MODERNISM
IN AFRICA

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MODERNISM IN AFRICA

THE ARCHITECTURE OF ANGOLA · GHANA · MOZAMBIQUE · NIGERIA · RWANDA · SOUTH AFRICA · SUDAN · TANZANIA · UGANDA

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DOCOMOMO
INTERNATIONAL

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PREFACE

Since 1990, Docomomo International has dedicated its efforts to the documentation and conservation of buildings, sites and neighbourhoods of the Modern Movement worldwide. The organization was founded in 1988 in Eindhoven and the name stands for International Working Party for Documentation and Conservation of Buildings, Sites and Neighbourhoods of the Modern Movement. Consisting of 80 national working parties (chapters), the NGO is present in all continents to bring the significance of modern architecture to the attention of the public, the authorities, professionals and the educational community, and to oppose destruction and disfigurement of significant works. Main activity and basis for this goal is the identification and surveying of the works of the Modern Movement, and thereafter the development and promotion of appropriate techniques and methods of conservation and adaptive (re)use. Many collective publications on the national and international level bear witness to these efforts.

Still, more attention and activity is needed on the African continent. Despite the foundation of national working parties in Morocco (2007), Egypt (2010), South Africa (2010), Angola (2013), Sudan (2018), the Accra Chapter in Ghana (2019) and Tunisia (2022), the architecture of the Modern Movement is far from being systematically documented. The current and past chairs of Docomomo International have implanted several research initiatives and projects between 2010 and 2023 to shed light on particular areas, typologies or architects in African countries – as did some of the authors in this volume within their professional and academic contexts. Main funds were received from German, Portuguese and British institutions.

Starting point of this publication was the international project Shared Heritage Africa: Rediscovering Masterpieces, coordinated by Docomomo Germany and funded by the Federal Foreign Office of Germany (AA) from 2021 to 2023 (AZ99210073). The project focused on rediscovering post-war modern buildings from the 1950s until the 1980s in the partnering countries Ghana, Nigeria, Uganda and Rwanda. This period of independence from colonial rule by the United Kingdom (Ghana 1957, Nigeria 1960 and Uganda 1962) and by Belgium (Rwanda 1962), had a great socio-political significance and influence on the educational systems and buildings. The rediscovery of this heritage focused on exploring the values, challenges and opportunities through the eyes of their contemporary users, visually enhanced by photographer Jean Molitor. Shared Heritage Africa also celebrated projects that are situated at the periphery of the architectural discourse and have therefore been rarely documented, despite their social, economic and political significance.

Whilst this book has attempted to present a range of projects considering various aspects of modernism in all parts of Africa, the process of selection and curation has been varied and the focus is on Sub-Saharan Africa. For the contributions from Angola and Mozambique we are grateful for the sole authorship and curation of Ana Tostões and her team. This documentation was based on research supported by national funds through FCT – Portuguese Foundation for Science and Technology, I.P., within the research unit CiTUA (10.54499/UIDB/05703/2020) and the research project "EWV_Exchanging Worlds Visions: Modern Architecture in Lusophone Africa (1943–1974), Looking Through Brazilian Experience Established Since the 1930s", developed at Técnico – University of Lisbon (PTDC/AURAQI/103229/2008). We further invited the Docomomo national working parties of Sudan and South Africa to incorporate their contributions, and collaborated with independent researchers in the case of Tanzania. For Nigeria, the contributions were provided by the "Shared Heritage Project's" Fellows, exploring architectural history and photography. As with most of the countries included, it was impossible to fully represent the range or depth of modernist architectures from all of Nigeria; the choices are based on the locations of the Fellows in Western Nigeria. We are proud to have supported their early career endeavours in African architectural scholarship.

This publication highlights the importance of combined research and exploration through local workshops, including archival and documentary studies, scholarly writing and photography, exhibitions and "digital fellowships" using the internet for dissemination. Interviews and narratives were used to collect testimonies of contemporary users. It was essential to document not only historical aspects, but current physical, cosmological and environmental traces: deterioration (technical, functional, social), maintenance and upkeep, sense of identity, community and place attachment, ownership and appropriation, and, finally, quality and sustainability of spaces, as well as conditions of comfort and satisfaction.

The written, visual and digital documentation of the built cultural heritage of Africa is a prerequisite for sustainable urban and social development. The approach builds upon African and international Docomomo initiatives and identifies students and young professionals as important groups to evolve social, cultural and political awareness and to further advance participatory tools. We fully realise that this publication presents but a small selection but hope with subsequent editions this can be re-considered.

Uta Pottgiesser, Delft
Ana Tostões, Lisbon
Ola Uduku, Liverpool
December 2024

UTA POTTGIESSER, OLA UDUKU

EDUCATIONAL BUILDINGS IN AFRICA: A MODERNIST REVIEW

The year 1945 was not only associated with the end of the Second World War, but also marked a turning point in many ways. The United Nations was founded in the aftermath of the war, and with it the *pax universal* which initially sought to foster peace and development to all nations, particularly the poorest and those most affected by war and natural disasters. The significant differences in politics and development approaches would eventually lead, however, to the Cold War. For African countries, 1945 and subsequent post-war years were a time of significant cultural and physical transformation leading to the breaking of colonial ties and emergence of self-rule.[1] The 1950s brought the first wave of independence, comprising Libya (1951); Sudan, Morocco and Tunisia (1956); Ghana (1957) and Guinea (1958). By the 1960s, most Sub-Saharan countries had gained independence. Nineteen countries did so in 1960 and a further fifteen in the following years, including Tanzania and Uganda (1961), and Rwanda in (1962). The third phase of African independence took place in the 1970s and included the Lusophone countries of Angola and Mozambique in 1975. In the 1980s, Eritrea, Namibia and Zimbabwe all became independent. Finally, South Africa entered its post-apartheid era of majority rule in 1994.

