Louis Kahn in Tel-Aviv

BY JEREMIE HOFFMANN AND HADAS NEVO-GOLDBERST

This paper surveys the historical urban infrastructure and architecture of the School of Mechanical Engineering at Tel-Aviv University, designed by one of the greatest architects of the 20th century, Louis I. Kahn. The paper describes the monumental architecture of the building, which hints subtly to the qualities and complexity of the internal spaces. The structure is the only building ever erected in Israel by Kahn, and became an architectural icon, presenting the best in the Brutalist architectural style to be found in Tel-Aviv-Yafo, alongside other outstanding structures from the same period.

At the top of Tel-Aviv's only hill stands a sizeable gray building that, from afar, looks like the two tablets of stone given on Mount Sinai. Few, if any, know that the building was designed by a Jewish architect who was one of the greatest architects of the 20th century: Louis I. Kahn[1].

For those not physically standing inside Tel-Aviv University's campus, the sole clue to the building's existence is visible only from the Ayalon Highway, a major transportation artery crossing the length of the city. From there, one can spot upon the hilltop two curved, symmetrical façades of exposed concrete, at the tip of a half cylinder, each resembling a loaf of sliced bread, facing eastwards. This glimpse is merely a hint to the complex, large-scale structure that is the Wolfson School of Mechanical Engineering.

To understand the broad historical context of this building's construction, we must return to 1948 and the UN resolution on the founding of the State of Israel. The decision to end the British Mandate in Palestine, and to establish two new national entities in the congested landscape of the Land of Israel, transformed Tel-Aviv overnight from a peaceful, hedonistic city of white utopian Bauhaus architecture into a refuge city for Jewish immigration on an unprecedented scale.

The waves of immigration from countries all over the world, along with the corresponding need to rapidly throw together an infrastructure for the State created overnight, resulted in the most significant construction project in the history of the State, known today as "The Israeli Project"[2]. Hundreds of thousands of new housing units, settlements, and public institutions were established throughout the country as a speedy response to a largely impoverished population of arrivals without economic means. Tel-Aviv served as a cultural and strategic center; as such, within a few short years, three hundred buildings in the Brutalist architecture style had been erected. Their purpose was to strengthen the city's role as the seat of most of the new Israeli government and cultural institutions[3]. These include the Cultural Center (*Heichal Hatarbut*), the *Histadrut* Trade Union Building, the Jewish Agency Building, the Farmers' House, the Journalists' House, and more.

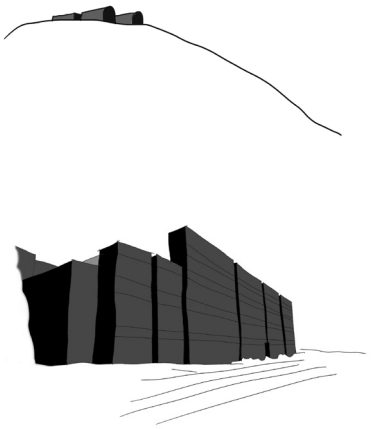
One municipal enterprise spearheading the strengthening of national educational infrastructures was the founding of the Tel-Aviv University campus in 1955. The campus was established to aggregate a number of research and higher education institutions active at that time in the city but dispersed throughout several buildings. The decision was made in those years to establish the university's permanent site on land which, prior to the War of Independence, had housed the Arab village of Sheikh Munis[4]. The campus master plan was designed by architects Werner Joseph Wittkower and Erich Baumann, with later collaboration with architects Dov Karmi, Nahum Salkind and Uriel Schiller, and landscape architects Lipa Yahalom and Dan Zur. The campus was inaugurated on November 4, 1964.

The university's master plan was integrated into the overall planning of the nearby neighborhood of Rama-Aviv, which was designed as a green residential neighborhood. The central idea informing the campus's planning was the model of a "university park" and autonomous faculty buildings in verdant surroundings, with each building one of a kind. In terms of its urban environment, the university's monumental entrance axis is a direct continuation of the boulevards branching off the sea, and it leads to the university's main plaza, surrounded by general university buildings[5]. The campus edifices were designed in a Brutalistic architecture style by the top architects of the time, revealing the genuineness of the material and the building technology. The architect Kahn was invited by the university to design the School of Mechanical Engineering, which at its completion became an architectural icon in Tel-Aviv.

