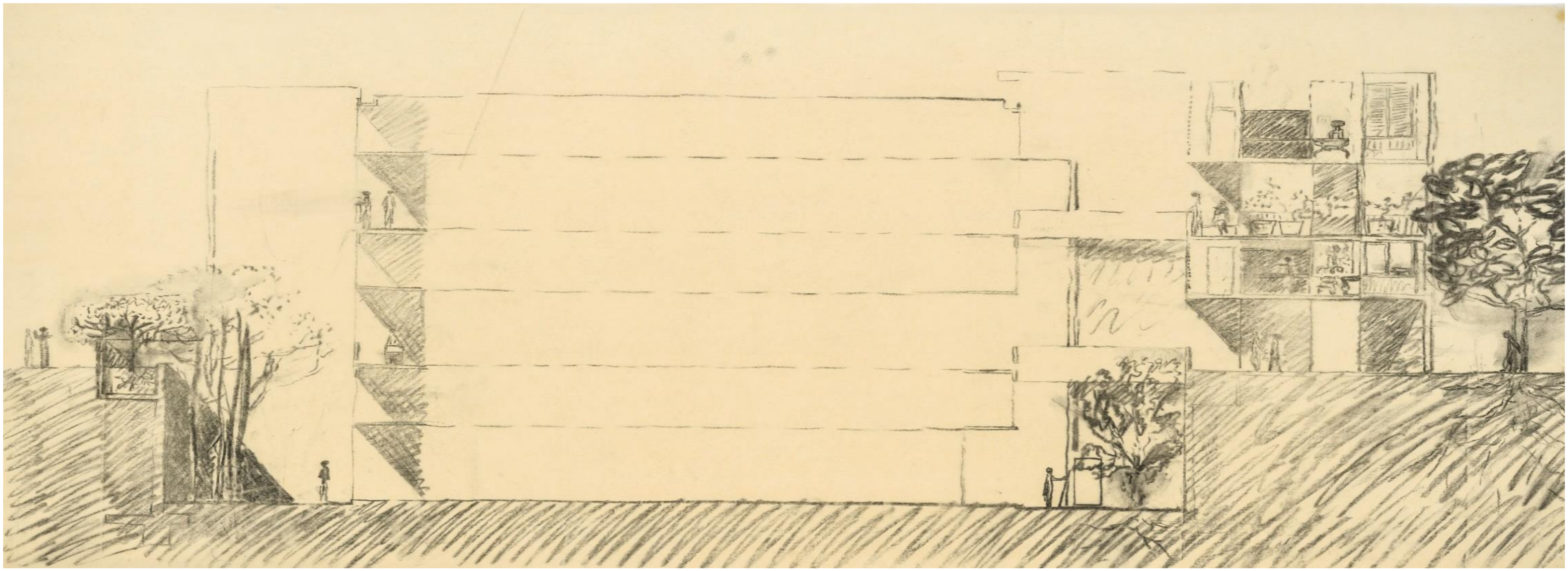
Policy 59
To maintain the Service Towers as an important element in the modelling of the north and south elevations.

Policy 60
To continue the Service Towers as the focus of access on the North and South elevations, as well as accommodating ancillary service spaces.

Policy 61
To respect that the service towers and the retaining walls define the lower gardens (see also lower gardens) and that the blind retaining wall with its stepped planter is instrumental in uniting the lower level laboratories with the daylight above.

Policy 62
To maintain the towers and retaining wall parapets as free-standing fortifications to the Laboratory Complex beyond, which demarcate the edge of the developed site.

Facing page: North Building, Lower Garden Courts, 1967.



Lower Garden Courts

The lower gardens were one of the most popular meeting places within the complex.[88]

The basement light wells on either side of the lower laboratories were designed by Kahn to serve the research areas that are belowground. They are remarkably successful in bringing light and external views down to what is in fact a full basement story because of their scale and the way Kahn involves spaces that lie beyond: the Plaza, the North and South Gardens, and the adjacent lower garden courts; to this is added the sky. What is achieved is that the experience of being within a basement is completely dispelled, both from within the external lower courts and from within the interior of the lower level laboratories.

The garden courts on the Plaza side are defined between the open study towers; those on the external sides are between the enclosed service towers. While the openness of the stairs allows a feeling of continuity through the Lower Garden Courts adjacent to the Plaza, the solidity of the concrete service towers contain the gardens on the outer sides as a series of individual spaces. However, the latter are opened up to the sky through stepping the retaining wall with a planter. Although similar in plan, the lower courts on either side of the laboratories are, therefore, very different spatially.

Historical Development

The use of open light wells appears in Kahn's designs for the Second Design, following the proposal to excavate laboratory space in order to keep the building as low as possible to meet coastal height restrictions—first with partial excavation when the main study courts were planned to be stepped, and then fully excavated when the study courts were set at grade. The proposals for the lower gardens were carried through to the Third Design; the reduction to a laboratory building on either side of one central court meant that the gardens between the service towers were all on the outside of the laboratory complex and benefitted from the presence of the North and South Gardens beyond.

The hard landscaping of the garden areas for the North Building was completed in parallel with the works to the Plaza and is included in the same working drawings dated June 1967. Early schemes show them planted with soft landscaping beyond the concrete walkway that runs immediately outside the elevation of the laboratories. Plans for trees formally planted within the gardens would have resulted in considerable shade and loss of light to the working areas within the building.

Facing page: Louis I. Kahn: Third Design, sketch to demonstrate planting within Lower Garden Courts, Plaza, and Study porticos, undated, circa 1963.

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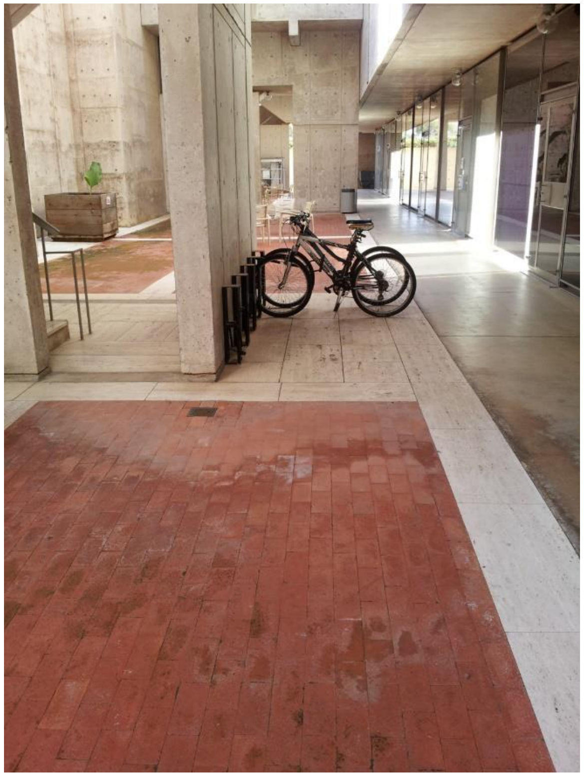
[88] Bourgeois.



Lower Garden Courts, 2015.

Halprin's Master Plan of 1966 show fountains and trees decorating the lower garden courts, but the realized proposals prepared by Kahn show hard landscaping replacing the soft completely and the trees and fountains re omitted.[89] The gardens, however, were articulated by the use of different paving. The walkway adjacent to the laboratory elevation was concrete, denoting that it was part of the laboratory block, but, beyond, red brick paving set within travertine margins represented the garden areas and brought color to the lower level; the use of travertine for the margins related the area to the Plaza, while the brick pavers matched those used for the external paths through the North Garden. Open joints in the paving of the lower gardens allowed drainage for any tubs in a strip four courses wide adjacent to the external retaining wall. Permanent planting, however, was intended in the stepped planter incorporated into the concrete retaining wall that enclosed the external sides of the gardens.

Significance, Survival, Vulnerabilities

The lower garden courts are a very significant element of Kahn's design and a model of how to treat belowground spaces while respecting the importance of natural light and the relationship of working spaces to the surrounding world.

The spaces remain generally as intended by Kahn, but repairs are required to the brick paving and drainage.

Bicycles and furniture are welcome evidence of activities in the courts, but cheap plastic chairs and tables are intrusive. The barbecues present a fire risk.

Policy 63
To recognize that the gardens are significant in raising the quality of the belowground laboratories and to maintain them to allow daylight to the workspace as well as views out from it.

Policy 64
To maintain the difference in the spatial arrangement between the courts below the Plaza and those below the North and South Lawns.

Policy 65
To maintain the lower courts as important recreational areas for the use of the research staff.

Policy 66
To upgrade the furniture, barbecue, etc., as its current quality is intrusive.

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[89] March 1967, 12 June 1967, as-built Lab Court and Gardens, LSD 9 1530.

Mechanical Wing

[*Section Redacted*]

Policy 67
To understand that the north and south mechanical wings are united by the center mechanical wing to form one building.

Policy 68
To maintain the clarity of the Mechanical Wings servicing the laboratories through their relationship to the pipe floors.

Policy 69
To retain the blind elevations of each of the towers.

Policy 70
Not to colonize the Mechanical Wings with inappropriate uses (e.g., offices), given that Kahn’s design is characterized by workspaces being day lit.

Facing Page: South Mechanical Wing, 2015.

Second Design: View from the clubhouse of the Living Place over the Canyon to the Meeting House, undated, circa 1962.

The Meeting House (Unrealized)

A place of the measurable, which is the laboratory, and a place of the unmeasurable, which would be the meeting place

That medical research belongs to more than itself is the statement of the Meeting House. The participation of the research scientists in the knowledge and inspiration of all men is suggested by a multitude of spaces of differing character where men may meet. The sharing with all others of insights gained through research is characterized by the auditorium – a separate and civic act.

(Medical research does not belong entirely to medicine or the physical sciences. It belongs to Population.)

(The environment of research leading to discoveries in science is one which can be enriched by minds of all fields from science to the arts.)

The internal life of research itself can be strengthened by providing an environment for mediation and study which is separate and distinct from the environment of research experimentation.”

At the point of entrance to the Meeting House is a square pool – a noisy fountain- connected by a long watercourse to a quiet fountain within a colonnaded ambulatory. The dense green shaded area on the other side of the watercourse is only accessible through the colonnaded court. This is intended as a place of reverence – of mystery – acting in counter poise to the enclosed spaces with their particular uses.

Also at the entrance, the auditorium is placed to signify the participation of men in scientific research with others in science, humanities and the arts on a broad, social scale.

On the level below the main hall will be located the particular services of each area, all with access from the service court yard as service receiving area with access from the entrance parking

The library is made by four round buildings. They are square areas inscribed in round walls. This configuration leaves an in-between roofless space which lighting the inside of the wall will soften the glaring effect of the outside light against the dark frame of a window. (The points of contact between the square and the circle give positions to the columns) The three small areas will provide in four floors, book space, always allowing the reader to leaf by them. The bigger general reading area will contain carrels.

Dining and seminar areas

> The group consists of circular areas inscribed in square walls. As in the library the wall has a bold opening to the sky and an opening for the view. Thus the glare will be modified by the lighted wall and the view not shut off. The glass will be well away from the wall.
>
> The dining is divided into areas to gather no more than ___people in the small room and ____ people the bigger one.
>
> Dining in itself is in the main floor; the second floor being seminar rooms, even if going the Services through both floors, meals could be served in both. The level of the basement which is on grade with the garden houses the Kitchen, cafeteria and services.[91]

The majority of the site intended for the Meeting House is currently occupied by part of the North Parking Lot.[92]

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[91] *Abstract of Program,* Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.2716.
[92] Ibid.

Historical Development

From the initial sketches onwards, the Meeting House was to be the focus at the west end of the new road across the north side of the site to which the Institute fronted. It was one of the three centers on which Kahn based his overall design for the Salk. The group of buildings that formed it was planned around two fora, each with its different public spaces: the meeting place to the south, a public square outlined by a contemplative cloistered garden, an auditorium, and the entrance to the central group of buildings, and a recreational court to the north contained by a radiused swimming pool, a gymnasium, and the eating facilities in the main building.

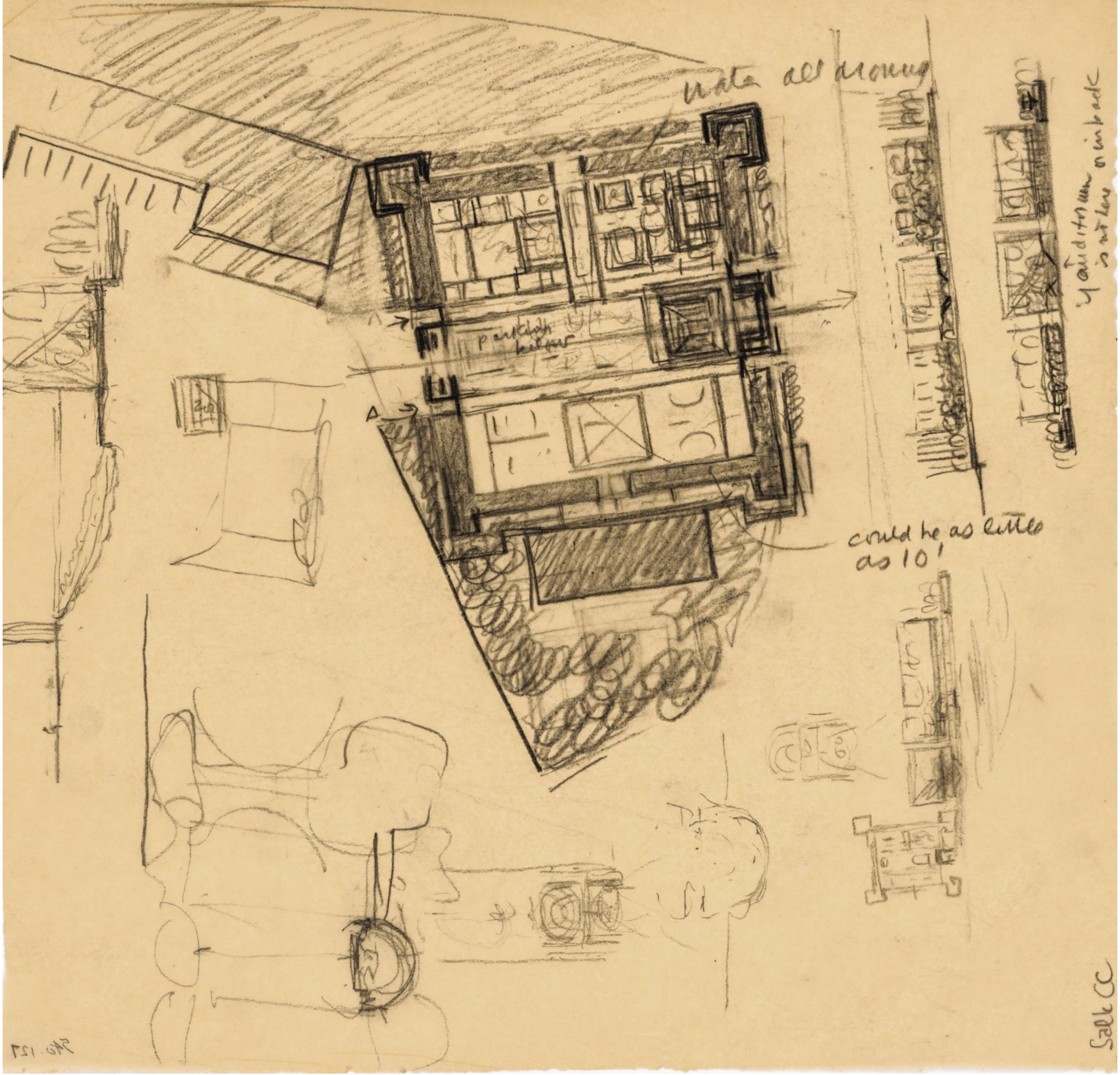
The Meeting House appears to have been the most appealing of the elements of the Salk to Kahn. As the design developed, the portions of the complex devoted to the reading room and dining room became either circular forms set within a square enclosure, or squares set within a circular enclosure. The outer walls stood free of the inner ones and were pierced by large geometric openings, thus developing a theme that then preoccupied him; with his project for a consulate in Luanda, Angola, glare was a constant problem. The solution he adopted was to make the enclosure a double wall, one building inside another:

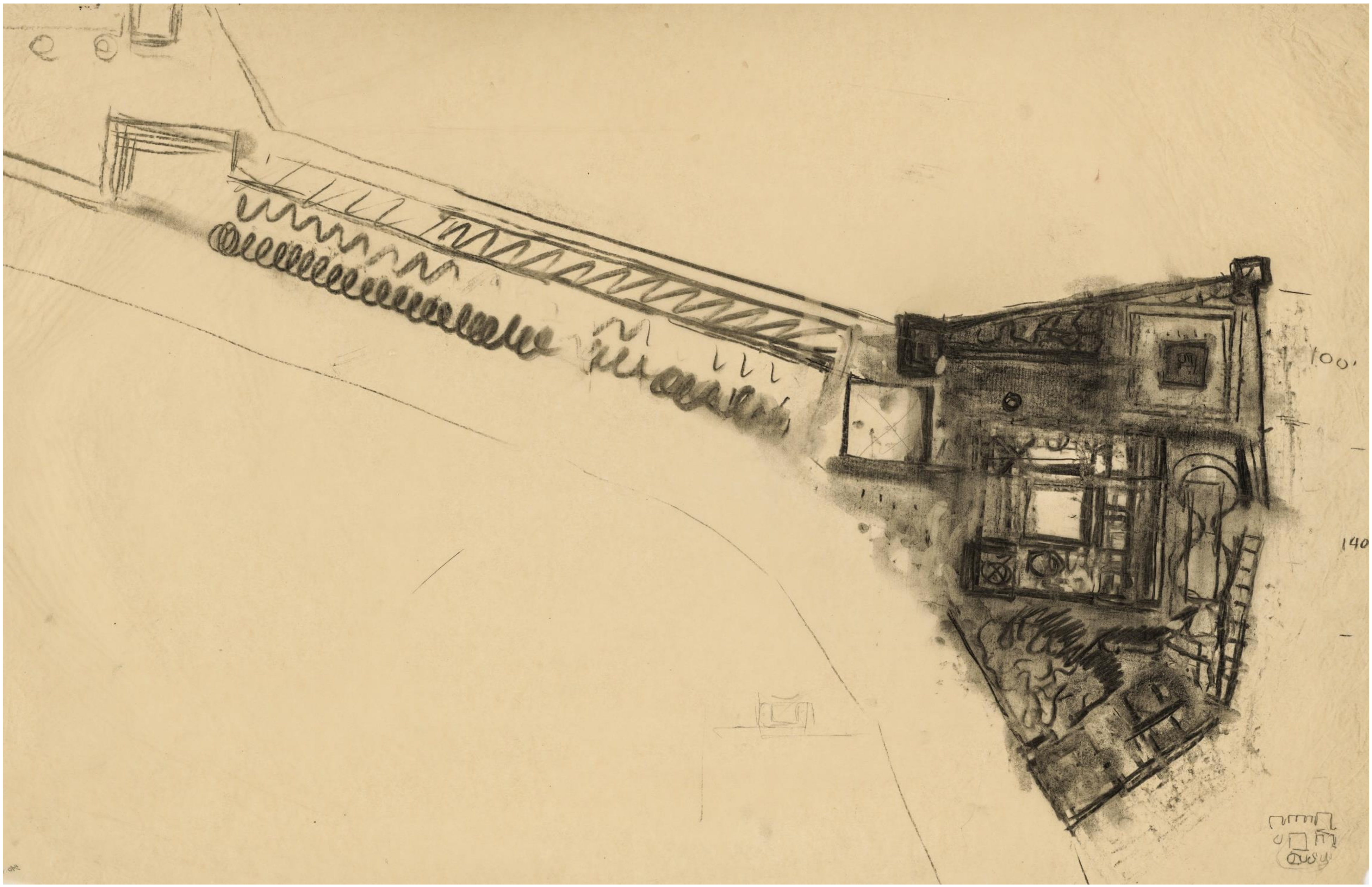
> When you are on the interior of any building, looking at a building was unbearable because of the glare . . . . Now, placing a wall in front of a window would cut the view and that is not pleasant . . . so I thought of placing openings in the wall; the wall then becomes part of the window. When that wall got the light—even the direct sunlight—it would modify the glare.[93]

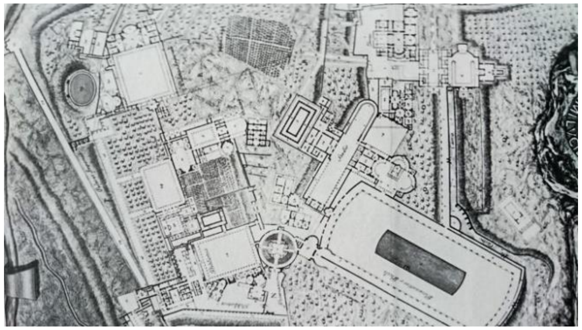
However, Kahn felt that the plan of the meeting house was not resolved. Much has been made of the way Kahn apparently relied on this "lifting" of a Classical precedent to solve his design problem. But while Kahn never made a secret of his fascination with architectural history, he was irritated by suggestions that he was borrowing his material.[94]

Page 154: Second Design, Meeting House, sketch plan and elevations.
Page 155: Second Design, Meeting House, sketch plan and elevations, undated, circa 1961.

[93] Kahn interview, *Perspecta* 7, 1961.
[94] Wiseman, 118.


water all around
could be as little as 10'
auditorium in back
is not here
Salk CC
540.127


100'
140


G. B. Piranesi (1720–1778): Plan of Hadrian's Villa at Tivoli.

Tim Vreeland, who was working in Kahn's office, relates the incident as follows:

> With the book open to this late Roman plan of great richness and variety, I tried repeatedly to please my employer with my design. But each time I could feel from the expression of disgust on his face how far I had failed. So I decided to "fix" him and, outlining on a piece of tracing paper the highly-irregular easily recognizable property lines of the Salk site, I laid it over the book [Piranesi; Hadrian's Villa] and, regardless of the scale difference, traced that part of the older plan which appeared within the lines. When Kahn walked back into the room, his face lit up, and he congratulated me on an excellent design, not at all recognizing my plagiarism—at which point we all burst out laughing.[95]

However, the graft of the truncated villa plan onto the Institute site stimulated a new phase in the design. Specific references to the villa were left behind and replaced by more general principles of hierarchical distinction and integration achieved by Kahn's subtle manipulation of scale, geometry, materials, and connecting elements.[96]

Drawings in the Kahn archive show the steady development of the scheme from July 1961 through November 1962. The buildings that make up the Meeting House were taken to full design stage in parallel with the design of the Laboratory Complex. However, no technical design appears to have been carried out.

At each stage, the Meeting House remained the primary element in the hierarchy of the site. Although smaller in plan than the Laboratory Complex, its roof line was at a comparable height above sea level despite the falling ground, and its treatment as a fortified citadel on the headland overlooking the Pacific Ocean presented it as the most important building on the bluff.

The presentation drawings prepared in July 1961 illustrated the basis of the scheme which was to remain constant. The central building comprised five articulated elements clustered around a central atrium that was roofed over but open at clerestory level; the entrance block was placed at the southeast corner, and above it lay the Director's Suite on two floors. Studio living quarters for visiting scholars, each with a balcony, lay across the east and south sides of the atrium and extended to the southwest corner, where they were grouped around a shared common room, living room, and balcony, its square plan balancing that at the entrance. To the west of the atrium, overlooking the ocean, four circular towers contained square libraries and to the north,

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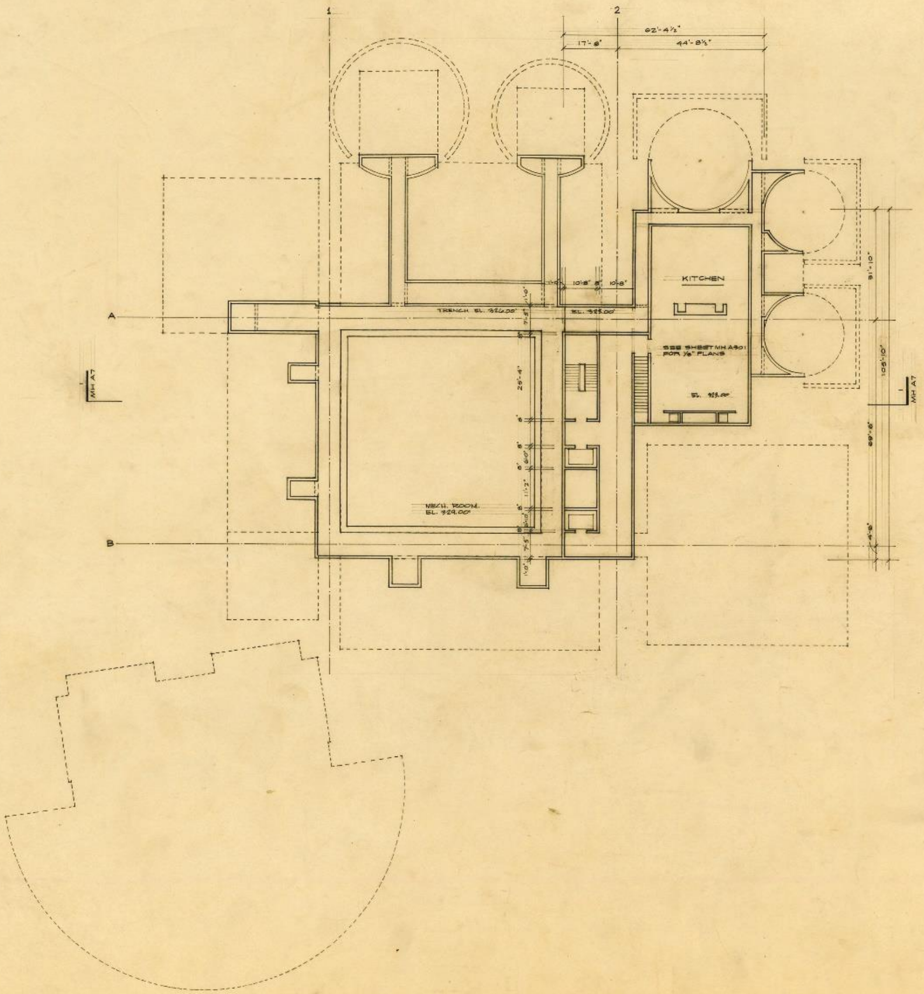
[95] Ibid.
[96] Piranesi, Plan of Hadrian's Villa, 1781 (Getty Center, Resource Collections), illustrated in William MacDonald and John Pinto, *Hadrian's Villa and Its Legacy* (New Haven: Yale University Press, 1995).

square towers accommodated circular seminar and dining rooms. The gymnasium was in a further block, to the east of the dining complex, and closed the northeast corner of the Meeting House.

Page 158: Second Design, Meeting House, basement plan, presentation, January 1962.
Page 159: Second Design, Meeting House, garden Level, presentation, January 1962.
Page 160: Second Design, Meeting House, first floor Plan, presentation, January 1962.
Page 161: Second Design, Meeting House, second floor plan, presentation, January 1962.
Page 162: Second Design, Meeting House, third floor plan, presentation, January 1962.
Page 163: Second Design, Meeting House, Library hall section, presentation, January 1962.



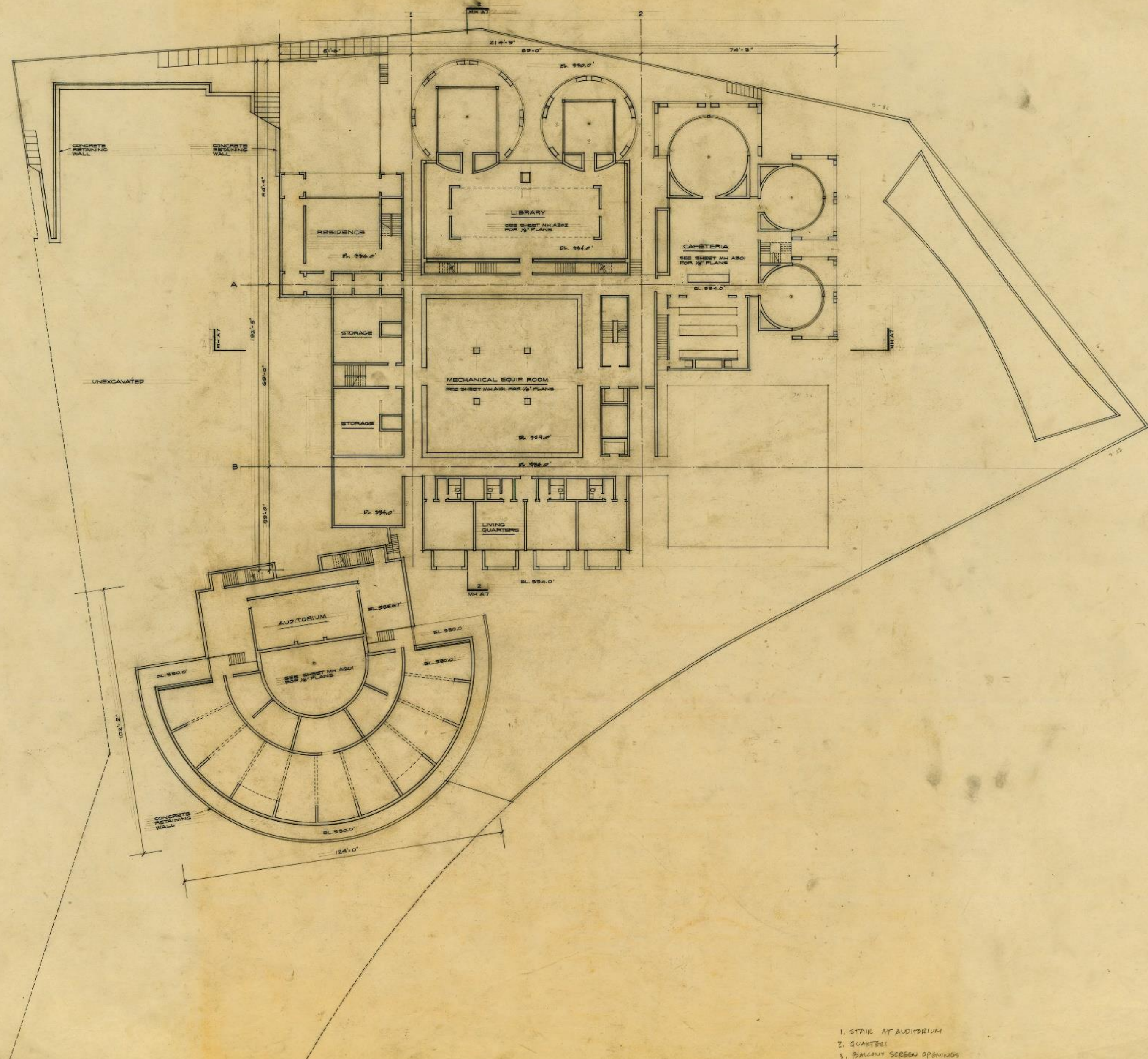
REVISED 8 FEB 1962
REVISED 29 JAN 1962

BASEMENT PLAN 17 JAN 62
1/16" = 1'-0"

THE SALK INSTITUTE FOR BIOLOGICAL STUDIES
SAN DIEGO CALIFORNIA

LOUIS I. KAHN ARCHITECT
138 S. 20TH ST., PHILA. 3, PA.

MH-A 1



N

1. STAIR AT AUDITORIUM
2. QUARTERS
3. BALCONY SCREEN OPENINGS
4. AIR CHAMBERS IN MECH. EQUIP. RM.
5. COMPLETE GYM

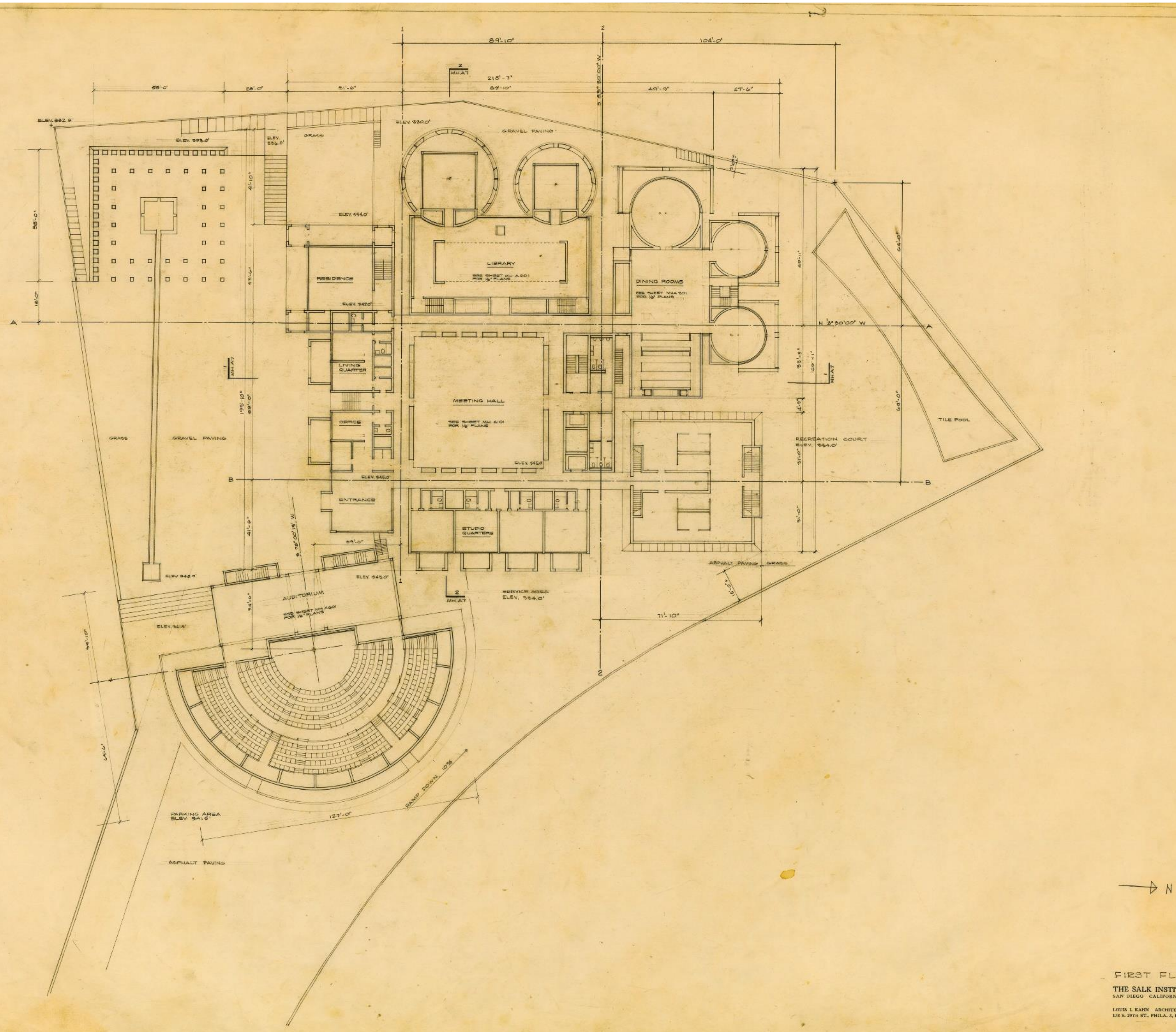
REVISED 29 JAN 1962

GARDEN LEVEL 17 JAN 62

THE SALK INSTITUTE FOR BIOLOGICAL STUDIES
SAN DIEGO CALIFORNIA

LOUIS I. KAHN ARCHITECT
138 S. 20TH ST., PHILA. 3, PA.

MH-A2



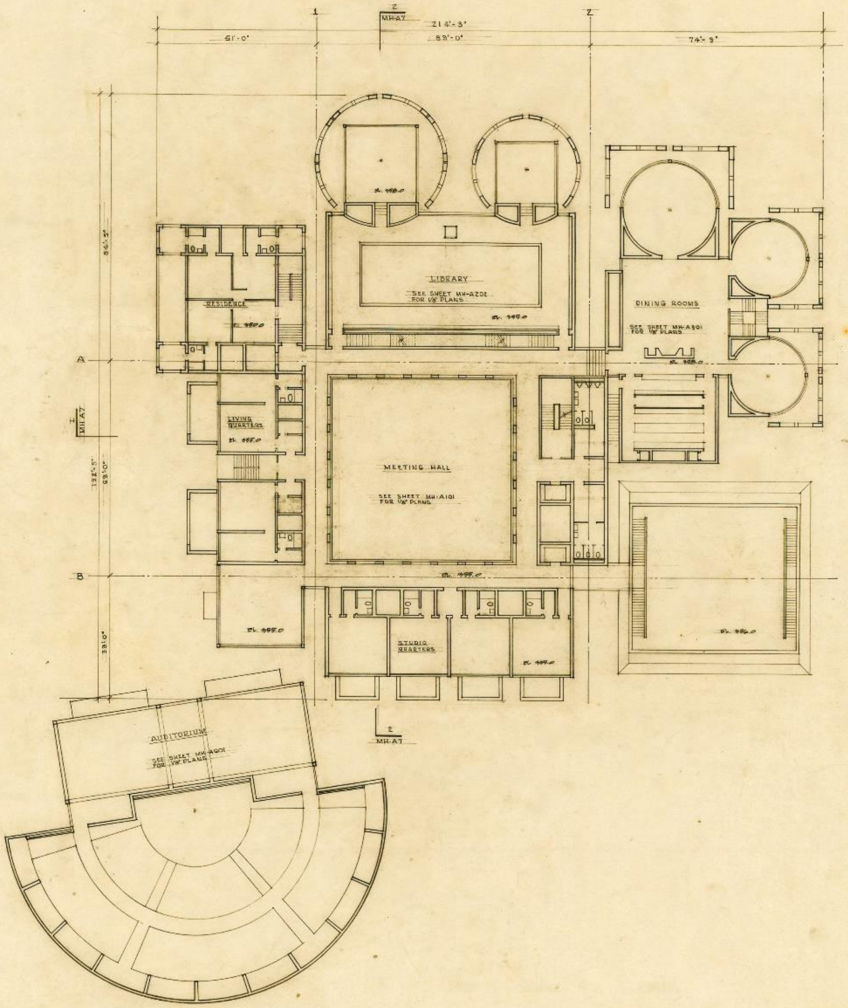
REVISED 23 FEB 1962
REVISED 29 JAN 1962

FIRST FLOOR PLAN 17-JAN-62
1/16" = 1'-0"

THE SALK INSTITUTE FOR BIOLOGICAL STUDIES
SAN DIEGO CALIFORNIA

LOUIS I. KAHN ARCHITECT
138 S. 20TH ST., PHILA. 3, PA.

MH A3



N

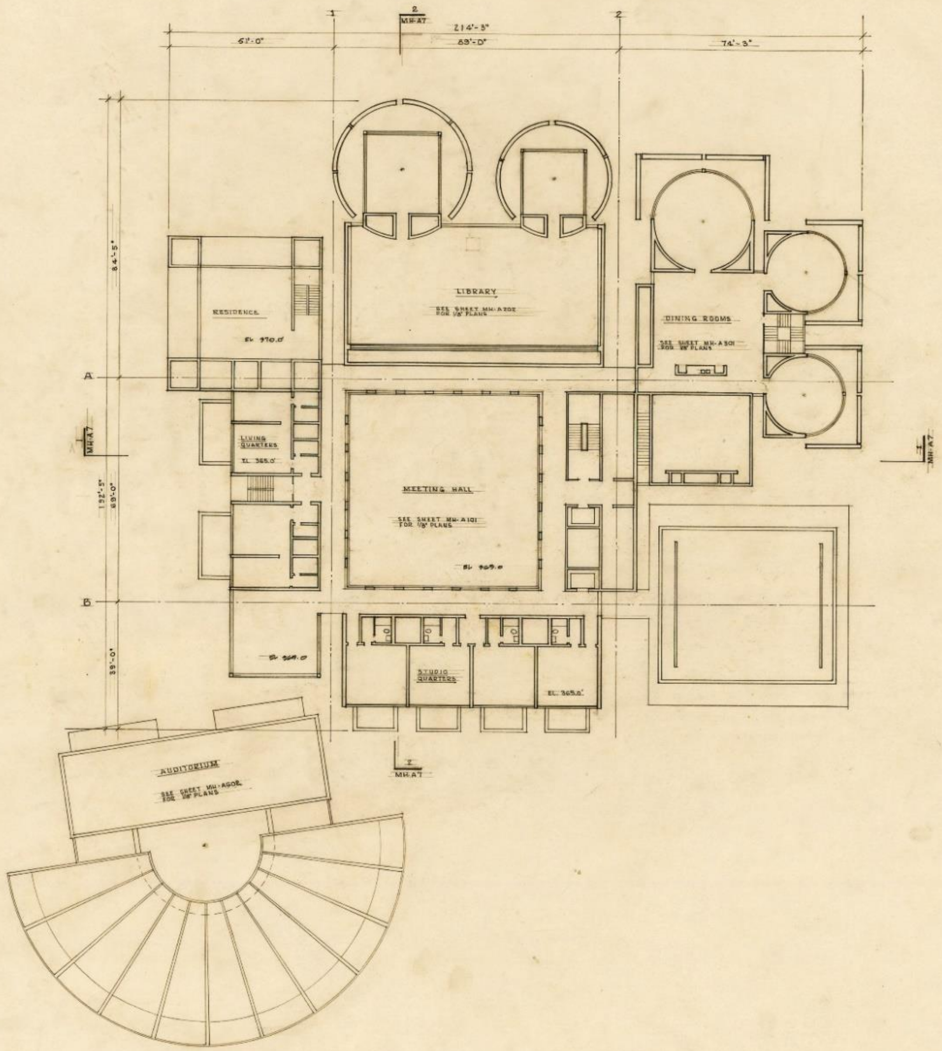
REVISED 29 JAN 1962

SECOND FLOOR PLAN 17-JAN-61
1/16" = 1'-0"

THE SALK INSTITUTE FOR BIOLOGICAL STUDIES
SAN DIEGO CALIFORNIA

LOUIS I. KAHN ARCHITECT
138 S. 20TH ST., PHILA. 3, PA.

MH A4



N

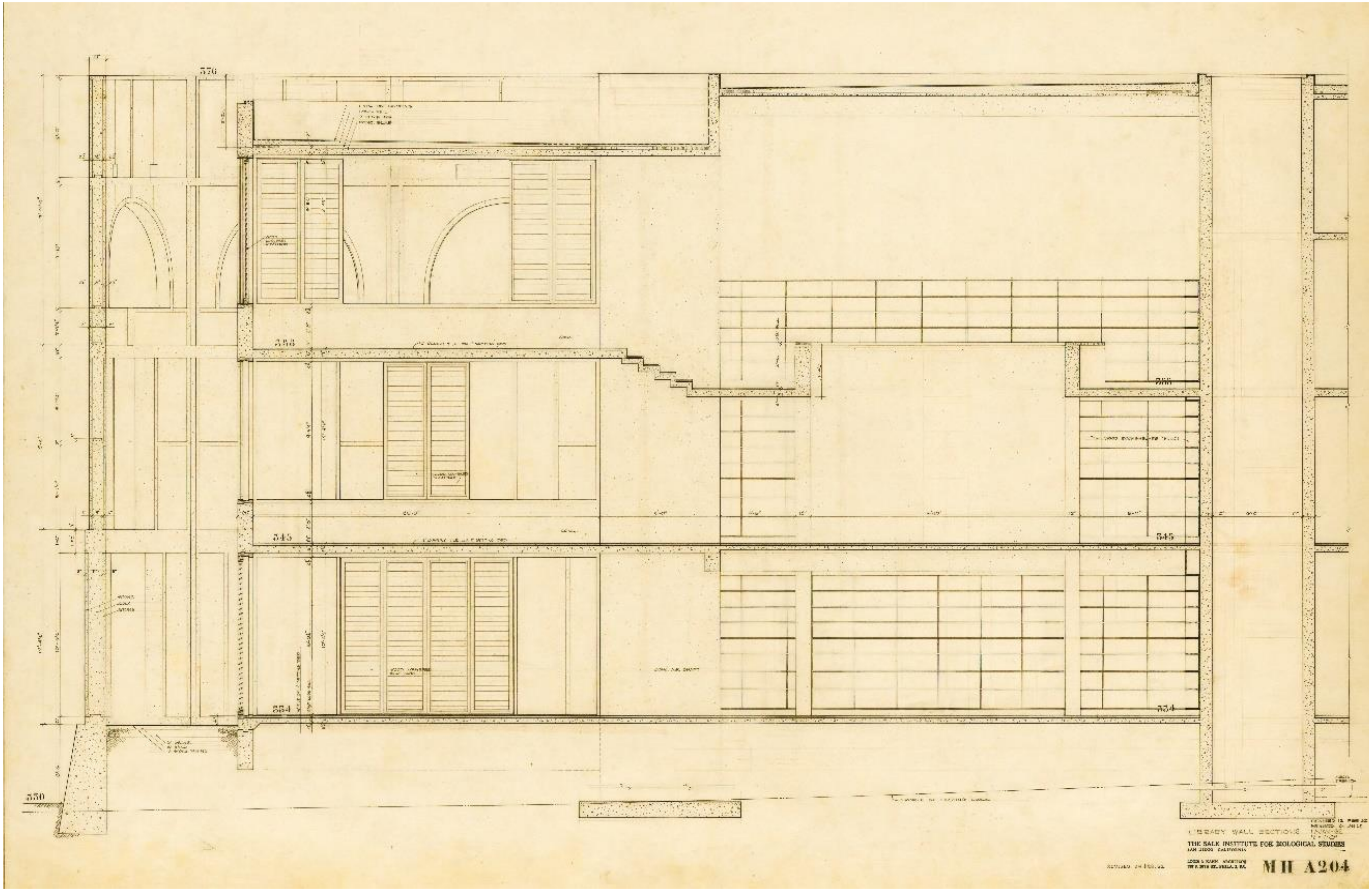
REVISED 29 JAN 1962

THIRD FLOOR PLAN 17-JAN-62
1/16" = 1'-0"

THE SALK INSTITUTE FOR BIOLOGICAL STUDIES
SAN DIEGO CALIFORNIA

LOUIS I. KAHN ARCHITECT
138 S. 20TH ST PHILA. 3. PA.

MH-A5


376
358
345
334
330
345
334
LIBRARY WALL SECTIONS
THE SALK INSTITUTE FOR BIOLOGICAL STUDIES
MH A204

The scheme developed for presentation in November 1962 as part of the Third Design placed greater emphasis on the director's accommodation, recognizing it as a master's lodge in a traditional college and providing Jonas Salk with a house in the most prominent location on the site, approached from the Meeting House and overlooking both the ocean and the cloister court. The auditorium next to the entrance was also developed with a new amphitheater plan. The materials for the buildings were parallel to those being used in the Laboratory Complex at the time, with concrete, stone ashlar, and teak joinery. The interiors were to be a sequence of single- and double-height spaces modulated by the handling of daylight.

Significance, Survival, Vulnerabilities

The Meeting House was to be the primary element of the Institute and underlined the philosophical concept behind its foundation as a meeting place of science and the humanities. When the program for the Laboratory Complex was changed and the library was reduced to a technical facility housed in an office, it meant that there was no honorific space in the Laboratory Complex, and the double-height libraries intended in the Meeting House would have taken on all the more significance. The failure to build the Meeting House, consequently, disrupted the hierarchical structure of the Institute's site.

The present use of the site as a parking lot is intrusive on the setting of the Laboratory Complex and is not of appropriate status for the location.

(See also The Kahn Landscape – Meeting House Site.)

Policy 71
To remove the parking lot.

Policy 72
In the case of development, the whole of the Salk site should be treated as an entity.

Policy 73
To recover a hierarchy for the site.

Meeting House, library with screen walls, computer generated image published in Kent Larsen, *Louis I. Kahn Unbuilt Master Works*.

The Living Place (Unrealized)

The Living Place would have provided housing for visiting scholars and their families. It was not realized and the site remains undeveloped, except for a small pumping station in the location intended for the clubhouse at the west end of the south mesa. The mound around which the housing was to curve was the highest area of the housing site and was reinforced with the spoil deposited from the excavations for the laboratories. A site to the east of the mound was to be reserved for future housing.

Historical Development

In the initial presentation to the City of San Diego, housing had been divided between the south and north mesas. The south accommodated courtyard houses for families while the north consisted of single units placed close to the recreation center placed half way between the Laboratories and the Meeting House.

In the development of the design between July 1961 and January 1962, the housing was to be characterized as a “village” but was restricted solely to the south mesa. The early drawings show a cluster of low buildings following the contours of the site, aligned along a curving pedestrian corridor that gently rose and fell like a narrow street in a medieval European city. Vehicular access was to small parking lots on the south side. The schemes provided accommodation for visiting scientists and terminated with a clubhouse at the west end, overlooking the ocean. Approached from the drive along the south side of the site, the Living Place was also connected across the head of the canyon to the Meeting House on the opposite mesa via the route that ran through the west side of the Laboratory Complex. The walls of the buildings were to be exposed concrete.