In this essay, we aim to shed light on the historical interconnectedness of architectural programmes and designs in a number of African countries. The selection was guided by the research and documentation of Docomomo International and its national working parties over recent decades but could in principle also apply to other contexts. As Elshahed (2023, p. 274) points out, “place, or the ‘national’, is insufficient for framing the complete stories of such works of architecture”. This statement demonstrates that modernism is region-situated, “multifocal and networked; and its production does not conform to the historiographic of the West and ‘the rest’”.[2] The modernist period in Africa emerged at a critical period of the continent’s independence history. The significance of the socio-political ambitions of Africa’s Pan-African leaders such as Ghana’s Kwame Nkrumah, Egypt’s Gamel Nasser and Tanzania’s Julius Nyerere set the context for much of continent’s embrace of development ambitions in education, health and mass housing, leading to the international development-aid-funded infrastructure projects of the 1960s and 1970s.

Whilst the emergence of post-war architecture in West Africa was initially mostly covered by architectural journals in the 1950s and 1960s such as *The Architectural Review* and *L’Architecture d’Aujourd’hui*, over the last twenty years there has been significant scholarly writing on this region by Tzonis et al. (2001), Le Roux (2003), Folkers (2010), Jackson and Holland (2014), Elleh (2017) or Tosland (2024), amongst others. Also a series of exhibitions have been staged which have focused on African contemporary and modern architecture and architects from the 2000s, among them Ola Uduku and Hannah Le Roux’s show *AA in Africa – The Modern Movement in West Africa* (Architectural Association, London, 2003), Manuel Herz et al.’s *African Modernism: Architecture of Independence* (Vitra Design Museum, Weil am Rhein, 2015) and *Tropical Modernism: Architecture and Independence* (V&A, London, 2024).

Despite African modernism being an area of considerable research currency in the 2020s compared with decades past, there remain relatively few publications on the subject. Furthermore, the publications that do exist tend to have been written by non-indigenous scholars who, despite rigorous scholarship in the subject area, often espouse views from a Western socio-philosophical perspective and not necessarily from a point of view informed by the local context. *Docomomo Journals* have repeatedly published themed issues that include contributions from Africa.[3]

More recently, a younger, local generation of architects, writers and photographers have provided fresh commentaries and views on African architecture and on architectural education. This has been through writing workshops and other forums which have encouraged new viewpoints that this volume seeks to promote (Toye, 2023). Despite the efforts of Docomomo[4] and other organisations in Africa, accessible archives, documentations or even online inventories on African modern architecture remain extremely rare. Other initiatives such as ArchiAfrika and aamatters.nl have had successful conferences but have been unable to document, publicise and share this knowledge with a wider African audience (Altintas Kaptan et al., 2023).

Considering educational buildings and infrastructure specifically, they have been a key driver of development in Africa. From the post-war school-building programmes set up in the Gold Coast (later Ghana) beginning in the late 1940s to the post-independence, internationally aided projects from the 1960s onwards, this move from colonial and missionary education to education available for all was exemplified in the school-building programmes found throughout the continent from the late 1940s through to the 1970s. This essay will therefore highlight the results of these programmes, reflected in many buildings for primary and higher education, often of exceptional quality. These building activities often became catalysts for architectural education in Africa and subsequently gave rise to architectural research by African initiatives.

Fry and Drew's schools, built in Ghana from the late 1940s to the 1950s, were part of the departing colonial government's gift to the Gold Coast but also tapped into Nkrumah's vision of free education for Ghanaians to aid development. As Udo Kultermann noted, "the basic schooling of the African – as well as the education of his teachers – ranks before all economic, political, military and other considerations. Elementary and technical schools, teacher's colleges, and universities are thus the primary tasks of building in the new nations" (Kultermann, 1969, p. 25). Kim De Raedt (2012) and Ola Uduku (2003; 2015) showed how the UNESCO-IDA schools projects from the 1950s onwards contributed to funding the design of school classrooms across Sub-Saharan Africa from Sudan to Senegal while schemes in East Africa benefitted from Scandinavian investment.

Accordingly, our essay will take a closer look at the specific educational policies and architectural projects in West, East and Southern Africa and also include North African examples in the comparison of general architectural design developments and of educational buildings in particular.