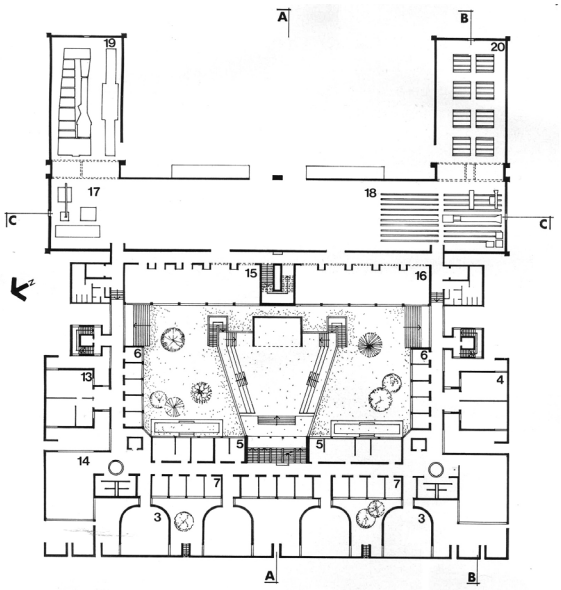
The building is located in the southeastern part of the campus[6], stretching along the campus's central inner promenade[7]. Its main façade facing the promenade is surprising in its monumental scale and restraint in design: it is a large exposed concrete wall with no windows. The only hint to the existence of a structure behind the walls is a series of vertical slots that indicate the presence of a modest entrance. The entrance and exit of the building create a powerful experience which arises due to the integration of the built-up

01 Tel Aviv University from Southeast, Israel, 1964. Aerial view of the university and the neighborhoods. © Tel Aviv University Archives: Department of Photography, 1988.

02 Louis Kahn, Wolfson School of Mechanical Engineering, Tel-Aviv-Yafo, Israel, 1974–1980. View from the Ayalon highway ("two tablets of stone"). © Sketch Jeremie Hoffmann, 2017.

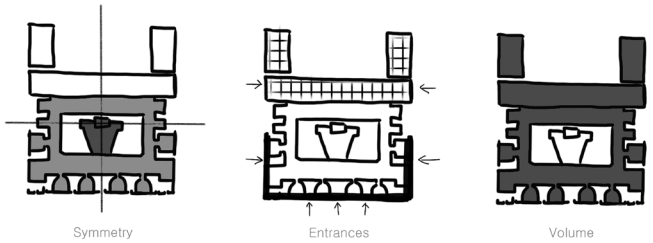


03 Louis Kahn, Wolfson School of Mechanical Engineering, Tel-Aviv-Yafo, Israel, 1974–1980. Main façade: slots indicating modest entrance. © Jeremie Hoffmann, 2017.



04 Louis Kahn, Wolfson School of Mechanical Engineering, Tel-Aviv-Yafo, Israel, 1974-1980. Typical floor. © *Architecture in Israel*, 1986.

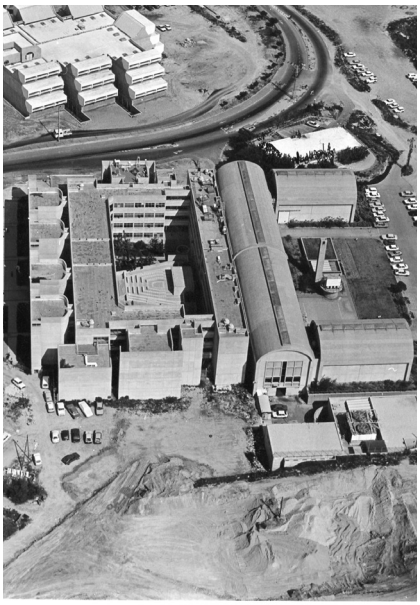
05 Louis Kahn, Wolfson School of Mechanical Engineering, Tel-Aviv-Yafo, Israel, 1974-1980. Main façade facing the university. © Tel Aviv University Archives: Department of Photography, early 1980s.