A site to the east of the housing was reserved for further development.[97]

(See also The Kahn Landscape – Living Place Site.).

Policy 74
To screen the pump house.

Policy 75
To maintain the rugged natural landscape.

Policy 76
Should development occur, the hierarchies of the site should be respected in parallel with the entity of the scheme being recovered.

Second Design: Living Place, Plan H-A5, 1962.

Facing page: Second Design: Living Place, perspective along pedestrian access, undated, circa 1962.

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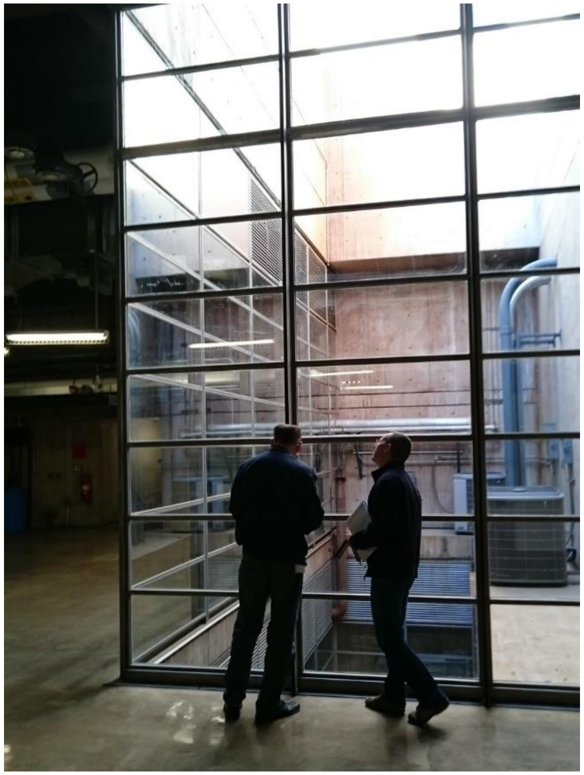
[97] Louis I. Kahn Collection, University of Pennsylvania, LSD-1 rev July 65.



Top: Furniture from the original furnishing of the North Office Wing in use in the Library, 2015.
Bottom: Light shaft in central mechanical rooms, 2015.

Characteristics

Furniture

Photographs of 1969 show the rooms furnished and in use for the annual meeting of the trustees and fellows.[98] Some items of furniture (e.g., chairs in the Library) are original to the construction of the North Office Wing and similar chairs were used in the meeting rooms. Most have been replaced over time.

Early photographs show the studies well-furnished and included the library chair and ottoman designed by Charles and Ray Eames. However, the furnishing of the studies has changed between occupants. The furniture was considered as part of the researcher's personal effects and was generally removed when studies changed occupants.

The benches in the Laboratories were designed by Kahn. Examples survive on site, but most have been replaced.

Daylight and Sunlight

In all of his projects, Kahn placed great importance on natural light and the need to appreciate the changing conditions outside a building and the mood of the day. Daylight was to be available to all habitable spaces and views to the exterior provided. Without a window, Kahn believed that a room was not a room.

With the laboratories at the Salk, this goal was realized through the storefronts with their full height glazing and minimal steel framing. The storefronts allowed views out of the deep-plan laboratories to the Plaza and gardens on either side. The design of the study towers did not impede this, with the views through the open structure of the stairs and the spaces between the pairs of rooms. Studies for the Second Design draw sight lines from within the lower laboratories to ensure that views to the Plaza were available.

Daylighting laboratories over 60 feet deep from the sides was, of course, difficult, and had to be supplemented by artificial light. However, that would not have been the case with part of the Second Design, where the upper laboratories were lit by skylights set between the folding plate structures that covered the space. The use of the pipe floors in the Third Design precluded this and the omission of the skylights was regretted by the consultants.

The studies and offices were both lit by natural light, the loft space for the offices being configured to bring daylight back into the center of the North and South Office Wings. Angled planes of concrete formed the

[98] Salk Institute Archive, contact sheet 69044-1.

structure of both the studies and the offices, directed the view, and provided shade, and the light itself was modulated with sliding shutters and louvered screens.

The designs for the Meeting House demonstrate Kahn's interest in maintaining views and daylight, while avoiding related problems of glare, especially on the edge of the sea. To achieve this he developed his ideas for buildings within building that he had first used in Angola.

Policy 77
To maintain a relationship of each usable space with daylight and views out of the building.

Fragment of an entity

Only one section of the tripartite scheme for the Salk Institute was built, and it is likely that the designs for the Meeting House and the Living Place would have changed in the light of the development of the final design for the Laboratory Complex.

What was constructed is an icon of late twentieth century architecture, but it would have been even more so had the other two sections and the landscape been realized, as its value as an entity would have been considerable.

Only the east half of the site has been developed, and the west half has been subject to opportunistic construction projects or downgraded from a state of a sublime, natural, rugged landscape.

The original site granted by the City was modified through a land exchange with the City in 1984–1985 to regularize piecemeal development. This increased the area on the north mesa where the temporary Barracks and the North Parking Lot had been had been constructed, and transferred land on the south mesa back to San Diego for use in connection with the development of the sewage pumping station. Neither development is insurmountable.

Kahn's schemes for the other sections were well advanced, but they were not taken to construction detail and it would be unrealistic to build them, in contrast to Kahn's Franklin Delano Roosevelt Memorial in New York City, which could be realized forty years after it was designed because the drawings and details had all been finalized. In addition, the program for the Institute has changed in the fifty years since completion of the Laboratory Complex, and today focuses on the need for further research space and away from Dr. Salk's vision of a community with its Meeting House and Living Place.

In its current state, however, the site lacks a hierarchical structure.

Policy 78
To recognize that the Laboratory Complex is a fragment of an entity that was to encompass the whole site, with the tripartite design of the Laboratory Complex, the Meeting Place, and the Living Place overlaid with landscape structures.

Policy 79
To recognize that only the east half of the site was developed, leaving the west half undeveloped and desolate.

Policy 80
To recover meaning for the west half of the site. .

Alterations

To stay within the available funding, part of Kahn's scheme for the Laboratory Complex and the South Building was left unfinished and without services. The areas have been completed over a period of thirty years, but to a reduced specification.

As full construction details are available, as well as examples of the original Kahn fit-out, revisiting the South Building when opportunities arise and completing the spaces to Kahn's specification is feasible.

Policy 81
To realize unimplemented designs where full construction information by Kahn exists.

Policy 82
Policy 8 applies.

Expansion

Kahn's approach to the site was to establish separate centers of focus of different types of program across the site. Although a tripartite scheme, the organization of its circulation pattern, the hierarchy of the site, and the handling of landscape elements ensured that it was one entity.

Later development has reversed the structure of the site, building on land to the east of the Institute and leaving that to the west undeveloped and largely used as a parking lot.

The changes brought about in the Third Design, with the enlargement of the court to a monumental scale, also meant that the status of the Laboratory Complex was raised and that, with the failure to build the Meeting House and complete Kahn's tripartite scheme, the hierarchies of the site have become confused.

In many of the plot plans prepared up to 1965 by Kahn's office, areas are marked as reserved for future extension. The sites included the North and South Gardens, and the Eucalyptus Grove. The expansion of the

Salk was considered by the Trustees in 1968 when Dr. Salk reported on the same sites. Schemes for building above the East Parking Lot were also periodically reviewed, and, in addition, sketch proposals by Kahn exist for an administrative and entrance building immediately to the east of the screen to the Plaza that divided the eucalyptus grove into two separate areas. The latter, however, never passed beyond tentative site layouts. However, the drawings were always in the context that the Meeting House and Living Place would also be developed and that the reserved sites only make sense in the light of this.

The drawings showing the reserved sites were used in support of the development of the East Building when it was proposed in 1991, but without the development of the west half of the site the Salk is unbalanced and lacks the hierarchy that would have made it one of the world's most significant architectural sites.

Policy 83
To take a holistic approach to the development of the site.

Policy 84
To recover the hierarchies of the site.

Policy 85
To recognize that the sites reserved as being for future extensions on the plot plans prepared by Kahn's office are primarily just notes on drawings to hold a future position for the planning permit and in no way represent a considered design.

Policy 86
To respect the current coastal protection policies.

Policy 87
To ensure that the designs follow Kahn's humanistic approach, respecting the need for daylight and views from all work spaces.

Policy 88
To ensure that pastiche is avoided.

Policy 89
To commission the design of new buildings from an architect of first-rate ability who will also respect Kahn's design principles.

[*Photographs Redacted*]

Building Materials

External Architectural Concrete

> Since this is a concrete building, the quality of the concrete work will largely determine the quality of the architecture. Accordingly, concrete must have not only the required strength, but also the desired appearance . . . . The appearance of the form contact surfaces exposed to view in the work is fundamental to the architectural design.[99]

> Klotz: That's cyclopean, these walls. Can you stand up against them; I mean as an individual, you don't feel beaten down by the walls?
>
> Kahn: Oh no, oh no. If you'd see it, you'd know. [100]

Policy 90
To protect, conserve, and maintain Kahn's architectural concrete to the highest standards and best practice.

This was Kahn's first major project using cast-in-place concrete as the primary element. Much of the detailing developed at the Salk Institute informed his later work at the Kimbell Art Museum (1966–1972), Bangladesh (1962–1983), and the Yale Center for British Art (1969–1974). Kahn desired monolithic concrete walls of the highest quality and detail. The Salk Institute is his prototype and no doubt led to greater quality concrete at the Kimbell and Yale museums; as such, the architectural concrete at the Salk is of exceptional significance and is a major visual element of the character and spatial qualities of the place. The concrete is high quality and must remain in good condition. Kahn and his colleagues, especially Fred Langford, took great pains through an extensive process of design and samples to attain the quality and color of the architectural concrete that was so important to their philosophy.

The sheer volume of formwork drawings produced by Kahn's office—primarily by Langford, who was in charge of the architectural concrete package and site-based, with Alan Gorlin and others—from January 1963 through to June 1964 comprises no less than 128 drawings, plus dozens of surviving sketches, and is testimony to their formation of an aesthetic and technical language that responded to concrete as a material and their understanding of concrete by returning to first principles. The formwork became the chief architectural ornament in the design and the expression of workmanship. Langford carefully developed the arrangement and composition of the formwork with Komendant and Fuller.

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[99] 1963 specification CON 2-1.
[100] Ibid.; Prown and Denavit, 115.

In order to experiment with concrete and its detailing, they chose to use the east and west walls of the lower mechanical wing and retain them in the building as an historical record with their site markings. Large sample panels of concrete construction, 8 feet 6 inches high, showed finish and pattern.[101] Seven wall types were developed in January 1963, and another three types for the pipe spaces were developed in February 1963.[102] By the end of January 1963, Fuller had poured sixteen sample wall panels and four sample columns for Kahn and Salk's review. There were delays in pouring the samples due to the time required for approval of form details by the architects and for obtaining the "Special Blend" cement from Riverside Cement. Five sample wall panels were poured using Scofield integral color. By the end of February 1963, the color of the concrete was selected and Riverside Special Blend cement was ordered. To insure a uniform color for the entire project, the materials used for the concrete work were supplied from the same sources for the duration of the contract.[103] The existing pozzolan blended concrete was a lightweight concrete composed of sand and pumice aggregate. The pumice is typically 3/8 inch diameter and constitutes half of the volume of the concrete. The reinforcing bar is 1/2-inch-diameter embedded 3/4 inch into the concrete.

The general plywood panel size was 8 feet by 4 feet and the maximum was 12 feet by 4 feet. The use of non-standard 14-foot plywood was approved for the top lift of the upper studies at the meeting of 18 June 1964.[104] For exposed vertical surfaces, the forms were constructed from 3/4-inch-thick, exterior type concrete form plywood. The surface texture of concrete was achieved by using plastic-coated plywood. As liquid concrete tends to bleed at form work joints, the edges of the form panels were slightly beveled to provide the place for bleeding, so "fins" were formed, consisting of approximately 1/4-inch-wide projections. Formwork between floors was built so the adjacent plywood panels did not abut edge-to-edge but were separated by wood strips at the top of each form. The top of the panel has a rebate, 1-1/2 inches high and 5/8 inch deep, with a 1/8 inch chamfer to shed water. Beams and slabs are also expressed by this shadow gap. This recess was also then used to align a tacking strip on the bottom of the next set of forms. To reinforce the concept of lateral distribution of services, formwork panels are laid horizontally to the laboratory pipe spaces, mechanical wings, and balconies, whereas vertical panels are used on the other buildings.

Top: Dr. Salk reviewing concrete samples in the excavation for the Mechanical Wing.
Bottom: Typical concrete fins and lead plugs.

[101] 1963 specification CON 2-3; 640002-2 J E Salk viewing.
[102] Drawings LA-304-6.
[103] Monthly Project Meeting No 2; 28 February 1963.
[104] Louis I. Kahn Archive, University of Pennsylvania, 030.II.A.107.18.

To prevent forms from bowing under the hydrostatic pressure of liquid concrete, form ties were connected to shoring beams outside the formwork and were arranged in a neat, regular pattern noted on the drawings. In March 1963, the size of the tie hole was set at a 1-1/4 inch and special cones were ordered to enable the use of snap ties. Holes left by the ties after stripping remained unfilled, except on exposed exterior walls where they were plugged with lead, hammered smooth and left slightly recessed from the concrete face. Generally, 12-foot-high vertical panels each have two rows of six ties, and the 14-foot-high top floor of the study towers has two rows of seven ties. The columns are square-edged, with no chamfers or joints within the column run, and wood strips to the outside corners of the forms were specially designed to be tight enough to prevent formation of rough fins. Exposed floor and ceiling slabs were monolithically finished to provide a smooth, even surface. For concrete not exposed to view, forms were constructed to achieve an even, smooth texture.

Construction progress, 1964.

The typical construction sequence was specified as follows:

A. Elevation 343 to Elevation 363:

1. Pour the lower columns and trowel tops smooth.
2. Set bearing plates at top of columns to exact elevation.
3. Paint all column prestressing bars above the top of the lower column with asphaltic paint to prevent bond.
4. Place all floor reinforcing for mechanical space, all prestressing tendons, reinforcing, anchorages and accessories for the truss bottom chord and verticals.
5. Grease the top of the base plate between the column and truss to prevent bond.
6. Pour floor slab for mechanical area and bottom chord of the truss. Special care shall be taken in placing concrete around the bearing plates to assure concrete of the highest quality and to prevent misalignment of bearing plates. The joint between the vertical chord members and the bottom chord of the truss shall be roughened. Thoroughly clean all reinforcing steel and concrete at this joint.
7. Place all reinforcing and accessories for laboratory floor, truss top chord, box walls and roof.
8. Pour in one operation, truss verticals and top chord, laboratory floor, box walls and roof.
9. Set sole plate (below base plate) at the top of the truss level with top of floor.
10. After truss bottom chord has reached 5000 p.s.i. and remainder of truss has reached 4000 p.s.i., the truss may be postensioned.
11. Grout bottom chord of truss as soon as possible.

Facing page: Sample concrete panels designed by Kahn and erected by Fuller, 1963.

12. Postension columns at elevation 363. Allow as much time as possible between the postensioning of the column to permit shrinkage, elastic shortening, and plastic flow to take place. The minimum time between operation 10 and 12 shall be one week.
13. Grout column as soon as possible.

B. Repeat sequence of operations for construction from Elevation 363 to Elevation 383.

C. Repeat sequence of operation for construction from Elevation 383 to Elevation 403.[105]

Cement was light-colored, low shrinkage and low temperature generating. The fine aggregate was natural quartz sand, with a maximum 3/4 inch coarse, lightweight aggregate.[106] Plastiment by Sika was added for increased workability. The trusses are structural lightweight concrete weighing not more than 115 lbs/cubic foot dry, with 28-day strength of 5,000 psi, and the columns are normal lightweight concrete with 28-day strength of 6,000 psi.[107] The mortar mix for setting the bearing plates was 1 part cement to 1 to 1-1/2 parts sand. Reinforcing bars were intermediate grade new billet steel. Mesh was welded wire fabric. The prestressing bars were special grade StressSteel manufactured by StressSteel Corporation, and consisted of hot-rolled, stress-relieved, and cold-stretched, high alloy steel bars. Bearing plates between columns and Vierendeel trusses were steel plates with lead-zinc alloy casing to Kahn's approval. Solid neoprene bearing strips were installed at expansion joints etc. The sealant used for separation and expansion joints was a one-part non-staining polysulfide.[108]

[*Sections Redacted*]

Facing page: Deterioration and staining of architectural concrete related to the water features, 2015.

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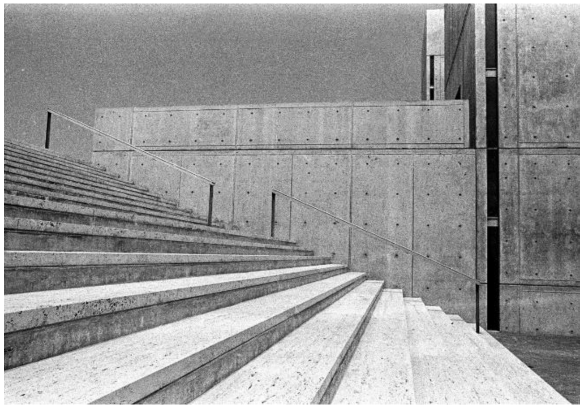
[105] 1963 specification PSTC 2A-3.
[106] 1963 specification CON 2-3.
[107] Salk Institute Archives: 1963 specifications; “Concrete Trial Mixes and Mix Designs for Salk Institute, La Jolla, California,” by Southern California Testing Lab, 13 September 1963; Southern California Testing Lab test reports, 20 January 1965. The original concrete mix design included pozzolan blended cement produced by Riverside Cement (12 percent Airox pozzolan from Santa Maria, California and 88 percent Type II cement); lightweight coarse aggregate, Crestlite, with a maximum size of 3/4 inch; and quartz sand supplied by S.D. Consolidated. The mix design utilized has a design compressive strength of 3,750 psi compressive strength, slump of 4 to 5 inches, and a water-to-cementitious materials of ratio of approximately 0.57. Admixtures including a water reducing admixture and air entrainment admixture were also utilized.
[108] 1963 specification CON 2-4, 2-5.

External Masonry

Policy 96
Where individual replacement of travertine, brickwork, blockwork, slate, or other masonry is to be considered, great attention should be paid to quality, detail and workmanship, control of color, finish/texture, dimensional accuracy, and installation. The original scale and bonding pattern are paramount and should be respected. As stated in the General Principles, replacement is the last option to be considered in a conservation program.



Travertine steps at Northwest Entrance.

Travertine

Kahn's first choice of stone was a Texas limestone rather than an imported material, as Salk's secretary, Lorraine Friedman, wrote to Kahn on 21 June 1961:

> I must tell that the present you left with him yesterday—namely, the piece of Texas limestone, sent him into orbit. I am sure he will return to earth but a changed person. And I might add that ever since I have seen it, I have found it very difficult to concentrate on what must be done. It is truly a beautiful piece of nature to behold and when you think of all that this beauty will express in the form you feel so deeply—I'm thrilled.[128]

By December 1963, Kahn and Salk favored travertine imported by Walker & Zanger of Glendale, California, which matched sample A-246 held in Kahn's office, for the paving surrounding the studies and porticos and elsewhere. An early drawing proposed 5-inch-thick travertine steps. In Kahn's November 1963 proposed reductions, solid travertine stair treads were reduced to 2 inches thick.[129] In May 1964, in response to further reductions, the treads on the study stairs were altered to 1-1/4 inches thick.[130] The selection of stone for the Plaza was undecided for many years. MacAllister wrote to Barragán on 22 April 1966, seeking his help in finding appropriate Mexican stone paving for the Plaza.[131] Kahn in 1973 stated they had considered slate, Mexican San Miguel Recento stone, and travertine. Kahn favored the Recento stone because of its ruggedness but it could not be accommodated into the required construction timeframe, so travertine was selected.[132]

Facing page: Travertine plaza and bench.

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[128] Louis I. Kahn Collection, University of Pennsylvania, 030.11.A.107.24.
[129] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.37, 16 November 1963 changes.
[130] LA-380a-2/S-30.
[131] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.53.
[132] Kahn to James Britton, editor, *Urban Design Review*, 12 June 1973; Gildred Foundation concurred with the use of travertine.

Top: Minor fractures in travertine do not warrant replacement.
Bottom: Careful attention to detail required when repairing travertine.

During March 1964, the contract for the supply of travertine and marble was awarded to Walker & Zanger for $57,220.[133] The final cost was $58,169, plus additional work valued at $26,247 in the November 1965 Final Cost Report. Ed Lohr, Jr., Inc., was appointed installer in October 1964 for a bid of $66,500. The Final Cost Report in November 1965, with extra work performed by Lohr, totaled $13,003.

Roman travertine slabs were supplied in 3/8 inch thickness for flooring of the study porticos and bridges, and in 3/4 inch thickness for all other flooring. The sizes for the treads, thresholds, curbs, copings, etc., were shown on the shop drawings. Travertine, marble, and slate were bedded in a stiff mortar of 1 part portland cement to 3 parts sand by volume.

The backs of the pavers were moistened with water before setting, buttered with neat cement mortar, set on a mortar bed, and then tamped with rubber mallets to achieve a solid, even bearing at the proper level. Joints, a maximum 1/8 inch width, were to be grouted with a colored mortar using unfading, lime-proof, mineral pigments, if so directed by Kahn. (It is not known if this was carried out and it seems antithetical to Kahn's philosophy.) On the study stairs, the typical riser is 7-1/4 inch to 7-5/16 inch and the tread is 11-1/4 inch, all with 1/8 inch joints.

Shop drawings were approved in March 1964 and the "architect in Italy" approved the sample by June. Lohr received the first two shipments in December 1964, followed by the travertine for stairs 16 and 17 (grid lines 1 and 4,) and the northwest garden areas in January 1965. Lohr commenced laying the stone at the North and South Study Stairs on grid line 1 and worked eastward. By 31 March he had set the travertine at the study stairs, arcades, and porticos at the north and south, and the center mechanical roof garden walks and stairs; the studies were substantially complete except those at grid line 13, while the north garden stairs were complete. Work was nearing completion by April 30 in the office wing, the north and south arcades, and the north portico. At that time all of the travertine had been received, except for that required for the West Garden.[134]

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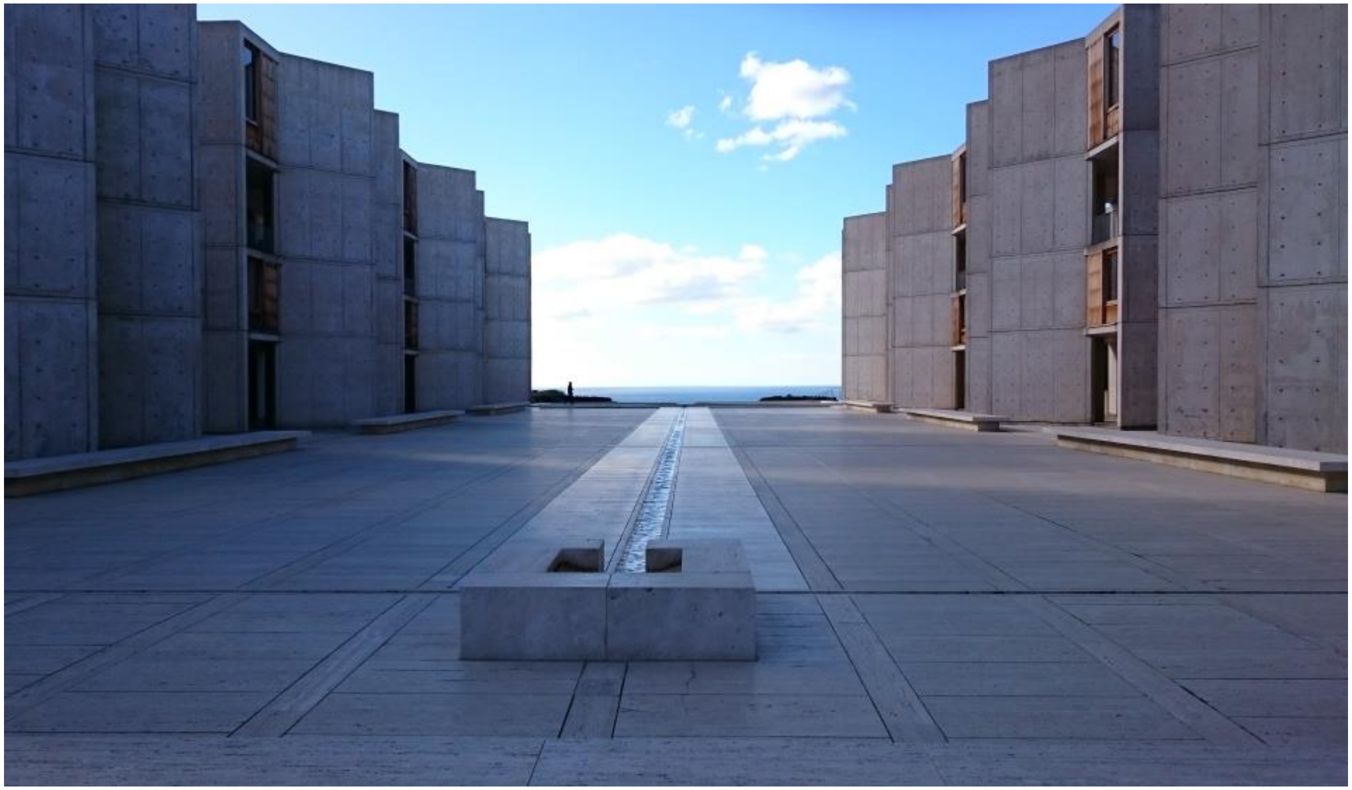
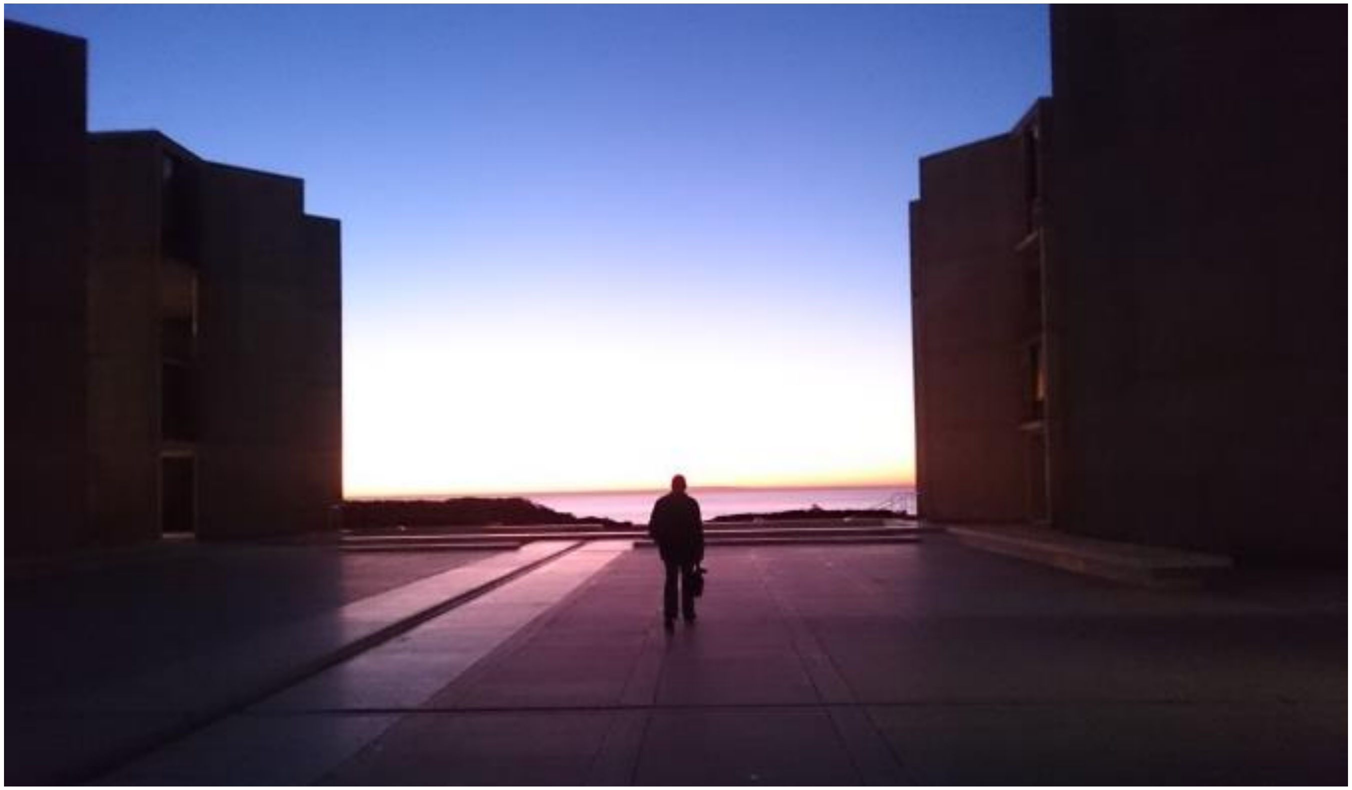
[133] The quarry from which the travertine was obtained is not recorded in archival documents reviewed; however, the travertine may have been provided by Sergio Lippielli, Bagni di Tivoli, in Italy, which Kahn also used later for the Yale Centre for British Arts.

[134] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.26.49; George A. Fuller, Co., Monthly Report No. 31; 30 April 65.





Top: Daytime effect of the replacement travertine to the canal.
Bottom: Nighttime effect of the same replacement travertine.

Light Roman Travertine AR, in 2-inch-thick and 3/4-inch-thick slabs, for the Plaza and the lower gardens was not laid until 1967–1968 by the Florentine Company and the contract was entered into on 16 June 1967 for a bid of $95,675.00.[135] By November 1967, the cost had risen to $98,457.05.

[*Section Redacted*]

[135] Contract dated 16 June 1967. The term "Light" probably refers to color, and the acronym "AR" is not defined but may refer to current production or finish.

[*Section Redacted*]

Policy 97
To maintain the original travertine paving without wholesale replacement. Repair-only policy.

Policy 98
To clean travertine, especially at the cafeteria, as part of preventive maintenance and subject to the establishment of safe cleaning protocols.

Policy 99
To understand the mechanisms causing the brown staining at the travertine water features, so as to facilitate the development of safe cleaning procedures as part of the overall Maintenance Plan.

External Water Features

> Kahn: “The others are magnificent slides of the water, this whole water business. See those little flower pots? They had them all around in the center here where this water goes, and the photographer had enough sense to take them away.” [136]

The perceived source of the water is a travertine-lined spring, Pool A, at the east end of the Plaza, with a central runnel to feed the large pool of water, Pool B, at the west end, which then cascades down two waterfalls into two travertine-lined smaller pools. Pool C is at the intermediate level, and Pool D in the Lower Garden is surrounded by large, solid travertine blocks incised with circular seats. A recirculating water system is employed, using two cisterns below the west sunken pit, with the pump room located under the stairs to the south. Rainwater is collected and transported to the cisterns, which have a weir division, with an overflow exiting into the canyon. Access to the cisterns requires lifting travertine steps and galvanized steel gratings to the manholes.

In March 1965, Fuller had formed, poured and stripped Pool A and slabs on grade in the center garden, and completed the concrete for the West Garden planting pocket to the north. By April 1965 they had completed the retaining walls, pools and cistern in the Center, South and West Gardens, and only Pool D and the architectural curbs on top of the cistern awaited completion.

[*Section Redacted*]

Top: Reflecting pool in 1968, looking towards South Study Towers.
Bottom: Reflecting pool with fiberglass lining in 2015 has detrimental visual impact.

Facing page: View to East Gate with dark, reflecting pool.

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[136] Ibid., Prown/Denavit, 115.

The pools were re-lined in 2011–2012. The water is chemically treated regularly to prevent algal growth that results from the sunlight exposure.

Policy 100

To reconsider the approach to lining the water pools to meet Kahn's original architectural and aesthetic intentions, when budget and program permit. The use of modern materials would be acceptable. Any modification of the original detailing of the travertine should be avoided. The associated staining of travertine should be understood and addressed.

Top: Construction of cistern below West Court, 1965.
Bottom: Cascade from West Court.

Facing page: Ocean, travertine and sky, 2016.

Slate

> Kahn: “. . . See the blackboard to one side. You can use it all the time. Something that wasn’t really used as it was thought it would be used.” [137]

External blackboards of Pennsylvania slate also serve as duct covers at the arcades and porticos of the North Studies. Plywood was installed at the South Studies due to budgetary cutbacks. Slate was honed to a smooth finish for easy writing and erasing. The thickness ranged from 1/4 inch to 3/8 inch. After cleaning, the boards were “chalked-in” and ready for use.

The package of works comprising slate, brick, and concrete block was let to E. A. Wikholm, Inc., in April 1964 for $197,935. The final cost through omissions and changes was $127,740, with $3,927 awarded as extras funded through the savings.

Policy 5 applies for installing slate duct covers to the South Studies as funds become available.

Brick

The solid paving bricks are “Building Brick,” Class MW, made by Hazard Products.[138] Paving brick, 3-3/4 inches by 8-1/8 inches, were generally laid flat in stretcher bond in a 1 part cement to 1 part lime to 4 parts sand mortar on a 4-inch-thick concrete slab, set on a 4-inch bed of stone, and bedded and pointed in a grey portland cement mortar. According to the 1964 specification, the top surface of the bricks was ground down using a terrazzo grinding machine to even out the surface and to remove cement and other stains.

The brick paving was laid in 1965. By 31 March, Wikholm had completed the brick paving for the North Lawn walk along the Service Towers, and the walkway and entrance driveway at the north side of the East Parking Lot. By 30 April, they reported completion of all masonry except the brick walk at the northwest corner.[139]

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[137] Prown and Denavit, 115.
[138] Specification for Site Development Work dated July 1964, section E.
[139] 030.II.A.26.49; George A. Fuller, Co., Monthly Report No. 31, 30 April 1965.

[*Section Redacted*]

Policy 4 regarding repairs applies.

Top: Brick paving at northwest entrance
Bottom: Square concrete blocks and pointing.

Concrete block

Kahn originally intended these walls to be brick, but this was altered on 16 November 1963 to concrete block to save money.[140] Brick was kept for the toilets. Concrete blocks, 8 inch by 8 inch facing size, Grade A, were laid in running or half-bond, similar to the travertine and brick. A sample of Hazard block was presented for approval by 18 March 1964.[141] The mortar mix was either 1:1/2:2-1/2 or 1:1:3 (cement: hydrated lime/lime putty: sand), and the sand for the pointing mortar was Del Monte no.1 ground white 80 mesh sand. The joints were sack rubbed or floated flush on all exposed blockwork and the exposed joints width did not exceed 3/8 inch. The grout consisted of a 1 part cement to 3 parts sand mix, gauged with two parts pea gravel where spaces were greater than 2 inches in the horizontal. The grout was designed for a minimum compressive strength of 2,000 psi at 28 days. The grout mix was specified as 1:1/10:3 using hydrated or slaked lime, and the mix could be gauged with two parts pea gravel where spaces were greater than 2 inches in the horizontal. Lintels over doorways were reinforced to code requirements. The joint depth was increased to 1/2 inch at heads, jambs, and sills at knock-out panels. The concrete block was unpainted.

[*Section Redacted*]

[140] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.37.
[141] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.31, Job Meeting 18 March 1964.

[*Section Redacted*]

Although low in the materials hierarchy of the design, Kahn's attention to detail is demonstrated by his drawings showing not only the setting out of all the blockwork wall elevations in the Mechanical Wing, Office Cores, and Service Towers, but also controlling the locations of doors, knock-out panels, switch plates, receptacles, and pipework penetrations, etc., through the blocks. Outlet boxes and other openings in brick and block walls were aligned with the courses and joints to minimize cutting of the masonry units. The laying of the block walls commenced in August and September 1964 throughout the Mechanical Wing.

Policy 4 regarding repairs applies.

External Architectural Metalwork

Policy 101
To protect, conserve, and maintain Kahn's steel glazing system to best practice.

Stainless steel glazing system

Steel and glass symbolize the laboratory. The east-west glazed wall is 243 feet long and is shaded by the concrete walkways and overhanging pipe spaces to eliminate glare from direct sunlight, all as part of the original design program. These glazed walls pour reflected daylight into the laboratories and present views inward of research activities and out to the gardens and surrounding countryside. The steel glazing system is of significance.

Kahn adapted the stainless-steel mullion system he had previously developed for the American Federation of Labor (AFL) and Richards Laboratories buildings. The system is supported structurally on its perimeter, not at key points on the frame of the curtain wall. The steel glazing system lies outside the external face of the concrete columns so that the columns were seen internally and the visible end corner columns expressed the termination of the laboratory volumes. The outer steel mullions overlap the concrete column by 2 inches, like those at the AFL and Richards Laboratories buildings, and connect directly to the column. Each glazing bay projects 4 inches in front of the columns to reinforce the structural grid and, coupled with the shadow gap, gives the appearance that each bay could be easily dismantled to suit changing program requirements.

Facing page: Brick paving and planter stations to north-west entrance in July 1965.

The window walls were glazed with 1/4-inch-thick Starlux polished plate glass. More than 50,000 square feet of glass was supplied by American St-Gobain.[142]

The steel transom signals an entry point into the laboratory, but a single transom in a structural bay also helps relieve the monotony of the principal glazed facades. Undated sketches on trace from Kahn's office not only examine the scale of the transom, but more importantly, the effect of potentially having three doors and an asymmetrical arrangement within each structural bay on the principal elevations. A 4-foot clear door opening was mandatory and the sketches and drawings indicate experimentation with a 5-foot-wide door, a 4-foot-wide door, and the addition of a sidelight to the 4-foot door, as well as having the door placed centrally and to one side. The intention was probably to have as many doors as possible for functional access for moving laboratory equipment in or out and for fire exits.

Kahn's signed-off as-built drawings of July 1965 (which are actually dated 8 July 1963) show a typical 20-foot laboratory bay able to accommodate three 5-foot-wide door bays with transoms and fanlights, and tall, narrow end lights abutting the columns. However, this was not executed, as the construction photographs confirm the existing tripartite arrangement rather than five bays, comprising a center door and opening sidelight, a steel transom and a fanlight, flanked by full-height glazed storefront panels, which is more akin to the Kahn's voided drawing titled "Diagrammatic Sketch of Lab Windows" dated 14 September 1962.[143] The only difference is that a 4-foot-wide door bay is proposed in the 1962 drawing, whereas the typical 4-foot door and sidelight were constructed. The abandonment of the three-transom configuration occurred at an unknown date, possibly due to the monotony it created, but Kahn also restricted flexibility on the north and south principal elevations in order to maintain symmetry with a central door set. This north-south axial arrangement is reinforced by the Edison Price globe lights centered above each door.

Similarly, Kahn's 1965 as-built drawing indicates that the whole of the subsidiary 62-foot east and west elevations contained transoms and chair rails for maximum flexibility.[144] However, what was constructed matches the December 1964 drawing for the "Lab Window Wall" containing two sets of three door bays.

Kahn's intended symmetrical disposition of doors was compromised on grids 5-6 and 8-9 on levels 343 and 363 by the laboratory fit-out shown on Earl Walls's drawings of 1 June 1965. Walls modified the fenestration layout to form a cross-axis to the south-facing reception areas of these laboratories. The same approach was intended for the west laboratory on level 383 but it appears not to have been executed, although the 1965 as-built drawings are unreliable for the laboratory window walls. In August 1962, Jack MacAllister and Marshall

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[142] "Creative Ideas in Glass," *Architectural Review* 6, Winter 1965; 030.II.A.108.5.
[143] Undated sketch drawing, UPENN Archive.
[144] Ibid.

Meyers met with Earl Walls about the laboratory planning and Walls expressed his desire that the exterior walls be reserved for study and reading; the benches parallel to these walls would have the minimum of services, though provision of full services was not dismissed.

The South Laboratory Wing was glazed similarly to the North Laboratory Wing and the center door bays with transoms were installed. However, door bays had fixed glazing, with the chair rails installed across all fixed glazing. The 1965 as-built drawing LA-105 states that thirty door units were fixed though only twenty-six are recorded for the North Laboratory Wing. In 1965 when the building was handed over, the South Laboratory Wing only had two entrances per floor on grids 2-3 and 11-12, with no access from the corridors. Kahn’s design for the South Laboratory Wing was recovered in 1995.

Typical tripartite stainless steel window wall altered to accommodate more than one entrance into a typical laboratory bay.

A typical north and south bay consists of a 5-foot-wide bay with a 4-foot-wide door and sidelight, a 4-inch-high recessed transom located 7 feet 5-5/8 inches above slab level, and 6 feet 9 inch wide, full-height side panels. Typical U-shaped mullions are 1-1/2 inches wide. Each wall assembly was 18 feet 6 inch long and 10 foot 10-1/4 inches high. The east and west end laboratory window walls comprise three 5-foot-wide bays with transoms, and two center storefront bays 7 feet 6 inches wide without transoms, and end bays 6 feet 7-3/8 inches wide, also without transoms. The end bays project 2 feet from the faces of the end columns. The stainless steel is Type 316, 16 gauge, and was selected over other materials because of its anti-corrosion properties in coastal areas with heavy fogs containing chlorides, and its lower co-efficient of thermal expansion for its fire resisting properties.

The sample window assembly for a 20-foot laboratory bay provided for Kahn’s approval was probably employed in the work. The manufacturer had to submit engineering calculations for the exterior laboratory wall frames, and certify that construction would withstand a 60 mph wind load with no water infiltration or structural deformation, and withstand seismic loads in accordance with the requirements of the Uniform Building Code, 1961.

The contract for the stainless steel window walls was let to A. J. Bayer Co. for $287,900, together with the ornamental metalwork for $95,690. The final cost agreed in 3 November 1965 was $256,632, with extra work valued at $25,558. The subcontract for the glazing for the curtain wall work was already in place by October 1963 with Center Glass Company for their bid of $74,500.00. Additional work was recorded in the November 1964 cost summary in the sum of $9,687.

In August 1963, Bayer was only authorized to proceed with engineering and shop drawings. The contract was not signed until 27 January 1964. The first mock-up was installed in June 1964 but the sample of the window wall and stainless steel was rejected. In August 1964, Bayer was unable to procure suitable stainless steel. However, the difficulties were overcome by 18 September when the sample was approved, steel placed on order, and new shop drawings covering various revisions had been submitted. Bayer’s second mock-up

Top: Tempered glass produces different reflections to the original polished plate.
Bottom: Kahn likely never suspected glazed walls would become "chalkboards."

for the North Laboratory Wing was approved during December 1964 and installation of the sills commenced in January 1965.[145] By 31 March Bayer had substantially completed the installation (70 percent) of the east-west window walls at both laboratory wings at all levels, except for the door frames and chair rails, and was ready to install the sills for the north-south window walls at the North Laboratory Wing, but only to elevations 342 and 362 of the South Laboratory Wing.[146] Work continued rapidly, with 93 percent completion of all laboratory window walls, door frames and light shafts reported by Fuller in April 1965, together with about 50 percent of the protective rails installed.[147]

Subsequent and ad hoc changes have occurred to the glazing system and door sets. In some cases, where the doors have been removed, the opening has simply been re-glazed with the evidence of the hinges in the steel framing and door thresholds retained. Raceways have been installed across the doors and fixed glazing. Opening doors have been blocked by partitions and furniture.

Changing the type of glass from polished plate to tempered glass for repairs affects the aesthetics and architectural intentions as well as being visually intrusive. The reflections that result from its use are different to those that result from polished plate due to the roller wave distortion.

Policy 102
To respect Kahn's fenestration typology for the steel glazing system and to reverse those alterations that do not respect his principles for the glazing system. Doors in the east-west curtain walls should be in the center of each bay, signaled by the transom and the globe light fixture, whereas those in the north-south denoted by the transoms have more flexibility. Care should be taken to avoid double door sets in the principal window walls; internal partitions should abut mullions rather than door sets; and the loss of the tripartite arrangement in typical north and south bays should be avoided.

Policy 103
To allow adaptations at the east and west subsidiary elevations to suit the internal rearrangement of the laboratory spaces following Kahn's principle of doors and transoms.

Policy 104
When alterations of original fabric occur, dismantling should be done in a careful manner for safekeeping and salvaged original building fabric should be placed in a dedicated storage area for potential reuse.

Policy 105
Replacement glass should match the original color, reflectivity, transparency, and method of manufacture. Great attention should be paid to quality, detail and workmanship, finish/texture, dimensional accuracy, and installation. The use of tempered and laminated glass should be avoided, except where required for safety reasons.

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[145] George A. Fuller, Co., Monthly Report No 27; 30 December 1964 and No 28; 31 January 1965.
[146] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.26.49.
[147] George A. Fuller, Co., Monthly Report No 31; 30 April 1965.

Policy 106
To remove window films and blinds, etc., and find more appropriate solutions that do not disrupt the visual continuity of the fenestration.

Glare

In October 1967, Earl Walls introduced Venetian blinds or other forms of solar control to the south-facing laboratory window walls because glare had become problematic after occupation. Curtains are evident in photographs from the mid-1970s. Various other forms and devices of solar control have been introduced throughout the complex.

Cleaning

The projecting concrete floor slabs sheltering the window frames, together with the Salk's location in an area of relatively low annual rainfall, means there is little natural washing of the stainless steel to remove atmospheric pollutants. In addition, the marine environment carries salt-laden moisture onto the steel surface; certain grades of stainless steel are susceptible to corrosion.

[*Section Redacted*]

Policy 107
To formulate consistent cleaning, repair, and maintenance standards.




Top left: Kahn-designed flush stainless steel door.
Top right: Kahn-designed louvered door.
Bottom left: Post-Kahn introduction of painted hollow flush metal door.
Bottom right: Kahn-designed painted steel paneling and polished steel drinking fountain.

Stainless steel

External steel doors: stainless, carbon, painted, and Corten

Kahn created a hierarchy in the use of steel doors, their finishes (polished, milled, and painted), and hardware. During construction in 1963, Kahn developed door types related to the materials and their locations within the complex. Doors facing the public are polished stainless steel, laboratory doors are steel-framed and glazed, and all service doors are hollow metal and painted. Typical door opening heights in concrete block walls were determined by the coursing.

Kahn’s typology for all doors (no hierarchy but as shown on the drawings) is as follows:

- Type A is a hollow metal flush door with a paint finish.
- Type B, a hollow metal flush door, is stainless steel on the push side, and painted on the pull side.
- Type C, a pair of hollow metal flush doors, is painted.
- Type D, a sound attenuating and pressure resistant hollow metal door, is painted.
- Type E is Type B as a pair of doors.
- Type F is Type D as a pair of doors.
- Type G is a hollow metal flush door in stainless steel.
- Type J is a blast resistant door with a paint finish.
- Type K is Type G as a pair of doors in stainless steel.
- Type L is a flush door of laminated wood and mineral core construction with a natural finish.

Within this typology, sub-types related to the mark and size of the door. For example, type A had five different sizes, whereas types E, F, and J each had one universal size.

Stainless steel doors

Each laboratory door has an external stainless steel pull bar, 1-1/4 inches diameter and 12 inches high, and an internal push plate, 11 inches by 5 inches by 3/8 inch, fixed to the mid-rail with two 3/4-inch-diameter stainless steel bars. The primary framing is 14-gauge stainless steel, the 1 inch square glazing stops are 18-gauge stainless steel, the sill is 3 inches by 3 inches, the transom is 4 inches by 1-3/4 inch, and all have 1 inch flanges, except the sill drip which is 3/8 inch. The chair or protective rail, 2-3/4 inches by 3 inches, was probably only originally intended for the east and west walls. All metal parts, fasteners, and accessories are of Type 316 stainless steel. Although the 1965 as-built drawings note the door threshold was bronze, stainless steel was installed. Kahn wrote to the owner’s representative, Dale Harvey, on 27 December 1962 with an alternate price from Fuller to use hard coat aluminum in lieu of stainless steel. Kahn’s office had made full-size details incorporating the modifications of the window frames in collaboration with Overly Manufacturing. Changing to aluminum would have saved $36,000, but Kahn recommended retention of stainless steel because its anti-corrosion properties were better than those of any other metal available.[148] The contract was let to Overly Manufacturing Company.

Polished stainless steel louvered doors are used for certain rooms to the mechanical wings and office cores. The North Laboratory Wing retains its stainless steel louvered doors, but these doors were never installed to the South Laboratory Wing due to cost cutting. Type B hollow frame doors at the storage areas at the base of the study staircases of the North Laboratory Wing are finished in polished stainless steel on the outer side, but cost reductions to the South Laboratory Wing led to the use of painted plywood doors, except for one at second level on the west.

Policy 81 applies for restoring Kahn's hierarchy and detailed designs for doors throughout the complex as funds become available.