MULTI-FOCAL DESIGN DEVELOPMENTS AND PHASES IN THE AFRICAN REGIONS

Tropical Architecture by definition has a wide contextual background and range of origins across different parts of the African continent. The climate-responsive design approach was much favoured by the Western-trained architects and their collaborators in British West Africa, as elaborated by Tostões about the work of Fry and Drew and Koenigsberger (pp. 33–37). Their work resulted in several architectural icons including, for example, the schools funded through the colonial government's national school-building programme for the Gold Coast (Ghana), among them Fry and Drew's Prempeh (1949)[5] and Adisadel Colleges (1950) and, similarly, tertiary education infrastructure like the University College Ibadan (from 1961 on the University of Ibadan) Master Plan and its iconic Main Library (later Kenneth Dike Library) by Fry and Drew, 1955. Whilst this initial post-war modernist approach might have set the scene for post-mission or colonial-inspired architecture of the early 20th century, later versions and

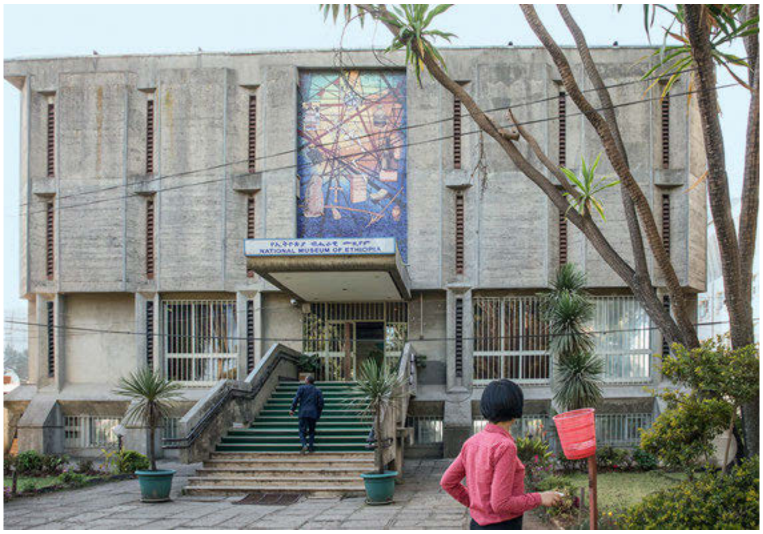
◄ Karl H. Nøstvik, Kenyatta International Convention Centre (KICC), Central Business District, Nairobi, Kenya, 1967–1973.

variations on this climate-responsive or – as Alexander Tzonis and Liane Lefaivre would later call it – "Tropical Regionalism" would soon emerge. From Arieh Sharon and A. A. Egbor's Obafemi Awolowo University (1961–1981) in Ile-Ife, Nigeria (pp. 245–259), to the works of Francophone architects such as Guillaume Koffi's Banque centrale des États de l'Afrique de l'Ouest (BCEAO) from 1994 in Abidjan and Pierre Goudiaby Atepa's (1947–) ATEPA Group Headquarters (1975) in Dakar, both commercial medium-rise buildings in Côte d'Ivoire and Senegal.

The second wave of post-independence architecture, from the late 1960s onwards, showcases more Brutalist structures, in keeping with global trends. There is a dominance of precast concrete, plus a plethora of architects and project-management companies from diverse countries, such as the National Theatre for the 2nd African Festival of Arts and Culture (FESTAC) delivered by the Bulgarian consortium Technoplatz in 1977 (Stanek, 2020) for the Nigerian Federal Government, and the central-area buildings i.e. the Main Library (pp. 240–244), the Faculty of Sciences (pp. 266–268) and the Senate House (pp. 269–273) at the University of Lagos by a consortium of architects including Robert S. McMillan, Godwin and Hopwood Architects, James Cubitt & Partners and others. Further, the Kwame Nkrumah University of Science and Technology (KNUST) campus master plan and Engineering Building 1951–1967, designed by the architects James Cubitt and Kenneth Scott must be mentioned and also the Senior Staff Club house designed in 1964 by John Owusu-Addo, Niksa Ciko and Miro Marasovic (pp. 140–143).

Crossing to Eastern Africa, it is interesting to take a closer look at Kenya, Uganda and Tanzania. Whilst expatriate architects, particularly Scandinavians, did contribute to the emerging modernist landscape – featuring, for instance, Nairobi's iconic skyline skyscraper, the Kenyatta International Convention Centre (KICC), 1967–1973, by Karl H. Nøstvik (1925–1992) – and were involved in various school-building programmes, there were also locally born architects. One example is the pioneering Dorothy Hughes (1910–1987), who designed the Catholic Cathedral in Nairobi in 1960 and the much-remembered "Flying saucer" Nightclub in the 1960s. Also notable is the architect Beda Amuli's (1938–2016) design of the Kariakoo Market (1972–1974) (pp. 364–367) in Dar es Salaam, and the comparable design and roof construction of the Wakulima Market in Nairobi by the Nairobi Town Council Public Works Department already in 1965. In Uganda, there are the Makerere (pp. 374–376; 377–381) and Kyambogo Campuses (pp. 385–389), both designed by Peatfield & Bodgener Architects. Their key buildings broadly align with the second-wave Brutalism found in West African architectural design of the same era, such as the campus layout and design ensembles at the University of Lagos and Obafemi Awolowo University in Ile-Ife.