06 Louis Kahn, Wolfson School of Mechanical Engineering, Tel-Aviv-Yafo, Israel, 1974-1980. Schemes. © Sketch Jeremie Hoffmann, 2017.

07 Louis Kahn, Wolfson School of Mechanical Engineering, Tel-Aviv-Yafo, Israel, 1974-1980. Central vault in the laboratory space, with wing shaped light reflectors. © Tel Aviv University Archives: Department of Photography, early 1980s.

08 Louis Kahn, Wolfson School of Mechanical Engineering, Tel-Aviv-Yafo, Israel, 1974-1980. © Tel Aviv University Archives: Department of Photography, late 1980s.



masses and to the control over the framing of the views towards the environment.

The building is composed of two parts. The western part is a monolithic structure surrounding a courtyard and including classrooms spread throughout five stories. These classrooms are illuminated and ventilated with vertical ventilation shafts, like small inner courtyards. The eastern part of the building comprises three large laboratory spaces for the conducting of experiments. These vast empty spaces are roofed by correspondingly large concrete cycloid barrel vaults, lit at their extremities by cylindrical-shaped lighting slots emitting a soft, non-dazzling light. Additional illumination for the space is provided through an upper slit in the barrel vault ceiling, from which light is emitted directly onto wing-shaped light reflectors. The ceiling here serves as a large light diffuser, and emphasizes the sculpting of the space – similarly to the lighting units on the roof of the exhibition spaces in the Kimberley Art Museum in Texas, USA. The study rooms' central inner courtyard is designed as a hall whose roof serves as an amphitheater facing a stage, as an open-air gathering space for the school's population. This design is based on Kahn's principle of areas that receive service and areas that provide service, which are separated but simultaneously interconnected in order that the service may be provided with maximum flexibility[8]. The structures are connected to each other by a supply artery via round "nostrils" inside and outside the building, which concentrate the plumbing to provide services in all parts of the building and provide a source of fresh air and a passageway for the air conditioning pipe system[9].

The entrance to the building contains a gradual transition between the campus's open landscape space and the inside of the building. Likewise, between the dedicated areas (classrooms, labs, etc.), there are intermediate spaces. Regarding the latter, Kahn's architectural collaborators on this project note in an article: "These spaces represent the essence of Kahn's concept of 'transition'. These serve as a continuation of interior spaces for rest and retreat, places of silence and light"[10].

The building's interior and exterior finish materials remain exposed and in their natural hues, and the concrete expression is emphasized in the façades through treatment of castings connections. The exposed concrete in various configurations in the building's two sections, including a differing reference to light, illustrates the material's virtuoso capacity.

Prior to the building's erection, the Faculty was dispersed in temporary buildings throughout the campus, and the Wolfson Building was the first to house the Faculty of Engineering. After Kahn concluded his design[11] there were many delays in the clearing of the designated land, followed by a national war bringing another schedule setback. It was only in 1974 that the preparation for construction finally got going; the building was completed in 1980, six years after Kahn's death[12].

In his lifetime, Kahn designed several buildings featuring Jewish or Zionist content[13]. In Israel, he drew up a design for a monumental new building – the "Hurva" synagogue, a rebuilding of the original synagogue, a very significant structure destroyed during the fall of Jerusalem's Jewish Quarter in the Old City in the War of Independence[14]. Kahn was also invited by a group of leading young Israeli architects to participate in the planning of a new industrial city in the desert, "The Besor City". His architectural heritage gave rise to great interest and professional admiration in Israel[15].

Yet, notwithstanding these ties to Israel and the ongoing connections he forged with the country's leaders after the State's establishment, Kahn's designs were never actualized in Israel, with the sole exception of the Wolfson Building for Mechanical Engineering at Tel-Aviv University. It can therefore indeed boast of being the only Kahn-designed building ever to be erected in Israel.