Hollow steel doors and paneling

Hollow metal doors are constructed in stainless steel, Type 316, with a 2D finish. They have flush, seamless 14-gauge stainless steel faces, internally reinforced with 20-gauge vertical stiffeners at 8 inch maximum centers, and the tops and bottoms are reinforced with 18 gauge continuous stiffener channels. The lock stiles are beveled approximately 1/8 inch. Generally, all hardware locations are reinforced, such as 9 gauge for pivots, 12 gauge for lock and latch sets and 14 gauge for surface-mounted hardware, and hinge locations are reinforced with 3/16 inch stainless steel. The tops of the exterior doors are closed flush for weatherproofing. All doors are fitted with red neoprene gaskets are a continuous medium at all door stops. Workmanship is good quality, as all steel work was specified to be accurately formed, uniform and neat, with tight precise welded joints. Exposed welds were ground smooth and burns were removed electrochemically; all material was passivated after fabrication.

All doors and panels are of flush metal rib construction in 1-3/4-inch-thick carbon steel. Paneling, whether fixed, removable, or folding, was constructed in a similar fashion to the hollow metal doors. Frames are constructed from angles at least 1/8 inch thick. Frames and astragals had red neoprene gaskets. Steel doors are hung on continuous hinges or offset pivots with flush pull handles. Paneling also contains fire hose cabinets and drinking fountains, and provides access to ducts, risers, and pipe spaces. Before assembly, all doors and paneling were given a coat of rust-inhibitive paint on the inside surfaces. After fabrication, all materials and frames for paneling were rubbed smooth and given a coat of rust-inhibitive primer, baked on, and two coats of baked synthetic enamel, in a lead color selected by Kahn's office.

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[148] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.9.21.

Detail of Kahn-designed painted steel paneling and polished steel fountain.

In the Service Towers, the recessed service cabinets are flush steel paneling, painted. Some integrate a purpose-made stainless steel drinking fountain. Kahn's typology is as follows (in no order of hierarchy):

- Type M is a flush carbon steel panel with a baked enamel finish.
- Type N is a tripartite arrangement with a central stainless steel drinking fountain flanked by an operable door and a fixed side panel; the over-panel is removable and painted.
- Type P is a two-panel composition with an operable painted door and a drinking fountain.

Drinking fountains

The circular polished stainless steel drinking fountains are integrated into the steel paneling. All joints were ground flush and matched to the finish of the fountain. The stainless steel panel is 1-3/4-inch-thick and removable.

In December 1963 the subcontract for hollow metal doors and frames was awarded to Overly Manufacturing at a cost of $128,283. The cost rose to $166,491 in February 1964. The sound and blast doors were added at a cost of $20,866. The estimated cost for the hollow doors rose again to $189,613 in March 1965. At the final cost report in November 1965, the agreed sum was $187,604, with additional work performed by Overly agreed at $68,330, giving a total cost of $255,934.

During May 1964, Overly Manufacturing installed the sample hollow metal door set.[149] However, the difficulties reported during August 1964 in procuring suitable stainless steel for the hollow doors were overcome in September, as the steel was placed on order. By the end of January 1965, this package of work was more than half complete.[150] At the end of April 1965, Overly had installed all of the metal doors except for ten that had been damaged during shipment.

The hardware has been altered over recent years from pull handles with latches to curved lever handles, and pull handles on mounted blocks and a variety of brass/bronze door stops have been noted. Some hardware exhibits corrosion, including door closers, pivot hinges, and other components.

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[149] George A. Fuller, Co., Monthly Report No. 20, 31 May 1964.
[150] George A. Fuller, Co., Monthly Report No. 28, 31 January 1965.

Steel windows

Mechanical Wings

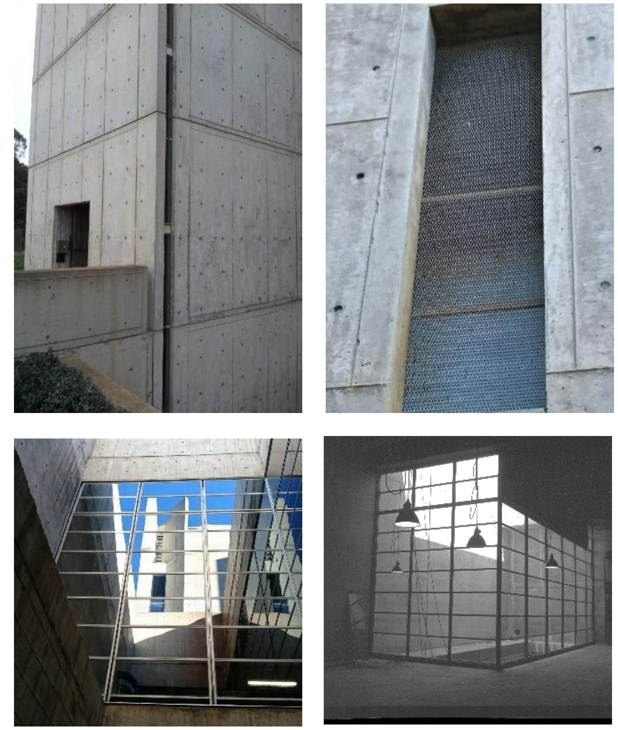
The Special High Laboratories in the canted ends of the North and South Mechanical Wings are lit by slot windows, 2 feet 7 inches wide and 14 feet 8 inches high, constructed from 16-gauge stainless steel frames and glazing stops. The 1/4-inch-thick polished plate glass is subdivided by a horizontal 1/2-inch-thick lead came. The lead came is omitted on the windows to Shipping and Receiving in the South Mechanical Wing and elevation 363 in the North Mechanical Wing, all of which are 8 feet 3-1/2 inches high. Insect screens are used in lieu of glazing at the Transformer Rooms in the North and South Mechanical Wings, and are of different heights: 14 feet 8 inches in the former and 11 feet 4-1/2 inches in the latter.

Service Towers

During January 1965, Bayer installed the steel window frames in the North and South Service Towers.[151] The same detail is employed for the 9-inch-wide slot windows in the North and South Service Towers, although the glazing is 1/4-inch-thick wired glass. Snap-in stainless steel covers are used at the slab landings.

Airshaft light wells

To provide natural daylight to the fan chambers in the North and South Mechanical Wings, Kahn designed demountable glass walls. This stainless steel-framed window wall is similar in concept and material to the laboratory window walls. Similar recessed sills, heads, and transoms are employed, except that the transoms are strengthened with vertical reinforcement plates. Above the door and fixed glazing is an Airolite stainless steel louver no. 666. On the lower mechanical level the fixed glazing has four equal window divisions, while there are seven equal window divisions on the upper mechanical level. The glazing is 1/4-inch-thick polished wire glass. Where set in metal frames, glass was installed in the multiple-compound glazing method: polybutene tape against rabbet silicone rubber for bedding, and a glazing compound for sealing stops.



Top left: Slot windows to service towers.
Top right: Later mesh to blank openings to pipe spaces.
Bottom left: Demountable glass wall giving plant access to mechanical wing.
Bottom right: Mechanical wing light well in 1965.

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[151] George A. Fuller, Co., Monthly Report No. 28, 31 January 1965.

Glazing

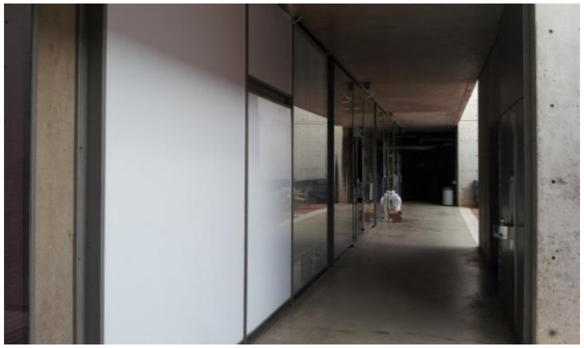
In February 1964, the contract for glass and glazing of $82,800 was let to the Center Glass Company.[152] The final cost in November 1965 was $77,240, together with additional work at a cost of $2,899.

The polished plate glass sample was approved in August 1964. By 31 March 1965 Center Glass had glazed, packed, and caulked the window walls of both office wings and all studies, the North Mechanical Wing, North Laboratory window walls to all levels, and levels 342 and 362 of the South Laboratory Wing. Work continued on the South Laboratory windows during April and the installation elsewhere was completed, together with door frames.[153] At the end of April 1965, Fuller reported that the installation of the glass and glazing had achieved 93 percent completion, while glazing, packing, and caulking of the windows in the South Laboratory Wing were underway.[154] In the final Fuller report of December 1965, installation of all laboratory window walls, door frames, and light shafts was noted as being completed.

[*Section Redacted*]

Sealants

Kahn carefully detailed the junctions between steel, concrete, and glass to be recessed— a shadow gap— and sealed with red colored mastic. Caulking of expansion joints in concrete and gaskets around the perimeters of window and door frames in 1962 was to be Pecora Architectural Grade Calking Compound, installed to a depth of 3/4 inch.[155] In 1963 this was altered to Thiokol (Presstite), Dow Corning no. 780 silicone sealant, and butyl rod stock, which were used throughout. The contract for caulking was awarded to Larson Brothers for their bid of $7,889, and the additional cost in the November 196 5 Final Cost Report was $7,631.



Top: Later introduction of blinds to control glare.
Middle: Later use of black films is visually intrusive.
Bottom: Use of the white films to glazing, also intrusive.

Facing page: Detail of canted bays to Study Towers.

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[152] George A. Fuller, Co., Monthly Report No 14, 29 February 1964.
[153] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.26.49.
[154] No 31, 30 April 1965.
[155] 28 January 1963 Specification; Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.2.

Stainless steel railings to porticos of the study Towers.

Presstite no. 1175.5 Strucsureseal was installed by Larson Bros. Two periods of heavy rain occurred 15–17 November 1965 (2.65 inches rainfall recorded) and 20–23 November 1965. Water entered the building in more than thirty locations, and a list survives outlining twelve main entry points, namely the sixth level of the West Office Wing, upper studies U3 and U4, lower mechanical spaces, motor control room, and electrical spaces. P. W. Roberts of the Institute stated that it entered through construction joints and expressed concern that it could result in damage to structural and electrical features, as well as creating safety hazards. A report of 27 December 1965 from Presstite Products Division attributed the fault to the ". . . excessive elongation demands imposed on the sealant due to the contractive demands of the concrete."[156] Their recommendation was to use a softer grade of Strucsureseal to accommodate a greater amount of expansion where cracks had opened up. Defective material was removed, joints thoroughly cleaned, and two coats of Presstite 211 primer were applied, followed by an application of 1175.5 Strucsureseal with Presstite 750.3 rod stock as the backing material.

[*Section Redacted*]

Policy 108
To replace sealants where visually detrimental, or at the end of their warranty or service life, or earlier if failure occurs. It is important to follow Kahn's aesthetic of color and recessed joint fill material.

Other Steel

Stainless steel stair railings / handrails: study stairs, porticos, staircases

In a letter of 27 December 1962—in which savings on project costs were being proposed—it was suggested that hard coat aluminum be used in lieu of bronze for the handrails. Kahn was:

> ". . . afraid to use coat material for handrails because of wear. Painted steel is inappropriate. Either stainless steel or bronze was chosen as being lasting and appropriate. Availability of extruded shapes for the handrail made our design lean towards bronze.[157]

The handrails for the study stairs and office cores are fabricated of stainless steel, type 316, Allegheny metal grade 18-8M. The handrail is extruded stainless steel, which is not a common process, with a 2D milled finish. It reads as a 3/4 inch diameter cylinder welded to a steel angle but is a single piece of stainless steel. The handrail is welded to 3/4-inch-square stainless steel balusters. As a wall-mounted handrail, it is set 3/8

[156] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.107.17
[157] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.9.21.

inch away from the face of the wall. Handrails are set at 2 feet 8 inches in height above the tread. The vertical posts were installed in concrete in galvanized metal pipe inserts, with metal shims for alignments, and secured in position with “Por-rok” setting grout set within 1/2 inch of the top and lead wool pounded into place to seal the space between the inserts and posts to avoid bi-metallic corrosion.

The workmanship is good quality as no grinding was permitted to achieve neat welds, which were located on the bottom and back faces of handrails so as not to be readily visible. Grinding and refinishing was required where welds were on the top or visible. Cut ends and sharp edges were rounded off to prevent injury on the handrail itself but the vertical bars were left with sharp edges.

Bayer Co. was also awarded the contract for the ornamental metalwork. During January 1965, Bayer installed stainless steel handrails in the North and South Office Cores, along with the window frames in North and South Service Towers.[158] By 31 March 1965, Bayer had installed the handrails in the north and south studies stairs and the sample handrail for the north office portico had just arrived.[159]

In 1972, an OSHA inspection revealed that the external handrails were not code compliant in meeting the 42 inch height requirement. In late 1972, Kahn’s office proposed the solution of installing a second guardrail of the same construction set inboard of the original and only at the landings. The northwest garden railing is the same material and design but Kahn used a double rail without balusters, and although detailed in 1965 it was introduced in late 1972. The stainless steel handrails to the West Garden were introduced at the same date.

Left: Kahn’s original stainless steel railings and extruded stainless steel handrail and the 1972 additional safety railings. Right: Kahn’s end detail to wall rails.

Rails: studies, study stairs, office wings, porticos

By contrast, the rails at the Studies and porticos of the Office Wings were code compliant at 42 inches high, and composed of the same stainless steel, Type 316, and 2D finish. Typically, all framing members are 1-1/2 inch by 1/2 inch steel bars, with 1-1/2 inch by 1/4 inch balusters spaced 6 inches apart. The bottom rail is fixed into the concrete curb at 2-foot centers. The railings are separated from the walls, although the end bars are bolted into the concrete wall through stainless steel sleeves welded to a 4 inch by 4 inch by 1/4 inch square steel plate located 10 inches below the top rail. Single panels are generally used throughout, except at the porticos of the North and South Office Wings, where two panels abut and are fixed with a T-shaped stainless steel plate arrangement.

[158] George A. Fuller, Co., Monthly Report No. 28, 31 January 1965.
[159] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.26.49.

Top: East Gate Corten gates and railings in 1967. Travertine parapets not yet added to the steps.
Bottom: Corten folding gates and railings to the East Gate in 1967.

Facing page: North Office Wing, millwork in 1973.

Exterior fences and gates

Kahn intended cadmium plated steel but changed to Corten in September 1963, presumably to reduce costs.[160] All of the hardware and functioning parts are Allegheny metal grade 18-8M, Type 316 stainless steel, with a satin finish. All other material in the exterior fences and gates was U.S. Steel Corten, in continuous welded construction, and mechanical joints were employed so as to eliminate grinding. The installation of posts employed the same details and materials as the rails.

[*Section and Photograph Redacted*]

[160] Revised Material List dated 10 Sept 1963. Salk Green Files 20140904_154022.

Millwork within arcade, North Office Wing in 1977.

External Millwork

Cook: What kind of wooden paneling is that?

Kahn: That is teak.

Cook: Teak. It weathers well?

Kahn: Depends on how much weather? The upper ones weather much more than the other ones. They were quite red when they got up there, but now they are sort of a grey and they look almost like the concrete, and they look more so later on when it gets to be really quite white. The walls will become very light.

Cook: They don't demand constant maintenance at all?

Kahn: No, not at all, because in the teak there is enough natural oil.[161]

Teak window walls are prefabricated assemblies consisting of horizontally sliding sash and fixed vertical tongue-and-groove siding. Some windows have pockets to receive the sliding sash. The interior side of the window wall assemblies are finished with American white oak paneling. The teak and oak members are supported on an internal framework of fir dimensional lumber framing and transite (cement asbestos) panels. These window wall assemblies give inherent flexibility to the occupants to control their environment by modulating light, ventilation, views, and privacy. Any combination enlivens the facades. Kahn designed three principal typologies: portico, office, and study. Variants resulted from different widths and heights of the structural openings. The window walls appear disengaged or float within the concrete planes with full-height fixed sidelights, similar to the slot windows of the Service Towers.

For the second level porticos, Kahn originally intended the following arrangement (outside to inside): full-height sliding slatted louvers, bronze insect screens, glazed doors, and solid paneled doors. Glazed doors have cross rails. Within a small bay, these elements formed the entire moving wall; solid doors have sixteen panels. Within the similar larger bays at the third level, pocket walls were formed for the elements to slide into, and were clad on the exterior with tongue-and-groove siding; these solid doors have only eight panels.

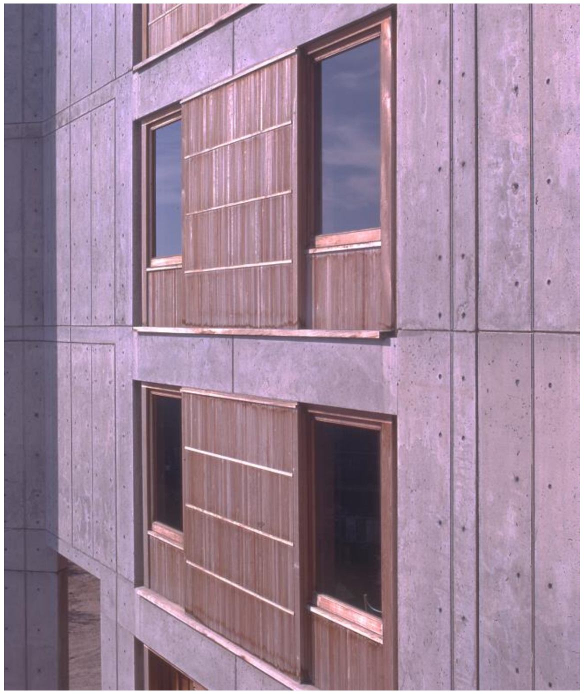
The office and cafeteria window walls to the arcade level follow the portico types with full-height sliding doors and louvers. At the majority of the west facade at the fourth, fifth, and sixth levels, the window walls were designed with an upper opening containing sliding louvers, screens, windows, and solid four-panel shutters that sit above an external dado of teak siding At the north and south end walls of the office wings and at the recessed portion of the west facade, the window walls contain a paired opening with sliding louvers and windows that return into a central pocket. The dado below the windows and the outside face of the pocket are clad with tongue-and-groove paneling. Due to the variations in structural opening heights and widths in

[161] Prown and Denavit, 116.

the office wings, the interior white oak paneling to the pocket walls was divided into four or eight panels, and the interior dado was either one or two panels.

The principal wall assemblies intended for the upper and lower Studies consist of sliding louvers, screens and windows. The subordinate walls at the toilets and lobbies have fixed bronze screens and louvers, but without glazed windows. Windows, doors, panels/shutters, and louvers are constructed with solid stiles and rails. Louvers are also constructed with hand-operated, interconnected, adjustable slats. Stiles have a pivot tenon on each slat end. The bottom rollers were laid in a bronze track with a bronze guide track at the top. Grant no. 1800 tracks were installed in the sills throughout, except that no. 1400 tracks were used for the upper studies. Silicone-treated woven pile weather stripping was used for the sliding glass doors and operable louvers. Hardware was supplied H. S. Getty & Co. of Philadelphia. Fixed bronze screens in the lobbies and toilets of the North Studies were made by Kane Manufacturing Co. of Kane, Pennsylvania, using a 14/18 mesh fiberglass plastic insect screen cloth. Exterior teak siding was approximately 1-1/2 inch by 25/32 inch tongue-and-groove teak boards set vertically and blind nailed between molded teak drips, and set flush in rabbets to the horizontal furring; end boards were to have a shadow gap to the frame; and near the center was meant to be a T-shaped closer, though in construction this differed from the shop drawings.

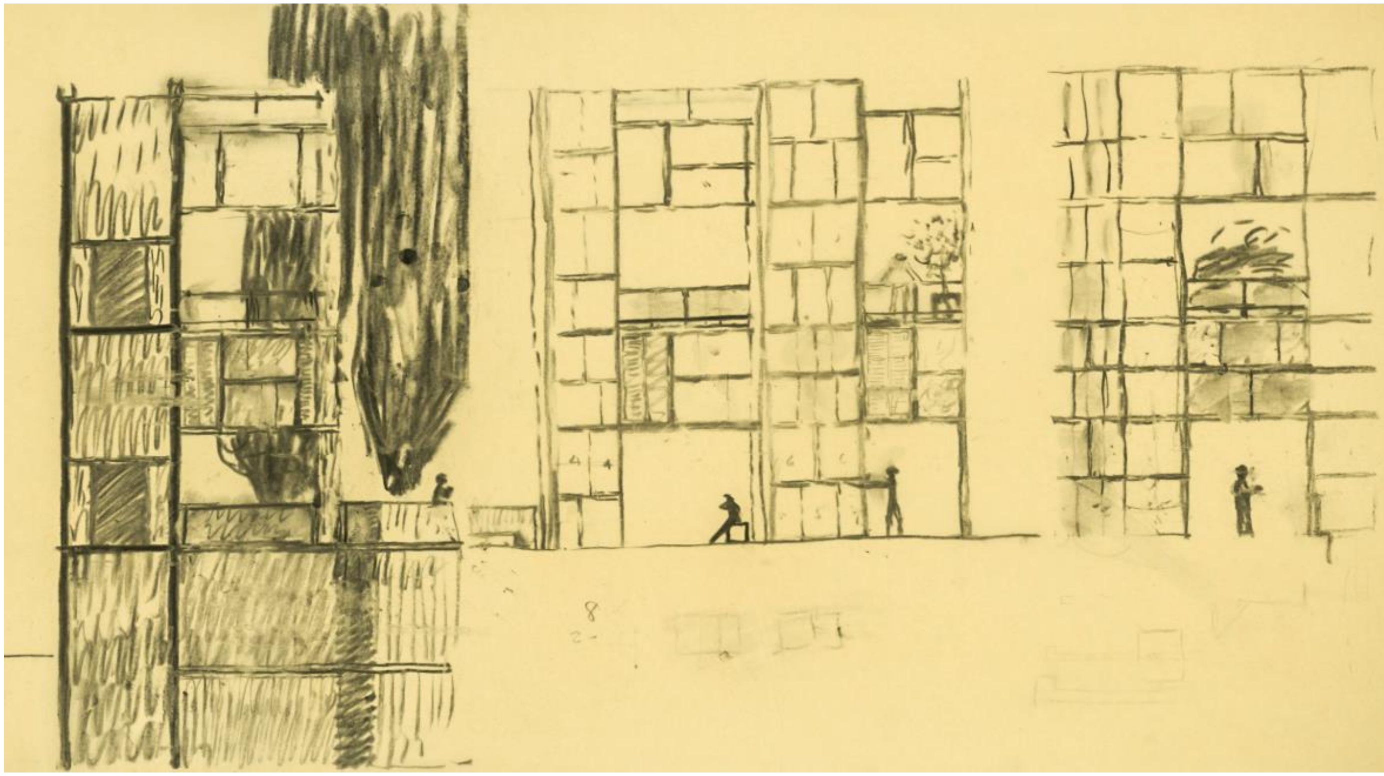
In early 1962, Kahn specified redwood for the millwork throughout for the four-laboratory scheme (Second Design), before changing to solid stock teak with a rubbed finish in October of that year for the two-laboratory scheme (Third Design).In November 1963, Kahn toyed with changing the teak to Japanese cypress when cuts, changes, and deferments to the construction budget were being implemented and considered. Kahn approached Greenheart, Inc., in Fort Lauderdale, Florida, in November 1963 about other timbers, namely Greenheart, *Basra Locus*, and Purperhart, but also imported teak, mahogany, iroko, and others.[162] MacAllister investigated a range of commercially available woods from nine companies in the United States for their physical properties, costs, and availability, in terms of project architectural requirements. His December 1963 results showed that only three woods had the required physical properties—Benge, Afromosia, and Honduras mahogany—but only the latter could meet the quantity demands within the required time schedule, and indicated the various savings. The red color of the mahogany was thought to create problems of appearance with the concrete but would achieve an approximate saving of $35,000.



Millwork, north elevation of North Office Wing in October 1969.

162 Greenheart, from British Guiana, was principally used in marine and heavy duty construction, but also for stair treads and bannisters. *Basra locus*, a Guianan teak, was used for the Shakespearean Theater in Stratford, Connecticut. Purperhart, from Surinam, was a stable and durable wood used for paneling, inlay, marquetry, carving, and billiard cues. (From *Tropical Woods*, No. 95, School of Forestry, Yale University, showing comparison between *Basra Locus*, White oak, Loblolly Pine, and Burma teak.)

However, architect, builder, and millworker all agreed that this substitution was a last resort. Kahn's eventual choice of teak prevailed.



Top: Kahn: studies for elevations, 1962.
Bottom: Millwork for the Office Wings in 1972.

Failure of teak siding, as a result of weathering due to ultraviolet exposure over time, revealed concealed nailing and reduced the cross-sectional area of the wood.

The 16 November 1963 changes offered by Kahn to reduce the general construction budget estimate of 15 November 1963 included changing ten entrance doors and frames in the Office Wings from stainless steel to flush panel wood doors.[163] On 31 December 1963, MacAllister authorized the omission of all sliding bronze screens in the North and South Office Wings and all sliding wood louvers in the South Office Wing and Studies from the millwork contract, with all fixed screens and hardware for sliding screens to be installed in those areas, which resulted in a reduction of $45,000.[164] The construction budget was under threats of cutbacks on numerous occasions. These budgetary cutbacks led to reduced specifications for the millwork of the studies and office wings, and the omission of weather stripping and flashings. MacAllister's memo of 3 April 1968 recorded that all the weather stripping in the studies and office wings was deferred to bring the construction cost in line with the budget.[165]

By 29 February 1964, the millwork contract had been let to University Showcase for $478,500, but the final cost had risen to $500,603 by November 1965. In December 1964, Fuller's Cost Summary recorded additional work awarded at a cost of $40,705, which increased in the Final Cost Report to $61,185. The final cost for the associated carpentry works by Fuller was $37,625, an underrun of $38,367.

During May 1964 the sample window wall had been made, shop drawings submitted, and teak was en route from the mill in Thailand, but by the end of July only a partial shipment of teak had arrived.[166] It was not until November 1964 that the millwork for the pilot study at the North Study on grid line 10 at elevation 372 was installed. Construction photographs dated 27 November 1964 show the prototype millwork panels in place.[167]

From January 1965, University Showcase began to erect teak panels at level 354 of the North Office Wing.[168] The millwork approached 82 percent completion at the end of February 1965, with the exterior teak panels for all of the North Studies and the entire North Office Wing completed, and the teak millwork on the South Studies about three-quarters complete.[169] With the caulking subcontract in place with Larson Bros, Center

[163] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.37.
[164] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.31.
[165] Salk Institute Archives. Carlos Johnson wrote to Zero Weather Stripping Company on 9 March 1967 to help solve the problem of weather seals to the doors and windows at the Institute. He felt that the marine air caused warping of the wood, thus enlarging the area in need of weather stripping by +/- 3/16 inch, and suggested using a 3/8 inch nylon pile in a bronze mount.
[166] George A. Fuller, Co., Monthly Report No 22; 31 July 1964.
[167] George A. Fuller, Co., Monthly Report No 26; 30 November 1964; photos dated 11-27-64; Photo # 1 Study Millwork Pilot Interior; # 2 Study Millwork Pilot Exterior.
[168] George A. Fuller, Co., Monthly Report No. 28, 31 January 1965.
[169] George A. Fuller, Co., Monthly Report No. 29, 28 February 1965.

Glass was glazing and caulking the windows at the North and South Office Wings and Studies, and the North Mechanical Wing and the North Laboratory Wing at all levels, but only to elevations 342 and 362 of the South Laboratory Wing. By the end of May 1965, the installation of the millwork was complete.

[*Section Redacted*]

Cleaning

Chemical cleaning has occurred on a two to three year maintenance cycle since 1967, which changed to the use of a teak oil sealer in the mid-1990s.

On 9 August 1967, authority was given to wash the entire external woodwork. On 30 October, Carlos Johnson, Plant Engineering of the Institute, reported to Ullie Lindner of Earl Walls Associates that the teak panels had been washed down and cleaned of mildew by A. P. McCune and Cloies Hudspeth and that the ". . . process had been effective; the panels are clean and give a very fine appearance"; however, he noted that the panels that had been washed first already showed reappearance of the mildew. Although he estimated an annual cleaning regime of $900, he also recommended:

> Immediately after washing the teak wood panels, a coating of water seal or bleach or preservative would be applied. This would preserve the wood surface, prevent the grain from rising, and keep the mildew from penetrating deeper into the wood. The appearance of the teak wood would then be kept in first class condition. This should reduce maintenance costs over the years if preserving the wood is permitted.[170]

[170] Salk Institute Archives, Construction Documents. Johnson to Lindner, 30 October 1967.

Johnson also noted that some preservatives might discolor the panels but only for a period of six to nine months, and "Thereafter, the wood would take on the appearance of the concrete." He urged that immediate reconsideration be given to some kind of treatment. On 23 August 1967, Komendant suggested to Johnson that the panels be sealed with creosote and both Earl Walls and Komendant suggested that this would not change the color of the paneling. Johnson walked the site with Komendant, who was of the opinion that this type of wood paneling was only suitable for interiors and that the study area leaks were due to improper construction of the teak panels.

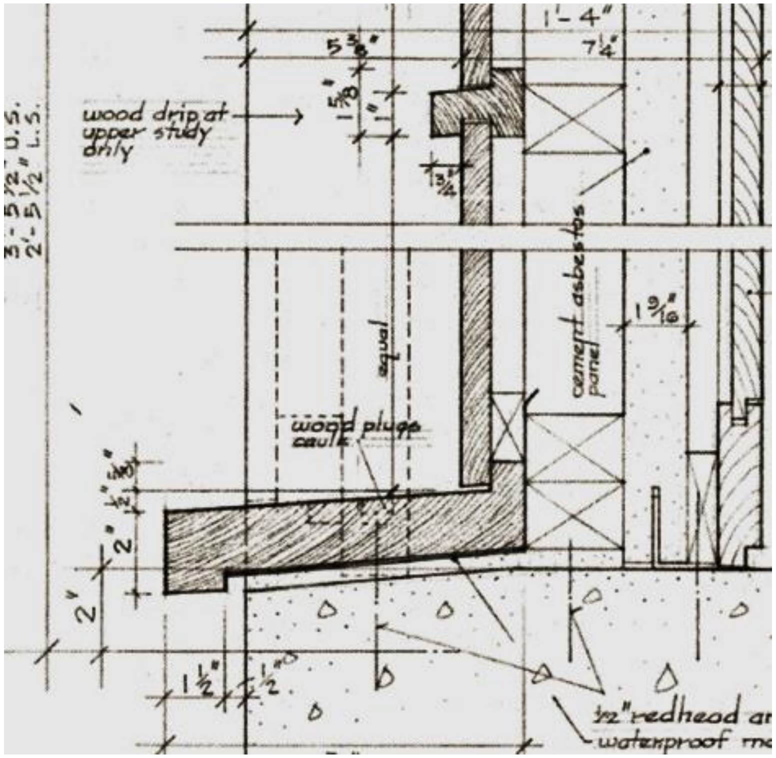
Johnson sent a stained piece of teak to W. E. Eslyn, Plant Pathologist in Fungus and Insect Investigations at the Forest Products Laboratory in Madison, Wisconsin, who reported back on 9 April 1968 noting the presence of a heavy accumulation of dark-brown, *Sclerophoma*-like hyphae on the surface. His recommendation was to scrub the affected surfaces with a Chlorox (bleach) solution, rinse the wood well afterwards and allow it to dry, or to lightly sand the wood, followed by paint or spray application of a water-repellent solution of 5 percent pentachlorophenol in light oil thoroughly soaked into the wood; he recommended that this process be repeated every two to three years. Johnson's memo to Virginia White on 31 July 1968 recorded that several samples of sealer on teak had been exposed to the weather for several months and were under observation by MacAllister and Lindner, and that some were seen as acceptable

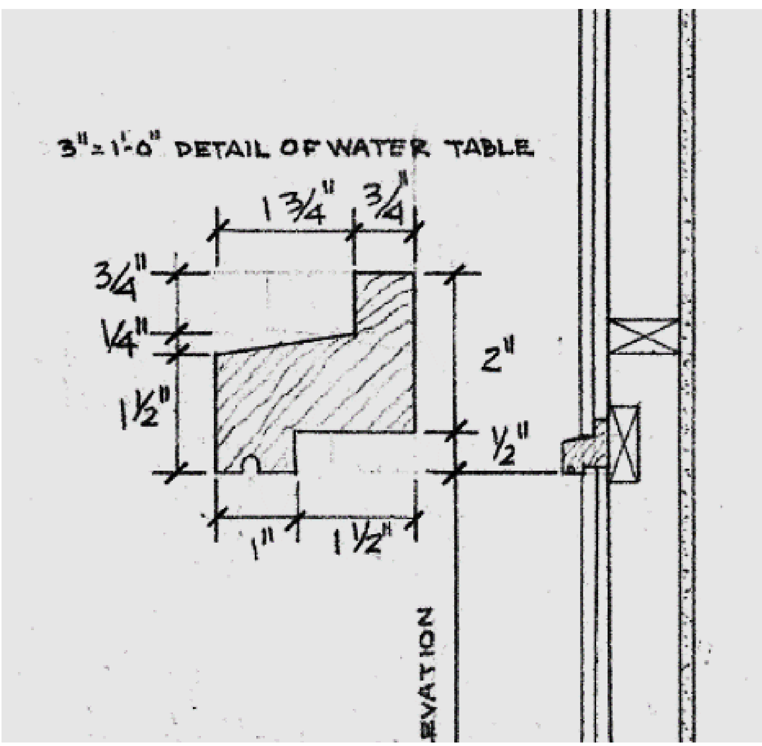
It has been verbally reported that cleaning of the teak millwork to all elevations except the Plaza took place every two or three years using a combination of bleach solution, tri-sodium phosphate and wire brushes. Brushes were discontinued due to damage.[171]

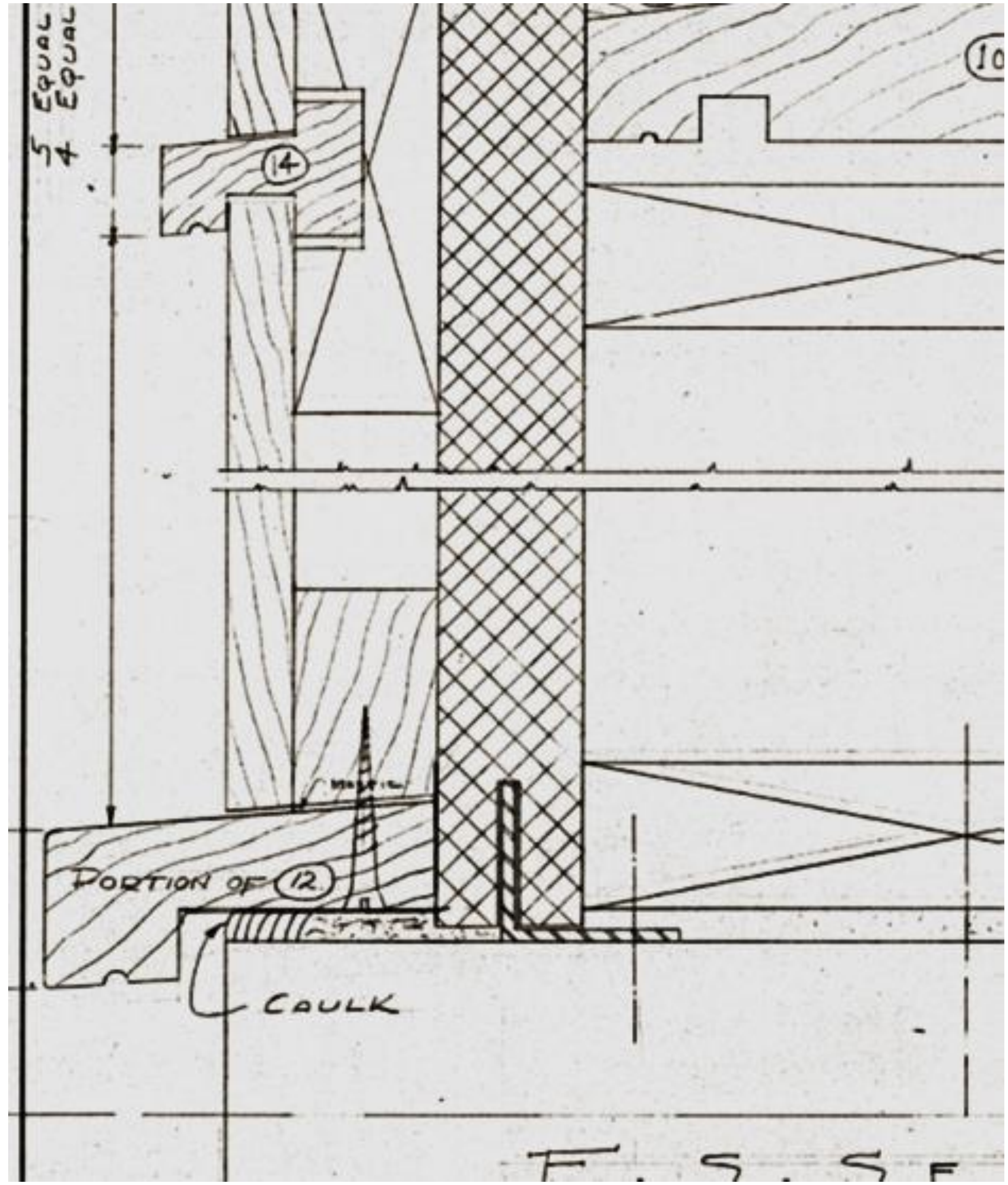
The treatment of the wood altered in the mid-1990s to the use of a two-part cleaner and brightener, TE-KA brand Scrub-less Teak Cleaner, after which the wood was sealed with a wood oil sealer, Tip Top Teak.

The window walls at the porticos and arcades, and other sheltered areas, exhibit a sharp contrast from deep, intense red color to bleaching. The red color is related to a varnish applied to the teak, which has weathered preferentially from more exposed areas. In work being conducted in 2016, paint strippers are being used to remove this varnish.

[171] Conversation with Garry Van Gerpen, Salk Institute, 2015.







Top left: Detail of Kahn's drawing LA-110 first drawn 10 June 1963; revised 26 June, 26 July, and 7 October 1963. Confirmed as built in July 1965.
Top right: University Showcase shop drawing first drawn 27-28 February 1964; revised 29 April and 1 September 1964. Note: piece 14 is the 'water table' to the Studies.
Bottom left: Kahn's Fisher House: 1" water table detail, 1964.

Left: erosion of water tables by erosion: exposure of secret nails and loss of siding.
Right: Impact of differential weathering on teak siding. At left, the non-original red-colored varnish remains, while at right, the teak surface is exposed.

Failures

The “water tables,” as termed on Kahn’s drawings, are the intermediate horizontal drip rails between vertical teak siding panels. The June 1963 drawings show the teak water table with a 3/4 inch projection and 1 inch high, and the underside sloped upwards to act as a drip, and is also confirmed on the as-built drawings of 23 July 1965. In February 1964 the drip was altered to include a semi-circular notch in the shop drawings by University Showcase & Fixture Corp. In December 1964 the water tables were significantly reduced in section to 1/4 inch, one-third of the original intended size, and the drip function was virtually eliminated. While is difficult to tell from the November 1964 photograph of the prototype millwork that the water table is similar in size to the head, as the depth of shadow appears similar, it is clear from the October 1967 photograph that the water table is the not the same size as the head. By comparison, at Kahn’s Fisher House in Pennsylvania, the September 1964 drawings show a cedar water table with a 1 inch drip projection and 1-1/2 inch high. The subsequent erosion of the teak reduced the cross-sectional area of the water tables and the tongue-and-groove boarding, and rendered the blind nailing of the boarding visible. In some cases there is very little left of the teak drip, which results in splitting and further losses. The loss of the drip function at the water tables has exposed the end grain of the vertical boarding to water ingress.

Water is wicking through the end grain of the siding, and there still appears to be significant water ingress along the bases and sills of the window wall assemblies. Water splash back from the sills and drips onto the teak siding also provides moist environments that further encourage fungal biofilm colonization, which results in the blackish streaks of varying heights along the bases of the paneling. This in turn generally corresponds with the grey patina. Fungal growths are noticeably worse on the north-facing elevations, which have limited exposure to ultraviolet light. Sheltered and recessed areas exhibit little or no biofilm growth. Staining from the teak is evident on the concrete, particularly at the recess to the slot windows. Calcite deposits are noted on some teak millwork beneath the concrete bridges.

Corrosion of the galvanized nails occurs due to the salt-laden air within the marine environment. Teak is one of the more dimensionally stable woods, and does not cause rust or corrosion when in contact with metal. However, within this environment, teak should be installed with stainless steel fasteners (with a higher corrosion resistance, such as Type 316 stainless steel) to ensure the durability of the attachment and avoid iron oxide stains within the teak. The resulting iron staining penetrates the wood fibers.

Missing siding boards occurs mainly on the south-facing elevations of the South Studies. The fallen board is generally the T-shaped closer, which is not nailed to the furring strips. It is the last board to be installed when constructing the siding panels and is fixed with an adhesive.

The grey weathering or patina that Kahn sought appears in the early construction photographs. Today it is prevalent on the horizontal members (sills, drips, etc.) and vertical framing members. West-facing elevations exhibit light to moderate bleaching and there is a lack of bleaching on the north elevations. Though much reduced in sheltered areas, the bleaching and patina increase from the lower to the upper stories and are more significant on the south-facing elevations.

The recent investigations and window conservation construction project overseen by WJE during development of the repair design for the teak window assemblies provided the opportunity to examine the condition of the wall construction of all of the window openings. Numerous areas of termite damage was observed to all fir structural members of this particular assembly. The failure of a south-facing teak tongue-and-groove panels of the North Office Wing in January 2014 during high winds demonstrates the structural damage from termite infestation. Timber and plywood were used for the horizontal furring to the siding as shown on the shop drawings, but this wood was untreated and was often affected by termites. Of great concern here is the threat to the structural stability and integrity of the wall assemblies. During the 2016 teak window conservation project, termite damage was found to be localized but relatively common on south and west facing window locations; infestation was observed and mitigated at both the north and south studies including the west facing office wings for both the north and south wings.

Significant portions of the teak millwork of the windows, doors at ground level (as those at the studies are oak), solid oak panels, shutters, and exterior louvers are generally intact and sound, although west-facing louvers are damaged and weathered to varying degrees. In general, larger-profile teak elements such as window sills and jamb members were found to be relatively intact, while smaller-profile teak elements such as tongue-and-groove paneling and louver slats were found to be vulnerable to major section loss.

Surfaces exhibit erosion due to ultraviolet light-related deterioration, resulting in a rough teak surface, and possibly further erosion due to past cleaning efforts.

The significant loss of cross-sectional areas of the siding and water tables, possibly as much as 1/4 inch, makes them unrepairable, and replacement is the only option. The iron staining as a result of nails into the tongue-and-groove panel sections probably cannot be removed without aggressive sanding, resulting in further loss of dimensional area. It was probably over-optimistic to believe that the 1/4 inch projection of the water tables as constructed would provide adequate protection to the end grain of teak siding in severe exposures, though it appears to have been somewhat effective in well-protected areas such as the north-facing elevations of the studies facing the laboratories and under the bridges. The reasons that led to this change in size are not yet explicitly known but given the extent and context of cost reductions throughout the construction history, it is reasonable to assume it was budgetary rather than aesthetic.

Top: Server termite damage to North Study Tower, 2015
Bottom: Water damage to teak millwork.

Clearly, the fungal biofilm has been an aesthetic issue for the Institute since 1967. It is primarily a non-destructive surface phenomenon, with a maximum accumulation of 1mm, and does not attack the lignin or cellulose within the teak. Cleaning is a short-term solution to the visual problem of biofilms, as this is an ongoing phenomenon of the building site. Gentle cleaning methods will be necessary to maintain aesthetics.

Kahn's and Salk's aesthetic for the teak millwork has not met their intention of blending with the color of the concrete. Kahn was aware that the weathering properties of the teak would be differential and related to orientation and exposure to wind and rain, but he was certainly unaware of the marginal effects of weathering due to varied building elevation orientations throughout the site including the effects of the biofilm accumulation on the teak resulting from surrounding eucalyptus on site. Uniformity of weathering, color, and appearance is not achievable. Kahn desired a wood that was maintenance-free and did not require refinishing, but teak in this environment has proven to be otherwise.[172] The Salk's aesthetic altered in the mid-1990s after accepting advice to apply the teak brightener and wood sealer in an attempt to eradicate the problematic biofilm. This has resulted in the variegated appearance of the millwork seen today.

Teak window wall investigation and repair/restoration program

At the request of the Salk Institute, WJE conducted an investigation and studies of the teak window wall assembly in coordination with the Getty Conservation Institute finishes studies. WJE then developed design and construction documents for repair and restoration of the teak window wall assemblies. The repair/restoration work was ongoing during preparation of this report.

As discussed, above, the window frame systems within the building are composed of oak and teak-wood assemblies combined with internal prefabricated synthetic (transite) panels and Douglas fir structural framing. The windows include various combinations of pocketed or non-pocketed sliding sash with glass, louver, and solid panel components. Additional sliding and swing door assemblies that are also clad with teak provide access to balcony areas. Window systems typically include heavier teak framing members at jamb, sill, and head members, and have vertical tongue-and-groove cladding at the non-glazed locations. The cladding is supported by non-preservative-treated wood members, and there is no secondary drainage system included in these assemblies.

The transite panels used as part of the window wall assembly structure consist of an asbestos containing material (ACM). An independent certified industrial hygienist retained by the Salk Institute investigated and opined on requirements for careful removal, handling, storage, reinstallation and/or disposal of this material.

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[172] Ibid., GCI conference call 5 Dec 2013.

In response to the conditions observed, three repair approaches were developed, to be implemented at specific locations depending on conditions present.

The following repair items were applied to all areas: reinforcing of selected window frame connections to the structure, review interiors of windows for termite damage and treat exposed wood framing with Boracare, removing and discarding existing weather stripping where present, and installing weather stripping to improve water tightness. Wherever new softwood framing or furring elements were needed, acetylated Radiata pine (tradename Accoya) was used for improved decay and insect resistance. Stainless steel was used for all nails, screws, and other fasteners during the work. Perimeter sealant was replaced throughout the teak window assemblies, including at the perimeter of the sidelight glazing. Previously applied films were removed from glass, and a consistent type of film was applied to all glass.

Repair Approach 1, Minor Intervention, was implemented at locations with limited distress and involved relatively little intervention. This repair approach generally consisted of initial frame inspection from the building interior to confirm condition of underlying framing; refinishing teak surfaces in place; and application of a surface treatment; as well as replacement of perimeter sealant, including new drip edge flashing at the head of the window. At many of these windows, existing red-colored varnish was present at the start of the project, which was removed using chemical paint strippers prior to finishing of the teak. Weather stripping was added to existing sash and frames. Existing sliding sash were retained in this approach.

Repair Approach 2, Moderate Intervention, was be implemented at areas where vertical tongue-and-groove teak boards were severely worn and nails exposed. In addition to the common items above, this repair approach generally included removal and replacement of the tongue-and-groove cladding with new teak, including new furring strips and receiving pieces. Sliding window and louver sash were replaced with new replica teak sash; the original hardware was removed and reinstalled in the new sash. All other teak surfaces (jambs, sills, and header components) were refinished in place and surface treatment applied; perimeter sealant was replaced, including new drip edge flashing at the head of the window; and a new base flashing installed with underlying drainage system secured to existing framing, behind the new cladding. At locations where decay or minimal termite damage is present, individual affected members were sistered or replaced from the exterior side.

Repair Approach 3, Major Intervention, was implemented at areas where vertical tongue-and-groove teak boards were severely worn, nails exposed, and termite damage prevalent. In addition to the common items above, this repair approach generally included removal and replacement of the tongue-and-groove cladding with new teak, including new furring strips and receiving pieces. In addition, transite backup panels were replaced with new tongue-and-groove Accoya cladding. Sliding window and louver sash were replaced with new replica teak sash; the original hardware was removed and reinstalled in the new sash. All other teak surfaces (jambs, sills, and header components) were refinished in place and surface treatment applied; perimeter sealant was replaced, including new drip edge flashing at the head of the window; and a new base flashing installed with underlying drainage system secured to existing framing, behind the new cladding. At locations where decay or minimal termite damage is present, individual affected members were sistered or replaced from the exterior side.

With all three approaches, existing oak interior millwork was salvaged and reinstalled.

Exterior finishes studies

In addition to the finishes studies conducted by the Getty Conservation Institute and described above, further evaluation of surface treatments for the teak on the buildings was conducted by WJE as part of the 2016 teak repair/restoration program to address the following goals:

- Mitigate the deterioration of the teak wood due to ultraviolet light exposure. When exposed to ultraviolet light, the lignin in the wood material breaks down over time. This loss of lignin undermines the bond of the cellulous and can result in a gradual erosion of the wood surface.

- Mitigate the color change of the teak wood due to environmental exposure. As the exposed wood surface oxidizes, the color changes non-uniformly based on different exposure over time, ranging from variations of brown-gold to a varied light to dark grey.

- Provide a means to blend new and old teak, for a more uniform appearance in the completed work. The project scope includes both retention of intact and weathered original teak, as well as the installation of newly fabricated Burmese teak elements. Applying a custom stain treatment to all teak surfaces can provide a way to minimize color difference between the new and old teak.