In Eastern Africa, Uganda was also the location of German architect Ernst May's few commissions in Africa. These included the extension to the Uganda National Museum in Kampala in 1954. The late Ugandan architect Doreen Adengo (1976–2022) began an ambitious documentation of significant architectural buildings in Kampala but this project was never fully realised due to her demise. However, it resulted in one of the few conservation management plans (CMP) for a modern building in Africa for the Uganda National Museum (2021). Similarly, Kenyan modernist architecture had been written about by Sharp (1983). Workshops and exhibitions as part of the Shared Heritage Africa project in Uganda and Rwanda undertook research in 2023 on both Kampala and Kigali landmark buildings such as the Mulago Hospital (1962), National Theatre (Peatfield & Bodgener Architects, 1959) and the International Conference Centre with the adjacent Nile Hotel (designed and built in 1971–1973 by Ener-



▲ Cezar Lăzărescu, National Assembly of Sudan, Khartoum, Sudan, 1972–1978.

▶ Gashaw Beza Tesfamichel, National Museum of Ethiopia – NME, Addis Ababa, Ethiopia, 1978–1981.

goprojekt, based in Tito's Yugoslavia as part of Uganda reaching out to the Non-Aligned Movement) in Kampala. In Rwanda, it has also enabled the appraisal of the contemporary Norrsken Kigali House, which is a refurbishment and adaptive reuse of the old Belgian School in Kigali (pp. 278–281), and the Hôtel des Mille Collines (pp. 282–283) in Kigali, as featured in the film *Hotel Rwanda* (2004) was researched and documented.

Case-study examples from Docomomo contributors from Sudan and Ethiopia identify further Eastern European and Chinese influences being apparent in public buildings like the Friendship Hall (pp. 336–339) designed by a collaboration with a Chinese construction consortium and designed by Wang Dingzeng and the Shanghai Institute of Civic Architecture. Also involved in the design and construction of the National Assembly of Sudan (1972–1978) was the Romanian architect Cezar Lăzărescu (1923–1986) who combined Soviet Brutalist styles with machine aesthetics reminiscent of classical temple architecture. Furthermore, the National Museum of Ethiopia – NME (1978–1981), designed by Ethiopian architect Gashaw Beza Tesfamichel, combines classical proportion and typology with a Brutalist concrete appearance.

Going farther south, Lusophone architecture also has a varied history. Originally, there were strong links to the colonial power, Portugal, where most of both Mozambique and Angola's architects were born or emigrated from to begin their architectural careers in Africa. The connection of Mozambique to South Africa through trade, culture, education, and political resistance and opposition are also apparent. There has been a significant body of writing on Lusophone architecture by expatriate authors. In addition, the programmes run by Tostões et al. to develop local young scholarship and commentary on Lusophone modernism resulted in research from a more regional perspective.

THE SITUATION IN THE MAGHREB, LIBYA AND EGYPT

Although North Africa is not the focus of this book, we deem it important to highlight a few developments that can be compared with and contrasted to those in the Sub-Saharan countries. For Northwest Africa, or the Maghreb, the evolution of modern architecture has close ties with the developments in Southern Europe, in particular France, Spain and Italy, across the Mediterranean. Meanwhile in Egypt, British and American architectural influences were more significant due to the nation's history of power politics and economics related to Anglophone and Francophone nations. In contrast, the North African countries Morocco, Algeria and Tunisia, formerly firmly linked to France, are characterised by their modernist "New Towns" ("Villes Nouvelles"), established in the early 20th century (Écochard, 1955). In most cases, they were located next to the historical Arabic-Muslim city (the *medina*) – e.g. in Rabat, Casablanca, Marrakesh, Fez, Tangier, Tunis or Constantine – and demonstrated Europe-

◀ Fernand Pouillon, new town Diar el Mahçoul, Algiers, Algeria, 1953–1955.

▼ Paul Herbé and Jean Le Couteur, Cathédrale du Sacré-Cœur d'Alger, Algiers, Algeria, 1956, exterior and interior view.

an styles and aesthetic principles such as Art Deco and streamline modernism, often fused with vernacular elements. Bouadjadja and Mazouz stated that, for example, the new town in Setif (1930–1962) "like other Algerian cities has even been a real testing ground of the Modern Movement, when the French public has displayed resistance by opposing innovation and change" (Bouadjadja and Mazouz, 2015, p. 86). This also accounts for the large, fortress-like, colonial, social-housing project, Climat de France (Oued Koriche) built 1954–1957 or the new town of Diar el Mahçoul (1953–1955) above Algiers, both designed by the French architect Fernand Pouillon (1912–1986).

For these Islamic cities south of the Sahara, including Kano, Kaduna, and as far south as Dakar, the similarities in their planning approach is that, in each case, the old city often remains Arab-Muslim dominated in its architectural features, often with walls, whilst the new city is built to be separate from these traditional areas. This cultural tradition remained within modern designs by planners such as Max Lock's Kaduna master plan (1966) and the 1862 Laparde Dakar master plan (Bignon and Hart, 2018)

Also, higher education remained more directly linked to France, where the elites of post-colonial countries often attended, for instance, the Sorbonne in Paris and no immediate move to develop local universities at the same time was undertaken as was the case in Anglophone countries.