Notes

1 The building was designed in cooperation with local architects Joseph Mochly and Ilan Eldar.
2 Zvi Efrat, *The Israeli Project: Building and Architecture 1948-1973*, Tel-Aviv, Tel-Aviv Museum of Art, 2004, 26.
3 Jeremie Hoffmann and Hadas Nevo-Goldberst, *Aphoria – Architecture of Independence, the Brutalist Style in Tel-Aviv-Yafo, 1948-1976*, Tel-Aviv-Yafo, Architectural and Landscape Heritage Research Center, Haifa, The Faculty of Architecture and Town Planning, The Technion, 2017, 29.
4 *Id.*, 145.
5 Moshe Atzmon, "Master Plan 1980, Tel-Aviv University", *Architecture in Israel*, 1986, Tel-Aviv, Tel-Aviv University, 1986, 4-7.
6 The southern part of the university was physically detached from the campus in the original design. A number of plans were prepared for this area, among them by architects Louis Kahn, Joseph Mochly, and Ilan Eldar. See *id.*, 5 (in Hebrew).
7 The secondary main axis in the University's design is the South-North axis which encompasses the lab-intensive faculties.
8 Harry Frank, *Aleph Aleph. Monthly Review of Israel Institute of Architects, Association of Engineers and Architects in Israel*, Booklet 4, Israel, April 1974.
9 Dagan Mochly, "Wolfson Building of Mechanical Engineering, Tel-Aviv University", *Architecture in Israel*, 1986, Tel-Aviv, Tel-Aviv University, 1986, 17.
10 *Id.*
11 On his final visit to Israel, Louis Kahn confirmed models for the construction of the building. From the Tel-Aviv University Archives, photocopy of file 900.0138/10.
12 From the Tel-Aviv University Archives, file 900.809/4.
13 Susan G. Solomon, *Louis I. Kahn's Trenton Jewish Community Center,* New York, Princeton Architectural Press, 2000, 153.
14 "The building is considered one of the most monumental buildings of the 20th century", Zvi Efrat, *op. cit.*, 488.
15 *Id.*, 804.

References

ATZMON, Moshe, "Master Plan 1980, Tel-Aviv University", *Architecture in Israel*, 1986, Tel-Aviv-Yafo, Tel-Aviv University, 1986, 4-7.

EFRAT, Zvi, *The Israeli Project: Building and Architecture 1948-1973*, Tel-Aviv, Tel-Aviv Museum of Art, 2004.

FRANK, Harry, *Aleph Aleph. Monthly Review of Israel Institute of Architects, Association of Engineers and Architects in Israel*, Booklet 4, Israel, April 1974.

HOFFMANN, Jeremie, NEVO–GOLDBERST, Hadas, *Aphoria – Architecture of Independence, the Brutalist Style in Tel-Aviv-Yafo, 1948-1976*, Tel-Aviv-Yafo, Architectural and Landscape Heritage Research Center, The Faculty of Architecture and Town Planning, The Technion, 2017.

MOCHLY, Dagan, "Wolfson Building of Mechanical Engineering, Tel-Aviv University", *Architecture in Israel*, Tel-Aviv, Tel-Aviv University, 1986, 17.

SOLOMON, Susan G., *Louis I. Kahn's Trenton Jewish Community Center,* New York, Princeton Architectural Press, 2000, 153.

TEL-AVIV UNIVERSITY ARCHIVES: Department of Photography, Tel-Aviv University, building files.

Jeremie Hoffmann

(b. France, 1967). Architect and PhD in History. Since 2005, director of Tel-Aviv-Yafo municipality's Conservation Department, and from 2015, of the White City Center's "Urban Conservation Lab". Guest lecturer at the Technion and The Bartlett, London. Author of *Aphoria – Architecture of Independence, the Brutalist Style in Tel-Aviv-Yafo, 1948-1976* (Bauhaus Center Tel Aviv, 2014).

Hadas Nevo-Goldberst

(b. Israel, 1972). B. Arch. Since 2009, Tel-Aviv-Yafo municipality's Conservation Department. Since 2013, has been researching Brutalist architecture in Tel-Aviv-Yafo. Author of *Aphoria – Architecture of Independence, the Brutalist Style in Tel-Aviv-Yafo, 1948-1976* (Bauhaus Center Tel Aviv, 2014).