- Mitigate the effect of biological growth on the teak surface. Fungal spores from eucalyptus are endemic in the environment in San Diego, and a black-colored fungal biofilm develops on the exposed surface of the teak. Although not damaging to the teak in itself, the biofilm is considered aesthetically objectionable by the Salk and leads to the need for cyclical cleaning of the teak. If not carefully implemented, these cleaning processes may be damaging to the teak substrate. Incorporating the use of a fungicide in the treatment program was hoped to provide some benefit in reducing the rate of biofilm accumulation and buildup.

As part of this study, WJE evaluated the coating treatment selected by the Salk based on review of the GCI coating trials, which had been exposed to ultraviolet light and weathering conditions in mock-ups constructed on the roof of the South Laboratory Building. The mock-ups had been in place for one year (since May 2015) at the time of the further evaluation.

The mock-up addressed in this review consisted of selected samples from the non-film-forming coatings included in the trial mock-up panels. Evaluation consisted of visual review of the mock-up, followed by laboratory analysis and evaluation of selected samples removed from the mock-up together with a reference sample. Two coatings manufactured by Sansin Corporation as applied to two different teak surfaces (new teak and weathered original teak) in the mock-up were studied: a clear coat application reported to contain a fungicide, and a tinted, custom coat application selected to match the appearance of the natural teak wood color. The GCI report noted that surface preparation for samples in the mock-up included cleaning the original teak with Wolman Deckbrite Wood Cleaner & Coating Prep and Wolman Deck & Fence Brightener Wood Cleaner & Coating Prep. The cleaning was intended to remove biofilm and surface dirt from the teak prior to coating application. All teak, new and old, was lightly sanded using an orbital sander.

Evaluation conducted in the WJE laboratories included microscopical examination of the samples using an optical microscope, followed by examination of the coatings using scanning electron microscopy with energy dispersive x-ray spectroscopy (SEM/EDS). Based upon the laboratory analysis and visual inspection of the trial samples, the following significant observations were made:

1. The surface roughness of the teak increased after one year of weather exposure.

2. For the pigmented coating, some of the pigment had been lost after one year of weather exposure. A large proportion of the pigment in the coating weathered away after one year. The remaining coating appears to continue to provide color as well as some protection against deterioration due to UV exposure.

3. For the clear coating, no visual or analytical evidence was found to indicate that two coats of clear sealer remained on the surface of the sample. It appears that most if not all of the clear sealer coating weathered away after one year of exposure.

4. No evidence of the fungicide was detected. After one year of weathering exposure, the fungicide component of the coating has been lost and provides no further benefit. As observed on site, black biofilm had begun to develop relatively uniformly on all coated and uncoated new and old teak within the trial panels. The beginning of biofilm development was observed by GCI on November 4, 2015, less than six months after application of the coating trials.

5. No evidence of penetration of the coatings into the teak was observed. Rather, the pigmented coating formed a thin layer (less than 5 microns - 0.005 mm) on the teak surface. During the one year of exposure, this thin layer was susceptible to loss due to weathering. Likely in part due to the dense, oily character of the teak material, the coatings did not penetrate the wood as intended.

Based on the laboratory analysis and observation of the trial panels, the following conclusions were reached relative to the coating of the teak substrate:

Top: View of original teak panel, as part of mock-up.
Bottom: View of new teak, as part of mock-up.

1. Regardless of the coating used, it can be anticipated that the surface roughness of the teak will gradually increase over time due to weathering.

2. The pigmented coating will provide valuable protection to the teak, as long as it remains on the surface. Also, the pigmented coating does mitigate the difference in color between the new and the old teak.

3. Based on the appearance of the trial panels and the lack of evidence for remaining fungicide after one year of weather exposure, it is clear that the fungal biofilm will be a recurring phenomenon at the site. The application of a coating will not provide any appreciable benefit in terms of suppressing or slowing the development nor the removal of the biofilm. This biofilm does not damage the wood and is primarily an aesthetic concern.

4. After completion of the current project, ongoing monitoring and maintenance reapplication of the tinted coating will be needed. The length of time between cleaning and maintenance reapplication of coating is not currently known. Factors to consider include the rate at which the pigment is lost from the surface and the rate at which aesthetically objectionable biofilm develops on the surface. Based on the current study, much of the coating in the trial samples has been lost after one year, and reapplication of the coating would likely be desirable soon. However, with different surface preparation techniques and application of two coats of the coating, it may be possible to lengthen the time between reapplications. Given the architecture for the complex, there are many variations of exposures of the teak windows. There are quite a number of areas which may not weather at the same rate as areas directly exposed to ultraviolet light over time. It is further anticipated that actual maintenance cycles and need for retreatment of given surfaces will depend on microclimate exposures (i.e., north versus south, etc.).

Although the results of the mock-up coating trials were mixed, the decision was made to proceed with application of a pigmented, non-film-forming coating to all new and existing teak as part of the project. The selected coating was a pigmented water-based coating manufactured by Sansin.

Policy 110
Monitor and maintain the window wall assemblies and carry out interventions only where necessary to protect the building fabric and the interiors.

NB: Repair and restoration of the window wall assemblies has is being completed as part of the repair and restoration program in progress in 2016, as discussed above.

Policy 111
To retard the growth of the fungal biofilm on the teak assemblies using safe treatments determined by trial mock-ups, bearing in mind that such treatments require periodic reapplication as part of cyclical maintenance.

Policy 112
To consider allowing the existing, repaired, and replacement teak millwork to weather naturally without intervention, should treatment to address biofilm-related discoloration become available.

Water penetration

Weather stripping was omitted from the building contract for savings. Extruded bronze, Series 54 Piece 24 and 25W, manufactured by Zero Water Stripping Co. were procured and installed at the west-facing windows of the library in January 1966. A memo of 9 November 1966 noted that a strategy for the repair of the study walls had been suggested at a cost of $2,500, although no detail was given except in personnel hours. On 7 December 1966, Johnson reported that all the external windows to the studies leaked, as did all the outside windows of the West Office Wings, due to wind-driven rain; leakage occurred around the rabbeted moldings and at the bottom of the framework, where the caulking and flashing prevented it escaping. Water ran via the cork strips, under the oak flooring, and along electrical conduits, to drip on furniture and the floor beneath. Johnson's recommendations included sealing rabbeted joints and seams, sealing ends of guide rails, correcting the caulking to allow draining, and caulking internally to prevent flooding. Other water leaks were noted in various locations in nine other studies. Johnson's memo of 4 March 1969 to Virginia White noted that the leaks had been corrected in only half of Dr. Cohn's study, the exterior had not been sealed, and only two window units had been sealed and weather stripped from the inside.

The original installation did include two rows of sweep weather stripping at the top of each sliding sash, to cushion the sash against the bronze track and prevent rattling of the sash.

As part of the 2016 project, new weather stripping was installed at all operable sash. Typically, bulb gasket type weather stripping was used at the stiles of each sliding sash. Felt pile type weather stripping was applied at the bottom rail, and sweep weather stripping was applied at the top rail, matching the original design. Throughout the building, various types and sizes of non-original weather stripping were removed from sash and frames.

In many locations, the existing frames were found to be out-of-square. In these cases, the sash were adjusted to maintain alignment with the existing sill and ensure weatherproofing of this critical joint. At the jambs, spring brass weather stripping was installed onto the jamb to provide closure of the remaining irregular gap. In some locations of opposing sliding sash, such as the second level arcade doors, the weather stripping was installed using a new teak block fastened to the sash.

Sealants and flashings

Because the specified the 16 ounce copper flashings were eliminated from the design, sealant was installed at teak perimeter joints. The reglet or continuous dovetail slot in the concrete was installed to receive the flashing and for attachment of the window assembly. Shortly after construction, the sealant was found not to adhere to the teak substrate, and based on the bonding failure observed, Dow Corning initially concluded that the primer was inadequate. Center Glass Company, instructed by Fuller, replaced the sealant under the terms of their guarantee on 29 December 1965. The problem was unresolved, and Dow Corning replied on 10 May

1966 stating that their product and any other kind of sealant would not adhere to teak because of the oil content of the wood, and that ". . . the architect has designed an unworkable system." Dow Corning disclaimed any responsibility for the failure of the 780 sealant.[173] On 3 April 1968, MacAllister wrote to the Institute, "We have made every attempt to force Dow-Corning to make good on this failure, but without success. Perhaps the Institute can approach Dow-Corning at a higher level of management."[174]

To address the concern of sealant adhesion to teak, in the 2016 project, new sheet metal flashings were installed at critical locations, such as at the head of the window and at the sides of the teak jambs at the sidelights. These metal flashings allowed for new Dow silicone sealant to be installed between the metal flashings and the concrete substrate.

Policy 113
To monitor the teak window wall assembly sealants and flashing, and conduct cyclical maintenance as needed to ensure good repair.

Wood doors and finishes

Left: Teak door and hardware by Kahn to North Study Towers.
Right: Plywood door were installed at the South Study Towers due to economic cut backs.

Oak-framed and glazed doors signify the office wings and cores, whereas oak doors herald the studies. In September 1964, only eighteen one-hour fire-rated oak slab entrance doors (one per study), 3 feet 1-1/2 inch by 6 feet 10 inches by 1-3/4 inches, were installed to the North Studies, as the cost cuts led to plywood-faced flush core doors being used for the South Studies. Those on the North Studies have stainless steel door frames, whereas those to the South Studies have wood frames. Warping of the doors led to remedial work recommended by MacAllister on 13 October 1965, which was carried out by University Showcase; this work consisted of the addition of pivots to keep doors in alignment, varnishing the exposed edges, and sealing the surfaces with a clear flat finish. The finishes on many of these plywood doors have severely deteriorated.

Hardware

By January 1964, the contract for the finish hardware had been let to West & Company for $24,500 and additional works to the sum of $13,620 had been approved by November 1964. The final cost in November 1965 totaled $25,956, plus extras valued at $22,088.

At the end of February 1964, the hardware schedule had been approved. Although scheduled for delivery in July 1964 it eventually arrived on 15 October 1964 and was kept on site until required for installation.

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[173] Louis I. Kahn Collection, University of Pennsylvania, 030.II.
[174] Salk Institute Archive, Construction Architecture Documents.

By 31 March 1965, a partial shipment of the blast doors and their hardware had arrived for Overly Mfg. Co. to begin their installation in the North Mechanical Wing.[175]

The hardware was generally designed and supplied by Sargent Co. Lock and latch sets specified as mortise locks with lever handles were modified to be all stainless steel. Locks were equipped with a Sargent removable core system to permit prompt and efficient changes in the keying system that was developed in consultation with Kahn's office. The stainless steel hardware is of good quality, universal or democratic in its use; the same lever handle types and locks are used throughout. Flush pull handles were intended to signify service spaces, cupboards, etc.

Policy 81 is appropriate for the replacement of plywood doors to the South Studies to meet Kahn's architectural intentions when budget and program permit.

Policy 114
To replace the finishes to external wood doors on a cyclical program to the original specification so as to maintain a uniform rather than a degraded appearance.

Policy 115
To replace door and window hardware to meet the original specification while fulfilling the programmatic requirements of the Institute.

[175] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.26.49.

Roof

Simple built-up roof systems are employed throughout. Rainwater drainage from the satellite studies and service towers is linked to the laboratory roofs and carried via gutters to the junction with the west office cores, to be discharged with great effect as a cascade over open, sloping concrete blades, down five stories of concrete walls to land in the canals at the lower level. The roofs of the office wings each drain to a single internal downspout, and the roofs of the mechanical wings to two internal downspouts. Corridors, balconies, porticos, arcades, and bridges drain via lead scuppers to the lower gardens or canals. The roof gardens over the center mechanical room are drained via scuppers to the east trenches outside the line of the ornamental Corten fencing and mechanical wings.

Kahn agreed in December 1962 to Fuller's recommendation to change the Hypalon roofing system to a five-ply roofing system.[176] An undated sketch for the roof of the South Office Wing shows a Dow Saraloy 400 five-ply felt roof system with gravel. The roof is without parapets; the edge treatment is a steel angle clad in a metal flashing and there appears to be no gutter treatment. The Third Design addressed this lack of gutters with architectural glazed terra cotta gutters in 4-foot lengths, incorporating 2-inch-diameter overflow holes and a projecting drip. A copper gravel stop formed the edge treatment to the roof but was concealed from view by the terra cotta gutter. It is unclear how the water was to be collected and dispersed.

Johns-Manville Co. of Philadelphia was the supplier of the Last-O-Roof asphalt roofing system consisting of Aquadam for dead level roofs and J-M 190 degree melt point asphalt for slopes greater than 1/2 inch per foot. Two layers of 15 lb. asphalt saturated rag felt and two layers of 15 lb. asbestos saturated felt were overlaid with gravel. A 16 ounce copper gravel stop formed the gutter edge treatment. Last-O-Bestos membrane formed the gutter lining, with Last-O-Flash cement flashing in conjunction with Thiokol sealant.[177] Kaiser Fir-Tex roof insulation, 1/2 inch thick, from Kaiser Gypsum Co. was laid.[178] Exposed surfaces were specified to be finished with Last-O-Lume coating in a color selected by Kahn, although the color is not currently known. The waterproofing membrane for the roof garden over the center mechanical room and brick-paved walks, as well as for showers in the Service Towers and Mechanical Wing, was also a five-ply assembly with three layers of asphalt and two layers of glass fabric. The concrete parapets vary in height and thickness, and

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[176] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.9.21.

[177] Archival documents indicate that Asbestile flashing cement contained 4 percent of No. 4 M 28 long fiber asbestos, and asbestos saturated felt is also noted. Where original roofing was removed, asbestos-containing materials are likely no longer present; however, if original roofing remains (which may be the case with the lower exhaust roof), then asbestos-containing materials may still be present. This was not confirmed as part of the present study. If present, these materials may require special handling and disposal during repair or replacement.

[178] 29 Oct 1963.

box gutters are typically 1 foot 6 inches wide. The parapet head slope inwards to shed water, and the bituminous flashing dressed 3-5/8 inches over the rabbeted head relied upon a bond between concrete and bitumen, which was possibly prone to early failure. On higher parapets, a reglet was formed and infilled with Burke Type A cushion-lock reglet formed from 16 ounce copper, into which the 16 ounce copper flashing was pointed with butyl rubber and secured with lead wedges at 4 foot centers. Similar detailing was employed for the planters overlooking the West Garden and the travertine-paved roofs of the office wings, arcades, and porticos. All copper work was lead-coated to prevent copper staining on concrete and sealed with Dow Corning 780 silicone rubber sealant.[179]

The roof contract was let to Cox & Gregg on 31 July 1964 for the sum of $29,384, although in the final cost report of November 1965, Fuller reported an underrun of $3,884. Paller & Goldstein was awarded the sheet metal contract for $8,000, with an overrun of $485 at the final cost report.

Roofing commenced on the cooling tower of the South Mechanical Wing in August 1964. During December Cox & Gregg hot mopped the cooling tower roof of the North Mechanical Wing and North Laboratory Wing, and sheet metal flashings followed swiftly after. In January 1965, gravel was spread over the whole of the North Laboratory Wing, and the cooling tower roof of the South Mechanical Wing and the South Laboratory Wing roof were mopped, felted, and graveled. The flashings for the North Laboratory Wing were completed and preparatory work was underway for the roof garden over the Center Mechanical Wing. March 1965 saw the completion of the paper, tar, and gravel work on the roofs of the North and South Studies, Study Stairs, Office Cores, and Office Wings, and Paller & Goldstien completed the flashings at the roofs of the North and South Study Stairs, and the garden of the Center Mechanical Wing and the South Laboratory roof. Cox & Gregg completed the roofing work for the North and South Studies, Study Stairs, Office Cores, and Office Wings by 30 April 1965. In parallel, Paller & Goldstien completed the sheet metal flashings at the Center Mechanical Wing roof garden, and the roofs of the South Laboratory, and the North and South Study Stairs.[180]

The March 1993 condition analysis by Ises Corporation recommended roof replacement throughout the Institute’s buildings either using a modified bitumen or an EDPM system. In 1999, the North and South Studies and Study Stair roofs were overclad with an aluminum shed roof sloped toward the gutters of both laboratory roofs. It was reported that the Institute found the roof to be visually unsatisfactory and it was promptly removed. Subsequently, nearly all roofs were replaced in 2000–2001, with the exception of the lower exhaust roof, which may be original. The new roof system is a modified bitumen membrane with a granulated cap sheet and continuous galvanized metal flashing anchored to the concrete. White marble ballast was applied over the roof system. The gutters are lined with polyvinylchloride (PVC) single-ply membrane

Top: Cascade and moat infilled by later metal duct is intrusive
Bottom: Moat to arcades of office wings.

[179] 24 June 1963 LA-118; additional as-built details are recorded as being on SK-12-31-64.
[180] Louis I. Kahn Collection, University of Pennsylvania, 030.II.26.49.

Roof solar panels.

with a stainless steel termination bar anchored to the concrete parapet wall. Much of the lead-coated copper flashing and trim present at the various roof areas was retained. Sealants at flashings, copings, and termination bars have deteriorated. At some locations the sealant has partially de-bonded, resulting in open joints. Termination bars at expansion joints have displaced. These conditions should be addressed for as part of the maintenance plan.

In 2010–2012, as part of the sustainability approach, the solar electric power system was installed on the laboratory roofs. The photovoltaic panels are mounted to a tubular steel framework that is anchored to the concrete roof structure with steel anchors spaced 20 feet apart. The photovoltaic panels are raised approximately 8 inches above the roof surface and angled toward the south. Although it not visually intrusive from ground level, the photovoltaic system has an adverse impact on the fifth elevation that was considered important by Kahn and Barragán.

Policy 116
To identify and remove asbestos-containing materials (if present) in accordance with safe abatement procedures.

Scuppers

Left: Kahn's lead scupper to roof garden.
Right: Kahn's lead scupper to laboratories.

Glazed terra cotta was originally specified for the scuppers, with 16 ounce copper flashings at the base and head, and hardware cloth to retain the gravel.[181] Kahn had red to orange and natural yellow glaze colors in mind.[182] There were difficulties in the manufacturing process of the terra cotta by Gladding-McBean that led the cost to double to $55,000, and by the time these were resolved, cost reductions were being sought.[183]

One of the 16 November 1963 modifications offered by Kahn to reduce the general construction budget was to change the terra cotta gutters to cast-in-place concrete with a neoprene liner.[184]

Terra cotta was deleted from the contract on 22 November 1963, although $17,255 budget for this work was retained throughout George A. Fuller Company's cost reports until the end of 1965. The scuppers were then changed to cast lead and the contract was let by 29 February 1964 to New England Lead of Connecticut for the sum of $5,091. The lead alloy was 98 percent chemically pure lead, with 2 percent antimony. The scuppers

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[181] Type K, 23 June 1963 drawing LA-118.
[182] 24 Sept 1963 Marshall Meyers to MacAllister; drawing LA-120.
[183] 1 October 1963, MacAllister to Meyers: ". . . this whole terra cotta detail has been a real problem for us. Komendant didn't like it, the manufacturer couldn't make it, the Builder's estimate doesn't cover it, the color is wrong, etc. etc. etc. Faith!"
[184] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.37.

were cast in molds (steel or aluminum) as a single piece, except Type E (below), which was lead burnt together, and were sand blasted after casting. Six types of scuppers were developed, defined by their location: A for the pipe space service corridors; B for the laboratory balconies and study bridges; C for study arcades, porticos and mechanical wing roofs; C’ for the laboratory balconies facing the studies; D for the laboratory balconies to the service towers and roof garden; and E for the office wing porticos. Lead scuppers were either bedded in epoxy cement or in a compound of litharge and glycerin, and any concrete in contact with lead was coated with silicone. Lead scuppers with hinged lids are also integrated into the water cascades to the pools at the west side of the Plaza.

Samples were delivered to site in July 1964. The scuppers over the roof garden of the Center Mechanical Wing were the first installed in September 1964. Samples for the laboratories arrived in November 1964. In March 1965, the lead scuppers were on site and installation was underway (67 percent complete).

Type E scuppers for the travertine-paved porticos to the office wings are made of cast lead in a hollow box section. These discharge directly below to the travertine-paved arcades. A detailing defect or sealant loss is allowing water penetration to cause damage to the concrete slab soffit and exposing reinforcing bars, which have minimum cover. One scupper is blocked in front of the library portico. These should be easily repaired as part of an ongoing Maintenance Plan.

The architectural concrete of the Center Mechanical Wing facing the Eucalyptus Grove is being badly damaged around and below the scuppers; there is erosion of the concrete itself, staining, and deposits that are forming on the concrete surfaces and are visually disfiguring. Scuppers, such as at the bridges, appear to have defective joints or failed sealants at the concrete, as white and brown staining is appearing on these surfaces. This is also occurring on the soffits of the arcades to the Office Wings. Deterioration mechanisms that are affecting the concrete are further discussed in the next section of the report.

Kahn created a hierarchical structure in the selection of internal materials for interior walls: architectural fair-faced concrete, stainless-steel glazing, and millwork.

Internal Architectural Metalwork

Internal steel

Door sets: polished stainless steel and painted hollow metal

During construction in 1963, Kahn developed a hierarchy of door types related to the materials and their locations within the complex, all as described in External Architectural Metalwork. Internally, typical door opening heights were determined by the brick and block coursing, whereas in concrete their heights responded to the space that they served. Dull chrome was used for blast doors in the laboratories. Painted hollow metal framed doors with 2D stainless steel frames are used throughout the office cores and mechanical wings.

With changing programs and occupants within the laboratory wings, a range of doors and door sets have been installed that has resulted in a lack of consistency throughout the complex.

Sound attenuating and blast resistant doors, frames and hardware

These flush metal faced doors have a dull chrome finish. Frames are four-sided, constructed from channels with strap anchors welded to the frames. Sound deadening was specified to be achieved either with compressed asbestos or mineral wool. The hardware was of the refrigerator door type, consisting of adjustable strap hinges and roller latch mechanisms with an internal panic release.

By 31 March 1965 a partial shipment of the blast doors and their hardware had arrived for Overly Mfg. Co. to commence installation in the North Mechanical Wing. The shipment also contained doors and frames, access panels, and drinking fountains for installation throughout the complex. Installation of all but two sound and blast doors in the solvent storage rooms had been completed by 30 April 1965.[185] Other metalwork

Rails (handrails, wall rails)

Initially, Kahn intended to use cadmium plated steel universally throughout, but in September 1963 he reduced the specifications for cost savings and corrosion resistance, and generally changed to stainless steel.

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[185] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.26.49.

Further changes in specification followed in November 1963. Internal rails and wall rails in the office cores are the same design as the external railings at the study stairs and that design was finalized on 28 May 1963. They too are made unusually of extruded stainless steel, type 316 with a 2D finish. Wall rails are set away from the walls 3/8 inch by T-shaped stainless steel plates fixed into the concrete.[195] Balusters are 1-1/2 inches by 1/4 inch. Secondary guardrails at the landings, designed by Kahn's office, were installed following the 1972 OSHA inspection as described in External Steelwork.

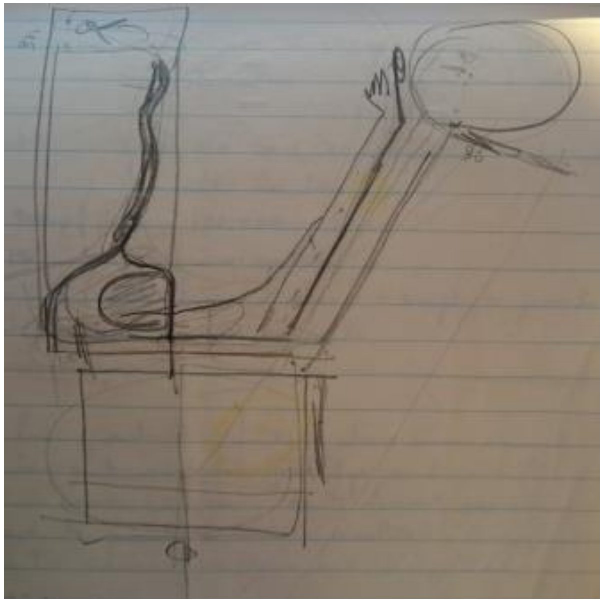
Fire hose and valve cabinets

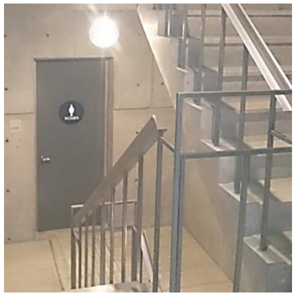
Recessed fire hose cabinets, 30 inches wide, generally located on all levels and deliberately sited within the architectural concrete, are Standard Fire Hose Company unit no 96. They are constructed of type 302 stainless steel, satin finish, throughout. The door frames are folded steel with a1/4 inch shadow gap sealed with neoprene. The hinged glazed door is hollow-framed, and the clear glazing is set within steel stops. The interior is lined in stainless also. Recessed valve cabinets follow the same details but without glazed doors and are Standard Fire Valve unit no 115SS. Cabinets in the mechanical wings and office cores were similarly designed but only with minor/subtle differences.

Carbon steel

Railings

Carbon or mild steel was used to construct the railings in the Service Towers and Mechanical Wings, which were painted grey. On 10 September 1963, Kahn altered the balusters from cadmium plated steel to Type 302 stainless steel with a 2D finish, and decreased the typical section from 1 inch to 3/4 inch.[196] Another casualty of the 16 November 1963 cost reductions offered by Kahn included changing the stainless steel railings in the Service Towers and Mechanical Wings to carbon steel with epoxy paint, which took effect on 22 November 1963.[197] The handrail is set at a height of 2 feet 9 inches. Each flight is treated as a single independent run, joined at the landings by a 2 inch by 3/4 inch flat stainless steel bar handrail set 3 inches down. Balusters and rails are 3/4 inch square carbon steel bars. Each baluster is set within a 1-1/2-inch-diameter pipe sleeve embedded 3-1/2 inches into the concrete and sealed at the top with pounded lead wool. However, the 2 inch clearance from the facing edge of the baluster to the face of the stair has led to concrete spalling in areas. All iron and steel was specified to be given a shop coat of primer.[198]





Top: Kahn, undated sketch of handrails.
Bottom left: North Office Core: original stairwell, railings, doors and hardware, and light fixtures.
Bottom right: Kahn, steel fire hose cabinet.

195 LA-17.
196 Revised Material List dated 10 Sept 1963. Salk Institute Archives, Green Files 20140904_154022.
197 Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.37.
198 1963 specification MSC 9-2, Rust-Oleum no. X-60 or no. 678 primer or Tnemec no. 99 or 69 primer.

Balboa City Steel installed the handrails in the North and South Service Towers during September 1964.

It does not appear that any of the painted steelwork has been recoated since the 1960s. The workmanship and quality are good, and although lower in the Kahn's design hierarchy of the metals, they are of some significance with an entity value.

Miscellaneous Metal

Aluminum

Acoustical ceilings

The suspended ceilings are Mirawall-Dampa International Strip Ceiling manufactured by Mirawal Division of Birdsboro Corporation. The material was Type G strip made from aluminum perforated with approximately 40,000 holes, 0.4 inch in diameter, per square foot, formed into rigid, interlocking strips, 3-1/2 inches wide, with a baked enamel finish. The suspension system, in painted steel, consists of support channels up to 4 feet centers and up to 6 inches from parallel walls, supported on adjustable hangers.

Library in 2015 showing replacement ceiling and light fixtures.

Acoustical ceilings were installed in the North Office Wing and stair core at all levels except the basement, but including the bridges between office core and office, in the North and South Office Cores at fifth level, in the toilets in the North and South Service Towers at elevations 354 and 374, and in the switchboard room, telephone switchgear room, watch station, and the operating office at elevation 342 in the North Mechanical Wing. All other ceilings installed throughout the complex are painted sheetrock which resulted from the budgetary cutbacks.

By the end of January 1964, the contract had been let at a cost of $44,032 against an earlier estimate of $65,032 to California Electric. The final agreed sum was $41,902 in November 1965, together with additional work for $9,314.

During November 1964 the ceiling to the watch station was installed, probably as the prototype. By the end of March 1965, California Electric had commenced installation of the in the North Office Wing on all three levels (372, 382, and 394). By 30 April 1965, the installation was 95 percent complete, with the exception of the special end closures to the light fixtures.[199]

Facing page: Acoustic ceiling in Library in 1966.

[199] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.26.49; George A. Fuller, Co., Monthly Report No. 31; 31 April 1965.

Top: Working laboratory in 1966.
Bottom: 2015 laboratory fit out.

There is a surviving original acoustical ceiling in the main staircase of the North Office Core.

The ceiling in the technical library was replaced in 1995, while the majority of other ceilings have also been replaced at various dates for a number of reasons. It has been reported that the difficulty and high cost of re-manufacturing the perforated aluminum strips led to the change in design and selection of standard types and finishes that has been introduced throughout the office wings and cores, and the mechanical wings. The light fixtures within the various ceilings vary from square to rectangular. The ceiling of the cafeteria appears to be a standard suspended sheet ceiling with a grid of flush, square light fixtures contained between the downstand beams (beams expressed below the ceiling plane and connected to the slab), and probably dates from the 1990s fi -out. The dropped ceiling with downlights at the southeast corner above the servery appears to relate to a more recent fit-out. The suspended ceilings to the bathrooms in the South Service Towers are recent and relate to re-fitting for universally accessible lavatories and general upgrades.

To retain and refurbish the original ceilings for as long as practicable. Policy 5 applies.

Ceiling slot frames

To connect the laboratories to the pipe spaces, extruded aluminum ceiling slots were ingeniously designed by Kahn, Dubin, and Komendant. For each 20-foot bay, two types of slots were developed by size: Type B, 7 feet long, and centrally located, flanked by Type A, 4 feet 8inches long, all 10 inches wide, 8 inches deep, and spaced 5 feet apart for greater flexibility. The single extrusion has a pair of continuous slots to accept Unistruts, lighting, and other services. The extrusions were mitered to form a box that was fixed to the temporary formwork so as to become part of the permanent works in the floor slab. Bell Electric Company cast aluminum boxes, no. 252 top outlets, also at 5 foot centers, were also incorporated into the concrete pour. The inexpensive ceiling slot frames are made from aluminum alloy 6063-T5, while the cover plates are alloy 3003-H14, with neoprene seal tape made by Rubatex Corp. The extrusion was manufactured by Alcoa, fabricated by Balboa, and finished with a methacrylate lacquer.

Screens

Screens at the slot openings in the pipe spaces had fiberglass plastic insect screen cloth, made from an 18-14 mesh finished with selvage edge. They were installed within extruded aluminum unequal leg channel frames made by Kane Manufacturing Corp. in Pennsylvania, finished to Alcoa Alumilite 204 with a 1/2-hour anodized finish. The frame consisted of two side channels only—no sections were used at the head or sill—and were bedded in mastic.[200] These have been replaced by the present stainless steel chain mesh screens.

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[200] 1963 specification ORN 8-5, 8–11.

Ladders

Aluminum ladders used aluminum alloy 6063 for the angles and other extrusions while aluminum alloy 3003n was used for plates, all with a mill finish.

Grilles, grates, and covers

The grates are Reliance Steel Products Co. “Double-Lok” aluminum grating type IR4, size F, with 1-1/2 inch by 3/16 inch bearing bars spaced 1 inch apart and crossbars 4 inches on center, with a mill finish. For the grate frame, filler plates, etc., the material was aluminum alloy 6063-T5. The supporting frame is standard structural steel section, hot-dipped galvanized after fabrication, and fixed as ladder brackets. Aluminum covers are alloy 3003 checker plate.

Grilles to the trenches in lower mechanical room are a number of types: reinforced steel angle framed concrete covers grouted in position, 5/8 inch checkered steel plate, 3/8 inch checkered aluminum plate, and gratings composed of 1-1/4 inch by 3/16 inch aluminum bars varying at 1 inch or 2 inch centers.

Cleanout doors

Supplied by Alhambra Foundry Company, these cast iron flue element cleanout doors and frames, in 18 inch by 18 inch and 24 inch by 24 inch sizes, were anchored in place, with hinged doors, latches and keepers.

The ceiling slot frames are of significance, including structurally, and contribute to the design history of the laboratory complex. The surviving original Mirawall strip ceiling is of some significance and recent alterations are of no significance. The ladders, grilles, grates, etc., are of no significance.

Policy 117

To re-finish the ceiling slots when required under the Maintenance Plan. Policy 2 applies.

Policy 118

To consider restoring the screens in the slot windows of the pipe spaces to Kahn’s original specification to recover the original design intention.

Metal partitions

Partitions and doors were manufactured by E. F. Hauserman Company, Cleveland, Ohio, using their standard “Signature 20,” 2-1/4-inch-thick, flush type, floor to ceiling, with a recessed base and ceiling trim.

The partition core material was Johns-Manville standard Thermostone Transitop, 1-9/16-inch-thick, incombustible panels with one-hour fire retardant classification. It was also used for the lining in the sliding door and window recesses. For walls and partitions, the panels were installed in floor-to-ceiling lengths. The joints between the panels were made of H-sections of aluminum or galvanized sheet steel.

In the former medical suite (now Facilities), all the masonry walls were changed to movable metal partitions that were subsequently deleted from the scope of work one year later during November 1964 and reconfirmed at the monthly meeting of December 1964.[201]

The contract for the metal partitions was let to Hauserman Company by April 1964 for its bid of $11,256. However, this was reduced to $5,214, and the final cost in November 1965 was $5,205.

By April 1964, the shop drawings had been submitted.[202] During September 1964 the work was released to the shop for fabrication. In November 1964, Hauserman had completed the installation of the metal partitions for the electrical equipment room in the Center Mechanical Wing. The metal partitions were reported as 100 percent complete in April 1965.[203]

Restroom walls and partitions

Kahn reported to Salk's representative, Dale L. Harvey, on 27 December 1962 that they had altered the specification to baked enamel toilet stalls.[204]

Cubicle partitions and urinal screens are Flushwing made by Flush-Metal Partition Corp., New York. They are of the cantilever type construction with a built-in paper holder. The finish is baked enamel in a selected color by Kahn. These still are standard products. Kahn also used these in his later projects, such as at Yale.

During March 1964, the contract for the toilet partitions was let to Chambers Steel Co. in the sum of $11,928. In September 1964, the contract appears to have been transferred to the Carroll Steel Company for the same sum, although the final sum agreed in November 1965 was $10,197. Toilet accessories were supplied by Accessory Spec Co., and all the equipment was approved in March 1964 at a cost of $6,356. The final cost agreed in November 1965 was $3,116. Blake, Moffit & Towne were appointed in April 1964 to fix the toilet accessories and were completed in March 1965.

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[201] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.37 16 Nov 1963 changes; George A. Fuller, Co., Monthly Report, 30 December 1964.
[202] George A. Fuller, Co., Monthly Report; 31 May 1964.
[203] George A. Fuller, Co., Monthly Report; 30 April 1965.
[204] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.9.21.

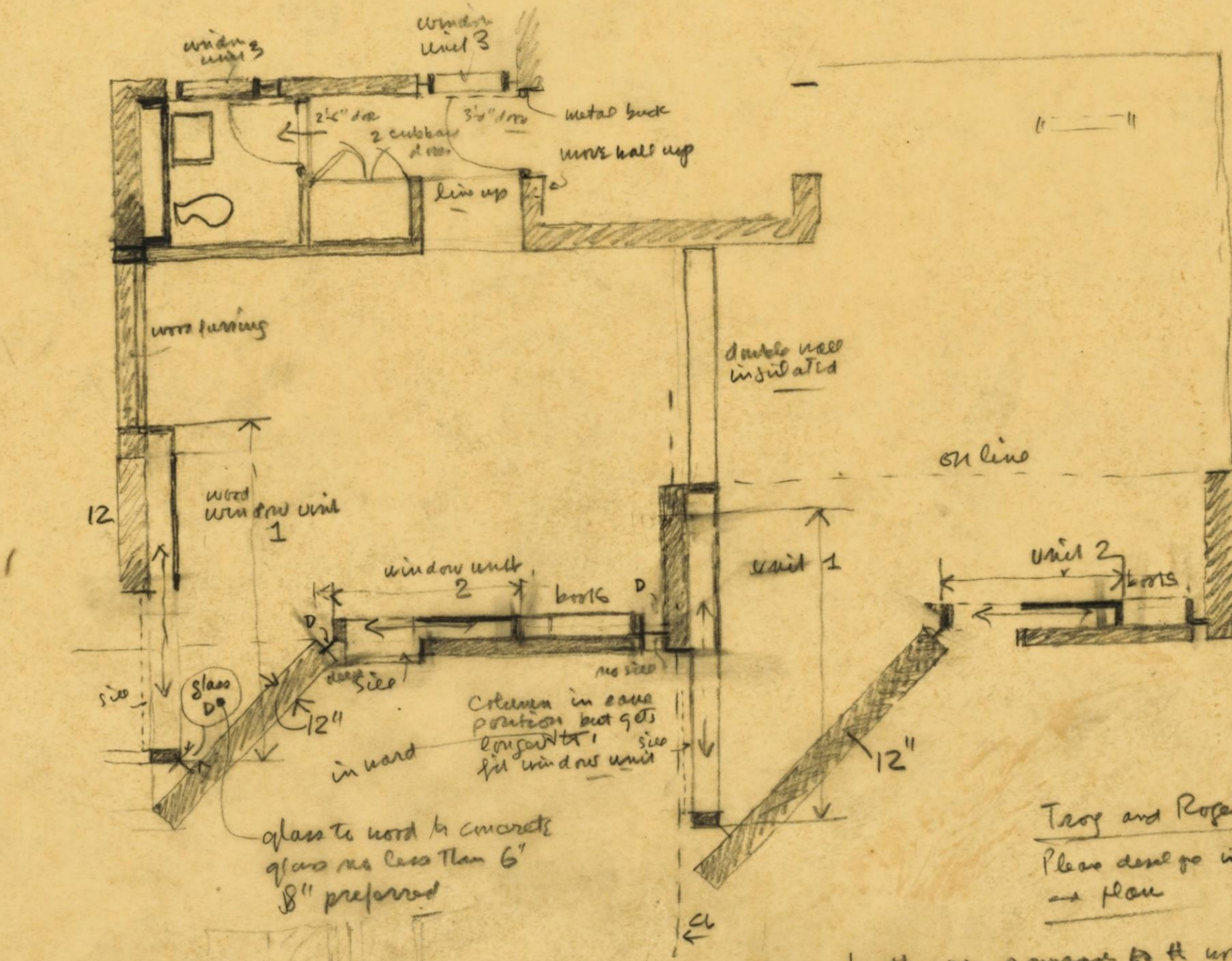
Little work appears to have been done for many months. Toilet accessories were completed at the end of March 1965. By 30 April, the hanging of the toilet partitions in the North Service Towers by Carroll Steel Co was reported as 85 percent complete.[205]

[*Section Redacted*]

Policy 119
To leave unpainted interior and exterior surfaces of concrete, including in subordinate areas, so that their character and details remain visible.

Policy 120
To avoid adhering notices, fittings, raceways and other paraphernalia to structural concrete. The removal of adhesives, rawl plugs, etc. from concrete will need to be addressed.

[205] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.26.49; George A. Fuller, Co., Monthly Report No 31; 30 April 1965.



Troy and Roger

Please develop in elevation and plan

In the way of approach to the wood or concrete
~~All~~ wood has a tenuous relation to the concrete
All are servants of the concrete
or respectful of the weightiness of

Internal Millwork

> All wood has a tenuous relation to the concrete . . . .
> All are servants of the concrete . . . . [206]

American white-oak millwork

Wood doors, shutters, louvers, paneling, and partitions

Kahn eventually chose American white oak for its warmth and color to complement the uniformity of the grey concrete. Oak millwork was intended by Kahn to be universally used throughout the Office Wings and Study Towers to signal everyday office use. Unfortunately, Kahn's concept has been diluted through the use of painted sheetrock with oak trim. The use of sheetrock is a response to the 1960s budgetary constraints and the oak millwork was the casualty. The stainless steel hardware is universal in its use.

In 1962, Kahn intended the doors and windows to be redwood, solid stile and rail construction, with flush, laminated solid lumber panels.[207] Wood windows were both fixed and sliding. When the studies were proposed as semi-circular and radiused, curved sliding windows and shutters were envisaged.[208] By 8 October of that year, teak had been selected for the woodwork (doors, paneling, sliding doors, shutters, and screens).[209] Kahn reported to Salk's representative, Dale L. Harvey, on 27 December 1962 that they were redesigning the millwork in the studies and were nearing completion of the details but had changed the teak on the interior to oak.[210] Kahn specified a natural wax for to the woodwork in 1963, using Butcher's "White Diamond" paste wax applied in two coats, with each coat buffed after application.

Custom-made wood doors are of stile and rail construction with flush surface panels that are face-veneered with plain, sawn, custom-grade white oak veneer. The vertical edges are finished with 3/4 inch strips of the same material as the face veneer. The joints between stiles and rails are mortised and tenoned, and glued under pressure with water-resistant glue. Solid core flush doors are premium grade with face veneers of plain sliced white oak. Flush veneer fire-rated doors are face-veneered with Custom grade, plain sawn white oak (the 1963 specification referred to "plain sliced oak") and rated to one hour fire-resisting construction. Wall

Facing page: Kahn, working sketch for fit out of study unit, undated (1962).

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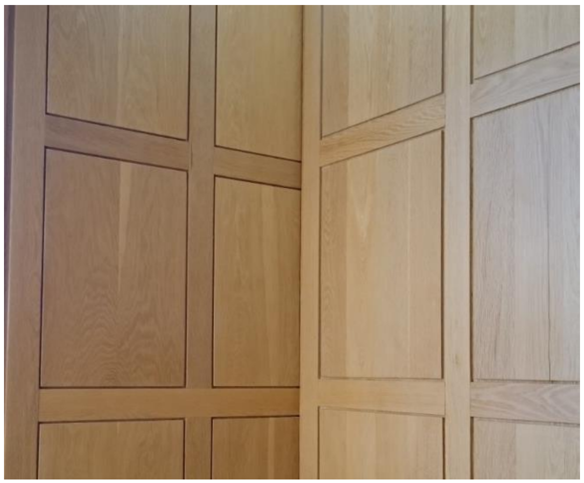
[206] Kahn, working sketch for fit-out of study unit, undated (1962), transcription of text.
[207] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108; 1962 Specification section 14 Millwork.
[208] Ibid.
[209] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.16.
[210] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.9.21.



Top: Sliding pocket doors reduced in size by half, impacting oak-paneled walls and compromising Kahn's design intentions.
Bottom: Oak paneling at corner unresolved in a later alteration.

paneling is of flush construction, with the stiles and rails of solid oak lumber and the flush panels of quarter-sawn white oak veneer plywood.

Oak picture molds in the Studies are installed close to the concrete ceiling for the hanging of art. Oak skirtings are either recessed or surface-mounted. The quality of the original millwork is good.

Built-in furniture was also originally intended in 1962 to be redwood but subsequently changed to oak. Oak shelves up to 3 foot lengths are about 3/4 inch thick, and longer lengths are usually more than 1 inch thick. Shelves are supported on adjustable metal pins in holes accurately spaced at 1 inch centers. Oak cabinets have hardware comprising butts, pulls, and magnet catches for cabinet doors, specified either as a dull chrome or brushed stainless steel with a US26D or US32 finish.

At the end of July 1964, the oak had been delivered.[211] During November 1964, the prototype interior work for the Study millwork was underway. During February 1965, University Showcase was working on the interior millwork to all levels of the North Office Wing, and continued with the installation of the teak and oak interior paneling, bookcases, louvers, and screens to all the North Studies.[212]. In March and April 1965, the millwork had been completed except for the internal partitions to the North Office Wing, which had been stud-framed and hung with sheetrock ready to receive the oak veneer panels.[213]

By 1 June 1965, the work remaining in the North Studies included the installation of the bookcases, cabinets, and wardrobe hardware, shelving, drop handles, and adjustment of the louvers and sliding units. In the North Office Wing, work remaining included the installation of the locks for the sliding doors, fastening inspection panels in the bookcases and fitting of elbow catches, installing sliding door stops, and adjusting louvers and sliding units.[214]

The interior millwork in the South Office Wing and South Studies was omitted during construction due to financial cutbacks. Subsequent fit-outs use standard gypsum wallboard with oak trim for partitions throughout the South Office Wing and South Studies as a means of economy. The walls were painted. The design of the wood doors was unfortunately modified to incorporate an oak louvered vent near the bottom.

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[211] George A. Fuller, Co., Monthly Progress Report No. 22, 31 July 1964.
[212] George A. Fuller, Co., Monthly Progress Report No. 29, 28 February 1965.
[213] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.26.49; George A. Fuller, Co., Monthly Report No. 31, 30 April 1965.
[214] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.31.

The wood and glass partitions were installed into the North Office Wing by Universal Partitions at a final cost of $3,985 in November 1965. The drywall partitions were installed by M. R. McColley Company for $1,116.

Earlier in March 1965, University Showcase had submitted a proposal to fund the millwork that had been omitted from the South Office Wing and South Studies and that the Institute reimburse them when funds become available. President Marinello of University Showcase argued that he had built up a large workforce that had just completed all of the millwork for the North Building and that it would be of material benefit to the Institute for him to finance the project. He offered zero interest for the first year followed by the market rate, and anticipated that this could save the Institute $150,000 to 200,000.

Policy 81 applies for restoring Kahn's original details and design.

Water damage to the oak and teak millwork abutting the windows throughout the Institute indicates past issues of water penetration and related damage. Refer to further discussion of the teak window wall assembly in the Exterior Materials discussion. The protective finish of the bathroom millwork in the North Studies has deteriorated severely due to water splashback from the washbasins, which changes the appearance of the millwork.

Policy 121

To investigate the causes of continuing water penetration and damage to the internal millwork and concealed fabric of the window walls, including damage to the oak millwork abutting the teak windows and paneling of the Institute.

Policy 122

To remove the original protective finishes to the oak millwork, doors, etc., at the end of their expected service life and to replace with new protective finishes to follow the original specification. The millwork finishes should be treated following a planned maintenance regime. Subject to scientific analyses (paint research) and respect of the original finishes, consideration should be given to improving the specification of the finishes to address known causes of decay.

The use of white plastic electrical plates in the millwork is aesthetically intrusive in terms of color and material. Such expediencies do not complement the millwork and its hardware. The introduction of other modern plastic toilet accessories in the bathrooms of the studies does not respect the layout of the millwork.

Policy 123

To replace non-original electrical accessories, etc., in millwork with more sympathetic and complementary fittings.

Interior travertine paved "balconies."

Internal Masonry, Brickwork, Flooring, and Appurtenances

Travertine flooring

Kahn used the same travertine imported by Walker & Zanger, with Lohr as the installer, for the interior flooring. (See description under Exterior.) Kahn intended travertine to be used for the west-facing canted bay window walls of the North and South Office Wings, and the elevator lobbies, vestibules, and staircases of the North and South Office Cores.

The costs for the interior flooring were included in the separate supply and installation contracts. Financial constraints led to its omission in the South Office Wing. In November 1963, Kahn recommended reducing the thickness and face area of all travertine to generate savings.[215] All internal slabs were laid in 3/4-inch-thick slabs in the same manner as the exterior work. During December 1964 and January 1965, Lohr set the travertine in the stair landings, treads, and lobbies in all levels of the North Office Core. The work was reported to be at 89 percent completion in April 1965.

The condition of the interior travertine is generally good.

Marble Flooring

Marble floors and thresholds are also an Italian import—a Class A white marble with tan and grey veining, with a honed finish, that matched an existing sample held in Kahn's office. Although brick floors for the toilets were originally intended by Kahn, marble was substituted in November 1963 in one of the many cost cuts.[216] Marble was used for the toilet floors in the North Office Core and North Service Towers, and the prototype bathroom in the Mechanical Wing, but was omitted due to financial constraints in the South Service Towers, which were changed to sheet vinyl.

All marble work was laid in the same way as the travertine, as previously described.[217] The scale, pattern and disposition of the marble floors slabs are carefully coordinated with the wall and partition layouts. During December 1964, Lohr had received the first two shipments of stone from Italy and commenced setting marble for the lavatory floors in the North Office Core. By 31 March 1965, Lohr was setting the marble floors in the lavatories of the North Service Towers and the lower bathroom of the Mechanical Wing.

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[215] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.37 16 November 1963 proposed changes.
[216] Ibid.
[217] December 1963 specification section 15.