After independence in Morocco and Tunisia (1956) and in Algeria (1962), significant Brutalist projects were realised. An early example is the Cathédrale du Sacré-Cœur d'Alger (Sacred Heart Cathedral) in Algiers from 1956 by French architects Paul Herbé (1903–1963) and Jean Le Couteur (1916–2010), which is completely constructed of concrete slabs and shells in expressionist shapes and recalls famous projects such as Oscar Niemeyer's cathedral in Brasília or Frederick Gibberd's Catholic cathedral in Liverpool.

In Morocco, relevant architects like Jean-François Zevaco (1916–2003), Elie Azagury (1918–2009), Abdeslem Faraoui (1928–2004) and Patrice De Mazières (1930–2020), Henri Tastemain (1922–2012) and Eliane Castelnau (1923–) or Mourad Ben Embarek (1933–2011) were all educated in France and many of them also

◀ Henri Tastemain and Eliane Castelnau, Faculty of Sciences, University Sidi Mohamed Ben Abdellah, Fes-Dhar El Mehraz, Morocco, 1978.

▶ Jean François Zevaco, Ouarzazate Teachers´ College, Ouarzazate, Morocco, 1961.

▼ Henri Tastemain, Faculty of Sciences, Cadi Ayyad University, Marrakesh, Morocco, 1976–1978.

amassed work experience in other European and African countries. French architect and urban planner Michel Écochard (1905–1985), director of the Department of Urban Planning of French Morocco from 1946 to 1952, in the early 1950s also founded the Groupe des Architectes Modernes Marocains (GAMMA) that initially included the international architects Georges Candilis, Alexis Josic and Shadrach Woods who worked in Morocco. Écochard invited GAMMA to design densified and collective housing, and experimented with vernacular modernism, for example in the housing projects Nid d'Abeille (1951–1952) and Carrières Centrales (1952–1953). After independence, more Moroccan architects joined and Elie Azagury continued to lead GAMMA. Mourad Ben Embarek was the first Moroccan to join the Moroccan Administration of Urban Planning and Housing responsible for the reconstruction of the city of Agadir after the 1960 earthquake that destroyed 80 percent of the city.

Common to many Sub-Saharan countries, post-colonial projects were reflecting the optimism and visions of the new nations and sometimes included vernacular techniques and local cultures, resulting in bold architectural statements of public buildings and services, among them the health-care centre Délégation de la Santé (1968–1969) in Agadir by Elie Azagury or the Post Sorting Center (1979, today Post Office and Commercial Building) by Abdeslem Faraoui and Patrice de Mazières in Casablanca. The Martyrs' Memorial (1981–1982) above Algiers near Diar el Mahçoul, designed by Algerian painter and architect Bachir Yellès (1921–2022), calligrapher Abdelhamid Skander and the Polish sculptor Marian Adam Konieczny (1930–2017), was built on the occasion of the 20th anni-


▲ Bachir Yellès, Abdelhamid Skander and Marian Adam Konieczny, Martyrs' Memorial, Algiers, Algeria, 1981–1982.

▼ Aimé Krief, École Normale Supérieur (ENS), Tunis, Tunisia, 1959–1963.

▼ Bernard Zehrfuss and Mohamed Taeib Haddad, Faculty of Sciences, Cité Universitaire de Tunis, Tunisia, 1962–1969.


versary of Algeria's independence and symbolises the struggle for independence.

In North Africa, Morocco is home to the University of Al Quaraouiyine in Fez, which was founded as a mosque in 859 CE and continued as spiritual and educational centre (*madrasah* or *madrasa*) before it became part of Morocco's modern state-university system in 1963. The majority of schools and universities were built after independence, between 1956 and 1986, often combining Brutalist language with climate-responsive design for dry, arid regions incorporating courtyards and shading. Architects Henri Tastemain and Eliane Castelnau, both educated at the École des Beaux Arts in Paris, practised in Rabat from 1951, respectively, and 1956 onwards and were involved in the design of several university buildings.

The first university created after Tunisia's independence was the École Normale Supérieure (ENS) founded in October 1956 and officially established in 1958. The new building was designed by architect Aimé Gaston Krief (1911–1997) and constructed from 1959 to 1963. He also designed the Faculty of Medicine in Sousse from 1974 to 1981. A major event in Tunisia's history was the construction of a university campus (Cité Universitaire de Tunis) with faculties and research institutes of different disciplines. This vast complex solved the problem of training personnel in almost every branch of science, culture and the country's national economy in general. A 300-hectare site in the northwestern suburbs of Tunis had been earmarked for this major university complex. The Cité Univer-

◄ Oscar Niemeyer, University of Science and Technology Houari Boumedienne, Algiers, Algeria, 1969–1974 (today abandoned).

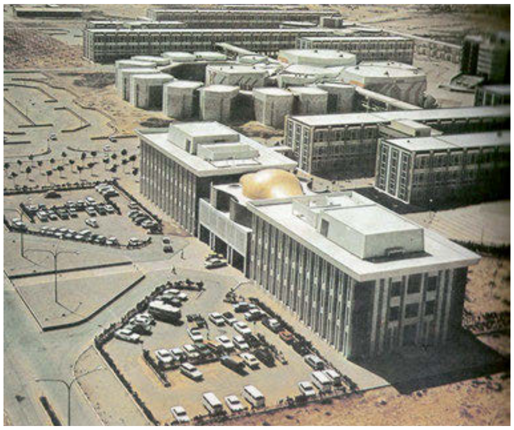
▲ Oscar Niemeyer, Sports Hall La Cupole, University of Mentouri, Constantine, Algeria, 1969–1972.

sitaire de Tunis comprises the Faculty of Sciences, Faculty of Letters and Humanities, and the Faculty of Law and Political and Economic Sciences. Designed by architects Bernard Zehrfuss (1911–1996) and Mohamed Taeib Haddad (operations architect) from 1962 to 1969, the Faculty of Sciences of Tunis (FST) became the first nucleus of higher scientific education in independent Tunisia. The Faculty of Law and Economic and Political Sciences of Tunis was designed and built by Luciano Bertoli, Sami Belkhir and Mohamed Taeib Haddad from 1974 to 1977. Further schools and faculties followed. Already before and around the post-war reconstruction after 1945, Bernard Zehrfuss' team of architects built several buildings for higher education like the Higher School of Agriculture of Mograne (1947–1952) designed by architect Jean Pierre Ventre (1913–1979) and described by Gharbi and Derbel (2023).

In Algeria, the education system was still exclusive and limited to a small colonial elite until independence in 1962. Educational reforms concentrated on the "Arabisation" of the curriculum like in other North African countries, and only in 1971 did a basic nine-year school education become mandatory. Consequently, there was a lack of local academics and also of architects. One of the first Algerian architects was Abderrahmane Bouchama (1910–1985), today considered the father of modern Algerian architecture who also became the founder and first president of the Algerian Union of Architects. Under his leadership, several international architects were commissioned with large-scale projects, among them Kenzo Tange, who elaborated a master plan for the University of Oran in 1971: a largely low-rise complex with some higher landmark buildings that included a university hospital and dormitories. In 1976, he also designed the School of Architecture and Urban Planning and was later assigned to other significant projects in Algeria, e.g. the Women's Dormitory at the University of Constantine.

The second Algerian Government under socialist president Houari Boumedienne invited the Brazilian architect Oscar Niemeyer, who had left Brazil for Paris in 1967, to design two new universities in the major cities of Algiers and Constantine. From 1969 to 1975 the University of Science and Technology Houari Boumedienne in Algiers (1969–1974) and the University of Mentouri in Constantine (1969–1972) were designed and built. Both campuses are characterised by Brutalist language and a Niemeyerian play of objects in space exemplified by the iconic, dome-like sports hall in Constantine called La Cupole and reminding us of many other Niemeyer buildings in Brazil. The campuses comprise dormitories and are fully equipped with other facilities following the model of the Cité Universitaire similar to the approach in Tunis.

After independence in 1951, the first university in Libya was established in 1955 as University of Libya, Benghazi, with campuses in Benghazi and Tripoli. It was "not solely intended as the University of Benghazi and for Benghazi area but the King's vision was intended that the maiden university would be a national hub, which evolved to the University of Tripoli, established under a specific decree in



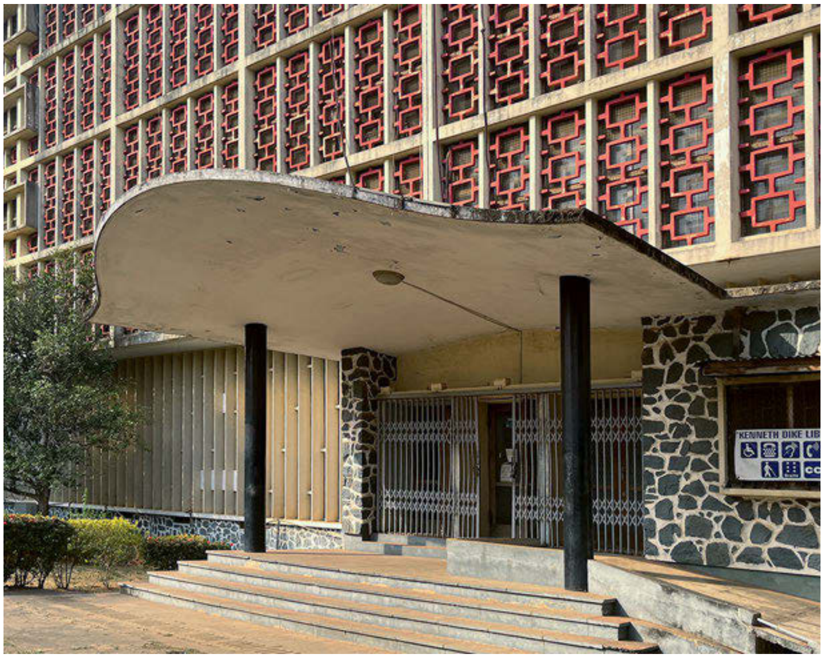
◀ James Cubitt and Partners, University of Benghazi (former Garyounis University), Benghazi, Libya, 1977.

▼ Science Building, American University in Cairo (AUC) City Campus, Cairo, Egypt, 1966 (today demolished).

▼ Hugh Newell Jacobsen, Main Library, AUC Greek Campus, Cairo, Egypt, 1981.