Brick

Facing bricks, 3 inches by 2-1/4 inches by 8 inches, from Kraftile Company "Special Custom Blend" and color range No 363 B8. Brickwork was laid in running or one-half-bond. Brick facings at the concrete walls were laid 1 inch clear of the concrete and the void filled solid with mortar and secured with dovetail anchors every fifth course. Kahn offered to change all bricks to 8 inch by 8 inch face concrete block, except in the toilet areas, as part of the November 1963 cost reductions. This was rejected because by 29 February 1964 the contract for the brickwork had been let, the brick color had been approved, and the manufacture of the sample was underway. However, in May 1964, the Kraftile brick sample was rejected in color terms for not matching the sample. A sample brick wall erected in the South Service Tower at column no. 10 was approved by 18 June 1964.[218]

The bedding mortar was a mix of 1 part cement to 1/2 part hydrated lime to 4 parts dry sand. Joints were raked out to a 3/16 inch depth. The pointing mortar was neat white portland cement mixed with lime-proof, non-fading pigments to achieve the desired pink-brown mortar color. The pointing mortar was installed to fill all joints solid, and then tooled smooth with a concave pointing iron. The exposed brick joints were not to exceed 1/4 inch in width.

Sanitary ware and bathroom fittings were all carefully designed to align with the brick coursing and joints, and the outlet boxes and other openings in masonry walls were located to minimize cutting of the masonry units. Kahn's office produced elevation drawings showing the coursing of all brick walls in the toilets.

Fire bricks, 9 inches by 4-1/2 inches by 2-1/2 inches, Type F, of medium duty (as specified, were laid in a mortar mix of 1 part fire clay to 1 part 20 mesh finer sand, with joints not exceeding 1/4 inch in width, tooled firm and wiped smooth.

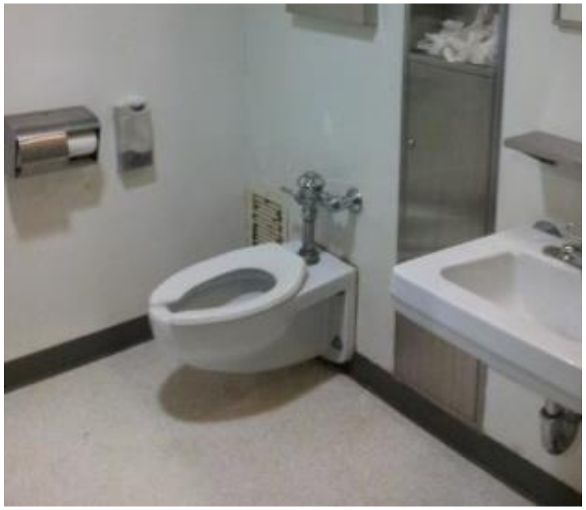
During May 1964 Wikholm constructed the prototype toilet (room 21) in the North Mechanical Wing using the approved brick substitution from Kraftile.[219] During August 1964 the facing brick had arrived on site and the toilets to elevations 343 and 354 of the North Service Towers were completed. October 1964 saw the completion of the brickwork and blockwork for all of the North Service Towers, Office Core toilets, and the janitors' closets. Wikholm cleaned and pointed the brickwork and blockwork in the North Service Towers during December 1964.

Policy 4 applies.



Top left: Facing bricks and mortar in service areas, North Office Core and North Service Towers.
Top right: Marble flooring layout, carefully considered by Kahn.
Bottom: Restroom designed by Kahn.

[218] 0 Louis I. Kahn Collection, University of Pennsylvania, 30.II.A.107.18, Meeting 18 June 1964, item 13.
[219] George A. Fuller, Co., Monthly Report No 20, 31 May 1964.



Top: Restroom in North Study Tower, designed by Kahn with fit-out, 1965.
Bottom: Restroom fit out in South Service Tower, post-1990.

Slate Flooring

Slate flooring, thresholds, and wall linings, including blackboards, were intended for the North and South Studies. The internal slate wall linings in the bathrooms are a continuation of the external slate duct covers in the arcades and porticos. Kahn was familiar with the durable Pennsylvanian slate due to his prior use of it at Bryn Mawr College. It is a naturally cleft slate, Buckingham Grade A, with a minimum 1/2 inch thickness, and all edges were sawn. The slate wall panels above and below the mirror are single panels, whereas the flooring is laid as smaller sized tiles in stretcher bond, as are the thresholds.

Earlier, in 1962, Kahn had selected ceramic floor tiles. Although Kahn offered to change the slate flooring (though not the wall cladding) to travertine in November 1963, that modification did not proceed.[220] The South Studies do not have slate wall linings and flooring installed as a result of the cost cutting procedures. Gypsum wall board was used for the wall linings, while ceramic tiles were laid in the bathrooms and lobbies.

E. A. Wikholm, Inc., had set the slate floors and walls in the bathroom of the prototype study by 31 March 1965.[221]

Policy 4 applies.

Ceramic flooring

As described above, ceramic floor tiles were laid in the South Studies. These are of no significance and should be replaced in slate.

Policy 81 applies.

Wood flooring

In 1962 Kahn specified "Ironbound" 33/32 inch by 1-3/4 inch, "2nd & Better," edge-grained maple laid on 1/2-inch-thick corkboard in mastic. This would probably have been supplied by Robbins, who later supplied the white oak floors at the Kimbell Art Museum and Yale Centre for British Art.[222] In January 1963, Kahn sought an alternate bid using white oak flooring in lieu of ceramic tile floors in the studies and office wings. The flooring was altered in December 1963 to white oak strip flooring, 25/32 inch by 2-1/2 inch, tongue-

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[220] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.37, 16 November 1963 changes.
[221] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.26.49; George A. Fuller, Co., Monthly Report No 30, 31 March 1965.
[222] Louis I. Kahn Collection, University of Pennsylvania, 030.II.108.16; 1962 specification section 13.

and-groove, plain sawn, Select white oak. The subflooring was standard grade Douglas fir pressure treated with an oil-borne preservative. The cork strip was Armstrong Cork Co. no. 539, 2-1/16 inches thick, cut into 1-inch and 2-inch-wide strips. The natural color floor seal was International Chemical Co. Dura Seal and I.C. finish. The oak flooring in the North Studies was laid in an east-west direction except in the canted bay windows, where it runs north-south. In the North Office Wing, the flooring is laid in the north-south direction in all spaces.

White oak strip flooring in North Office Wing, installed 1965.

Cost reductions led to the omission of the strip flooring in the South Office Wing and the South Studies. Engineered floor boards and carpets have been used in the South Studies as a means of economy. The boards do not follow Kahn’s disposition that reflects the layout of the canted bay as a separate space.

The bidder list was assembled by 9 July 1964, and bids were analyzed in August. The ABC Hardwood Floor Company of El Cajon, California, won the contract at a cost of $15,577, in September 1964. The November 1965 final cost report shows that $18,607 was expended, plus an additional cost of $288.

ABC Flooring Company commenced work by 31 March 1965, setting out the subflooring to the levels 382 and 394 in the North Office Wing, and had started to finish the floor of level 394 by that date. At the same time, the sand, wax and polish sample was ready in the prototype study. By 30 April, ABC Flooring had completed the laying of all oak flooring and was installing the cork strips.[223] By 1 June 1965, only the sanding and finishing remained to be completed in the office wings.[224] Cork strips were replaced soon after completion in 1967, possibly due to continued water ingress.

Policy 4 applies.

Resilient sheet-vinyl flooring

Kahn specified the sheet flooring to be Vinyl Corlon, Tessera series, manufactured by Armstrong Cork Co. It was a homogenous sheet vinyl flooring of uniform thickness, 0.090-inch-thick, not less than 54 inches in width, with hydrocord back, sufficiently dense to withstand loads of 100 psi, moisture proof, annealed, and pre-shrunk. After adhesives had set, floors were cleaned with a neutral cleaner and then two coats of wax were applied and buffed with a polishing machine.

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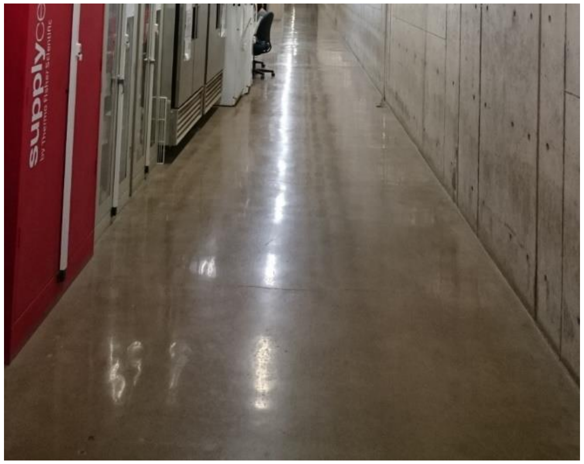
[223] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A. 26.49; George A. Fuller, Co., Monthly Report No 31; 30 April 1965.

[224] Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.108.31.



Top: Sheet-vinyl flooring in North Laboratory.
Bottom: Exposed concrete floor in corridors.

This package was let for $1,856 in August 1964 and Tri-Co Floors was engaged. Little work was done as only $397 was expended. An order was subsequently placed with Armstrong Cork Co for their "Tessera Vinyl Corlon" no. 86549 on 1 December 1965 for $3,850.[225] Presumably the color was selected by Kahn.

The Armstrong heat-sealed vinyl floor was installed in the mock-up laboratory bay during May 1963, together with the Hauserman partitions. Sheet vinyl has been introduced into the toilets in the South Service Towers as a means of economy.

Policy 124
To replace flooring when appropriate. When new vinyl is required, ideally it should be matched to the original as closely as possible. Its use should be restricted to storage and laboratory use.

Concrete floors

Exposed, smooth concrete floors are found throughout all levels.

Acid-based cleaning systems should be avoided, as these can damage and etch concrete. Other cleaning systems should be evaluated in trials so that the most appropriate conservation-based cleaning system can be adopted and incorporated into the Maintenance Plan.

Policy 125
To clean internal and external concrete floor surfaces on a regular planned maintenance program, subject to the results of trial protocols.

Conductive flooring

Static-disseminating and spark resistant flooring used in the solvent storage rooms was specified to be DPS Masterplate manufactured by the Master Builders Company. It was applied to the surface of freshly floated concrete with a curing compound and was tested in situ for spark resistance and surface resistance, among others performance characteristics. Although Fuller's bid was $350, the final cost in November 1965 was $132.

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225 Fuller to Salk Institute, 1 Dec 1965; Salk Institute Archives.

Carpets

Carpets have been introduced as a means of economy in the South Studies and the South Office Wing and are of no cultural value or significance.

Mirrors

Mirrors were specified as 1/4-inch-thick mirror glazing quality polished plate glass. The framed mirrors were hung using Accessory Specialties, Inc., no. 600, 16-gauge stainless steel mirror frame and hanging device. The frames have mitered corners and solid welds ground smooth, were polished to a no. 4 satin finish, with 20-gauge cadmium plated backing plate, and fastened with concealed screws.

Mirrors were installed by Center Glass Company in the North Studies, and toilets in the North Service Towers and Mechanical Wings, by 30 April 1965.[226]

Stainless steel shelves and soap dispensers

Stainless steel shelves and soap dispensers were also from Accessory Specialties, Inc., no. 371, 18 gauge, in special lengths. Soap dispensers were furnished with single lather soap valves.

Towel dispensers and waste receptacles were Scott Paper Co.'s no. 945 stainless steel recessed unit. Toilet accessories were installed at a cost of $6,356.

Lockers

Proprietary vented metal lockers were originally specified. However, Kahn's office prepared drawings for custom-made vented lockers in January 1963. The lockers, 15 inches wide by 18 inches deep by 72 inches high, were finished with high quality baked enamel in a color approved by Kahn. The doors are solid with ventilation at the top and bottom, and with number plates. All lockers were keyed differently but with a master key. Internally, one hat shelf was installed, 9 inches below the top of the locker, together with a single prong clothes hook on each side and at the back.[227] All vented lockers were delivered and installed on 10 May 1965 by Morton Equipment Co., at a cost of $1,954, and an agreed extra cost of $3,341.

Elevators

Although the Third Design warranted eight large and four small passenger elevators for the entire complex, only those passenger elevators to the North Office Core, North Studies, North Service Towers, and the two

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[226] George A. Fuller, Co., Monthly Report No 31; 30 April 1965.
[227] 1963 specification, section 21-3; Kahn drawing LA 40.


Kahn-designed elevator in the North Study Tower.

large freight elevators serving the North and South Mechanical Wings were installed at the end of 1965. All passenger elevators to the south range of buildings were deleted from the contract and not installed until the 1990s.

In the 1960s three large hydraulic passenger elevators within the North Service Towers served the laboratories. A slightly smaller hydraulic passenger elevator in the office core served the North Office Wing. Two smaller passenger elevators served not only the North Studies but also their porticos and the laboratories.

Kahn designed the elevator cabs, call stations, and operating panels.[228] They are constructed in stainless steel, type 304, with no. 4 finish, with the furniture steel in a white baked enamel finish. Ceilings and soffits over the cove lighting have the baked enamel finish while all other panels are stainless steel. The perforated cab wall panels and doors are 14-gauge stainless steel, the ceiling panels are 16-gauge furniture steel, and the lighting coves are 16-gauge stainless steel. The handrails are 1/4-inch-thick stainless steel, with 2-inch-high rails at the study and office elevators, while 8-inch-high rails were used for the service tower elevators. The corridor call station faceplates, including those to the Mechanical Wing, are 3/32inch--thick stainless steel in the same finish as the cabs, and project approximately 3/4 inch, with a 1/16 inch shadow gap. All the buttons, lights, etc., are in white plastic, except for the red “stop” buttons. The operating panels follow the same design but are surface mounted on the concrete with concealed fasteners.

By March 1963, the elevator contract had been awarded to Kimball Elevator Co. at a cost of $234,144. The contract appears to have been transferred to Dover Elevator sometime after April 1965 for the sum of $236,144, but the final cost agreed on November 1965 was $241,571, plus an additional cost of $6,087.

By the end of March 1964, drilling and casing had been completed for all fourteen hydraulic elevator shafts. During July 1964 Kimball Elevators installed the rails, controllers, and hydraulic units in the Service Towers and Mechanical Wings, had delivered the units for the Studies, and the elevators in the Mechanical Wing were operational. At the end of April 1965, Fuller reported 93 percent completion of the installation of all elevator door bumpers, and call boxes were being installed throughout. Elevator 7 to the North Office Core was just being installed.[229]

228 LA 122–124.
229 George A. Fuller, Co., Monthly Report No. 31, 30 April 1965.

Painting

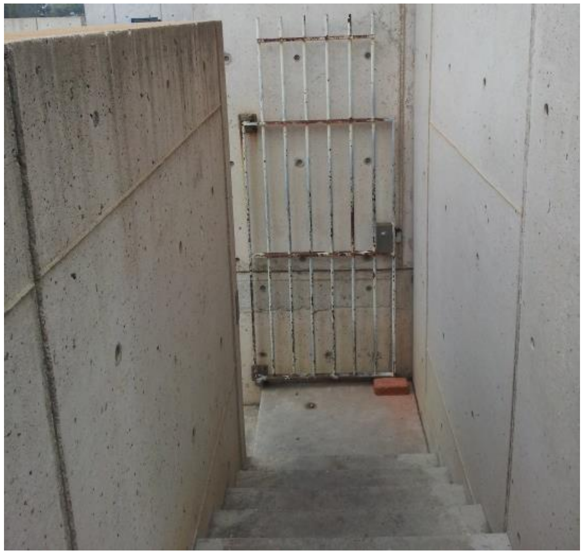
Kahn wanted as few materials as possible that required redecoration and maintenance. All colors and finishes would have been selected by Kahn, but these remain to be identified. Exterior architectural metal was painted with a metal primer, undercoat, and metal finishing paint. Interior metalwork, such as railings and handrails, panels, ladders, various doors, mechanical equipment, etc., was decorated with a three-coat alkyd enamel paint system. The field-applied coating for concrete is also unconfirmed, but it was specified as "Desco Neoprene" by Desco Vitro Glaze Association of America, Inc.; it is not known if this coating was applied.[230] The interior woodwork was treated with two coats of Butcher's "White Diamond" paste wax and buffed as described in Internal Millwork. The internal gypsum wallboard was painted with one coat of Martin-Senour Drywall Sealer no. 2651 tinted, and one coat of Martin-Senour alkyd flat enamel.[231]

The contract was let by March 1964 to Worthington & Lundeen at a cost of $25,988. The agreed final cost at 3 November 1965 was $17,800.

Work commenced in March 1964 on the pipe and ductwork and framing in the North and Center Mechanical Wings, and at elevations 343 and 363 of the South Laboratory Wing. Painting of all of the boilers, chillers, and tanks in the upper mechanical level had been completed by March 1964.[232] In October 1964, coating was underway in the air handling rooms and shafts in the South Mechanical Wing. At the end of April 1965, Worthington & Lundeen were approximately one-half complete. Works were concentrated on the ferrous piping to the pipe spaces, but finish work had been completed in the mechanical rooms and the Service Towers.

External steel gates exhibit corrosion and deteriorating finishes, and appear not to have been repainted since the Institute opened. As such, these gates require redecoration. The paintwork on the external metal doors has faded.

Policy 8 applies. Paint microscopy/analysis should be carried out on the external and internal decorations, including millwork, lockers, and mechanical plant etc.

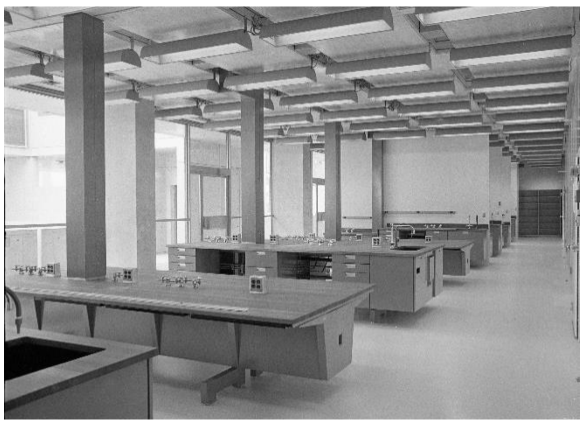


Top: Kahn's painted flush steel doors in unpainted stainless-steel frames.
Bottom: Failing paintwork on steel gate.

230 Undated specification, probably 1962, CCA 28-3; Section 28, specified coatings for the concrete air ducts. The concrete air duct surfaces were acid etched with a 5 to 10 percent solution of muriatic acid to remove all coatings and curing compounds and to provide the necessary adhesion as soon as the last of the forms were removed. A primer coat of neoprene was then followed by at least six additional coats to achieve the required thickness. It is not known if these coatings were applied.

231 Revised specification, 25 January 1965, Section 16; Salk Institute Archives, Green Files.

232 Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.26.49.



Top: Typical shell of North Laboratory in 1965.
Bottom: Fit-out of North Laboratory underway but not yet complete in 1966.

Structure and Building Systems

> Kahn: And as a matter of fact, the plan, as I initiated it, became the example of how the laboratory should be made. There are many laboratories made this way with the double floor. But they seem to be an accepted thing.[233]

Kahn, as in all his buildings, strove to achieve maximum compatibility and integration of the architectural requirements with the structural and mechanical systems, while generally avoiding devices to hide air ducts, lighting systems, and other auxiliary elements. The exception at the Institute was the suspended acoustical ceilings in office wings and cores. This basic premise imposed constraints on the structural and mechanical systems, e.g., the structural slabs had to be exposed to give good headroom.

Structure

The laboratory construction comprises the intermediate utility spaces, or "pipe spaces," and the actual laboratory floors. The intermediate space has a construction height of 9 feet, including 6 feet clear within the Vierendeel trusses, and each laboratory floor has a clear floor-to-ceiling height of 11 feet. Trusses span 65 feet on a 20-foot grid to maintain column-free laboratory spaces and allow access through the pipe spaces. The trusses have a dual function of structure and services containment. The Vierendeel truss system solution was by Kahn, not Komendant, and was arrived at by financial pressures to evolve a simpler, more economical solution, but also for philosophical and aesthetic reasons. Komendant was wedded to the folded plate scheme and developed Kahn's concept structurally to deal with the load transfers efficiently. The voids in the planar truss were carefully designed structurally to accommodate the 4-foot-diameter air ducts in the center section. The sectional efficiency of the bottom chord was increased by post-tensioning using 1/4 inch diameter cables taking gravity loads out of the exterior columns thus allowing uninterrupted space in the laboratory floors below. Seismic characteristics of California also influenced the structural design. The engineers of the San Diego City Planning Department required Komendant to modify his design to accommodate roller joints to allow the pipe spaces to move relative to the columns and install additional continuous post-tensioning in the columns. The lack of damage to the buildings during earthquakes experienced during and after construction testified to the success of Komendant's design.

The City of San Diego Planning Department did not accept Komendant's proposal to allow 1/2 inch deflection in the concrete floor slabs.

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[233] Jules D. Prown and Karen E. Denavit, *Louis. I. Kahn in Conversation: Interviews with John W. Cook and Heinrich Klotz, 1969–70*, 116.

Building Systems

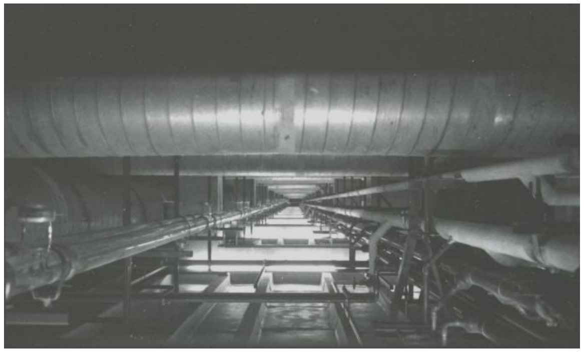
Salk to Kahn: "... give the pipes a floor of their own."[234]

The building services are concentrated in horizontal pipe spaces to serve the laboratories below, and give greater flexibility without having to disrupt the scientific research programs for any extended period of time. The Vierendeel system offered a more efficient longitudinal approach to servicing the laboratories than the folded plate system, which relied on vertical towers with individual air handling units and transverse trunk lines. Supply and exhaust ducts enter at the central largest openings in the trusses. Within the 20-foot grid, branch ducts supply air at the correct temperature, while return air ducts transfer air to the central chamber. This facilitated easier maintenance and modifications than the folded plate system. The ceiling slots, 10 feet wide and spaced 5 feet apart, also give greater flexibility below. The spaces for air handling with the chillers, fan exhausts, etc., are in the rectilinear mechanical wings to the east, connected by the underground service tunnel.

Policy 126

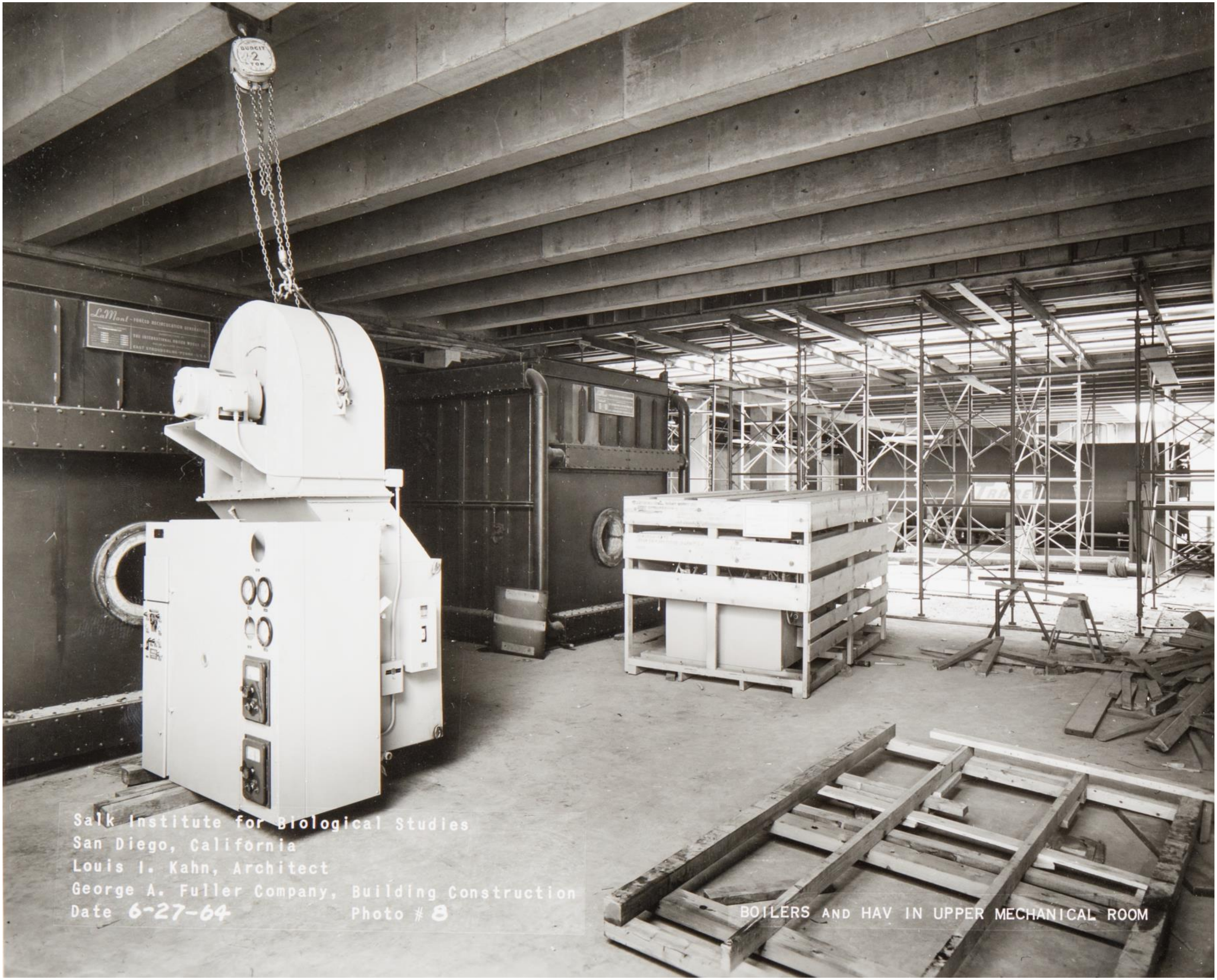
To respect the integration of the structural and building services systems in the building and their coordination by the architect.

[*Section Redacted*]



Top: Fitting principal air distribution duct through the center of the Vierendeel trusses during construction of the North Laboratory in 1964.
Bottom: 1965 completion of fit-out.

[234] Thomas Leslie, "Louis I. Kahn Building Art, Building Science, 152.


Salk Institute for Biological Studies
San Diego, California
Louis I. Kahn, Architect
George A. Fuller Company, Building Construction
Date 6-27-64
Photo # 8
BOILERS AND HAV IN UPPER MECHANICAL ROOM

[*Section Redacted*]

Facing page: Fitting out the boilers and HAV in the upper mechanical room in June 1964.

Top: Ad-hoc plethora of cabling in offices.
Bottom: Intrusive addition of new switches (left; original switches integrated with millwork (right).

Electrical Installation

Capitol Electric Company was awarded the contract in October 1963 for its bid of $1,134,338. Work by February 1964 had increased this cost to $1,257,508. By April 1965, a further $61,701 had been awarded. The final cost at the 3 November 1965 Final Cost Report Summary was $1,161,288, and the cost of additional work had risen to $70,694.

The work of Capitol Electric was complete in April 1965, including the installation of light fixtures, exit lights, cover plates, outlets, and trim.

In a concerted approach to address sustainability and reduce energy bills, photovoltaics, consisting of a 541kWp solar electric power system, were installed by Stellar Solar at the north and South Laboratory roofs as part of the central plant upgrade. It is interesting to note that the original base electrical load was 0.5MW, but expansion of the Institute increased the base load to 4.2MW, which had to be accommodated in the major plant infrastructure upgrade.[235]

[*Section Redacted*]

Lighting – External

The external architectural and amenity lighting systems are low-key and discrete, comprising globe and wall light fittings, extended into the landscape with pole and bollard lights. Much of Kahn’s design remains reasonably intact, but has been added to and extended with the expansion of the Institute.

[235] Tim Ball, Senior Director, Salk Facilities Services, 2015.

Lighting – Amenity

Pole lights are generally used toward the outer property boundaries at vehicular routes, and at the perimeter parking lots and roads, but are also used on the lower terrace fronting the canyon. Bollard lights are generally contained to the pedestrian/garden walks.

Kahn intended the poles to be constructed in two-inch Corten pipe.[236] The globe lights on faded grey poles with curved necks, set within concrete bases, are original to the East Parking Lot and were installed in 1968. These lights were separately funded by the Gildred Landscaping Fund. The same fixture on the lower terrace has a different concrete base set within the canyon foliage, and is also original.

Along Salk Institute Road, the pole lights have a cylindrical fixture reflecting downward into concentrated pools of light. In the West Parking Lot, the more recent pole lights are tall rectangular fixtures aimed at a greater distribution of downward light for parking. The height, form, density/number, and distribution of the latter pole lights are intrusive in the landscape.

The original Edison Price 56 bollard lights are set in the lawn or the garden beds.[237] The cylindrical, black-metal lights are mounted on concrete pads. The bases were intended to be concealed by planting in the garden beds though exposed in lawns. Similar, but non-matching, bollard lights were introduced in the 1995 expansion of the belowgrade buildings to the South Lawn.

The 1995 lighting scheme within the Eucalyptus Grove is intrusive and the dome ground lights in the path have been described as tripping hazards by personnel. The cone lights in the planting beds may have been discrete when first installed but recent drought conditions have highlighted their inappropriateness. Small garden feature light fittings are used along the walk in the grove.

In the Service Yard, floodlights are sited above the head of the concrete yard walls and their associated conduits are surface mounted. Probably dating from the 1990s, they too are intrusive.

Original light fittings:
Top: Pole lights in the east parking lot.
Bottom left: Edison Price bollard light.
Bottom right: Recessed wall light.

[236] Specification for Site Development Work dated July 1964, section G; As-Built drawing LSE-1 Parking Lot Lighting.

[237] SK 9-4-68, rev 9-10-68.

Consistent use of globe light fixtures in the exterior and interior.

Wall lights with grilles

Type M light fittings are used in recesses cast into the concrete railings overlooking the lower level gardens and the concrete walls of the Study Staircases. On 10 April 1964, thirty-two lights were deleted from the contract, followed by another sixteen on 15 April, as part of continual cost-cutting procedures. These lights consist of a stainless steel frame with an inset grille.

Wall lights with diffusers

Similar light fittings with polycarbonate diffusers are recessed into the concrete walls of the walks to the South Garden and the Service Yard.

Globe lights

The globe light fittings are located in the ceiling soffits of the east and west corridors, the entrances to the lower level laboratories, at all lift levels, and on the landings to the Study Staircases. For the laboratories, the globe lights were centered on each structural bay, aligned with each entrance door. Each fixture has an unfinished cast aluminum plate of the same width as the diameter of the globe and contains a porcelain socket screwed to the aluminum neck. The Prescolite Raindrop glass globe housed a 100 or 150 watt Luxor White-Glo lamp. The marine air appears to have caused the cast plate to oxidize, though it appears to be stable.

Lighting – Internal

Edison Price "Fluorescent Parklite Luminaire 1 x 4" was a special light fitting used for the North Laboratory, of which 278 3-foot units and 1,353 4-foot units were purchased and delivered in April 1966 at a cost of $98,000.[238] General Electric "Cool White" was selected as the color for all lamps in January 1966.[239] In the laboratories, the Edison Price suspended light fitting casings were retained and retrofitted with LED bulbs in 1995. With increasing LED bulb efficiency, some 75 percent savings in lighting costs are reported to be likely. It is important that the original fixtures are retained for as long as possible allowing for the internal upgrades to follow LED or other technological developments. Exit lights are Prescolite Thinline.

Edison Price light fixtures, type U-5, in 4 foot by 1 foot bays, were used in the office wings in the Mirawall-Dampa ceilings, but no lighting was permitted in the canted bays paved with travertine. The Institute installed reflector clips in the Edison Price fixtures in the West Office Wing to eliminate hazardous conditions of diffusers falling out in December 1965. These issues were then addressed by Edison Price for the laboratory fixtures, which included welded corners rather than glued-on, and latches to diffusers as they were in an

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[238] Salk Institute Archives, Green Files 20141022_131941.
[239] Ibid.

earthquake area, with Edison Price bearing the costs.[240] The internal light fittings have been altered to LED technology; rectangular fittings are used in the library, while square and rectangular fittings are used in the offices and corridors.

The circular Svend Wohlert SW-112 light fixtures recessed into the Mirawall ceiling of the staircase to the North Office Wing survive. The same fixture was proposed for surface-mounted use. In the South Office Wing, fluorescent light fittings are located in the staircase ceiling.

The original lighting within the North Studies consisted of standing and table lamps. Over the years, lighting has been augmented with standard fluorescent ceiling fixtures with surface mounted conduit at the request of the occupants. This change is detrimental to the quality of the few Kahn interiors.

Original globe lights survive in the bathrooms of the North Studies and follow the design of the external globe lights, but with smaller, translucent globes. The lights in the South Studies date from later fit-outs.

The light fixtures used on the internal escape staircases in the Service Towers have the same aluminum back plate as the globe fixtures, but without the globes. Toilets in the South Service Towers have been fitted out since 1995 and more recently refurbished ones have modern flush circular light fixtures set within dropped suspended ceilings, as well as wall lights above mirrors.

Policy 5 is appropriate when re-fitting toilets to the South Office Wing, South Studies and South Service Towers.

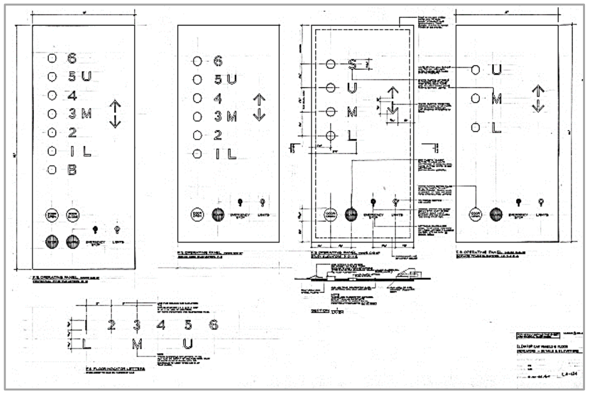
Policy 127
To prepare a holistic approach to the external lighting of the Institute, respecting and integrating Kahn's lighting strategies.

Policy 128
To respect the original lighting strategies to the Institute by removing all later ad-hoc additions and intrusive lighting.

Policy 129
To minimize the energy use and carbon footprint of the building's lighting systems by selecting the most efficient electric light sources that maintains the use of the original lighting fixtures.

Cafeteria, 1967.

[240] Salk Institute Archives, Salk Green Files 20141022_131246.



Kahn-designed typeface of 1963 called “Louis I. Kahn-typo-103020.”

Signage

Identity signs

The original identity sign was reported to be wood. The more monumental identity signs at the northeast and southeast corners of the site date from 1995. The walls are constructed in the same white architectural concrete with brushed stainless steel panels and lettering, following the design idiom of the East Building, but are partially concealed from view by the planting.

General purpose signage

Various types of signage are adhered to the architectural concrete, blockwork, glazing, etc., and all appear circumstantial.

Wayfinding signage

Signage for visitors consists of vertical signs in brushed stainless steel with surface mounted black lettering.

Certain individual items, such as room number signs, were purpose-designed for the building by E. L. Walls Associates, and were completed by 17 October 1967.

Elevator signage

The typeface for lettering and numerals was specified as “Louis I. Kahn – typo – 103020 – 7-8-63.” Letters and numerals are incised into and flush with the stainless steel and infilled with white plastic.

Policy 130

To formulate an overall strategy for consistent and appropriate signage to avoid an ad hoc appearance that results in a visual downgrade of the Place as a whole.

Inscriptions

The gilded inscription carved in Roman lettering on the risers of the steps of the walk reads:

NATIONAL FOUNDATION – MARCH OF DIMES
LED BY BASIL O'CONNOR
ESTABLISHED THE SALK INSTITUTE / 1960

The stainless steel inscription in the paving was introduced in 1995 shortly before Salk's death.

Hope lies in dreams, in imagination
and in the courage of those who
dare to make dreams into reality
Jonas Salk

The name of ELINOR VON OPEL is inscribed in Roman lettering in the travertine of the cascade.

Policy 131
To protect and maintain the external inscriptions.

The Kahn Landscape

> . . . the most sublime landscape ever created by an American architect.[242]
>
> The choice of the site of Torrey Pines, La Jolla, San Diego, overlooking the sea and protected by surrounding park and University property, is the first inspiring act towards creation of the environment for the Institute of Biology.
>
> For the presence of the uninterrupted sky, the sea and the horizon, the clear and dramatic configuration of weather-beaten land spare of foliage, the buildings and their gardens must find their position in deference to Nature.[243]

The site was given to what was to become the Salk Institute by the City of San Diego as part of an arrangement to encourage the Institute to establish itself in California. The land was a rugged bluff, 350 feet above the Pacific Ocean, and a canyon that extended back from the ocean divided the west half of the site into north and south mesas. The east half of the site, however, was level ground and readily accessible from the state highway. The retention of the canyon by the City as part of the coastal park secured the natural landscape, but also resulted in the challenging re-entrant approach into the site that was to be so cleverly exploited by Kahn as the basis of his tripartite plan.

Kahn's previous commissions had generally been on flat sites, but at La Jolla he had to deal aggressively with topography. Engaging the land only added to the richness of the California opportunity and while the laboratories were placed on the accessible flat ground of the east mesa, they were also sited at the head of the canyon whose natural landscape extended to the very edge of the paved West Court. The other two components of the Institute were planned by Kahn to be sited on the two mesas that were separated by the canyon: the Meeting House to the north; the Living Place to the south.

The landscape also influenced the form of the Laboratory Complex: the height restrictions of the Coastal Commission meant building belowground. This requirement generated the lower courts that made belowground laboratories acceptable in terms of the architect's belief in the importance of daylight and views; at every stage of the design the building responded to the spectacular outlook to the west.

Facing page: La Jolla, Salk Institute site, aerial view looking east, 1964.
Page 261: Second Design, Institute for Biology at Torrey Pines, plot plan, 5 January 1961.
Page 262: Second Design, presentation plan, 1962.
Page 263: Landscape plan, 1962.
Page 264: [*Photographs Redacted*]

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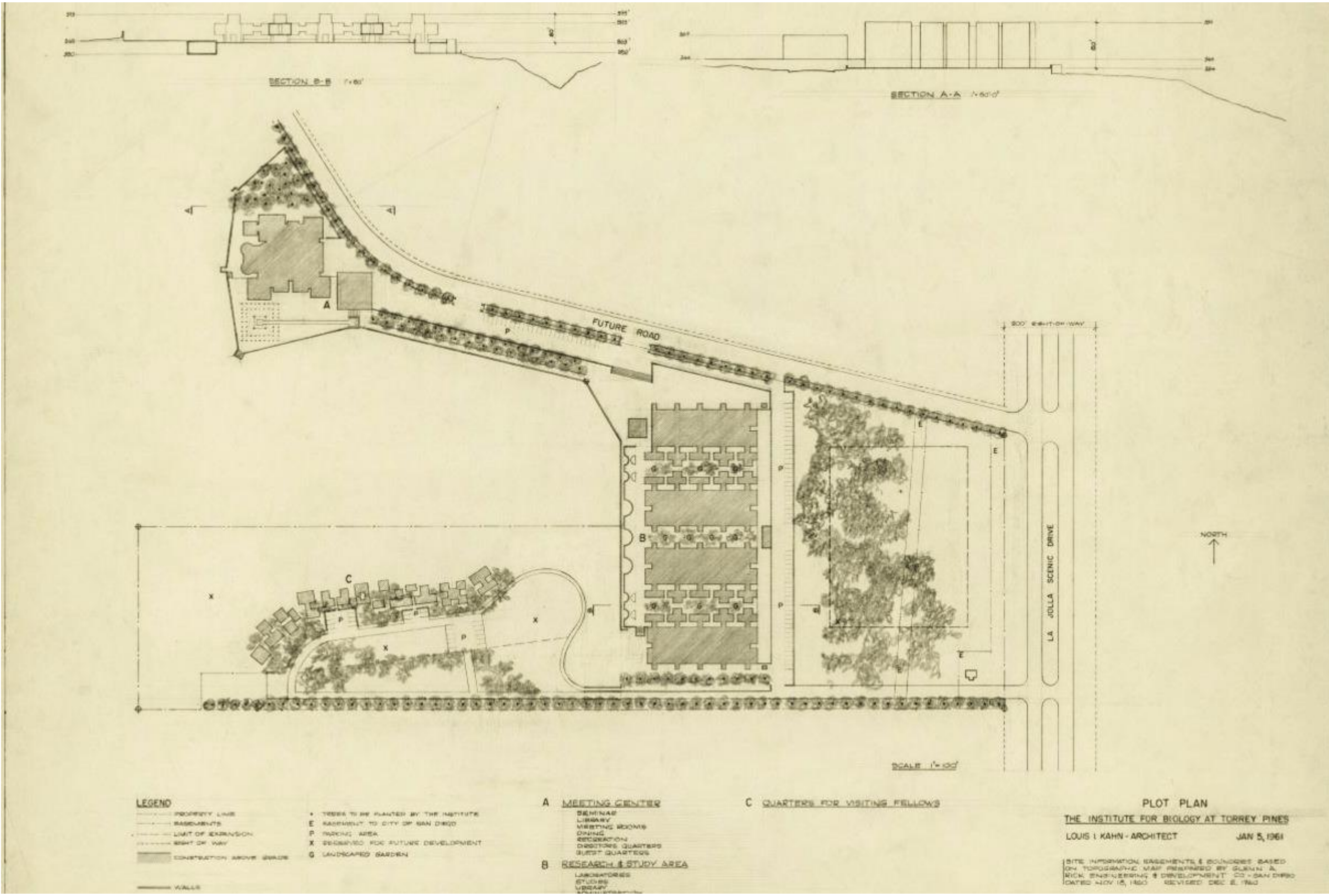
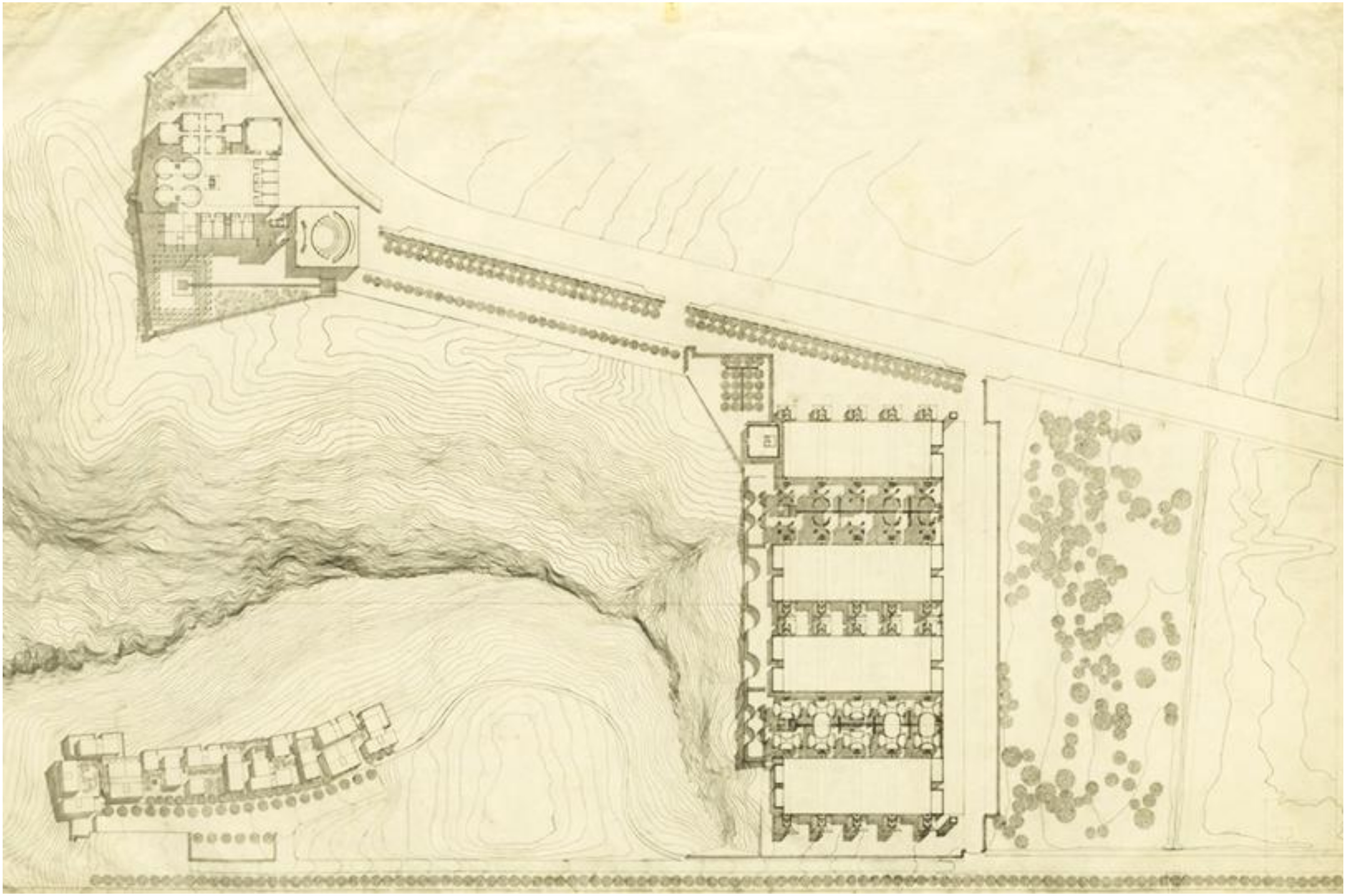
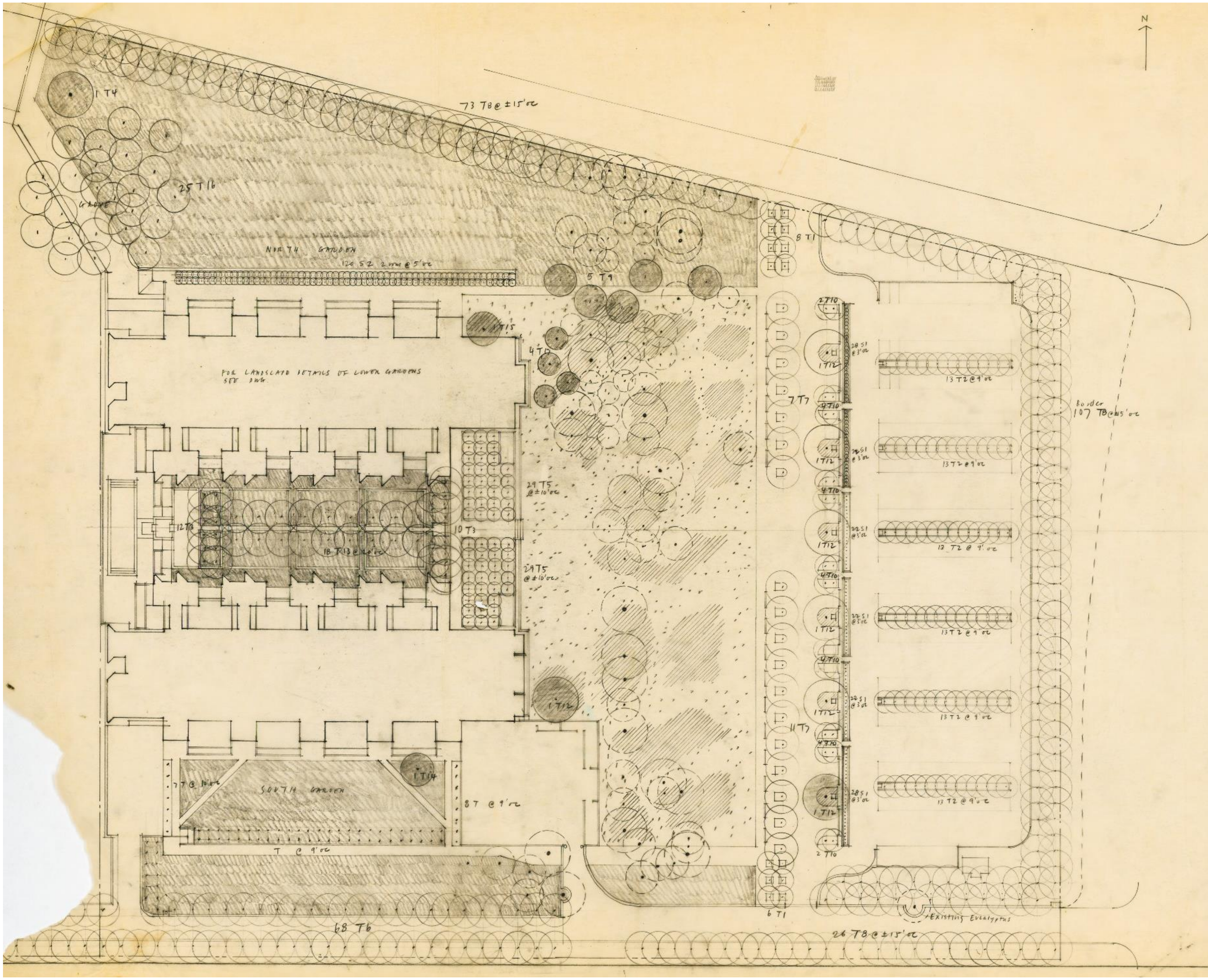
242 Herbert Muschamp. New York Times 1991.
243 *Abstract of Program*, Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.2716.