1973" (Elkhouly et al., 2021, p. 53). The discovery of crude oil in the late 1950s contributed to the development, within the first two decades of independence, the establishment of the University of Libya and the Garyounis University of Benghazi (later University of Benghazi). The latter was designed by James Cubitt and Partners from 1964 to 1977. In 1964, James Cubitt, Fello Atkinson and Partners were assigned the master plan and design of the new university at Benghazi, and a college of advanced technology in Tripoli. The first phase of construction works started in 1966 with three faculty buildings (Arts, Economics and Law), the university library with a capacity for 3,000 readers, the administrative building and the central services-complex buildings. In late 1973, the student hostels, central kitchens and dining halls, and also the Faculty of Science and Engineering, were added.

Primary education in Egypt had already been made compulsory by law in 1923 with the Kingdom of Egypt. After the revolution in 1953, the new President Nasser established new education policies and the School Premises State Foundation (SPSF), which was responsible for 372 new schools completed across Egypt for the years 1954–1955. They remained in place until 1992, when many of them failed to withstand the force of that year's earthquake (Elshahed and Makar, 2019). Similarly to Morocco, higher education has a long tradition in Egypt with the Al-Azhar University originating from an Islamic study centre around 970 and formally established as a public university in 1961. The Cairo University was founded in 1908 under British rule and became a state university twice in 1925 and again in 1954, both focusing on the Arabic language. The American University in Cairo (AUC) had been founded in 1919 by Protestant missionaries aiming to provide a Western higher education in the English language; they also admitted the first female students in 1928. AUC started in the city centre and in 1964 extended to the so-called Greek Campus, which hosted some modern buildings, e.g. the Hill House and the Science Building, constructed in 1953 and 1966, and the Main Library (1974–1981) by the architects' firm of Hugh Newell Jacobsen. Since 2013, the Greek Campus has been transformed into Egypt's first technology park.



◄ Fry, Drew & Partners, Presbyterian Teacher Training College, Amedzofe, Ghana, 1953.

▲ Fry, Drew & Partners, Main Library (later Kenneth Dike Library), University of Ibadan, Ibadan, Nigeria, 1955.

EDUCATION AND NATION-BUILDING

Access to formal education has long been considered essential to progress by people in Africa. The design and building of educational institutions were thus an important part of the post-war modernism construction boom on the African continent (and around the world), coinciding with post-independence nation-building. From the 1940s through to the early 1970s, ambitious nations from Algeria to Zimbabwe invested in universities and higher-education buildings as both literal and figurative centres of intellectual advancement for their nations' youth in that jubilant era of self-rule and freedom from colonisation.

More than half a century later, these edifices born of hope and expectation have generally stood the test of time and remain recognisable features in many African cities and landscapes. How these structures have fared architecturally and how they have been adapted or incorporated into contemporary life varies by country, institution and socio-political context – an important subject to be studied. As the provision of educational buildings is still important to African nations and is part of global sustainable development goals, what better time to revisit the institutions purpose-built in a time of exuberance and whose relevance remains critical to the development of Africa's best and most brilliant young minds?

Educational institutions, particularly universities and other higher-education establishments built in Africa from the late 1940s to the 1970s, have been instances of shared social, political, cultural, economic and architectural heritage. That is the case specifically for tertiary-education institutions because "universities were crucial institutions in decolonizing nations" (Livsey, 2017, p. 2) and served as catalysts for technological development. The construction of higher-education institutions in the second half of the 20th century demonstrated some continuities in historical trajectories, such as the positioning of Western education in "ivory towers" separate from existing African contexts (Uduku, 2018). Additionally, many European architects from different countries and for various reasons came to Africa to build and teach architecture (Intsiful, 2016; Stanek, 2020). Yet, disruptions were also evident in the

▲ Peatfield & Bodgener Architects, School of Special Needs (UNISE), Kyambogo University, Kampala, Uganda, 1993.

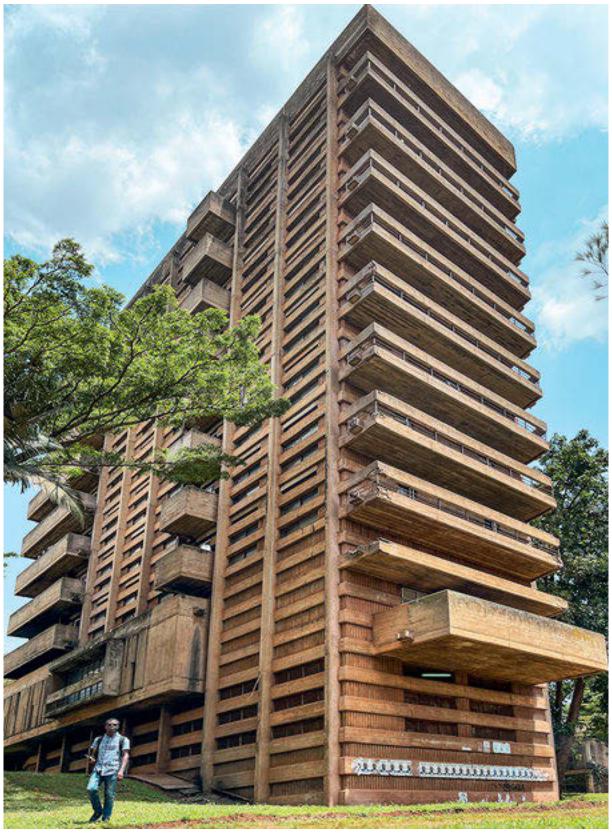
increasing number of African and Black diaspora architects creating and studying architecture in this era of independence (Uduku, 2008; 2018), many of whom were working and studying in the margins and peripheries of their national contexts. This architectural heritage has come to be shared through interactions – including coercion, co-option and cooperation – between various African countries, former colonial powers and current socio-economic partners.