SECTION B-B
SECTION A-A
FUTURE ROAD
200' RIGHT-OF-WAY
LA JOLLA SCENIC DRIVE
NORTH
A
B
C
SCALE 1"=100'
LEGEND
PROPERTY LINE
EASEMENTS
LIMIT OF EXPANSION
RIGHT OF WAY
CONSTRUCTION ABOVE GRADE
WALLS
TREES TO BE PLANTED BY THE INSTITUTE
E EASEMENT TO CITY OF SAN DIEGO
P PARKING AREA
X RESERVED FOR FUTURE DEVELOPMENT
G LANDSCAPED GARDEN
A MEETING CENTER
SEMINAR
LIBRARY
MEETING ROOMS
DINING
RECREATION
DIRECTORS QUARTERS
GUEST QUARTERS
B RESEARCH & STUDY AREA
LABORATORIES
STUDIES
LIBRARY
C QUARTERS FOR VISITING FELLOWS
PLOT PLAN
THE INSTITUTE FOR BIOLOGY AT TORREY PINES
LOUIS I. KAHN - ARCHITECT
JAN 5, 1961





KEY

Existing trees to be preserved

Proposed trees to be planted under Stage 1, Spring

Proposed trees to be planted under Stage 2, Spring 65

Proposed trees to be planted subsequently

Large tree +60 | Med tree 40-60 | Small tree 20-40 | Large shrubs 10-20 | Med shrubs 5-10 | Small shrubs -5 | Ultimate Height

Grass

Ground cover

Tanbark

Property Line

PLANT LIST

Quantity	Symbol	Botanical Name	Common Name	Ultimate height	Planted height	BR or BB	Notes
14	T1	Acacia baileyana	-	-30'			
78	T2	Albizzia julibrissin	SILK TREE	-30'			
22	T3	Betula nigra	RED BIRCH	-40'			Clumps
1	T4	Cedrus deodar	DEODAR CEDAR	-80'			Specimen
58	T5	Citrus mitis	CALAMONDIN ORANGE	-10'			
68	T6	Cupressus macrocarpa	MONTEREY CYPRESS	-40'			
18	T7	Erythrina poeppigiana	BUCARE	-40'			
206	T8	Eucalyptus ficifolia	FLAME EUCALYPT	-40'			
5	T9	Jacaranda acutifolia	GREEN EBONY	-40'			
24	T10	Laurus nobilis	SWEET BAY	-30'			
7	T11	Leptospermum laevigatum	AUSTRALIAN TEA TREE	-30'			
7	T12	Magnolia grandiflora	SOUTHERN MAGNOLIA	-75'			Specimens
18	T13	Melaleuca leucadendra	CAJEPUT TREE	-35			
1	T14	Pittosporum undulatum	VICTORIAN BOX	-40'			Specimen
1	T15	Podocarpus elongatus	-	-40'			Specimen
25	T16	Quercus ilex	HOLM or HOLLY OAK	-60'			
4	T17	Schinus terebinthifolius	BRAZILIAN PEPPER	-30'			
	T18						
194	S1	Camellia sasanqua		-4'			
120	S2	Carissa grandiflora	NATAL PLUM	-8'			

GENERAL NOTES

TITLE

Scale 1"=30' 22/5/65 AW

In each case, the building was clearly a man-made place and that characteristic contrasted with the natural surroundings: the Meeting House was a citadel commanding the natural bluff and the ocean; the housing a settlement colonizing the contours of the south mesa; the Laboratory Complex with its supporting gardens inserted between the very edge of the natural canyon and an existing eucalyptus grove.

In addition, Kahn overlaid the natural site with formal landscape elements that linked the three building elements as one entity. The landscape was integral to the design and, in effect, the fourth architectural element of Kahn's proposals for the Salk Institute.

Throughout the Second and Third Designs, Kahn's sketches demonstrated the importance of the formal groups and rows of trees with which he defined the outer boundaries of the site, not only linking the built elements together, but extending the geometry of the buildings to structure the site as a whole. One of the most important of these was the rows of trees over the esplanade walk linking the Laboratory Complex to the Meeting House; the esplanade confirmed the main entrance to the Institute and the principal frontage to Torrey Pines Scenic Drive. The formality of the planting and the geometry of the overlay was made all the more apparent as it contrasted so strongly with the rugged landscape of the canyon that it confidently overlooked.

A sketch plan in Kahn's hand confirms the importance of the landscape to the architect and sets out his requirements for the Third Design.[244] It notes the use of planting to modify the environment, a circular "shaded grove" reinforcing the diagonal walk to the northwest entrance, and the Living Place was to be approached under a "cool green canopy over road to houses." A series of charcoal plans illustrating the formal planting of the site relates to the Third Design and again illustrate Kahn's involvement with the design of the landscape. In August 1963, Kahn visited La Jolla and explained the garden development and site plan to Dr. Salk on August 20. Two days before he also met with Roland Hoyt, who was named as the landscape consultant.[245] While Kahn's drawings define the form and purpose of the planting, it was Hoyt who advised on the selection of plant material and its implementation. Kahn's drawings had specified trees and shrubs by their size (large and medium), and whether they should provide shade; it was Hoyt who proposed the varieties of trees, shrubs, and grasses to meet his requirements and who reported on their availability from local

[244] See illustration, Assessment of Significance.
[245] Roland Hoyt (1890–1968) was a landscape architect who had practiced in San Diego since 1928. Hoyt had worked on the Presidio Park and other projects, and was a member the City's Park Commission.

nurseries.[246] The contractor for the landscape planting was generally Charles Wagner, who worked closely with the Salk's gardener, Clyde Roy.

In addition to Hoyt, Lawrence Halprin, (fn. Lawrence Halprin (1916–2009) a noted landscape architect from San Francisco who had been responsible for the Sea Ranch development in North California in 1962) was also consulted during the Third Design. This followed the recommendation of Luis Barragán that the central court should be treated as a plaza rather than a garden.[247] Halprin's involvement was primarily to produce an alternative scheme to soften the Plaza which some fellows thought would be too harsh. Halprin's recommendations extended to how one would approach the building through the eucalyptus grove and along the northwest walkway. However, he withdrew from the project after a few months when he saw how committed Kahn was to Barragán's suggestion of a plaza without plantings.

As with the buildings, because of the lack of resources only the east half of the landscape was developed, and even then the proposals were cut back; the "as-built" Landscape Plan records several elements that aerial photography clearly shows were not actually implemented.[248] These included the planting of the understory in the Eucalyptus Grove, as well as the transverse drive that was to form the visitors' parking lot. What was completed were the North and South Gardens, and the East Parking Lot.

The west half of the site, however, was to remain a dream in terms of both its buildings and landscape.

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[246] Louis I. Kahn Collection, University of Pennsylvania, LSD1 Planting Plan 5 Apr 63.
[247] Luis Barragán (1902–1988), the Mexican architect whose own house of 1948 was awarded the Pritzker Prize, famously said, "I don't divide architecture, landscape and gardening; to me they are one."
[248] Louis I. Kahn Collection, University of Pennsylvania,, LSDL-1 rev. 8 October 1965.

East half of the site

A measured survey of the entire site was completed by Glenn A. Rick Engineering & Development Co., San Diego, in October 1960 and revised the following month. It is labeled, “Topographic Map of the Institute for Biology at Torrey Pines.” The survey was drawn up in four sheets, with sheet 4 covering the level ground between the head of the canyon and the state highway where development was eventually to occur.

The area was already divided into three zones, running north-south and parallel to the road:

- A plateau at head of Canyon.
- East of this, the existing Eucalyptus Grove is recorded in detail together with meandering paths running through it, linking areas to the north as well as crossing the site nearer the canyon.
- A further area of flat land between the eucalyptus grove and the highway.

At the southeast corner, a pumping station was retained by the City together with utility and other easements across the east portion of the site. Foundations and areas of asphalt paving were evidence of Camp Callan that had extended along the highway. A track existed along the south side of the land, a “Future Road” is marked on the north boundary, and an existing asphalt drive is shown extending along the southern edge.

In the First Design, Kahn ignores the Eucalyptus Grove and the whole of the plateau between the road and the canyon was allocated for the laboratory complex housed in four different structures each placed on a circular platform. The scheme, however, was purely indicative of a development strategy and was only intended to support the discussions for the acquisition of the site from the City of San Diego.

However, once the design developed, the grove was retained throughout the Second and Third Designs and the laboratories were sited to its west. In the Second Design, the laboratories extended across virtually the full width of the plot, but stopped short of the north boundary to address the new Torrey Pines Scenic Drive that was to be the main frontage of the entire Institute. The smaller imprint of the Third Design with its single court meant the development of the formal gardens to the north and south, which maintained the band of man-made landscape across the full width of the site.

The grove itself provided an informal setting for the Institute and was coupled with the level ground to the east, providing veiled views through to the Laboratory Complex from the state highway

An increase in the need for parking during the development of the Third Design resulted in the allocation of the section of the plateau to the east of the grove as a parking lot.

Top: Third Design, perspective of northwest approach.
Bottom: Northwest approach, 1965.

North Garden

Top: North Garden, hard landscaping in progress, 1966.
Bottom: North Garden, view from middle level toward Torrey Pines Scenic Drive, 2015.

A narrow garden area on the north side of the laboratory building occurs in the Second Design. It results from the divergence of the boundary and the building, but Kahn exploited it to acknowledge that the main frontage of the Institute was to Torrey Pines Scenic Drive. The enlargement of the North Garden appears on Kahn's drawings for the Third Design and comes with the reduction of the Laboratory Complex to a single court building; its details are shown in the "as built" drawing of July 1965.[249] It was seen as a man-made landscape with a precise lawn that links the garden strongly with the building. The leveling of the lawn included the establishment of an embankment that helped to conceal Torrey Pines Scenic Road from view within the site. The lawn elevation was resolved to the south through construction of a low concrete wall and planting of a bed of prostrate natal plum (*Carissa prostrata*) shrubs at the edge of a walkway that extended along the north elevation of the laboratories.[250]

The east side of the lawn was contained by the eucalyptus grove, and a large semi-circular bed of campanulas was to be located adjacent to the mechanical wing. A double row of formally planted *Eucalyptus ficifolia*, underplanted with *Carissa*, was intended to define the long frontage and continue around the boundary of the East Parking Lot.

The brick walkway to the northwest entrance was to extend through a grove of twenty *Quercus ilex*, in effect a green entry pavilion, and a large cedar was to mark the junction between the *Ilex* grove and the boundary planting. In February 1965, Roland Hoyt noted that he had a seen in the nursery a large "cedar of Lebanon [that] is really something $70", but the tree is not present in any of the early photographs.[251] Again the leveling of the ground resulted in the bank on the east side of the walkway, and this was to be planted with *Carissa*. Kahn's scheme for this approach was developed by both Hoyt and Halprin, and the latter prepared details for the five tree pits where the grove intercepted the brick path. These were detailed as bricks loose-laid on the gravel with an open grid of pavers that allowed water to reach the trees. It was intended that grass should grow up within the paving, and regimentation was avoided by varying the size and orientation of each tree pit. The path was laid by 1965 and is drained to a swale along its west side. In May 1970, Carlos Johnson, the facilities manager, widened the walkway by 56 inches to form a fire lane and some tree pits were infilled. By 1979, only three trees were recorded in the area that Kahn had intended as a shaded grove.

The approach to the main entrance from the East Parking Lot was along the brick walkway adjacent to the north elevation of the laboratories. This was also laid in brick and was in place by 1965. It was further modified when the East Building was constructed in 1995. The monumental brick steps resolve the two

[249] Louis I. Kahn Collection, University of Pennsylvania, 030.I.C.540.29_LSDL1.
[250] Louis I. Kahn Collection, University of Pennsylvania, LSDS-4 North Garden as built 7 May 1965.
[251] Salk Institute Archives, Garry Van Gerpen file.

approaches from the northwest and the east to the arcade below the North Office Wing and were constructed with the North Building; the stainless steel handrail to the east was in place by 1967.

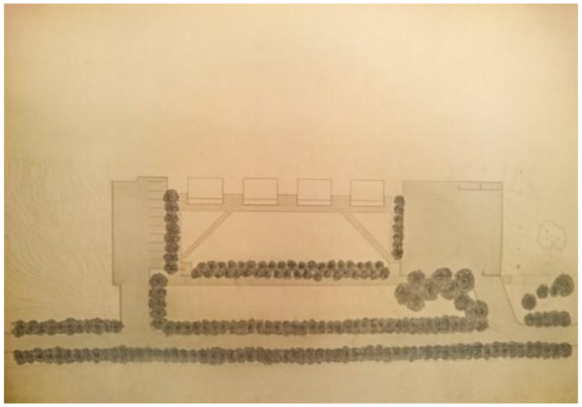
As with other "as-built" drawings dated 1965, the information on the landscape drawings anticipates some elements that had not been and never were implemented. However, the North Garden is laid out generally as intended, despite the replacement of the use of Torrey pines in place of the Eucalyptus, and the reduction of the entrance grove and its cedar to only the trees planted within the brick walkway. The ground cover along the banked east side of the northwest walkway was implemented, as was that in the long bed that contains the walk along the north elevation.

Although the cars parked on Torrey Pines Scenic Drive are largely concealed by the raised lawn, the current development of the land to the north of the drive is visible and diminishes the setting of the laboratories. This incompatible view is anticipated to be mitigated through the reestablishment of the north campus boundary plantings indicated in Kahn's original design.

Universal access is provided through the two service towers at the ends of the north elevation and was achieved by re-grading the brick paving to bring the paths leading up to the building level with the interior. An additional brick path was introduced recently at the west end of the lawn to afford ramped access from the East Parking Lot and the highway. Its duplication of the adjacent Halprin path is unfortunate, but the gain in accessibility is significant.

As the site of the North Garden was used as a construction yard, soil and debris from the excavations were deposited to the west, adjacent to the northwest walkway and to the north of the parking lot serving Temporary Building No.1. It appears that this fill was reused to build up the North Garden when it was levelled and raised.[252]

The trees along the boundary to Torrey Pines Road were donated in the early 1970s by a local nursery as they were root-bound and not saleable.[253]



Third Design, South Garden landscape, charcoal drawing, undated.

[252] Salk Institute Archives, Landscape files.
[253] Salk Institute Archives.

Aerial photo from north east with South Garden, after 1973.

South Garden

The South Garden is a development of the Third Design and results from the reduced imprint of the single courtyard building that pulled the south elevation away from Salk Institute Road; in the earlier design, there had only been space for a single row of trees.[254]

The Third Design was structured with lawns and formal planting that still maintained the architectural orbit of the building out to Salk Institute Road. However, in contrast to the North Garden, the area was divided into north and south compartments.

As in the North Garden, the ground was leveled to bring it to that of the main Plaza but this was restricted to the compartment adjacent to the building, and a retaining wall divided the space from that on the south where the ground followed the fall of the road, dropping 10feet east to west. A stair at the west end of the retaining wall linked the two spaces.[255]

In the both the early sketches and the "as built" landscape plan, each compartment is defined within formal rows of trees (type not specified), the double row across on the central division suggesting a shaded walk overlooking the lower ground. The two areas were also structured with brick paths, the one on the lower level leading back to the East Parking Lot in a similar way to that on the north, passing through an existing, informal group of trees that screened the service yard. Comparison with the adjacent parking lot to the south of the South Office Wing on the west and the service yard on the east demonstrates how much the ground was remodeled to bring it level with the Plaza.

The construction of the Animal Quarters beneath the north compartment in 1976–1977 necessitated the excavation below the raised ground to enable the new quarters to be accessed from the lower level of the South Service Towers. The lawn and paths were reinstated over the new quarters with little change. The extension of the Animal Quarters to the south compartment twenty years later, in 1997, resulted in a greater change to the landscape, as it raised the ground level to that of the north compartment and resulted in the tall, blind elevation of the retaining wall along Salk Institute Road. While the South Garden that was reinstated on the roof of the two extensions superficially appears similar in plan to its layout in 1965, the change in the section is considerable and the concealed building is intrusive.

[254] Louis I. Kahn Collection, University of Pennsylvania, 030.I.C.540.4_plot plan_1-5-1961.
[255] Louis I. Kahn Collection, University of Pennsylvania, LSDS – 3 1965.

Service Yard

The service yard was under construction by George A. Fuller Company in March 1965, and is recorded as built as a square walled yard entered at its southeast corner through gates set back from Salk Institute Road. The yard is at street level and serves the raised loading dock at the south end of the mechanical wing, a trailer height above. The concrete walls enclosing the yard were treated as retaining walls because of the gently rising ground toward the north. At the northeast corner, a second wall within the yard provided a series of storage areas.

Service Yard, 2015.

A pair of air cooling towers and associated structures were introduced on the south side of the yard to serve the first phase of the animal quarters constructed below the north half of the adjacent South Garden in 1975.

A further addition was made in 2010 with a plant enclosure to the northeast on the outside of the yard wall. A former construction trailer has been permanently located to the east of the remaining section of the service yard wall to act as a fitness center.

While the cooling towers designed by NBBJ have some merit as a sculptural element, the other additions are ad hoc and makeshift. However, each of the extensions detracts from the clarity of the square yard designed by Kahn, and their presence has also closed off the south end of the East Garden and the eucalyptus grove.

As on the north side of the Laboratory Complex, Kahn had planned a direct route from the East Parking Lot through to the South Garden. This ran up to the south wall of the Service Yard, but the introduction of the cooling towers obliterated most of the path in that location, and the route is now severed.

Policy 132
To recover the form of the service yard, uncluttered and providing access to the loading dock.

Policy 133
To remove the plant enclosure and the trailer housing the fitness center.

South Parking Lot, 2015.

South Parking Lot

The South Parking Lot was constructed as part of the Third Design and was in place by 1965. Together with the adjacent section of Salk Institute Road, it was originally intended to be paved in brick and would have thus related to the paths in the South Garden. However, both the road and parking lot received asphalt paving in the cost reduction exercises to complete as much of the Laboratory Complex within the resources available.

The north half of the boundary wall on the east was constructed with the raised South Garden by 1965, and thus screened the first phase of the animal quarters constructed in 1976. The wall was extended south with the extension of the quarters in 1997. The stair replaces the dog leg stair of 1965 and links the garden to the parking lot, as well as providing a discreet entrance to the subterranean accommodation.

The south boundary wall was in place by 1965.

East Garden and Eucalyptus Grove

While the North and South Gardens were treated formally to associate them with the Laboratory Complex, the East Garden was an informal area that was developed on the basis of an existing eucalyptus grove.

In 1960, eucalyptus trees extended north-south across the full width of the future site of the Salk Institute and aerial views of Camp Callan record their presence in 1941. The grove, however, was narrow and the trees appear to have been thin. A tracing extract from the site survey of 1960, presumably by Kahn’s office, shows the massing of 159 eucalyptus trees on the site.

In the First Design, which was purely intended to gain the initial support of the City of San Diego, Kahn ignored the eucalyptus trees and four circular laboratory platforms occupied the whole of the east mesa. However, throughout the Second and Third Designs he respected the existing planting, placing the laboratory complex between the west side of the grove and the head of the canyon, leaving the grove itself and the land to its east untouched. The landscape thus distanced and screened the building from the main road. To this end, in August 1962 bids for pruning, cleaning, and protecting the existing trees were obtained and the contract was awarded to Wagner Landscape Co.[256]

While the principal frontage of the Salk Institute was to Torrey Pines Scenic Drive to the north, an approach was also available from the east, and Kahn later notes the East Garden as “Forecourt to Laboratory” in his strategy for the landscape planting for the Third Design, its informal nature being reinforced by recording design intentions to “. . . free under Grove, no paths, ground cover and clearing to mark paths in grove,

[256] Salk Institute Archives, Landscape files.

dust."[257] Roland Hoyt also reinforced the idea by recommending treating the area with a groundcover of tanbark interspersed with organic-shaped islands of low growing shrubs (leadwort, periwinkle, *lantarna montevidensis*, English ivies, etc.). Above this, the eucalyptus trees were retained, but supplemented to the north with green ebony (*Jacaranda acutifolia*) and Brazilian pepper (*Schinus terebinthifolius*) tree plantings.[258] In all of the schemes, the eucalyptus trees extended from north to south across the full width of the site.

The arrangements for car parking were also critical for the development of the East Garden. The Second Design coupled the area with the open land to the east, and the two were separated by a wall from a linear transverse drive with staff parking lot that ran immediately adjacent to the east side of the laboratories. The introduction of the current parking lot on the east of the plateau in the Third Design removed the transverse drive to the east side of the grove. This resulted in Kahn's proposals to extend the natural grove up to the walls of the laboratory complex and develop the East Garden as a grove associated with the building rather than the parking lot.

[257] Louis I. Kahn Collection, University of Pennsylvania, 030.I.A.540.25.
[258] Louis I. Kahn Collection, University of Pennsylvania, 030.I.C.540.29_LSDL1 –26 February 1965.

Page 273: Aerial View, early.
Page 274: Aerial View, 1979.

The enclosing wall has its origins in the walls with which Kahn contained the Laboratory Complex site in the Second Design and was characteristic of the way each element of his tripartite scheme was treated as a defined enclosure. The location of the wall progressively moved eastward in the Third Design and placed the parking lot firmly outside the orbit of the laboratories. Because of the lack of funding, the transverse drive was not constructed, except for the entrances at either end that gave access to the parking lot. The omission of the drive meant that the associated formal planting that was to shade visitors' cars on the drive was never implemented.

An aerial view from about 1967 shows the eucalyptus trees primarily as a central band running north-south through the East Garden, well clear of both the mechanical wings to the west and the enclosing wall to the east.[259] In December 1968, the "architects' shack," as MacAllister described the temporary accommodation that had been built by Fuller for use by Kahn's site architects in 1963, was removed by Chuck Wagner, the landscape contractor, and trees planted that extended the grove to the east up to the enclosing wall. The landscaping of the area included two meandering paths focusing on the gate to the Plaza, similar in layout to those proposed in Halprin's landscape master plan of 1966. The planting, however, was never as complex as that shown in the "as built" plan of 1965.[260] An aerial photograph of 1979 records the landscape at its height with the Laboratory Complex set between a generous, rectangular grove of eucalyptus and the natural planting of the canyon beyond. The grove was fronted by the concrete enclosing wall, which allowed entrance at its many openings along its length.

The omission of the Meeting House meant that the northwest entrance to the Laboratory Complex was reduced in importance, and proposals for a revised entrance were made in April 1964. This approach was to provide a new administration building on the east side of the laboratory complex, sited on axis with the court and approached from a square forecourt with a central 60 foot diameter lawn. The building and its forecourt would have extended across the depth of the East Garden between the enclosing wall and the gate to the Plaza, dividing it in two. On either side, the area was reserved as "sites for future buildings."[261] The scheme was never developed beyond the roughest sketch plans.

Thirty years later, in 1995, the East Building was constructed immediately to the west of the wall with which Kahn had enclosed the East Garden. Together with the buildings belowground, it covers the half of the garden. The new building obliterated much of the eucalyptus grove, and the *La Jolla Light* noted in May 1963 that the eucalyptus grove through which one meandered to reach the Institute was now reduced to a

Top: Eucalyptus Grove, 2015.
Bottom: Path and planting outside the East Gate introduced after 1995.

[259] Salk Institute Archives.
[260] Ibid.
[261] Refer to Site Plans.

Top: Kahn's East Garden wall, surviving between the East Building and the East Parking Lot, 2015.
Bottom: East Parking Lot, Clyde Roy tending trees on the east boundary, 1965.

stack of logs.[262] Ancillary structures have also truncated, or isolated, the north and south ends of what remains. Parts of the grove between the East Building and the Laboratory Complex remain, but the impact of the grove as a veil and the understanding of the East Garden as an area ancillary to the Plaza are seriously reduced. The division of the East Building into two blocks aboveground introduced a direct view through to the Plaza that has lost the experience of Kahn's building being discovered as you approach it through the grove.

To the north, remnants of the grove still extend across to Torrey Pines Scenic Drive, but its continuity is interrupted by the north fence and the density of the planting is much reduced. A new footpath, walls, and fencing further diminish the character of the area. To the south, temporary buildings and alterations to the landscape mean that the East Garden no longer extends to Salk Institute Drive, and the simplicity of Kahn's plan that banded the site is lost.

Policy 134
To recover the density of planting of the eucalyptus grove and reintroduce ground cover.

Policy 135
To recover the pattern of meandering paths.

Policy 136
To recover the extension of the grove to the north and south boundaries.

East Parking Lot

The site was part of the level plateau adjacent to the main highway to the east of the site, and had been occupied by the buildings of Camp Callan. A pump house owned by the City occupied the southeast corner and easements for utilities extended north-south across the area and had to be maintained.

In the Second Design, automobile parking was provided in the North Parking Lot between the Laboratory Complex and the Meeting House. This parking area was supplemented with staff parking on the service drive that crossed the site immediately in front of the east elevation of the Laboratory Complex, contained by an enclosing wall. The eucalyptus grove and the level plateau were left as a natural setting for the building.

The Third Design re-sited the proposed transverse drive from the west to the east of the eucalyptus grove and introduced the present parking lot to its east. Visitor parking was to be in the transverse drive, while staff

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[262] Salk Institute Archives.

parking was to be in the additional parking lot. The two areas held a total of 143 cars and were separated by the wall that associated the East Garden and its eucalyptus grove with the Laboratory Complex.

In both designs, the Institute fronted onto Torrey Pines Scenic Drive and the entrance to all facilities was from the north. Access from the East Parking Lot to the main, northwest entrance was via a walkway running parallel to the north elevation of the Laboratories and a similar, secondary route led back on the south side of the service yard. These paths extended the orthogonal geometry of the building to the landscape. The intention was that the primary circulation within the site would be brick and the transverse drive and the access paths were drawn as such. The parking lot, however, was to be paved in asphalt.

As with the Esplanade and North Parking Lot, the transverse drive was to be formally planted and trees were to be set in concrete curbed pits: bucare tree (*Erythrina poeppigiana*) running along the west side and magnolias along the east; these were preceded by groups of acacia at the north and south ends.

The lack of resources meant that the transverse drive and its planting were never realized. However, the radiused, brick-paved section at each end of the drive was built to access the parking lot from both Torrey Pines Scenic Drive and exit onto Salk Institute Road.[263]

Roland Hoyt prepared the planting scheme in 1963 and the trees lining the north and east sides of the parking lot were formally planted, *Eucalyptus ficifolia* above decorative ground cover of *ceonothus*. The parking area was divided by a row of *Albizia julibrissin* running north-south; cars were arranged at right angles to the trees and circulation was via a hypodrome plan. Later schemes rotated the planting within the parking lot, with lines of cars separated by short rows of trees running east-west. It was the latter scheme that was finally implemented. The intention to screen the pumping station is noted in several schemes.

The parking lot trees were kept trimmed as employees complained of debris potentially falling on their cars, and consequently have never provided the shade intended.[264] While the planting of the parking lot was formal, isolated trees were retained in the existing boundary planting to the radiused highway until about 1965. However, over the next thirty years the east frontage was filled with dense planting. Although the sewage pumping station has been re-sited to a new building on the south mesa, other temporary structures remain, encroaching on the south end of the parking lot.

Top: East Parking Lot, 2015.
Bottom: North Path, 2015.

[263] Louis I. Kahn Collection, University of Pennsylvania, LSD-1 rev 23 July 1965.
[264] Salk Institute Archives.

Top: North Parking Lot and Torrey Pines Scenic Drive, 2015.
Bottom: Vista from North Torrey Pines Road between the East Building and the Plaza, 2015. Kahn intended that the Plaza should be contained on its side by the Eucalyptus Grove or by buildings in his proposal for later extensions.

The parking lot was constructed by the George A. Fuller Company in spring 1965, with R. E. Hazard Co. responsible for the ground works and Capitol Electric for the lighting.[265]

Policy 137
To respect the wall between the parking lot and the East Building, which survives from Kahn's layout dividing the eucalyptus grove from the parking lot.

Policy 138
To recover the planting scheme.

Site of Sewage Pumping Station

Although Kahn planned the East Parking Lot to extend eventually across the full width of the east boundary, an existing sewage pumping station was retained by the City at the southeast corner at the junction with Salk Institute Road. The building was removed after the pumping station was re-sited to the south mesa in 1985. Early proposals for a screen of planting to the north were not implemented because of the presence of the East Interim Facility, which was constructed from 1963 onwards.

Torrey Pines Scenic Drive

Torrey Pines Scenic Drive was described as an "Improvement by City" and lies north of and outside the property transferred to the Salk.[266] Not only did the road serve the Salk, but it also gave access to the glider port and land to the north owned by the University.

From the very first conceptual sketch and in each of Kahn's designs, Torrey Pines Scenic Drive was treated as the main frontage of the Salk and the principal elements of the Institute were accessed from it: the East Parking Lot, the Laboratory Complex, the North Parking Lot, the Esplanade, and finally at the very head of the road overlooking the ocean, the Meeting House, the primary building on the site. Even the Living Place on the other side of the canyon was approached from Torrey Pines Scenic Drive, with access via the arcades beneath the office wings of the Laboratory Complex. In each case a series of walls, flights of steps, and formally planted tress marked the transition from the road to the site.

The parking area on the east section of the road is screened from the Salk, as Kahn built up the level of North Garden. However, the omission of Kahn's development of the west half of the site has rendered the west section of the road intrusive.

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[265] George A. Fuller, Co., Cost Report Summary Apr 1965, R. E. Hazard $17,270.
[266] Louis I. Kahn Collection, University of Pennsylvania, LSD-3 Laboratory Site Plan 23 July 1965.

Policy 139
To recover the importance of Torrey Pines Scenic Drive as the frontage to the Salk site.

North Torrey Pines Road

A public footpath has been developed by the City along North Torrey Pines Road. The path meanders through the tree belt on the east side of the site and emphasizes views west into the site that were never intended by the original designers. The planned layering of the landscape with the Laboratory Complex veiled by the informally planted East Garden has consequently been undermined by the present desire for vistas through to Kahn's building.

The quality of the frontage is also eroded by the ad hoc introduction of public utilities substations, street furniture, and identity signs. The latter at the junctions of North Torrey Pines Road with Torrey Pines Scenic Drive and Salk Institute Road were designed by Jack MacAllister and are contemporary with the East Building; the way in which they address the main highway conflicts with the fact that Torrey Pines Scenic Drive is the principal frontage of the Institute.

Policy 140
To recover the screen planting to the Salk site.

Policy 141
To encourage the careful siting of utilities.

Salk Institute Road

An existing track on the site of Salk Institute Road in 1960 was developed as a private road to provide service access to the Institute. The design drawings note that the road was to provide a "truck route down to Service Yard (asphalt)" and the yard was to be finished in the same material. Beyond was to be a "brick paving car road" that served the South Parking Lot.[267] The lack of resources resulted in the road being finished in asphalt as far as the parking lot. The omission of the Institute's housing on the south mesa meant that the track remains beyond that point.

The road was to be formally planted with rows of flame eucalyptus *(Corymbia ficifolia)*. Those along the southern boundary were planted in October 1962 by Charles Wagner because of the "urgency of getting landscape in" and the feeling that landscape it was politically important because of the relationship with the neighbors while the Salk was being constructed.

Top: Salk Institute Road, looking west, with the City pumping station on the right, 1964.
Bottom: Salk Institute Road looking east, with utilities, 2015.

[267] Louis I. Kahn Collection, University of Pennsylvania, LSD-3.

In 1965, the south boundary was required to be planted to protect the privacy of future house.[268] The adjacent farm has since been developed as a hotel and individual plots for domestic residences. The latter are particularly intrusive on the setting of the Salk Institute.

Policy 142
To maintain Salk Institute Road as a subordinate service drive.

West side of the site

> Presence of the sky, earth and sea is a reminder of wonder.
>
> Wonder is the beginning of all knowledge.[269]

The abandonment of the proposals for the Meeting House and the Living Place also meant that Kahn's associated landscape scheme for the west half of the site was never implemented. It would have completed one of the most important elements of the Salk and would have been an outstanding piece of landscape design. As with the east half of the site, Kahn's approach to the landscape was an essential part of the architect's concept that totally integrated the scheme with its natural surroundings.

The canyon was central to Kahn's tripartite plan and the buildings were grouped around the ravine. Not only were the Meeting House and the Living Place set to either side, but the Laboratory Complex was placed to the east at the very head of the canyon. Through this design, each element was ensured of a relationship with the wonder of the sky, earth and sea.[270]

The Meeting House was clearly considered by the architect, and his client in the early days, as the most important element of the Salk Institute and this was reinforced by Kahn's treatment of the landscape. Like the Laboratory Complex, it was to have been set within defined, man-made enclosures and treated as a citadel that contrasted with the natural rugged headland.

Opportunistic development has occurred on both the north and south mesas. The most important location within the site, with its commanding views of the Pacific Ocean, is now occupied by a sprawling parking lot rather than the

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[268] Salk Institute Archives.
[269] *Abstract of Program*, Louis I. Kahn Collection, University of Pennsylvania, 030.II.A.2716.
[270] Ibid.

Meeting House with its structured courts and gardens; that of the Living Place is partially occupied by a replacement sewage pumping station.

The development of private residences on neighboring land to the south of the site intrudes on the views over the natural landscape setting, and it is likely that the current development on the land to the north belonging to the University will also be intrusive.

Canyon, Pacific Ocean and Sky

> For the presence of the uninterrupted sky, the sea and the horizon, the clear and dramatic configuration of weather-beaten land spare of foliage, the buildings and their gardens must find their position in deference to Nature.[271]

The canyon that extends back into the western half of the site was excluded from the gift of land to the Salk and was retained by the City of San Diego as part of the coastal park. It is maintained as a natural area and is characterized by native vegetation. It features four native plant communities: Southern willow scrub, Diegan coastal sage scrub, Southern maritime chaparral, and Southern mixed chaparral. Barrel cactus is a plant of special concern that the city coastal commission requires be retained if present.

Kahn grouped his three buildings around the canyon, placing the Meeting House on a promontory to the north that commanded views of the entire site as well as the sea, the Laboratory Complex at its head with the intention that the natural landscape should extend up from the ocean to the very edge of its West Court, and the Living Place nestling along the contours of the south mesa. Scientific research was, therefore, standing on the very edge of the natural world.[272] Each center was treated as a man-made enclosure that contrasted with its natural surroundings, and extended to the infinite with views across the ocean. While the Laboratory Complex is famous for its view from the Plaza, the Meeting House with its views from its courts and gardens across the sea promised to be even more spectacular

The concept was strengthened by the relationship of the canyon, covered with low growing vegetation, to the Pacific Ocean which lay beyond. Although Kahn had recognized the importance of the uninterrupted sky, his early designs had placed great emphasis on the use of trees to provide shade and enclosure in relation to each of the three centers and the way one moves between them. However, after the visit of Barragán and the recommendation that the Garden Court in the center of the Laboratory Complex be an open plaza, Kahn paid greater attention to the presence of the sky, recognizing that the sky was another facade of the Plaza, and that the views of the ocean provided a mosaic.

Portions of the Salk Institute campus have been developed along the north edge of the canyon. The West Interim Facility was located so that the temporary laboratory buildings did not impede the construction of the permanent works to the north, the alignment and north wall of laboratories 2 and 3 being just south of the site for the future esplanade. It was agreed that a clear site would be returned to the canyon on the occupation

Canyon, 1964.

Facing page: Laboratory Complex from the Canyon rim, 2015.

[271] Ibid.
[272] Louis I. Kahn Collection, University of Pennsylvania, LSD-3 23 July 65.

North Building: View from Study Stair over the canyon to the ocean, 2015.

of the permanent buildings.[273] However, fifty years later the facility is still in use. Similarly the greenhouses, constructed in the 1990s, and the extension of the North Parking Lot, invade the canyon.

Their siting extending arbitrarily from the west side of the temporary laboratories. A land swap with the City rectified the situation in terms of ownership of the property in 1985, but did nothing to mitigate the impact that these elements had on the landscape and the setting of Kahn's buildings.

The retention of a temporary construction track between the built and natural elements has diminished the significance of this gesture and now forms a fire lane.

The condition of the canyon has been improved over the years: Aboveground power lines were removed in the 1990s, drainage was rerouted, and remains of structures associated with Camp Callan were reduced or removed.[274]

North Mesa

The Esplanade (unrealized)

The esplanade was a key element of the overall scheme for the Salk and would have provided the main entrance to the Institute. It joined the Laboratory Complex and the Meeting House, gathering visitors when they parked on arrival and presenting a dramatic view over the canyon to the two destinations, as well as providing a promenade between them.

The presentation drawings and the landscape charcoal for the area, shows the esplanade lined on either side with small trees to provide a shaded, enclosed promenade that contrasted with the views to the south across the open landscape of the canyon to the horizon of the ocean. To the north, it was served by the North Parking Lot, where fifty cars were parked below a parallel row of widely spaced, large trees that confirmed the main entrance to the site.

North Parking Lot

A parking lot was designed by Kahn as complementary to the esplanade. It was to be approached from Torrey Pines Scenic Drive. A driveway ran through it, giving access to the shaded esplanade on its south side. The

[273] Agreement with the City of San Diego Planning Department.
[274] Salk Institute Archives.

lot provided parking bays for about fifty cars on the north, the cars facing toward the road below a row of large formal tees.

A parking lot on the east half of the designated site was constructed as an interim measure to serve the temporary laboratories that were constructed in 1963. The parking was arranged with a double bank of marked bays centered in the area between the face of the buildings and the road, and ran the length of the Temporary Laboratories No. 2 and 3, accommodating a total of fifty vehicles.

The parking was expanded in 1991, the existing double bank was extended and three additional rows of vehicles in line with the end of the temporary laboratories extended west over the canyon, an additional row to the north abutted the road.[275] The six rows of parking now cover most of the site intended for the Meeting House, but stop short of the recreation garden, where the ground falls away to the north.

The present parking lot covers at least four times the width of that originally proposed by Kahn. Its sprawling, amorphous form denies the architectural control of the north mesa that Kahn intended, and the tall lighting standards and the uncompromising asphalt surfacing compound its impact. It is extremely intrusive on the natural landscape and makes no positive cultural contribution to the area.

Top: Encroachment of the North Parking Lot across the canyon rim. The esplanade was to run along the left-hand side of the area shown in this image, 2015.
Bottom: Palm trees on the site proposed for the Meeting House in the First Design, seen from that of the Second and Third Designs, which avoided having to cross the ravine, 2015.

Meeting House (unrealized)

> At the point of entrance to the Meeting House is a square pool—a noisy fountain—connected by a long watercourse to a quiet fountain within a colonnaded ambulatory. The dense green shaded area on the other side of the watercourse is only accessible through the colonnaded court. This is intended as a place of reverence—of mystery—acting in counter poise to the enclosed spaces with their particular uses.[276]

The concept for the Meeting House was collegiate, with director's house, visiting scientists' accommodation, recreation space, library, meeting rooms, and an auditorium—a parallel to an Oxbridge college. The Meeting House was sited on a commanding prominence overlooking not only the site, but also the Pacific Ocean. If Piranesi's engraved plan of Hadrian's villa had given inspiration for the planning of the Meeting House, then Schinkel's proposals for a palace within the Acropolis might be considered a parallel in the approach adopted to handling the design of the immediate landscape in contrast with its surroundings.[277] A highly refined group

[275] Recollection by Garry Van Gerpen, 2015.
[276] *Abstract of Program.*
[277] Ibid.

Top: The site of the Meeting House in the Second and Third Designs; occupied by the North Parking Lot, 2015. Bottom: The view south from the proposed Meeting House site, 2015.

of buildings, unified and extended by garden structures, was placed directly in the natural landscape. The whole became a carefully orchestrated series of spaces through which movement was carefully choreographed.

The scheme exploited the lie of the land with the forecourt and ambulatory set a story higher than the recreation garden to the north. The space of both areas extended under the shade of the buildings that separated them. The forecourt to the south side of the buildings was approached from the esplanade and was divided between a graveled court and an informal grove. As with the Laboratory Complex, a long rill was to run from the entrance to a fountain in the court beyond. The latter, a square ambulatory defined by concrete pylons, overlooked the ocean, the horizon, and the sky. In contrast, accessed from the ambulatory was a shaded grove, a place of quiet reverence that was isolated from the forecourt by the rill that passed in front of it.

Views back across the canyon to the Living Place and the Laboratory Complex united the site, and other sketches by Kahn showed the intention that the group would dominate the whole site when seen from the sea.

To the north, the recreation garden opened off the dining rooms and gymnasium: a swimming pool treated as a radiused rectangle set within a grass court and softened by an informal group of trees. As with the Living Center and its North and South Gardens, the external courts of the Meeting House extended the orbit of the buildings through landscape devices to defined boundary walls that set the area clearly apart from the rugged natural bluff.

With the postponement of the Meeting House in 1963, the site remained unused, but the scheme continued to be included in the architect’s drawings until 1966; Kahn was evidently hopeful that it would be realized. The majority of the area now lies beneath the western section of the North Parking Lot that was constructed in 1991.

The former gun emplacements associated with Camp Callan, located between the west parking area and the canyon rim, were demolished following the establishment of the Salk Institute. The piled earth and rock associated with the demolition created vernal pools that have been identified as a wildlife habitat and are protected from disturbance.

South Mesa

Living Place (unrealized)

The Living Place was to be a tight linear cluster of houses and apartments, dramatically arranged along the contours of the south side of the canyon, and was reminiscent of a Mediterranean hillside village—its hard landscape overlooking directly onto the natural landscape.

The site was best approached on foot through the natural landscape along the “canyon path” that connected it to the arcades beneath the west end of the Laboratory Complex and beyond to the Meeting House. It opened to the pedestrian path that ran between the dwellings to the community center at the west end of the cluster, which overlooked the ocean.

Within, the Living Place was essentially a hard landscape and presentation drawings indicate that planting was to be restricted to a minimum of incidental, small trees colonizing space between the dwellings.

Approach by car was to be from the formally planted service drive (Salk Institute Road), which terminated in a small parking lot shielded from the canyon by the building cluster itself and backed by informal planting of trees.

The housing was to be screened from the Laboratory Complex through its location west of, and topographically below, the natural promontory of the mesa that edges the canyon.

The proposals for the housing were postponed in 1963, but Halprin’s master plan of 1966 sets the housing against a screen of trees wrapping around between the housing and the promontory.

The area remains with its natural landscape, but a replacement pumping station was constructed by the City at the west end of the housing site in the location of the community center.

Salk Institute Road with the new pumping house on the site proposed for the Living Place, 2015.

Mound

The mound on the South Mesa was formed of spoil from the excavations to form the lower level of the Laboratory Complex and was in place by the beginning of 1964. The location of the spoil mound reinforced an existing natural promontory, which Kahn exploited to conceal the site of the Living Place from the Laboratory Complex. The "canyon path" that skirted the north side of the promontory is indicated in both the Second and Third Designs.[278]

The spoil heap is shown as raw in aerial views in the early days of the Salk, but was intended by Kahn to be absorbed into the natural landscape. The fill was hydroseeded with native plant germ in the late 1970s and early 1980s, and again in the mid-1980s, and watered, and the Institute has worked to establish a native plant community on this s ite.

The mound was noted in November 1977 as "bare spot needs landscaping."[279]

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[278] Louis I. Kahn Collection, University of Pennsylvania, Louis Kahn landscape sketch.
[279] Salk Institute Archives, Garry Van Gerpen file; photo PIJ ref: Salk Institute Archives 2/DSC0798.

Temporary Buildings

West Interim Facility: Buildings No.1 through 3

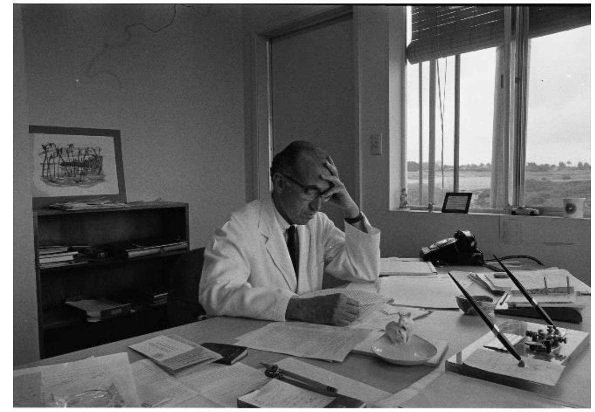
In December 1962, Dr. Salk moved to La Jolla, and by February 1963, a temporary laboratory building was under construction so that scientific research could progress as soon as possible. Fuller's progress report for March 1963 notes that the building was 99 percent finished and the only outstanding items were the setting up of the butane storage tanks to the northeast, and the heating and ventilating ducts to the animal room.[280] In April 1963, $28,728 had been spent on the fit-out with laboratory equipment and shelving. The building was completed in May 1963 at a total cost of $33,750.

`Following completion of Building No.1, plans were drawn up by Fuller for Temporary Laboratory Building No.2 and were submitted for a building permit to the City. This building was sited to the north of the first building and provided a laboratory for Dr. Dulbecco by the end of July 1963.

In December 1963, Fuller's constructed Building No.3 to the west of Building No.2; the foundations and slab were placed, and the steel frame was erected during November.[281] Building No.3 provided temporary office accommodation for Dr. Salk. It was similar to the earlier structures and cost $25,962. Fuller also completed paving of the walks around the group of buildings, but any subsequent work on the temporary buildings was executed outside the main contract. Kahn's office was involved in the early stages and plans for the buildings are referred to in George A. Fuller Company monthly reports. The role of Kahn's office, however, was assisting with procurement rather than design.

The first annual meeting of Trustees and Fellows was held in the temporary buildings in February 1964. Dr. Salk occupied his office there until he moved to the fourth floor of the new North Office Wing.in January 1966.The buildings were vacated when the Institute transferred to the Laboratory Complex between January and July of that year, but have subsequently been reused for other programs.[282]

The Barracks, as the temporary buildings were known, are two-story structures cut into the rising ground so that they appear as single story structures from the parking lot to the north. They were constructed with standard building systems based on a steel frame with wood-framed studwork infill below shallow gabled roofs. The two earlier buildings were finished with painted sheeting with cover strips over the joints. The later building were clad with vertical siding. The interiors were finished with gypsum wallboard. Their siting within the canyon area belonging to the City was selected in order to avoid any sites where permanent



Top: Jonas Salk working in the Temporary Buildings, 1966.
Bottom: Lunch break during Trustees' Annual Meeting, 1964.

280 Salk Institute Archives, Garry Van Gerpen file.
281 Louis I. Kahn Collection, University of Pennsylvania, photo dated 31 October 63 #3.
282 Louis I. Kahn Collection, University of Pennsylvania, contract 66175.

Temporary Building No.1 with later modifications, 2015.

structures or formal landscape elements would eventually be built, with the north wall of Building No.2 just south of, and parallel to, the edge of the intended Esplanade. Each building was to be removed once permanent accommodation in the new Laboratory Complex was available, and the land was eventually to be returned to the city in its original state.

In April 1963, the buildings were still in use. In 1985, an exchange of land between the City and the Salk regularized the situation, transferring the land that the Barracks occupy to the Salk in exchange for an extension of the area on the south mesa for the replacement of the City's sewage pumping station.

Since 1966, the temporary buildings have housed various uses and have been subject to numerous remodelings: Building No.1 was adapted for plant biology in the 1970s, and the lower level of Building No. 2 is currently used for the study of zebra fish.[283] The progressive introduction of services has resulted in the exteriors being covered with surface-mounted ductwork that runs across both walls and roofs. Partial reroofing was carried out in 2015. Building No.3 was taken down in about 1992 and its site is now occupied by part of the parking lot.[284] However, Buildings No.1 and 2 remain in place.

Both of the surviving buildings have been altered extensively. They were intended to serve as temporary features that would be replaced by other aspects of Kahn's design. In their current location, they intrude on the character of the canyon landscape that formed an essential aspect of the setting of the Laboratory Complex, as well as the designed views to the west.

Although the Barracks buildings possess historical interest for their association with Dr. Salk and his work during the Salk Institute's early years, they have been determined intrusive by the city of San Diego as well as the Conservation Management Plan. To address the issue of their historical interest, it is recommended that they be documented to Historic American Building Survey (HABS) standards to mitigate their loss. The completed documentation should be prepared to archival standards, and accessioned into the Salk collections, as well as submitted to the HABS program for inclusion in Library of Congress records.

Policy 143
To record Buildings No. 1 and 2, and remove them along with associated landscape developments.

Policy 144
To reestablish the natural topography and native plant community associated with this portion of the canyon rim.

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283 Garry Van Gerpen recollection, 2015.
284 Ibid.

Buildings No. 4 and 5

Buildings Nos.4 and 5 currently house stem cell research based on vivarian studies (rabbits and frogs). They were erected soon after the Barracks, to the east of Building No.1, and Fuller's reported their completion in November 1963.[285] Like the Barracks, they were intended to be temporary for use only until the main building was occupied, and accordingly were sited outside the development area so as not to interfere with the construction of the northeast approach to the Laboratory Complex.

Temporary Buildings No. 4 and 5, 2015.

The buildings were separate rectangular structures when constructed, but have been amalgamated with various ad hoc additions. As with Buildings No. 1 through 3, they are system built, but Building No.4 has a shed roof, while Building No.5 has a gable roof that is steeper than those used on the Barracks.

Like Buildings No. 1 through 3, Buildings No. 4 and 5 were intended as temporary features that would be replaced by other aspects of Kahn's design. In their current location, they intrude on the character of the canyon landscape that formed an essential aspect of the setting of the Laboratory Complex. Screen plantings of exotic oleander shrubs are also not consistent with the goal of promoting native habitats within the canyon. Similar to Buildings No. 1 through 3, these buildings are of historical interest because of their association with Dr. Salk and the early history of the Salk Institute, and should documented to HABS standards to mitigate their future removal.

Policy 145
To record Buildings No. 4 and 5, and remove them along with associated landscape developments.

Policy 146
To reestablish the natural topography and native plant community associated with this portion of the canyon rim.

[285] Salk Institute Archives, contact sheets Feb 1964, ref: 64016-2.

Top: Temporary buildings with greenhouses, 2015.
Middle: East Interim Facility, 2015.
Bottom: Accessory Building, 2015.

Building No. 6, associated structures, and greenhouses

Originally constructed as a cold room to the west of Building No.1, Building No.6 is currently in use as a hothouse.

The first greenhouse was built about 1988, and a second, wood-framed structure was in place by 1990. Three more timber greenhouses followed giving a total of five by the early 1990s (GvG**).

The buildings all date from after Kahn's death and are intrusive to his concept for the landscape, which formed an essential part of his design for the Salk Institute.

East Interim Facility

The area at the south end of the East Parking Lot was designated for use by temporary construction buildings that were noted in 1965 for removal within one year of the completion of Phase 1A, i.e., the fitting out of the North Building.[286]

Accessory Building

The warehouse is a standard industrial building with a steel frame clad in ribbed sheet metal below a shallow, gable roof. It housed the animal quarters. The subsequent extension on the north side accommodated cage washing and associated facilities. The building was vacated when the animal quarters moved to the new extension below the South Lawn, which was completed in 1977; it is currently in use as a construction workshop as part of Facilities Department.

[286] Louis I. Kahn Collection, University of Pennsylvania, 030.I.C.540.29_LSD1.

Temporary Offices

Temporary buildings consisting of former construction trailers have been constructed to the south of the Accessory Building. The first, immediately to the south, was in place before 1976 and currently houses the Procurement Department. Similar later buildings to the west and south of the first accommodate offices dealing with environment, health and safety, and information systems; the last was installed after 1985 following the removal of the sewage pumping station. The buildings were reroofed in 2014.

Temporary Buildings to the South of the East Building

Former construction trailers are also used as two temporary buildings south of the East Building. The Biophotonics Laboratory was installed in 2007 for animal resources; the other temporary building adjacent to the service yard is the Fitness Center.

Both buildings intrude on the East Garden and its eucalyptus grove, which as designed extended across the full width of the site between the two roads on the north and south boundaries.

Policy 147
To remove the Accessory Building, Temporary Offices, and temporary structures south of the East Building.

Temporary buildings south of the East Building, 2015.

Service Yard: the service towers were introduced in 1975.

Post-Kahn Structures

(The following are discussed in chronological order by date of construction.)

Animal Quarters and Cooling Towers

The Animal Quarters were constructed beneath the north half of the South Garden in 1975, with Deems Lews & Partners/NBBJ as architects. They were extended to include the area beneath the south half of the South Garden in 1997 by NBBJ.

The site fell toward the south and Kahn had divided it with a retaining wall so that the north half could be a lawn that was a continuation of the level of the Plaza, while the south followed the level of Salk Institute Road, which also fell to the west. An external stair joined the two levels at the west end of the retaining wall.

The first phase was limited to construction beneath the north half of the present lawn. The Animal Quarters lies at the level of the lower floor of the Laboratory Complex and is connected to the South Building through the Service Tower at its northwest corner. A discreet external entrance provides access from the South Parking Lot. The lawn above was reinstated at its original level. The second phase extended out beyond the retaining wall to the road. This phase partly involved aboveground construction that resulted in a new concrete wall along the boundary to Salk Institute Road that has the appearance of a retaining wall.

The space created is totally internal and lacks the natural daylight and views that had been incorporated by Kahn into every habitable space within the Laboratory Complex.

Despite the garden being reinstated above the new building, one is fully aware of the building below

The development of the first phase of the Animal Quarters also resulted in the construction of the cooling towers on the south side of Kahn's service yard. Their construction meant that the brick path that had been intended to link the South Garden to the East Parking Lot was no longer feasible.

Historical Development

The South Garden was identified as “Reserved for future development” in 1963, along with a similar site to the north and one in the eucalyptus grove, central on the axis of the Plaza.[287] However, there are no drawings showing the nature of any building, and the Site Use Plan is purely indicative of possible future site use rather than a design.

The animal quarters were housed in temporary structures at the south end of the East Parking Lot until the new extension was brought into use after 1975.

Significance, Survival, Vulnerabilities

The Animal Quarters are a later addition not indicated in Kahn’s original design. Because they are located below ground, the degree to which they intrude on Kahn’s design is minimal. They have been assessed as having no significance.

They were intended as a concealed building.in order to minimize their impact on Kahn’s south elevation, but the nature of the building with its artificial lighting and lack of views is contrary to the principles put forward by Kahn in the rest of the site.

The extension of the building south to Salk Institute Road in 1997 changed the nature of Kahn’s landscape and constructed what appears as a high retaining wall along the road frontage.

Policy 148
To avoid similar internal space without light and views in future developments at the Salk.

New Sewage Pumping Station

Easements for utilities existed across the site, and the building is constructed on land that was part of an exchange with the Salk for land on the north side of the canyon in 1985.[288] (See Canyon.)

The building replaces the City’s pumping station at the junction of Salk Institute Road and North Torrey Pines Drive following a land exchange in 1984–1985. It occupies the west end of the site intended for the Living Place, the residential element of the scheme that was abandoned sometime after 1968. The structure occupies the site of the last house and sits behind that of the clubhouse.

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[287] Louis I. Kahn Collection, University of Pennsylvania, 030.I.C.540.29_LSD1 Site Use Plan 12 December 63.

[288] LSD-1 rev 23 July 1965.

No landscaping scheme is associated with the building, which is intrusive on the natural landscape.

Historical Development

Easements were retained by the City when the site for the Salk was gifted to the Institute. As well as a pumping station and drainage rights across land adjacent to North Torrey Pines Road, this also included an easement for access and drainage to the west to a small pumping station that terminated the service drive that is now Salk Institute Road. The exchange of land in 1984–1985 increased the plot for the west pumping station from 80 feet by 142 feet to 400feet by 280feet, in effect, truncating the full width of the west end of the section of the south mesa that had been transferred to the Salk some twenty years earlier. The new pumping station is constructed on the south side of the land now held by the City.

Significance, Survival, Vulnerabilities

The building is of no significance and alternative arrangements would need to be made if the Living Place site was ever developed. While the building does not necessarily block the west end of the development, the land that was returned to the City isolates the site from Torrey Pines Park and any construction on the City's land would be intrusive on the Salk.

Policy 149
To take into consideration the constraint of the City's land in any development of the south mesa, and to give consideration to reclaiming the land from the City so as to recover the significance of the overall site.

East Building.

East Building

The major development at the Salk since Kahn's death has been the construction of the East Building, which was designed by Jack MacAllister and David Rinehart of Anshen + Allen of Los Angeles. The new addition, to the east of Kahn's original structures, was approved by the San Diego Planning Commission and City Council in 1991. The expansion of the Salk was recognized by the City as being in line with its policy of changing its defense-based economy to one of biotechnical and medical research.

A portion of the eucalyptus grove was removed in the spring of 1993 and construction was started in May of that year. The building was opened in 1995, allowing the completion of the South Laboratories within the Kahn building.

David Rinehart and Jack MacAllister had been Kahn's project architects for the Salk, and they stayed on in California after the completion of the Laboratory Complex. Jonas Salk said that they had:

> . . . worked with Kahn on the original building, and continued to have a relationship with us over the years. There was no thought at all about who we ought to have, as if we should have tried to get another Lou Kahn. The point is to continue the process with the very people who were involved in the original design. That's looking at it from the point of view of consistency, continuity with change, as distinct from the idea that this is supposed to be a place where architectural genius is to be fostered.[289]

At just over 100,000 square feet, the building was about the same size as Kahn's Laboratory Complex, and it was similarly divided into two parts on either side of a courtyard, each containing laboratories and administrative offices. However, in contrast, the two buildings were joined belowground with a 20,000 square foot conference center that included a 300-seat auditorium.

The East Building is serviced from mechanical wings at north and south ends of each building that are connected to primary services in the main plant rooms in the Laboratory Complex; the two buildings are connected by tunnel access. The introduction of the East Building in 1995 and the consequential fitting out of the laboratories in the South Building therefore contributed additional load to the plant in Kahn's mechanical wing.

Photovoltaic panels were installed on the roof of the East Building as part of the major installation at the Salk in 2010–2012.

As expected by Salk, the East Building was constructed with similar materials to those used by Kahn, but their finish was more precise and the detailing was crisp and refined, as one would anticipate from the high standards of the architectural practice of Anshen + Allen for whom MacAllister and Rinehart were working. Great attention was again paid to the design of the formwork for the concrete and jointing was carefully considered, but the original mix was altered to give a far more precise and consistent finish than that required by Kahn.

The building was constrained by the available resources and was compromised in both its flexibility and servicing. The laboratories ignore every lesson about laboratory planning from the building constructed thirty years earlier. Intermediary columns, which Kahn, Komendant and Salk had sought to remove in 1963, divide the space and limit layouts. Although the services are based on a similar diagram to the Third Design, with distribution through the ceilings from mechanical rooms at the end of each wing, the provision of space was

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[289] Salk interview – PA 10 93.

far less generous and made it necessary to dismantle dropped ceilings in order to change building systems. While capital costs were reduced, the cost per square foot for refitting increased to several times that of conducting a similar exercise in the original building. The control of daylighting also suffered. The basement rooms were windowless, while sunlight could penetrate directly into the east- and west-facing laboratories on the upper floors. The building also lacks the generosity of space that Kahn achieved with the areas he incorporated for spontaneous meetings and exchanges.

The East Building had a considerable impact on the eucalyptus grove that Kahn had nurtured and enlarged. Most of the trees were removed and the two wings were constructed across the east half of the East Garden. The concrete boundary wall that had contained the east side of the grove was retained, but the permeability with its multiple openings that allowed informal access throughout its length was lost with the increasing need for security, and at the center, it was interrupted by a new formal gate and other structures. The space between the two buildings was opened as a brick court aligned with the Plaza to the west, but the belowground conference center and its auditorium that extended to the west meant that trees could not be planted above it on the principal access of the East Gate and the Plaza.

Historical Development

Several plot plans indicated areas of ground “Reserved for Future Development” During the Second Design, this is shown in January 1961 as a large freestanding area between the Laboratory Complex and La Jolla Scenic Drive, and with the Third Design, the Site Use Plan in December 1963 reserves sites to the north and south of the complex, as well as to the east between the East Gate and the transverse drive.[290] No designs exist for the extensions, but sketch plans by Kahn show the development of the East Plot and a plan by him dated 4 May 1964 shows a tentative plot layout for an entrance and service building between the East Gate and the transverse drive dividing the Eucalyptus Grove in two separate areas.[291] A major service building over the parking area was to be accessed from the north end off Torrey Pines Scenic Drive, and plans were drawn by Kahn’s office.

A Program of Action prepared by Jonas Salk for the Trustees in May 1968 advocated construction of the two east buildings close to those sketched by Kahn four years earlier. The Central Building would have supplied the additional space for administration, which would also release the South Building for laboratory use. For the report, Salk was advised by MacAllister.[292]

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[290] Louis I. Kahn Collection, University of Pennsylvania, 030.I.C.540.4_plot plan_1-5-1961; Louis I. Kahn Collection, University of Pennsylvania, 030.I.C.540.29_LSD1.
[291] Louis I. Kahn Collection, University of Pennsylvania, 030.I.A.540.22.
[292] Salk Institute Archives, Garry Van Gerpen file.

When plans for MacAllister's two building scheme in the Eucalyptus Grove were revealed in 1991, they received strong opposition because of fears that the East Building would damage views of Kahn's original buildings. Opponents included Richard Meier, Vincent Scully, Philip Johnson, Robert Venturi and Denise Scott Brown, Lawrence Halprin, and Kenneth Frampton. They objected mainly to its location, as it would block the gateway to Kahn's structure and disrupt the progression from land to sea. In a written statement, Venturi and Brown described the Institute as:

> . . . the most significant architectural composition of our century and arguably of all American architecture. . . . . In framing the sea and the land in its composition, it marks the end of the Western frontier and the beginning of a new frontier . . . . It is a tragedy it is being whimsically and imperiously transformed in our time into an ordinary, Baroque bore.

Salk met Meier, Venturi, and Frampton, and their discussion resulted in the building being moved further east; a central rotunda was removed from between the two wings so that the view was not blocked. "Of course, we listened to everybody," Salk noted. "We included what was consistent with our intent. We moved the building further east, opened up space between the north and south wings to see through and have a view of the whole thing. The area is going to be landscaped. . . . We have been as sensitive to this issue as everyone else. We've been responsive to it to the limit."[293] "We have responded to everything other than two suggestions: that the building should be sited elsewhere, and that we should have gotten other architects . . . ."[294]

Herbert Muschamp, architectural critic of the *New York Times*, wrote that the addition "would ruin the most sublime landscape ever created by an American architect." However, Jonas Salk contended that the East Building was not an addition, but consummation of Kahn's master plan.

Significance, Survival, Vulnerabilities

The East Building has little cultural significance. It survives in good condition. However, it is intrusive on the Eucalyptus Grove and the setting of Kahn's Laboratory Complex, particularly in the way that the brick court between the wings has denuded the landscape and lost the quality of Kahn's building being revealed as it is approached.

Policy 150
To mitigate the intrusion of the East Building on the Laboratory Complex and the Eucalyptus Grove.

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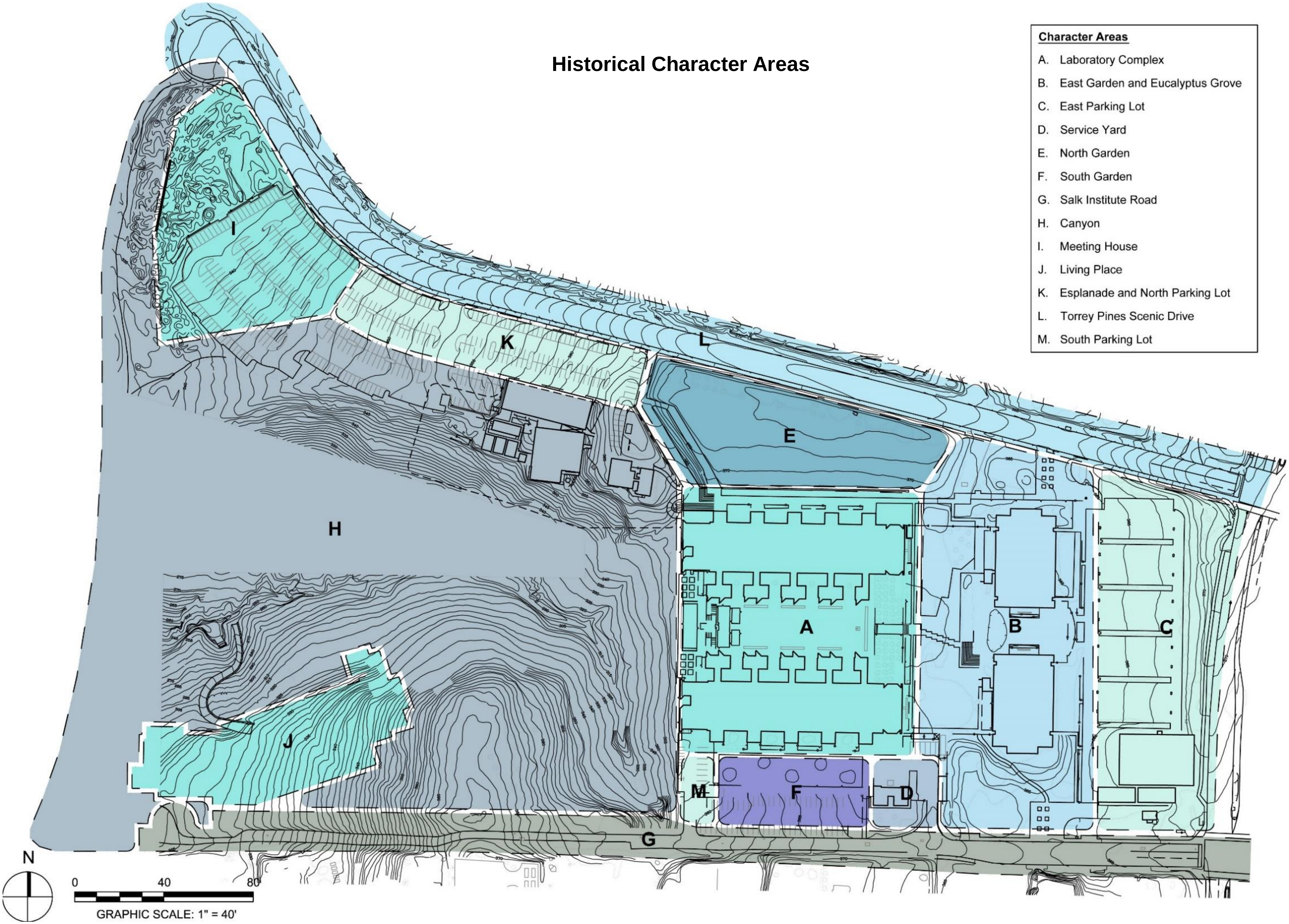
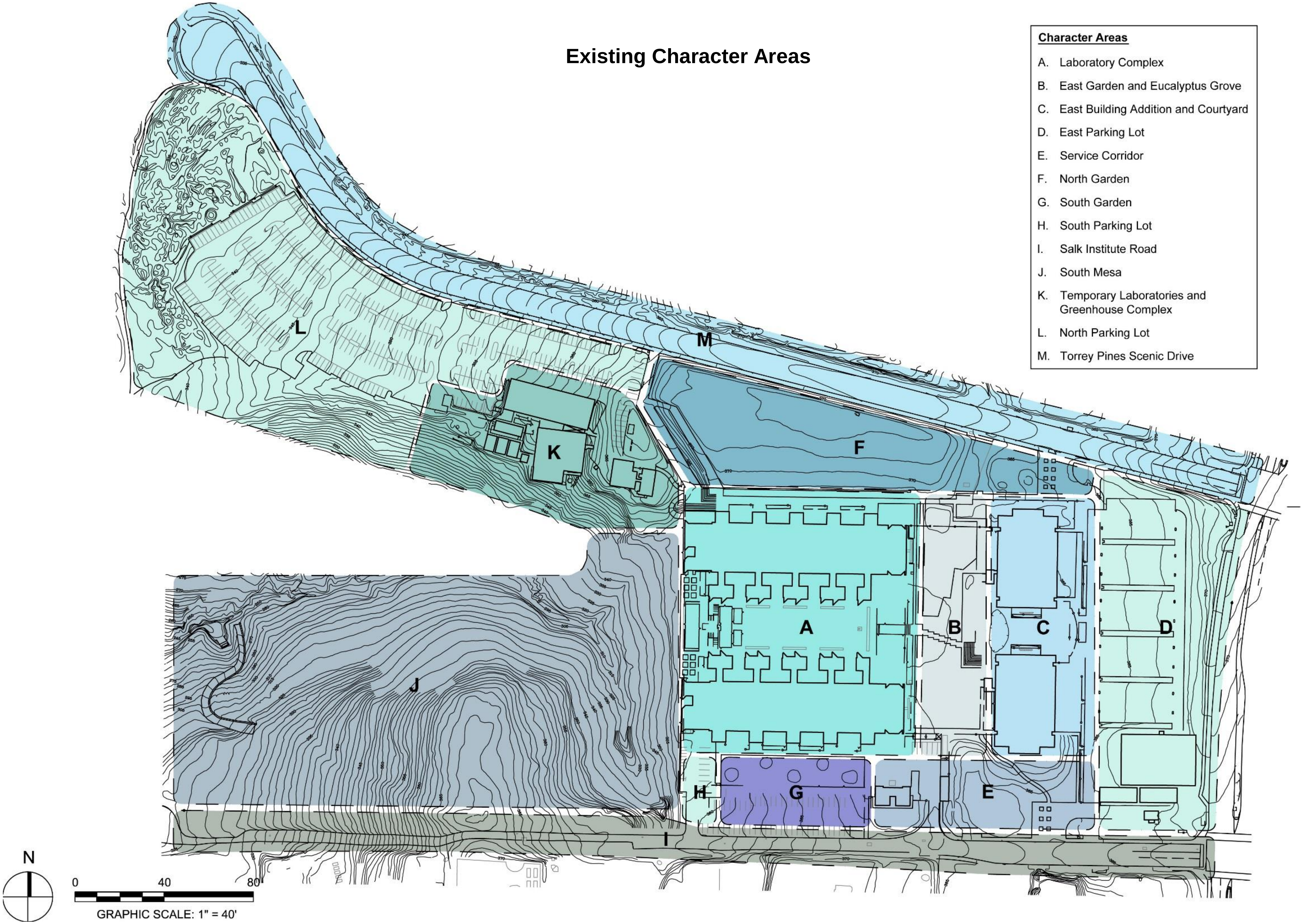
[293] *Progressive Architecture*, October 1993.
[294] J. Salk, quoted in *Progressive Architecture*, October 1993, 47.

Historical Character Areas



Existing Character Areas



The Landscape Today

Overview Site Description

The Salk Institute landscape centers around the Laboratory Complex, which forms the heart of the property, occupies the most dramatic position at the head of the central canyon, and is the focus of all activities. The horseshoe-shaped form of the property, comprised of the north mesa, east mesa, and south mesa, is punctuated by the dramatic form of the Laboratory Complex, sited at the eastern edge of the canyon rim, the focus of the east mesa. The concrete, glass, and teak Laboratory Complex rises to either side of a warm and luminous travertine plaza centered around a fountain and rill that flows westward and directs the eye to the contrasting naturalistic form of the adjacent canyon and the Pacific Ocean beyond.

All other features of the property wrap the Laboratory Complex in a series of outwardly expanding spaces. To the east is a series of successive orthogonal spaces oriented to the central axis of the Laboratory Complex Plaza, including the eucalyptus grove, east building addition, and east parking area. Marking the transition between each space is a gated threshold. To the north, views of the Laboratory Complex are afforded from the north lawn and Torrey Pines Scenic Drive, while to the south the building mass is similarly offset by the south lawn and Salk Institute Road.

The north and south mesas are less developed. The north mesa features a tightly-grouped cluster of temporary research and greenhouse buildings and a large open parking area, while the south mesa remains open and undeveloped, a visual continuation of the native vegetation community that occupies the city-owned land to the west. Storm water management features and a sewage treatment pumping station are located in this part of the site, but are generally not visible from most actively used areas of the property.

The Salk Institute property is edged to the east by North Torrey Pines Road, a busy public thoroughfare, and associated pedestrian walk. The Torrey Pines Gliderport is located at the western terminus of Torrey Pines Scenic Drive. Further to the north are the Torrey Pines Golf Course and Torrey Pines State Reserve. The Institute is edged to the west by a canyon with a clear rim and associated steeply-declining topography. The canyon is owned by the city of San Diego and managed as a Multiple Habitat Planning Area (MPHA), which restricts land use and certain activities that may impact native habitat. Portions of the Salk Institute campus are located in close proximity to the canyon rim and thus have the potential to impact the MPHA. Treatment of resources located within proximity to the MPHA must comply with adjacency guidelines. The 2008 master plan identifies areas of the current campus that the Institute has agreed to place within the MPHA, specifically currently developed portions of the north mesa where temporary buildings and a parking area are targeted for removal. Coincidentally, the Kahn design for this part of the north mesa indicated it remain undeveloped and consistent with the character of the native canyon.

Importance of the Salk Institute Landscape

Louis Kahn's masterwork—the Salk Institute Laboratories complex—was influenced by and designed to complement the native landscape of coastal La Jolla, California. The landscape served as inspiration for and influenced the form of the principle part of Kahn's design that was constructed during the 1960s—the Laboratory Complex—in terms of the siting of the building on the level landform of the east mesa, its position at the head of the native canyon that afforded views to the Pacific Ocean, the establishment of interconnected indoor and outdoor spaces, as well as a juxtaposition of architectonic and organic forms. Specifically, Kahn contrasted the geometry and planar nature of the concrete, teak, and travertine materials of the Laboratory Complex with the irregular landform, topography, and vegetation of the canyon, as well as the eucalyptus grove that existed to the east of the building. The Laboratory Complex stands as the lynchpin of the comprehensive, yet unrealized, campus design put forth by Louis Kahn; the two additional components of the complex—the Meeting House and Living Place—which would have been sited on the north and south mesas, were also designed to contrast and complement the native landform, topography, views, and vegetation of the site. Thus, the landscape was, and remains an integral component of the campus program, layout, and design.

The pages that follow offer an inventory of the landscape features present on the campus today. Each feature description is followed by an understanding of its relationship to the original Kahn design and site plan, any Issues of management concern, how the feature is treated within the 2008 master plan, and any treatment recommendations resulting from the preparation of the Conservation Management Plan. Issues of management concern documented herein resulted from consultation with Institute staff during the course of the development of the Conservation Management Plan.

General Landscape Issues and Recommendations

- Architect Louis Kahn's master plan included a tripartite scheme for the campus that featured the Laboratory Complex, the Meeting Place, and the Living Place. However, only the Laboratory Complex was built. To accommodate the current programmatic needs of the Institute, temporary structures are present that are used for housing, offices, research, and laboratory activities. In 1995, two permanent buildings were constructed to the east of the Laboratory Complex to meet some Institute space needs. These buildings have impacted the Kahn design in several ways, including altering views and circulation routes to and from the Laboratory Complex, and the historic spatial arrangement of the east garden that featured a dense grove of eucalyptus trees now in decline. The East Building has established an axial view into the Laboratory Complex from the east that was not present in Kahn's design.

- A master plan was completed in 2008 to further address the space and program needs of the Institute. The master plan takes into consideration removal of many of the features that have been added to the property since the 1960s that diminish the integrity of Kahn's original design. For example, the master plan recommends the removal of all temporary structures, as well as the large surface parking area located on the north mesa. It also suggests enhancing the integrity of other features that have been altered or partially lost, such as street tree plantings and the eucalyptus grove, by adding new plantings. While some new building program is recommended to be sited underground, including the Salk Community Center, the North Peninsula Parking Structure, and the Torrey East Underground Parking Structure, a new laboratory is proposed for the historic east parking area—the Torrey East Laboratory Building—while three connected greenhouses will be placed along Salk Institute Road within the historic east garden. The master plan articulates as a goal the protection and preservation of historic landscape concepts and elements. While the master plan provides recommendations that will enhance the integrity of the historic landscape, there are also recommendations, such as the construction of the Torrey East Laboratory Building, which will result in further loss of integrity.

- An Environmental Impact Statement (EIS) was prepared as part of the master plan. The EIS identifies the historic preservation issues relating to the site, including the fact that the Institute property was determined eligible for listing in the National Register of Historic Places in 2005, and listed on the California Register of Historic Resources. Federal designation followed local designation as Historic Site No. 304 in the San Diego Historical Resources Register in 1991. One of the restrictions on site development resulting from the local designation was the establishment of a 100-foot buffer zone surrounding the original Laboratory Complex. The city’s Historic Sites Board approved the proposed construction of the East Building that was completed in 1995. The EIS notes that, although National Register documentation has not been prepared for the property, treatment consistent with the Secretary of the Interior’s Standards for Rehabilitation has been applied to the proposals indicated in the master plan due to the eligibility of the property for federal listing.

- Extreme drought characterized South California during the early 2010s. Drought conditions led to water use restrictions within the San Diego and La Jolla. Many of the plantings at the Salk require irrigation to thrive. The use of drought tolerant plant species in planting designs for the campus is an essential consideration of landscape treatment.

- The canyon and associated MHPA, which the master plan proposes be expanded with nearly 6 acres of undeveloped campus land, and the placement of a conservation easement on another 3.2 acres of the north mesa, are protected by land use and activities guidelines outlined by the City of San Diego. Portions of the north mesa will be protected due to the presence of vernal pools. One of the threats to the environmental integrity of the MHPA is the potential for invasive plant species to disrupt native vegetation. To protect the native habitat area from encroachment by invasives, the master plan EIS

Top: The city-owned canyon west of the Salk Institute Laboratory Complex.
Bottom: Numerous paving materials are used throughout the campus. These include brick, concrete, asphalt, decomposed granite, and travertine, all of which appear in this image.

indicates that four exotic plant species will be removed from the campus—tamarisk (*Tamarisk sp.*), pampas grass (*Cortaderia sp.*), myoporum (*Myoporum laetum*), and ice plant (*Carpobrodus edulis*).[295] Many of the plants used in the design of the campus are non-native species selected for both aesthetic qualities and drought tolerance. At this time, replacement with all non-native species with natives is not recommended by the master plan. Should replacement of additional non-native species with native species be recommended in the future, criteria for selection should include, in priority order, similarity in terms of form and scale, drought tolerance, ease of establishment, and ease of maintenance.

- Many current plantings require irrigation to thrive. Current extreme drought has led to water use restrictions. Some species are suffering from a lack of water. The various microclimates of the campus have contributed to variability in the condition of plantings on campus.

- There are numerous materials used to delineate circulation features on the campus. Consideration should be paid to developing a hierarchy of paving materials and their use for specific needs to support decisions regarding non-historic pavements.

- There are also several examples of contemporary site furnishings such as seating, tables, lighting, trash receptacles, and bicycle racks. Consideration should be paid to evaluating the campus site furnishings for their compatibility with a comprehensive site furnishings palette that includes a standard for each furnishing type and is designed to be visually unobtrusive and compatible with the character of the historic landscape.

- The approach and arrival sequence is difficult to discern and follow. The historic approach sequence indicated in the Kahn design is not clear and apparent. Future design should include clarification of the intended approach sequence, and the potential for visitors to experience the original Kahn design, using planting and circulation features.

- In order to protect the historic integrity of the Salk Institute campus, future physical changes should respect the patterns of spatial organization and views reflected in Louis Kahn’s vision and design. These patterns and views should be fully articulated through the preparation of graphics and narrative description to ensure that proposed future actions support rather than detract from the significance of the historic landscape.

[295] EIS, Section 3.2.4.6.4 “Open Space and Habitat Management Plan.”

Character Areas Associated with the Salk Institute Campus

For purposes of organizing the information relating to the inventory of landscape features, the Salk Institute has been divided into a series of twelve discrete character areas. Character areas are defined as land bays that contain assemblages of features that are spatially and visually and cohesive and support a consistent land use. One of the features that was important in the determination of campus character areas is vegetation. The plantings associated with the Salk Institute property, and variations in degrees of shade, color, fragrance, texture, and form, are integral to imparting unique qualities to campus spaces, and thus the differentiation of the character areas. The character areas identified for the Salk Institute include:

East Mesa

A. **Laboratory Complex**, composed of the concrete, teak, and travertine buildings and landscape designed by Louis Kahn. Landscape spaces associated with the character area include the east gate and roof garden, Plaza, west court, and lower garden courts. Inventoried features include travertine and brick paving, steps, concrete walls, a citrus grove, shrub and vine plantings, trees in tubs, gates, ornamental railings, lighting, utilities, rill, channel, pools, seating and other site furnishings, bicycle racks, and views. The color palette of this character area is dominated by the grey of the building concrete and the travertine Plaza, the warm brown of the teak window surrounds, and the blue of the water within the fountain and pools, the Pacific Ocean, and sky.

B. **East Garden and Eucalyptus Grove**, composed of the level area east of the Laboratory Complex designed to incorporate existing eucalyptus trees to serve as an organic backdrop to the Laboratory Complex Plaza. Landscape features include planting beds, walks, sitting areas, a food court, lighting, and gated thresholds. The color palette of this character area is dominated by the tawny grey and green of the eucalyptus trees and shrub plantings, and the warm grey of the decomposed granite paving.

C. **East Building Addition and Courtyard**, composed of the two concrete and glass buildings constructed in 1995 within the eastern part of the original east garden and a former parking area that has been demolished, and associated site features. Landscape elements included in this character area are a brick terrace between the two buildings, tree plantings, ramp and stair access to the eucalyptus grove, and a gated threshold. The color palette of this character area features the bright grey of the concrete buildings, the reflective quality of the glass, and the red of the expansive brick terrace.

D. **East Parking Lot**, composed of parking bays separated by planted medians. Landscape elements associated with this character area include paved parking and travelways, curbed medians, Chinese fringe trees underplanted with shrubs, lighting, streetscape elements along North Torrey Pines Road, and identity signage. There is a cluster of three temporary buildings located in the southeast corner of the parking area. Additional parking formerly existed to the west of the current parking area that was demolished to support construction of the East Building. The color palette of the east parking area features the soft cool grey of the asphalt paving, and the white and green of the tree and shrub foliage and flowers.

E. **Service Corridor**, composed of the Laboratory Complex service court and a cluster of two temporary administration and housing structures sited within the southeast portion of the original east garden. Landscape features associated with the character area include a fire lane, paved walks, tree, shrub, and groundcover plantings, the walls of the service court, a flagpole, and parking. The color palette of the service corridor is characterized by the warm grey of the temporary buildings, cool grey of the concrete walls, and bright green of the groundcover plantings.

F. **North Garden**, composed of the turf lawn north of the Laboratory Complex edged by street trees and other plantings, brick walks, concrete walls, and hedge plantings. This character area extends eastward to encompass remnants of the historic east garden, which historically contained tree and shrub plantings. The character area also includes a contemporary fire lane and a paved plaza that contains cut outs for a geometric planting of acacia trees. The gridded planting formerly edged the entrance into the east parking area, which was changed in response to construction of the East Building. The color palette of the north garden is characterized by the true green of the turf and the darker green of the Torrey pine trees along the road and the grove east of the north grove.

G. **South Garden**, composed of a pair of lawn panels located to the south of the Laboratory Complex. Landscape features associated with the south garden include brick walks, hedges, and concrete walls. The lawn panels replaced a former parking area built over an earlier turf garden reflected in the original Kahn design. The color palette of the south garden features the bright red of the brick paving, light grey of the concrete walls and Laboratory Complex facade, green of the turf, and green and red of the hedges.

H. **South Parking Lot,** composed of a modest parking area set below a concrete wall system that forms the western edge of the Animal Quarters. The parking area is accessed via Salk Institute Road. Walks lead to the lower level of the Laboratory Complex from the parking area.

I. **Salk Institute Road**, which edges the campus to the south. This road corridor extends west from North Torrey Pines Road. It is accessible to the public as far as a gate that limits access to a city sewage pumping station located southwest of the south garden. The two-lane asphalt road corridor is edged to the south by parking, lighting, and remnants of a street tree planting indicated in the Kahn design. Street trees and lighting are also present to the north of the road. The color palette of the corridor features the cool grey of the asphalt road and dark green of the Torrey pine street trees.

J. **Torrey Pines Scenic Drive**, which edges the campus to the north. This road corridor extends northwest from North Torrey Pines Road, terminating in a circular turnaround that provides access to the Torrey Pines Gliderport. The road is edged by parking to either side, as well as street tree plantings. The color palette of the character area features the blue of the Pacific Ocean visible from the road, cool grey of the asphalt road, and dark green of the Torrey pine street trees.

North Mesa

K. **Temporary Laboratories and Greenhouse Complex**, composed of a tightly arranged cluster of trailers, greenhouses, and other temporary buildings located between the North Garden and North Parking character areas. The structures are set below the elevation of the Laboratory Complex and are partially screened from view by the declining topography. The color palette of the buildings ranges from warm tan to reddish brown.

L. **North Parking Lot**, composed of an extensive at grade parking lot accessed from Torrey Pines Scenic Drive. The asphalt-paved parking area is divided into bays by curbed medians planted with trees and shrubs, and containing tall overhead lights. The color palette of the parking area is dominated by the dark grey of the asphalt and the dark green of the tree and shrub plantings.

South Mesa

M. **South Mesa**, composed of a relatively undeveloped and level expanse of native scrub vegetation located southwest of the Laboratory Complex and the south garden. The character area includes a soil mound formed from excavation cut associated with the construction of campus buildings, a stormwater channel, and a city-owned sewage pumping plant. The color palette of the south mesa is associated with the tawny greens and browns of the native vegetation.

Top: The north facade of the Laboratory Complex.
Center: Views of the Pacific Ocean from one of the offices.
Bottom: View south from the Laboratory Complex of adjacent residential properties.

Landscape Features

The features that comprise the landscapes associated with each character are described below.

Laboratory Complex Character Area

Louis Kahn's Laboratory Complex is the principal focus of the campus as well as an internationally-recognized master work of architecture. Landscape characteristics that comprise the Laboratory Complex character area include the east mesa landform, which is edged by the canyon rim, the Laboratory building (north and south office wings, laboratories, study towers, north and south service towers, mechanical wings, and roof and roof structures, features that are discussed elsewhere in this document), the east gate and roof garden, plaza, west court, and lower garden court. The individual features associated with each of these characteristics is described below.

East Mesa Landform

The Laboratory Complex was sited to take advantage of the level topography of the east mesa, while occupying the far western edge of the landform. The siting of the complex was intended to juxtapose the architectonic form of the building with the organic qualities of the canyon, and to afford unbroken views of the canyon and the Pacific Ocean from its interior and exterior spaces.

Laboratory Building

The components and associated materials associated with the building itself are addressed later within this chapter. Changes to the building that affect the landscape include the addition of solar panels on the roof and construction of a wing addition during the 2010s, and expansion of the cooling facilities. These changes are assessed as intrusive to the historic design of the building as is evidence of ad hoc building services additions within landscape areas that abut the structure.

The Laboratory Building possesses exceptional significance. Every effort should be made to preserve and maintain the significance and integrity of the building as pertaining to views, patterns of spatial organization, and materials.

Issues of concern include the fact that contemporary views of residential properties abutting the Salk Institute campus to the south are intrusive on the original design. These views detract from the setting of the Laboratory Complex. The street trees that were indicated in Kahn's design for the Salk Institute Road corridor, if reestablished, may help to screen the adjacent residences. These street tree plantings, however, are not appreciated by the neighbors as they sometimes interfere with ocean views. The Institute should work with neighboring property owners to explain the importance of the street tree plantings, and to devise an acceptable compromise as possible. Replace the screen plantings, while allowing for ocean views.

East Gate and Roof Garden

The east gate and roof garden is a rectangular space formed between the north and south office wings at the eastern end of the Plaza. This narrow forecourt is edged to the east by walls and a fence and a central steel gate, travertine steps, and a grove of citrus trees planted in a grid. The space marks the passage between the eucalyptus grove to the east and the Plaza to the west. Passage occurs along a central axial travertine walk edged to either side by low concrete walls that contain the planter beds that support the citrus trees.

All of these features are historic and composed as part of Louis Kahn's original design. They were assessed in the Assessment of Cultural Significance as possessing considerable significance. Later additions that accommodate building codes and utilities include fire hydrants and building services. The building service features are intrusive.

There appear to be no changes currently planned within this space. Every effort should be made to preserve and maintain the significance and integrity of the space and its associated views, patterns of spatial organization, and materials. Intrusive elements should be removed or redesigned so that they are as unobtrusive as possible.

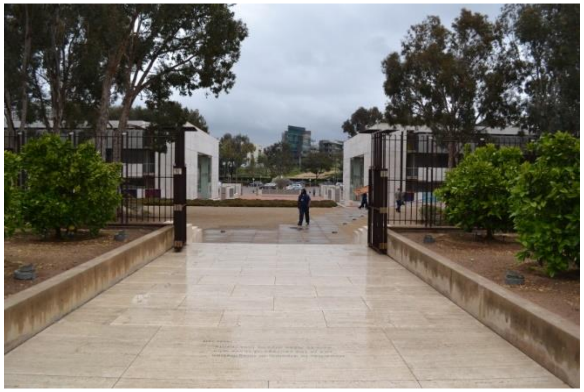
The diminishment of the eucalyptus grove that formerly edged the space to the east diminishes the integrity of the landscape. The 2008 master plan, as well as the Conservation Management Plan, recommend planting additional eucalyptus trees within the east garden to reestablish this important component of the historic design.

The grove of citrus trees is a contemporary replica of a similar planting specified in Kahn's design. The trees are calamondin orange, an intergenetic hybrid between orange and kumquat genuses. The tangerine-like fruit originated in China, but is also popular in Japanese cuisine. The citrus trees were part of a broader effort to plant edible plants as part of the early landscape design. The trees are pruned to remain low and cone shaped.

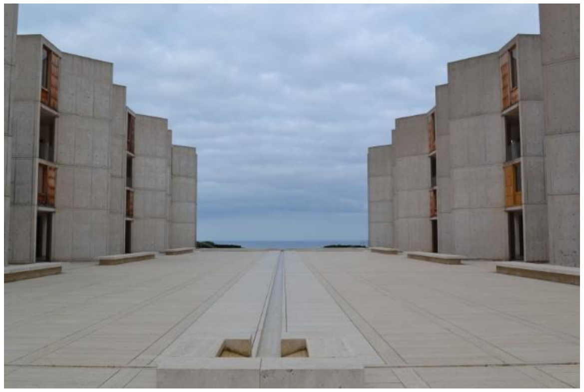
The citrus grove occupies a roof-top garden raised two feet above the Plaza to the west. Visitors descend into the Plaza via four travertine steps.

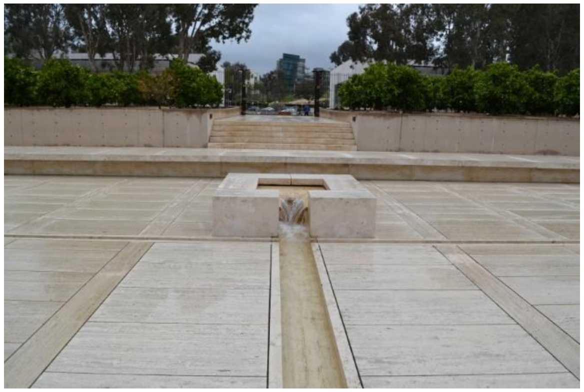
Plaza

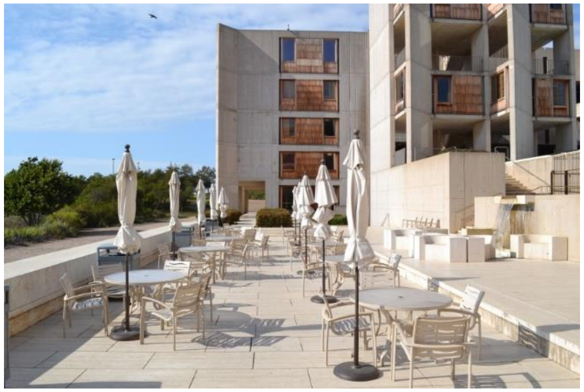
The Plaza is a key feature of the Laboratory Complex. This level open space unifies the architecture of the north and south office wings, and directs views westward toward the Pacific Ocean. The Plaza is an abstraction of the ideal and the aspirational. It is composed of a small square fountain, central rill that empties into a reflecting pool, travertine paving, benches, and stormwater management channels. The grey of the building concrete and the travertine paving complement the blue of the sky and the water, while the space is



Top: The steel fence, east gate, and axial travertine walk that leads to the Laboratory Complex, view east toward the East Building and North Torrey Pines Road.
Middle: View of the walled planting bed and the citrus grove from an adjacent walk.
Bottom: The steps leading to the Plaza from the roof garden.







Top: View across the Plaza toward the Pacific Ocean.
Middle: The fountain and rill, view east.
Bottom: The West Court.

unified and contained by the regularly undulating forms of the canted office windows. The Plaza is of exceptional significance.

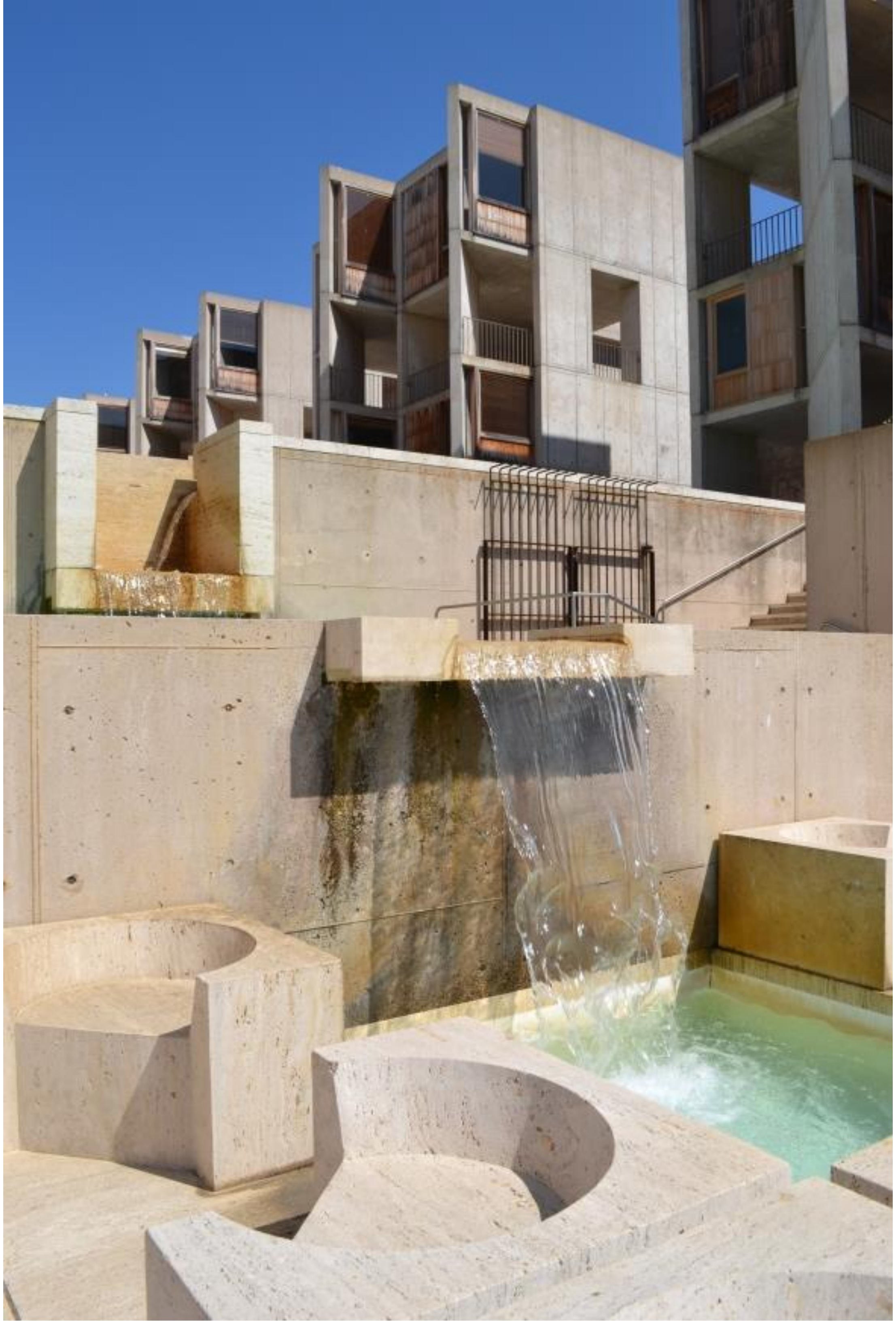
All of these features are historic and composed as part of Louis Kahn's original design. They were assessed in the Assessment of Cultural Significance as possessing exceptional significance. Later changes considered intrusive include the 2011-2012 addition of a fiber coat lining and wet-applied liquid membrane to the reflecting pool, which was formerly still and dark but now conveys the appearance of a swimming pool, and the replacement of a section of travertine block alongside the rill which is reflective and conveys a different appearance than the rest of the Plaza under some light conditions and at night.

Later additions that accommodate building codes and utilities include fire hydrants and building services. The building service features are intrusive. Like the east gate and roof garden area, the view east has been impacted by the diminishment of the eucalyptus grove and contemporary views of the University of California San Diego located east of North Torrey Pines Road. The 2008 master plan, as well as the Conservation Management Plan, recommend planting additional eucalyptus trees within the east garden to reestablish this important component of the historic design.

There appear to be no changes currently planned within this space. Every effort should be made to preserve and maintain the significance and integrity of the space and its associated views, patterns of spatial organization, and materials. Intrusive elements should be removed or redesigned so that they are as unobtrusive as possible. Both the pool liner and the reflective travertine blocks should be replaced to reinstate the original character of the Plaza.

West Court (Lower Laboratory Plaza)

The west court edges the Plaza to the west. It is set a full story below the Plaza, accessed via flights of travertine stairs. Water from the reflecting pool cascades to a secondary pool set half way between the Plaza and west court. Water also cascades from the second pool into a lower pool set at the level of the west court. The water in these fountains is recycled and stored in cisterns. Water from the roof of the Laboratory Complex is also channeled into the pools and cistern. Carved square blocks of travertine, inset with rounded seats edge the lower pool. A level travertine terrace extends between the north and south office wings. The terrace is edged to the west by a low wall. Cut-out areas that feature planter boxes are set within the pavement at the north and south ends. Expansive views of the canyon, Pacific Ocean, and Gliderport are afforded from the terrace. All of these features are historic and composed as part of Louis Kahn's original design. They were assessed in the Assessment of Cultural Significance as possessing exceptional significance.



The pools, fountains, and seating shown were part of the original Kahn design for the West Court.

Top: The upper and middle pools.
Bottom: Tables and chairs associated with the makeshift cafeteria.

Changes that have occurred within this space include the addition of movable outdoor furniture, including tables, chairs, umbrellas, lighting, and trash receptacles, and the addition of shrubs in the planter boxes. The planter boxes were once planted with silver acacia trees based on the request of Dr. Salk. The trees repeatedly blew over in the wind before being removed. They have been replaced with Yeddo hawthorne shrub plantings. Given the difficulty associated with maintaining trees in this location, continued use of shrub plantings in the planter boxes is acceptable given the relatively unobtrusive nature of these planting. Alternatively, the replanting of acacia trees, supported by a modest guy wire system, could be evaluated and considered. Like the reflecting pool at the Plaza level, the two pools that edge the west court contain liners that are visually intrusive and should be returned to a more historically appropriate character.

The landscape to the west of the low wall that contains the west court includes a fire lane surfaced with decomposed granite, and a strip of vegetation at the canyon rim. The Kahn design indicated that native canyon vegetation extend to the base of the wall. The unvegetated corridor of the fire lane is an intrusive element within the landscape.

There appear to be no changes currently planned within this space. Every effort should be made to preserve and maintain the significance and integrity of the space and its associated views, patterns of spatial organization, and materials. Intrusive elements should be removed or redesigned so that they are as unobtrusive as possible. The pool liner should be replaced to reinstate the original character of the west court, while stabilized paving blocks should be used to form the fire lane, and planted with native vegetation associated with the canyon.

The use of the lower level of the south wing as a cafeteria should be discontinued, and this use relocated.

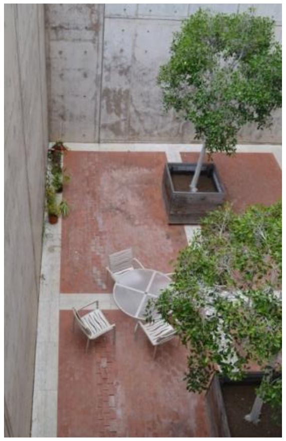
Arcades

The lower levels of the western end of the Laboratory Complex feature arcades with regular openings that afford views of the Pacific Ocean. The lower arcade is accessed from the west court. The arcades possess exceptional significance as components of the original Kahn design. Every effort should be made to preserve and maintain the significance and integrity of the arcades and associated views, patterns of spatial organization, and materials.

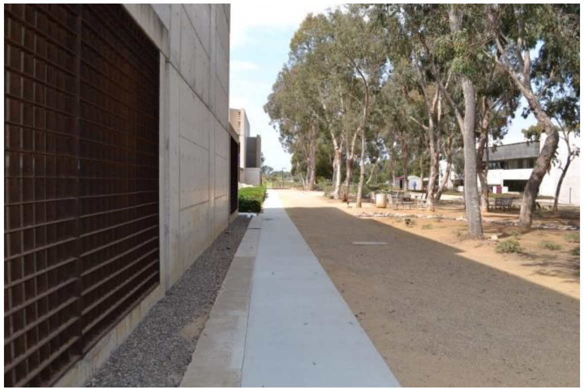
Lower Garden Courts

The lower garden courts are exterior spaces located outside of the laboratories several stories below the Plaza. The courts are edged by concrete walls and open to the sky to ensure those working in the stories below grade have access to light and air. These courts were originally intended to be planted as gardens, but were paved with brick and travertine instead. Plant material is introduced through the planting of vines in beds associated with the concrete walls located above the courts, and tubs of trees that constitute later additions. The court spaces and views into and out of the courts possess exceptional significance for their ongoing expression of Kahn's ideals, while the brick and travertine paving possesses considerable significance due to its use to replace the proposed gardenesque treatment of the spaces. The planting tubs are a later addition that has been assessed as intrusive, along with existing site furnishings and barbeque grills present within several of the courts. The tubs are challenging to maintain due to the need to water regularly and problems with insect infestations.

There appear to be no changes currently planned within the lower garden courts. Every effort should be made to preserve and maintain the significance and integrity of the space and its associated views, patterns of spatial organization, and materials. Intrusive elements, such as the trees in tubs, should be removed. The vine plantings should be maintained such that they cascade into the lower garden courts to soften the space and provide the desired greenery.



Top left: Arcades at the west end of the Laboratory complex.
Top right: Garden wells include tubs used to grow ficus and magnolia trees, as well as site furnishings. The tubs are based on an Eliel Saarinen design for a similar feature used in New York City.
Bottom: Vines in the planter boxes associated with the concrete walls of the garden courts. Creeping jasmine, which has a fragrant flower, is one of the species planted in these boxes. The vines will eventually cascade into the courts.



Top: View north along the concrete walk that parallels the east facade of the Laboratory Complex within the East Garden. The fire lane parallels the walk. It is edged by the grove of eucalyptus trees.
Bottom: The Eucalyptus Grove is an important gathering place at the Institute.

East Garden and Eucalyptus Grove Character Area

The east garden edges the Laboratory Complex to the east. Historically, the east garden extended to the east parking area. A portion of the east garden was lost through construction of the East Building. Landscape features that comprise the east garden character area include the level topography of the east mesa landform, a grove of eucalyptus trees, a paved walk connecting the Laboratory Complex and East Building, a concrete walk that parallels the east façade of the Laboratory Complex edged by gates to the north and south, a fire lane, informal paths, ground cover plantings, seating, lighting, dry creeks associated with area drains, and views toward the Laboratory Complex Plaza.

Eucalyptus Grove

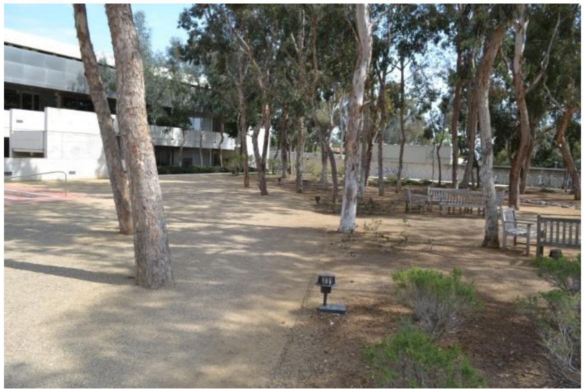
Eucalyptus trees form a grove to the east of the Laboratory Complex. Many of these trees were present on the site when Louis Kahn prepared his plans for the campus, and were treated as an integral part of the design. Eucalyptus trees were initially planted in this region to be harvested for use in constructing rail lines. They were also planted as part of Camp Callan, located on this site prior to and during World War II. Kahn employed the trees to serve as a dark screen and backdrop for the Laboratory Complex Plaza. The east garden was developed to feature organic beds of shrubs and ground covers beneath the tree canopy, establishing a meandering path system that did not allow for axial views of the Plaza until the east gate was reached. The grove is used as a shady gathering place for those working at the Institute. The eucalyptus grove was integral to the shared vision of Jonas Salk and Louis Kahn that the landscape remain natural to the extent possible.

The eucalyptus grove possesses exceptional significance for its important role in Kahn’s design of the Laboratory Complex. Every effort should be made to preserve and maintain the significance and integrity of the building as pertaining to views, patterns of spatial organization, and materials.

The integrity of the grove, however, has been diminished in several ways. Many of the trees have been lost and not replaced. Trees no longer form a dark backdrop for the view east from the Plaza. The organic and curvilinear paths that formerly characterized the landscape have been replaced with a linear concrete walk and fire lane, and diagonal paved walk between the East Building and the Laboratory Complex. The 2008 master plan as well as the Conservation Management Plan recommend that trees be planted to reestablish the grove. Challenges associated with this recommendation include the fact that underground building structure precludes the planting of trees in key locations, eucalyptus tree roots are water seeking and grow into structural foundations, and drought conditions may interfere with the establishment of newly planted trees. Opportunities for enhancing the grove should be carefully studied, with creative design solutions applied to the challenge so that the integrity of this important feature may be enhanced in the future. Solutions may entail the use of planters, designated planting pockets edged by root barriers, and the continued use of irrigation systems.

Care should also be taken to maintain the existing grove. Each year, trees are lost to storms, disease, and drought. Eucalyptus trees are increasingly subject to damage during storms as they grow taller, particularly those sited on high ground, which tend to fall over. During the 2010s alone some thirty-five trees were lost in a single storm. Additionally, eucalyptus is an invasive species that is also alleleopathic, with toxic resins contained in the leaves that can interfere with the growth of nearby plants. The existing shrub underplantings are not thriving and will require replacement as part of the rejuvenation of the eucalyptus grove. Consideration should be paid to designing the beds in the area to reestablish the original meandering paths. Because eucalyptus is an invasive non-native, it should not be grown in proximity to the canyon and MHPA.

View of Eucalyptus Grove and declining shrub plantings.



Paths leading through Eucalyptus Grove.

Fire Lane

A fire lane, paved with stabilized decomposed granite, extends through the east garden from Torrey Pines Scenic Drive and Salk Institute Road. While the fire lane is not historic, a gravel path did edge the east edge of the Laboratory Complex historically. The gates are a later addition, however. Consideration should be paid to diminishing the visual impact of the fire lane, reducing markings associated with the route, and adding plantings to the eastern edge to reflect the historic character of the path feature.

Walks

A concrete walk parallels the fire lane to the west, following the alignment of the Laboratory Complex. This walk is not historic and is visually intrusive. Consider options for diminishing the visual impact of the walk, such as applying a warm brown stain or coating so that it matches the decomposed granite walk in color.

An angled concrete walk leads between the brick plaza located to the west of the East Building and the entrance into the Laboratory Complex. This walk is also not historic, and visually intrusive. Consideration should be paid to replacing the walk with a curvilinear walk composed of stabilized crushed aggregate screenings that meets universal accessibility standards.

Additional paths surfaced with decomposed granite are also present within the east garden. These paths appear ad hoc, although potentially similar in feel to the historic walks through the east garden. Consideration should be paid to laying out these paths to reflect the organic quality of the original east garden design, and to edge them with planting beds.

The steel edging that separates the decomposed granite walks from the planting beds has been described as a trip hazard. Consideration should be paid to evaluating new products that can be used to contain gravel from migrating into adjacent planting beds. A design solution should be sought that delineates curvilinear planting beds and walks in a way that is practical, functional, and in the least visually intrusive manner.

Ground Cover Plantings

Several ground cover species are used in the planting beds associated with the east garden and elsewhere around the campus. Large periwinkle is one of the species used in these plantings. Periwinkle, like eucalyptus is a non-native invasive exotic, but has been used historically throughout campus. Like eucalyptus, periwinkle should not be planted in proximity to the canyon or MHPA. The vigor of the plantings and appearance of the beds varies depending on microclimate; plantings located in full sun typically have been more severely impacted by the drought, suggesting that additional tree plantings will reduce the strain on these plantings.

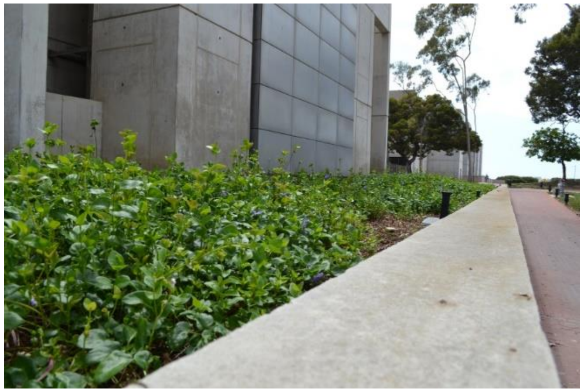
Steel gates extend across the concrete walk and decomposed granite fire lane that lead toward the eucalyptus grove and the Laboratory Complex entrance from Torrey Pines Scenic Drive. These gates were not part of the original Kahn design. They are, however, relatively unobtrusive visually and appear to serve an important security need.

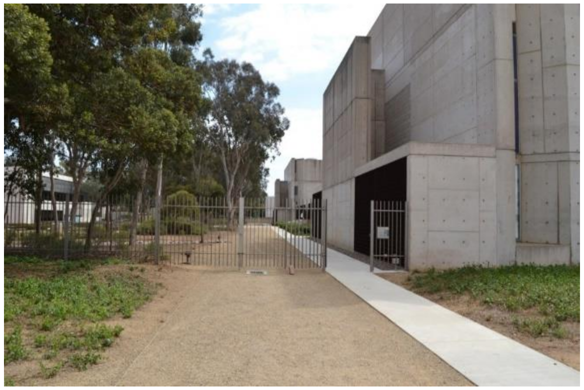
Seating

Seating within the eucalyptus grove occurs in the form of gardenesque wooden chairs that can be repositioned to create groupings. The chairs are a contemporary addition and are not historic. Like the other contemporary site furnishings on campus, consideration should be paid to developing a comprehensive site furnishings guide to the campus that offers standards for each furnishing type that are compatible with the character of the historic landscape.

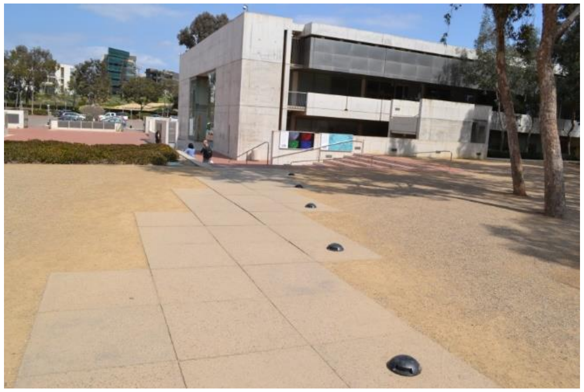
Bicycle Racks

Curved bicycle racks composed of black painted metal are also found within the east garden character area. Elsewhere, bicycle racks are silver galvanized steel. The bicycle racks are not historic. Design and siting of bicycle racks should be considered as part of a campus-wide effort to establish a site furnishing style guide comprised of features that are visually unobtrusive and compatible with the character of the historic landscape.





Top: Healthy large periwinkle ground cover planting
Middle: View of the north gate and periwinkle beds in full sun that are in decline due to droughty conditions.
Bottom: South gate.



Top: Garden lights along one of the walks in the East Garden.
Middle: Dome lighting set into the path between the East Building and the Laboratory Complex.
Bottom: One of the contemporary dry creeks created within the Eucalyptus Grove to address storm water management.

Lighting

Lighting is used to illuminate the walks in the east garden at night. The lighting occurs in two forms—as bollard lighting along walk edges and ground level lighting set into walks and planting beds. Neither is historic, and both are assessed as intrusive in the Assessment of Cultural Significance of the Conservation Management Plan. These fixtures should be considered as part of the recommended design process to confirm or establish site furnishing standards, ensuring lighting features are the least intrusive possible and compatible with the historic landscape.

The garden lights located within the planting beds have become more noticeable as the ground cover has died back due to the drought. Consideration should be paid to revisiting the lighting standard for planting beds as part of the overall rejuvenation of the eucalyptus grove, path system, and planting bed edging system.

The domed fixtures set within the pavement of the diagonal concrete walk linking the brick plaza of the East Building and the Laboratory Complex are difficult to see and are considered a trip hazard. Consideration should be paid to redesigning the lighting along the walk as part of the redesign of the walk system within the east garden. Lighting should be integrated into the design of this walk, which serves as an accessible connection between the East Building and the Laboratory Complex.

Stormwater Management Features

There are two catch basins located within the east garden. To prevent loose decomposed granite material from migrating into the drains, river rocks have been used to establish channels for the overland flow of stormwater, and to buffer the grates. The dry creek features are contemporary additions that are not historic. The rocks used to create these dry creeks are light in color and reflective, and thus visually intrusive. The existing river rocks should be replaced with a darker colored broken edged stone that can be set to form a slightly raised channel or basin, and screened with plantings.

East Building Addition and Courtyard Character Area

The East Building was constructed in 1995. It is composed of two structures located east of the Laboratory Complex centered on a terrace that occurs on axis with the Plaza. The East Building replaced the eastern portion of the east garden landscape and the western portion of the east parking area. Landscape features include the East Building, the east gate that connects this area with the east parking, a brick entry terrace, concrete walls, an accessible walk system, and plantings.

East Building

The East Building is composed to a pair of concrete and glass structures added to the site in 1995 to accommodate Institute office and museum exhibit needs. These buildings are not historic, and are not consistent with the historic Louis Kahn design in terms of architecture, character, or siting. They are assessed as intrusive in the Assessment of Cultural Significance. Every effort should be made to screen them from view from the Laboratory Complex Plaza to diminish their impact on the historic campus.

East Gate

The East Building character area is edged to the east by a gate system approached from the east parking area. The east gate is composed of a low concrete wall and inscribed stone panels edged to either end by gated openings associated with brick walks. The east gate is not historic, with a character that only minimally intrusive.

Top View of the East Building (north).
Middle: View of the East Building (south).
Bottom: The east gate is composed of a central concrete wall edged by stone blocks inscribed with quotes, and a steel fence that is framed on either side by pedestrian gate openings. Low shrub plantings occur within a planting bed in front of the wall.

Top: Brick entry terrace.
Middle: Accessible walk associated with the East Building.
Bottom: Wall and hedge at the eastern edge of the character area.

Entry Terrace

A brick entry terrace sits between the two structures that form the East Building complex. The terrace is not historic, and the expanse of red brick is visually intrusive. Every effort should be made to screen this area from view from the Laboratory Complex Plaza.

Accessible Walk

In addition to the entry terrace, new accessible walks were completed in association with the east buildings as part of their construction in 1995. These walks allow access into the eucalyptus grove area of the campus. The accessible walk is not historic. Every effort should be made to screen this area from view from the Laboratory Complex Plaza.

Walls

There are numerous concrete walls located within this character area. Like hedges, these walls are used to reinforce the geometry of the site plan, and are important linear expressions of spatial frameworks and thresholds on campus. Within this character area, only one of the walls is historic. The wall that defined two sections of the east parking area was retained north and south of the east gate feature. The wall includes periodic breaks, and is edged by low evergreen shrubs. This wall should be maintained and protected as a significant historic feature, while the other walls are considered intrusive and thus less sensitive to change.

Plantings

Plantings within this character area include contemporary shrub plantings that help to soften the impact of the accessibility ramp, hedges and other low shrub plantings east of the wall and east gate at the eastern edge of the character area, and eucalyptus trees to the east of the east buildings. None of these plantings are historic.

The East Building was designed to have two rows of trees along the facade. One of the retaining walls near the East Building was destroyed by tree roots and had to be rebuilt. Root barriers should be used in conjunction with future plantings of this type.

East Parking Lot Character Area

The East Parking character area forms the eastern end of the campus. It is comprised of much of the original parking facility developed in this area as part of the historic Kahn design. A separate section of the east parking area, including the historic entrance from Torrey Pines Scenic Drive, located to the west of the concrete wall described above was demolished to construct the East Building. Landscape features that comprise the east parking character area include level topography, several bays of parking, travel lanes to the east and west, tree and shrub plantings located within the medians that define the parking bays, identity signage, lighting, and a cluster of three temporary buildings. The east parking character area is edged to the east by the North Torrey Pines Road corridor, which includes a sidewalk and utility features.

East Parking Lot

The east parking lot was part of Louis Kahn's original site plan for the campus. The asphalt-paved facility features five double-loaded parking bays, oriented east-west, and north-south collector roads at either end. The parking bays are edged by linear medians edged by concrete curbs. The medians are planted with Chines fringe trees underplanted with shrubs, and contain lighting. The asphalt paving is light grey in color and pebbly in finish to accommodate the preferences of Dr. Salk. The east parking lot is a historic feature with considerable significance. The integrity of the parking lot is diminished by the loss of the western section to construction of the East Building. While preservation of this historic feature of campus is warranted, the 2008 master plan indicates plans to replace the parking area with the Torrey Pines East building and an underground parking structure.

Issues associated with the parking lot include the trip hazards resulting from growth of roots associated with the fringe trees located within the medians. The roots have caused heaving and cracking of the asphalt and associated uneven walking surface. The wearing surface of the pavement is also soft and serves as a trip hazard for those wearing heeled shoes. Replacement of the existing asphalt with a stronger material that is colorized to meet the softer palette request made by Dr. Salk and may resist the heaving caused by tree roots is warranted before the parking area is removed.

Plantings

The Chinese fringe trees located within the parking area medians were specified by Roland Hoyt, the local landscape architect who worked with Louis Kahn to complete aspects of the site plan. The fruit of this tree can be used to make jam. The planting of this tree species is consistent with the approach of adding plants to the campus with edible characteristics. Bay is also known to have been planted near the entry into the east garden. Residents were encouraged to use the edible plants in cooking, and those working at the property were allowed to take fruits and other plant material home for a similar purpose.

Top: View west toward the East Building across the east parking area.
Bottom: Chinese fringe trees in an east parking area median.

Top Cracks in the pavement caused by Chinese fringe tree roots.
Bottom: Lighting in the east parking area.

These trees are identified as significant in the 2008 master plan, and recognized as historically significant by the city. The proposed construction of the Torrey East Building will destroy the existing plantings. A mitigation measure that is required by the city is the replanting of several of the trees in a grove to be sited north of the new building. These trees could also be considered for the grove to edge the north lawn following completion of the North Lawn Core Facility.

The Chinese fringe trees, while attractive when in leaf and fragrant in flower, the trees often present an unkempt appearance and have not been a popular component of the campus planting design. As noted, the trees have thick surface roots strong enough to break and warp the east parking area pavement. The roots also tend to invade water lines and storm drains.

Shrubs are planted in conjunction with the fringe trees in the parking medians. Shrubs were similarly included in the historic planting plan for the parking area. The use of shrubs as underplanting is thus historic and significant. Shrubs should also be used in future planting of Chinese fringe trees to mitigate loss of the historic east parking area.

Lighting

The lighting within the parking area is composed of white metal poles that support globe-like fixtures that surround a bulb. There are two different base types. The lighting is not historic and has been assessed as intrusive in chapter two. The lighting will be removed when the parking area is demolished.

Identity Sign

A Salk Institute identity sign is located facing North Torrey Pines Road near its intersection with Torrey Pines Scenic Drive. It is composed of metal panels set within a horizontal concrete frame. Metal cut out letters are set atop the metal panels, in front of the concrete frame. This sign is not historic. It has been assessed as being intrusive to the historic campus landscape. Signage should be considered in the campus-wide site furnishings palette design process.

Temporary Buildings

Located in the southern section of the parking area are three temporary buildings. One is a corrugated metal Butler building, while the others are trailers. The Butler building is referred to as the Accessory Building and is used as a warehouse. The other two are construction trailers that house offices associated with procurement, environmental health and safety, and information. These structures were erected for temporary construction administration and storage use. They are intrusive, and recommended for removal in the 2008 master plan as well as this Conservation Management Plan.

Top: Identity sign and sidewalk along North Torrey Pines Road near its intersection with Torrey Pines Scenic Drive.
Middle: The Accessory Building, originally erected for use by the architectural contractor in the 1960s.

Top: The temporary administration building.
Bottom: The temporary housing structure, which is located near a concrete plaza, and gridded planting of silver acacia trees.

Service Corridor Character Area

The Service Corridor character area is an amalgam of circulation, service, and temporary buildings and housing features located north of Salk Institute Road between the East Parking and South Garden character areas. It occupies a portion of the historic east garden and western section of the east parking area that have been extensively altered. A walled service yard associated with the Laboratory Complex was part of the original design that retains some integrity. Other features associated with the character area include two temporary trailer buildings, walks, planting beds, a flagpole, parking, bicycle racks, and tree plantings, none of which is historic. The 2008 master plan suggests that three greenhouses will be constructed within this area to replace the structures in the temporary laboratory complex slated for removal. These buildings should be carefully sited to limit their visual impact and to allow historic features to be reestablished once the existing temporary trailer buildings within this character area are removed.

Temporary Buildings

The two temporary buildings located within the Service Corridor character area are single story double-wide construction trailers. One is located east of the south garden and accessed via a wooden ramp. A universally accessible parking space is located adjacent to the structure. The building is not historic and has been assessed as intrusive. The second trailer is located to the east of the parking space.

The 2008 master plan as well as the Conservation Management Plan recommend removal of these temporary buildings, which would allow for reestablishment of walk and planting elements associated with the southern portion of the east garden.

Service Yard

The service yard is an open area enclosed by a wall that screens work areas and deliveries associated with the Laboratory Complex. The service yard was indicated in Kahn’s original site plan of the campus. It is assessed as possessing some significance in the Assessment of Cultural Significance due to the lack of architectural interest, and the diminished integrity of the setting.

Walks

Walks located within the service area include a concrete plaza that edges Salk Institute Road south of the East Building, a curvilinear concrete walk that connects the plaza with the decomposed granite of the eucalyptus grove, and walks providing access to the temporary buildings and service yard. The concrete plaza is located on the site of a gridded planting that formerly marked the western edge of the east parking area. However, it has severely diminished integrity of materials and workman ship, having been rebuilt, and has lost integrity of setting as the context is no longer understandable. The walks within this area are thus not significant. The integrity of this area could be enhanced through the reestablishment of historic walks once the temporary buildings are removed.

Fire Lane

A fire lane extends from Salk Institute Road into the Service Corridor character area to service the temporary buildings. It is edged by a concrete curb painted red. It doubles as a pedestrian route connecting to a paved walk leading to the eucalyptus grove. The fire lane is surfaced with stabilized decomposed granite. The fire lane is not historic. The red curbing is visually intrusive. The impact of the curbing should be minimized through consideration of alternative approaches to fire lane designation.

Plantings

The concrete plaza located north of Salk Institute Road features a grid of six square openings that are planted with silver acacia trees. The trees were planted in 1995 when this area was changed to reflect the construction of the East Building. The gridded pavement and tree plantings recall an element of the original east parking area. These plantings are not historically significant due to the changes that have occurred to the context of the space. Acacia trees are short-lived and a challenge for management. Consideration should be paid to replacing the trees with another species that is easier to maintain. The 2008 master plan provides a list of acceptable plant species to be used on the campus that can serve as the basis for the replacement.

Several ground cover species are used to create level expanses of green planted areas. Large periwinkle has been used in several locations. Ice plant is also present. This species was planted previously to prevent soil erosion following construction projects. The MHPA for the canyon stipulates that ice plant be removed from the Salk Institute property as one of the four aggressively invasive species that poses a particular threat to native habitat. The City of San Diego has organized a volunteer group to implement ice plant removal efforts. The ice plant is not historic. Shrub and ground cover plantings were historically present within this character area. Consideration should be paid to reestablishing former plantings as part of the enhancement of this area once the temporary buildings are removed.

Flagpole

There is a flagpole located in a planting bed north of Salk Institute Road within the service corridor. It appears to not to be historic.

Top: Silver acacia trees near the south entrance.
Bottom: The flagpole located in the service corridor near Salk Institute Road.

Bicycle Racks

Bicycle racks are located within the service corridor. These are located near the temporary buildings. They are galvanized steel features are composed of a series of S curves. The bicycle racks are not historic. Design and siting of bicycle racks should be considered as part of a campus-wide effort to establish a site furnishing style guide comprised of features that are visually unobtrusive and compatible with the character of the historic landscape.

North Garden Character Area

The North Garden was an integral component of the Kahn site plan for the Salk Institute campus. It occupies the space between Torrey Pines Scenic Drive and the Laboratory Complex. It is comprised of turf lawn edged by street trees along Torrey Pines Scenic Drive, walks to the west and south, and the East Parking character area. A portion of the character area was originally part of the east garden and east parking area landscapes of the original Kahn site plan. Landscape features that comprise the north garden character area include the broad level expanse of turf lawn, edged by low concrete walls, brick walks, tree and shrub plantings, fire lane access, gridded tree plantings, ground cover plantings, wayfinding and identity signage, bicycle racks, and lighting. The north garden lawn serves as a foreground for viewing the Laboratory Complex from the north, and the intended direction of approach articulated by Louis Kahn.

View of the north lawn, with drought-related stress of the turf evident.

North Lawn

The north lawn is a trapezoidal turf grass panel located between the Laboratory Complex and Torrey Pines Scenic Drive, and the north and east parking areas. The lawn affords views of the Laboratory Complex from Torrey Pines Scenic Drive and serves as a low foreground for viewing the building from the principal approach route. The turf is comprised of a mix of Bermuda grass and winter rye, maintained through an irrigation system. The lawn has been used extensively for recreation over the years. It is spatially contained in part by the row of Torrey pines that frame the road corridor. As indicated in the Kahn site plan, the turf lawn panel was spatially contained by groves of trees to the east and west, and street tree plantings to the north. The western grove is no longer extant, while the east grove is much reduced in size. The north lawn possesses considerable significance, with some diminished integrity due to the loss of trees, and the addition of a walk through the southwestern corner of the lawn panel.

The 2008 master plan indicates that the North Lawn Core Facility will be constructed beneath the north lawn. Following construction, the lawn panel will be replaced.

The turf used as to create the north and south lawns requires irrigation to thrive. Water restrictions resulting from the current drought limit the degree that the lawn can be watered. The lawns are now in decline. Consideration should be paid to replacing the existing turf with a drought tolerant species once the underground structure is completed.

Top: The new accessible walk leading toward the north side of the Laboratory Complex.
Bottom: Surviving oak tree along the brick walk leading toward the historic entrance into the Laboratory Complex.

Brick Walks

The original design of the north garden featured two walks, one linking the north parking area with the principal entrance into the Laboratory Complex, and one that followed the northern façade of the Laboratory Complex. These walks remain present today, and are surfaced with brick. The walk leading to the northeast corner of the Laboratory Complex has been altered to accommodate fire egress. A second walk has been constructed to the east of this walk as an accessible route. Changes to the historic walk and the addition of the non-historic walk occurred in the 1990s. Other changes to circulation within the character area include the loss of tree plantings intended to shade the visitor approach.

Only the walk that follows the northern façade of the Laboratory Complex possesses significance and retains integrity. The brick replacement of the historic approach walk no longer retains integrity, while the new walk is not historic.

Consideration should be paid to reestablishing the grove of trees proposed for the western end of the lawn panel and to shade the historic walk, and reducing the visually intrusive qualities of the replacement walk to enhance historic integrity.

Oak Tree

One tree is present along the historic walk alignment, now sited in a cut out in the brick paving. At one time there were three of these oak trees present in the vicinity. The other two have been lost due to the drought. This tree should be protected as representative of the original grove planting specified for this area.

Plantings

Planting beds edge the brick walks as well as the northern edge of the Laboratory Complex. These beds contain low growing shrubs as well as ground covers such as large periwinkle. Planting beds historically edged the low wall between the lawn panel and the walk paralleling the north façade of the Laboratory Complex, the building façade, and the historic walk. These planting beds are thus historic and significant and should be retained and maintained.

The character area also includes a brick plaza at the eastern end that contains eight square cut outs arranged in a grid. The cut outs serve as planters and contain silver acacia trees. The trees were planted in 1995 after construction of the East Building altered the western edge of the original east parking area, which had a similar grid planting. These plantings are not historically significant due to the changes that have occurred to the context of the space. Acacia trees are short-lived and a challenge for management. Consideration should be paid to replacing the trees with another species that is easier to maintain. The 2008 master plan provides a list of acceptable plant species to be used on the campus that can serve as the basis for the replacement.

Walls

Low concrete walls edge portions of the north lawn as it meets the walk following the north façade of the Laboratory Complex. A wall was present in this location historically. It should be treated as a historic feature.

Fire Lane

The grove of trees that formerly edged the north lawn to the east, and was part of the original east garden, has been reduced in part due to the construction of a fire lane leading from Torrey Pines Scenic Drive through the eucalyptus grove. The fire lane is surfaced with decomposed granite, and is edged to either side by low concrete curbs painted red. It is not historic and incongruous with the historic character of the area. Consideration should be paid to diminishing the visual impact of the fire lane, potentially by reducing the area of paving, or the use of permeable paving where plants can be grown to soften the appearance of the fire lane. The plantings should be considered expendable in the event of use of the fire lane by fire equipment.

Top: Gridded plantings of silver acacia within the brick plaza at the eastern edge of the North Garden character area.
Bottom: View north along the fire lane.

Top: Wayfinding signs.
Middle: View of low bollard-style lighting along the walks.
Bottom: The South Garden character area.

Signage

Wayfinding signage is located along the brick walk leading between the north parking area and the Laboratory Complex. The signage is composed of upright brushed steel panels that contain minimal black type and arrows. These signs are contemporary in character. They are not historic, and have been assessed as intrusive in the Assessment of Cultural Significance. Signage should be considered in the overall campus site furnishings guide to be developed for compatibility with the historic landscape.

Bicycle Racks

Bicycle racks, composed of galvanized steel forms set in a series of S curves, are a contemporary addition to the campus. Although not historic, they should be retained to accommodate non-motorized transportation uses, but sited to be as unobtrusive as possible, and treated such that they can be removed without altering the historic landscape.

Lighting

Low bollard-style lighting edges the brick walks. The lighting is not historic. The lighting is relatively unobtrusive.

South Garden Character Area

The South Garden character area is located to the south of the Laboratory Complex. It abuts Salk Institute Road. The South Garden was historically designed to feature a lawn panel edged by walks, and including two additional angled walks, and a secondary elongated open space edged by street tree plantings. It was later altered to include a large parking area, followed by construction of a building belowground that is used for Animal Quarters. The South Garden character area now features two lawn panels edged by hedges, low concrete walls, seating, and brick walks above the Animal Quarters. The street tree plantings that historically characterized the linear corridor of Salk Institute Road are no longer present to the north of the road corridor.

South Lawn

The first of the two south lawn turf panels was added in 1977 atop the subterranean Animal Quarters. A second panel was added in 2001 when the parking area along Salk Institute Road was removed. The existing turf lawn panels are edged by low concrete walls and brick walks. Although they recall the turf of the historic south garden, they are not historic due to their contemporary character and possess no significance.

The existing turf lawn exhibits several condition issues of concern. The turf, composed of a mix of rye and Bermuda grasses, is irrigated using reclaimed water. It is planted in a light-weight engineered soil mix set on top of an underdrain system and membrane. The soil is thought to not have been tamped or compacted properly. The soil has visibly subsided. Fill was added to correct the problem circa 2000, but additional subsidence has since occurred. A foam used along the side of the concrete panel and against the waterproof membrane has become exposed due to the subsidence of the lawn. Because it breaks down when exposed to sunlight, it is failing, as is the membrane. The subsidence of the lawn has resulted in an undulating plane of grass and uneven exposure of the concrete wall framework along the outer edge. There have also been repairs made to the lawn and to the surrounding brick and concrete structure. Other maintenance issues include the need to regularly dethatch the turf and aerate it, and to treat the grass for sod webworms. In addition, there are leaks occurring along the seam between the brick and concrete, and the concrete of the wall is cracked and leaking. All of these issues should be addressed comprehensively as part of a precinct study and design. Because this area possesses only some significance due to the changes that have diminished its integrity, it is less sensitive to change than many other parts of the campus.

Additionally, given the current concerns within southern California about the potential for prolonged drought, the Salk Institute should consider replacing the existing turf with a more drought tolerant species as part of any rehabilitation efforts conducted in association with the south lawn.

Top: View of the northern lawn panel.
Bottom: View of the undulating south lawn, the turf exhibiting poor growth, and the subsidence evident along the wall.

Top: Walls edging the south garden.
Bottom: The south parking area.

Cooling Towers

Concrete cooling towers are present within this area that are associated with the underground structure. The towers were built in 1975, and are not historic, and possess no significance.

Walls

Concrete walls edge the south garden, as well as the internal lawn panels. These walls are not historic, and possess no significance.

Plantings

Some sections of the lawn panels are edged by low, clipped hedges. The hedges soften the expanse of concrete wall structure, and reinforce the geometry of the south garden. These plantings are not historic and possess no significance.

Walks

The south garden character area features brick walks that edge each of the lawn panels. Low concrete walls that edge the turf panels frame the brick walks. These walks are not historic and possess no significance.

South Parking Lot Character Area

The south parking area is a small asphalt-paved space located to the west of the concrete wall that edges the underground Animal Quarters structure. The parking area also abuts the southwestern corner of the lower Laboratory Complex. This parking lot is similar in form to a lot that appears in the Kahn site plan. As such it is historic. The integrity of the parking area is diminished by the changes that have occurred to the south garden. However, it possesses some significance, and should be retained and maintained.

Plantings and Lighting

The south parking area is edged by planting beds that contain small ornamental trees and shrubs, as well as low bollard lighting. These plantings are not historic and possess no significance.

Lighting similar to that used in the east parking area is located along the margins of the south parking area. The lighting is composed of white metal poles that support a clear glass globe. This lighting is not historic and possesses no significance.

There are also low bollard-style lights located within the planting beds adjacent to the south parking area. These are also not historic and possess no significance.

Top: Brick walks within the south garden area.
Bottom: Lighting sited along the margin of the south parking area.

Torrey Pines Scenic Drive Character Area

The Torrey Pines Scenic Drive character area edges the Salk Institute campus to the north. It includes the public road corridor, which is edged by parking to either side, curbing, a concrete sidewalk, turf lawn, and street trees. The city-owned parcel to the north of the road is sometimes made available for overflow parking in support of Institute events.

Torrey Pines Scenic Drive

Torrey Pines Scenic Drive is a two lane asphalt-paved corridor that is wide enough for cars to parallel park to either side. Torrey Pines Scenic Drive is a public road corridor that connects North Torrey Pines Road and a cul-de-sac located at the far north corner of the Salk campus. The access road to the Torrey Pines Gliderport arises from the cul-de-sac. Access to the campus's north parking area arises from this road. The road corridor was present at the time the Salk was created and is part of the historic landscape. It is assessed as possessing considerable significance in the Assessment of Cultural Significance.

Street Tree Plantings

The Salk campus features two partial rows of street tree plantings of Torrey pine along Torrey Pines Scenic Drive. A double row of eucalyptus trees was indicated on Kahn's site plan in this location which was to serve as a formal container to the northern edge of campus, and a means for directing views west toward the Pacific Ocean. The existing street tree plantings generally reflect the historic design intent of Kahn's plan, but differ in species composition and the lack of completion of the original double row of trees. With diminished integrity the street tree plantings possess some significance, and support an understanding of Kahn's historic design intent.

The 2008 master plan suggests that additional trees be installed in order to reestablish the historic street tree planting in Kahn's design. The current planting strategy reflects a system developed by the Salk Institute to feature eucalyptus trees in north-south corridors, and Torrey pines along east-west routes. This pattern is anticipated to continue in the implementation of the master plan.

Top: Bollard-style lighting in the planting beds adjacent to the south parking area.
Bottom: Torrey Pines Scenic Drive, view east.

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Facing page: Hedges.

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Top: Salk Institute Road and adjacent wall and lighting, view east.
Middle: Salk Institute Road, view west.
Bottom: Example of overhead lighting found along Salk Institute Road.

Salk Institute Road Character Area

Salk Institute Road forms the southern edge of the campus. It is composed of a two-lane asphalt travelway, a single row of parking, overhead lighting, and property boundary fencing and walls to the south of the road. The road is gated just west of the Salk campus. Utility systems are also present along the road corridor within the eastern section near North Torrey Pines Road.

Salk Institute Road

The Salk Institute Road corridor was part of the original Salk Institute complex, and possesses some significance for its role in the overall site plan. The two-way asphalt road corridor is edged by parking to the south. The road is edged to the north by curbing, low hedges, and planting beds. The Estancia La Jolla Hotel maintains an easement for use of the road to access their property, developed on a former horse stables and training track facility to the south.

Boundary Fencing and Walls

Chain-link fencing, approximately 4-feet high, marks portions of the southern boundary of the property. Other portions of the boundary are indicated with concrete walls. Neither feature is historic.

Lighting

Overhead lighting edges the road, primarily on the south side. The lighting is composed of metal poles topped with metal barrel shades. The lighting is not historic and it was assessed as intrusive in the Assessment of Cultural Significance. Consideration should be paid to establishing a palette of site furnishing for use throughout the campus that takes compatibility with the historic setting into consideration. Lighting is one of the elements that should be considered in the preparation of the site furnishings palette.

Street Tree Plantings

Like Torrey Pines Scenic Drive, the Kahn site plan indicated the use of street tree plantings along Salk Institute Road. These plantings were to form a single row to either side of the road. Trees located east of the service yard were to be eucalyptus, while those planted south and west of the service yard were to be Monterrey cypress. Some of the original street trees survive today, but many are no longer present. The eastern portion of the street has been rehabilitated to feature New Zealand Christmas trees and an underplanting of Carmel creeper.

The 2008 master plan indicates that the street tree plantings along the western end of the street will be rehabilitated with a planting of red flame eucalyptus.

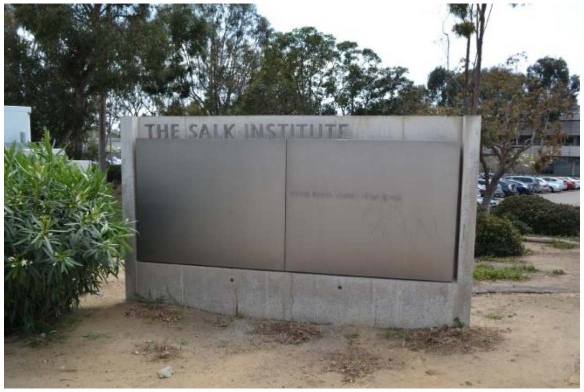
Tree plantings along the western end of Salk Institute Road may cause neighbors to raise concerns about interference with their views. The Institute should work with their neighbors to convey the importance of these trees as part of the original Kahn design and encourage that they be respected.

Signage

Identity signage is located within the Salk Institute Road corridor. This signage is comprised of horizontally-oriented brushed metal panels set in a concrete frame, with cut letters attached to the top of the metal panels. These signs are not historic and assessed as intrusive in the Assessment of Cultural Significance. Consideration should be paid to including signage in a campus-wide site furnishing palette design guide that takes the historic character of the property into consideration.

Utilities

Public utility lines generally follow road corridors. Several utility structures are located along the margins of Salk Institute Road. Some, like backflow preventers must remain visible and cannot be screened. Consideration should be paid to designing ways to limit the intrusiveness of these utility structures, and the Institute should continue to work with the utility companies to diminish the visual impact of their structures.



Top: Identity sign near the intersection of Salk Institute Road.
Middle: One of the temporary lab buildings, which was used by Jonas Salk as a laboratory beginning in 1961.
Bottom: View of several of the greenhouses located within the character area.

Top: Concrete block wall and concrete walk linking building cluster with the north lawn.
Middle: Oleander screen planting.
Bottom: Bicycle rack behind the oleander screen planting.

Temporary Laboratories and Greenhouse Complex Character Area

The Temporary Laboratories and Greenhouse complex is nestled between the north lawn and north parking area. It is comprised of a collection of modest, single story structures designed to accommodate temporary laboratory and experiment functions. The buildings are edged by the north parking area, walks, shrubs, and perennial plantings, some of which constitute invasive species. The group of buildings, identified as Building Nos. 1 through 6, was placed on site in an ad hoc manner not indicated in the design prepared by Louis Kahn. The buildings have been added to the site over time, with the first temporary lab completed in 1961. One trailer houses the equipment used by Dr. Salk in several important research projects. A concrete block walk links the building cluster with the north lawn. It is edged by a concrete block wall. Screen plantings of oleander, planted in the 2000s, help to limit the impact of views of the building cluster from the north lawn. A galvanized steel bicycle rack is located behind the screen plantings. None of the features of this character area are historically significant.

These temporary structures are indicated for removal in the 2008 master plan, as well as the Conservation Management Plan. The city of San Diego has indicated that the buildings should be removed as part of a broader effort to afford unobstructed views of the Pacific Ocean wherever possible within the campus. The 2008 master plan suggests that three greenhouses will be built within the service corridor landscape to replace the greenhouse use presently accommodated in this location.

Ice plant is present within the character area. It is one of the four invasive species recommended for removal and eradication within the campus. Ice plant has traditionally been planted in association with buildings to reduce the potential spread of fire, for erosion control, and for ornamental purposes. The proximity of this character area to the native vegetation in the canyon suggests that removal of the ice plant be treated as a priority in order to protect natural resource values. A management strategy for control and eradication of this and other invasive species should be prepared that considers best management practices and sustainability, as well as suggestions for replacement species.

This area was indicated in Kahn’s site plan to be left in a natural state. Removal of existing buildings and invasive plants within this character area should be followed by a revegetation effort that introduces locally native species that are suited to this environment in those locations where the master plan does not indicate the addition of new building program. This area will be incorporated into the MHPA, and treatment will be consistent with city guidelines for MHPA land. This treatment will enhance the integrity of the historic landscape.

North Parking Lot Character Area

The North Parking Lot character area occupies much of the north mesa. It is generally open, and characterized by a large asphalt parking area, overhead lighting, and planted medians. Prior to development of the Laboratory Complex, the present-day Salk Institute property was part of Camp Callan, a military installation where army personnel were trained in coastal defense and anti-aircraft artillery. Gun emplacements were located on the north rim of the canyon within and along the margin of the north parking area.

Earth moving related to the removal of former gun emplacements associated with Camp Callan and located between the north parking area and the canyon rim that occurred following the construction of the Institute resulted in the creation of vernal pools that are now protected as wildlife habitat. Restrictive covenants associated with the protection of these pools has rendered portions of the site off limits for construction.

The Institute is interested in learning more about Camp Callan in order to potentially interpret this aspect of the site's history to the public. The Institute should conduct research to document the history of Camp Callahan and develop interpretive materials to convey to the public using the information.

The Meeting Center designed by Louis Kahn was to be sited in this area but was never built. The north parking area designed by Kahn was a fraction of the existing parking area, and later expanded. The 2008 master plan indicates that the north parking area will be removed and replaced by the North Peninsula Underground Parking Structure. Removal of the north parking area will be followed by treatment similar to that to be used on the site of the temporary laboratories, including the establishment of native plant communities, which will enhance the integrity of the historic landscape.

North Parking Lot

The north parking lot is an asphalt-paved lot arranged into bays of parking stalls edged by medians. The parking lot is accessed from two locations along Torrey Pines Scenic Drive. Kahn's original north parking area extended the length of the temporary laboratory complex. The land to the south was to be left in a natural state, while a corridor along the road was to feature the Meeting House and Esplanade, which were never built. The north parking lot was expanded to its current size in 1991. The current north parking lot is not historic and intrusive as pertains to the historic design. As noted, the 2008 master plan indicates that parking will be relocated to an underground structure to be built within this character area, and much of the landscape revegetated to support native habitat.

View west across the north parking area.

Ornamental plantings and lighting within the north parking area.

Plantings

The north parking area features ornamental plantings of native and introduced trees, including eucalyptus and Torrey pine, as well as shrubs. An irrigation system supports the maintenance of these plantings. They are not historic.

Lighting

The north parking area is lit by tall overhead lighting sited within the planted medians. The lighting is not historic.

South Mesa Character Area

The south mesa currently does not feature any buildings, although it was the intended site of the Living Place as articulated in Kahn's site plan, which was never built. The south mesa is characterized by native vegetation, some of which is the result of seeding efforts conducted by the Institute. The south mesa has been used to dispose of excess cut associated with construction elsewhere on the campus. The soil was partially spread over the mesa and otherwise placed in a mound. The soil was hydroseeded with native seed in the late 1970s and early 1980s, and again in the mid-1980s. The Institute continues to manage the mesa to promote native plant species. Although not a historic feature of the property, the native vegetation and soil mound do not detract from the historic campus. This part of the property is little used and not integrated into the Institute campus.

Sewage Pumping Station

The adjacent property to the west has been developed by the city of San Diego as a sewage pumping station. Evidence of the pumping station is present within this character area. The pumping station is not visible from the majority of the campus due to its location on a westward facing slope of declining topography. It nonetheless is assessed as intrusive to the historic landscape.

Stormwater Management Features

Also located near the far western edge of the south mesa is a concrete channel established by the city of San Diego to address stormwater management. Like the sewage pumping station, the channel is not historic, and, although rarely visible from the campus, considered intrusive to the Institute's historic setting.

Views

Views are afforded from the south mesa, as well as other parts of the campus, of large residences that abut the Salk Institute campus. These views are not historic and the residences intrusive.

Top: Native vegetation on the south mesa.
Bottom: Views of residences south of the property.

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