During the 1950s and 1960s, Nigeria's higher-education sector expanded over a relatively short period in response to demographic pressures. In 1948, there was only one university-level institution in the country, the University College Ibadan, which was originally an affiliate of the University of London, similarly to Makerere University College in Kampala (1949) and the University of Khartoum (1947). By 1962, directly after independence, the number of state universities had already increased to five: the University of Ibadan, the University of Ife, the University of Nigeria, Ahmadu Bello University and the University of Lagos. They were further extended with new faculties from the 1960s onwards, for example the Faculty of Sciences (pp. 266–268) of the University of Lagos (1979) by Godwin and Hopwood Architects (Godwin and Hopwood, 2012; Akinsemoyin and Vaughan-Richards, 1977).

Architects James Cubitt and Partners were active in many African countries with the master plan for the University of Nigeria Nsukka (1960) and university buildings including the School of Engineering (1953–1956) at the Kumasi College of Technology, Ghana (becoming Kwame Nkrumah University of Science and Technology – KNUST). Later, they designed the School of Architecture, Town Planning and Building in Kumasi in 1957, as well as in the 1970s the University of Benghazi in Libya.

In 1956, the year of independence, Sudan established the University of Khartoum. And in 1963, the University of East Africa with branches in Nairobi, Kampala and Dar es Salaam was established shortly after the independence of Kenya, Uganda and Tanzania. In 1970, this federated university split into three separate national institutions: University of Nairobi, Kenya; Makerere University, Uganda; and the University of Dar es Salaam, Tanzania.

The case was different in Rwanda and Burundi, being first under German and after 1919 Belgian colonial rule. Direct control over education meant that most schools were owned by the Catholic and Protestant Churches



▲ Peatfield & Bodgener Architects, Mary Stuart Hall of Residence Extension, Makerere University, Kampala, Uganda, 1972.

▶ School in Addis Ababa, Ethiopia.

▶ Student Residence, Addis Ababa, Ethiopia.

with few government-owned universities or higher colleges. In Burundi, all education was provided by religious mission until 1954 and was restricted to primary grades even though the country's only public university was already opened in 1960. Despite Rwanda's independence in 1962, the University of Kigali was established only decades later in 2013. Ethiopia, as Africa's only not directly colonised[6] nation did not have to deal with colonial educational ambitions, and in 1950 Ethiopia's first higher-education institution, Addis Ababa University, was established with other higher colleges, staffed largely by expatriate academics up until the 1970s, when the higher-education system became "Ethiopianized".

Angola and Mozambique are distinct from most African countries in their educational development, as they remained Portuguese colonies until 1975. Furthermore, even in Portugal, compulsory public education was only successfully established after the mid-1960s, which resulted in increasing numbers of educational buildings in the metropole and the two colonies. The educational model was adapted to the two colonies and slowly reached the African population, which was mainly educated in Roman Catholic and Protestant missions before the 1960s, as was the case in Rwanda; access to secondary education was still limited for the African population and ethnicities in the 1970s. Only in 1962, whilst still under colonial rule, were the first two universities founded in Angola and Mozambique under the names of Estudos Gerais Universitários de Angola and the Estudos Gerais Universitários de Moçambique.

Both were renamed in 1968 to University of Luanda in Angola and to University of Lourenço Marques (Maputo) in

▲ Vasco Vieira da Costa, Pio XII Institute (now Institute of Religious Sciences of Angola), Luanda, Angola, 1968.

Mozambique. After independence in 1975, both institutions continued as Agostinho Neto University (UAN) and Eduardo Mondlane University (UEM), named after the first president of Angola and after the leader of the Mozambican Liberation Front (FRELIMO). Only later, in the 1980s and 1990s, with greater demand for local higher education, were further universities opened.

Educational buildings in Angola and Mozambique in particular, like those in West and East Africa, followed the principles of climate-responsive design to ensure environmental efficiency: this included the use of brise soleil as sun-shading devices, natural ventilation and rainwater reticulation for grey-water uses. Furthermore, single banked classrooms incorporating wide, open corridors; balconies; and courtyards for both circulation and also shade and cooling, were the design principles used in many school and university buildings and student residences. One example of this are the gridded massive façade structures, used as external shading devices for the outer layer of buildings, providing passive cooling and also a unique aesthetic.

In summary, one can say that educational buildings from the 1950s to the 1980s are evidence of ambitious programmes and periods across the continent, with often similar architectural typologies and features that aptly signify and demonstrate universal values.

ARCHITECTURAL EDUCATION AND AFRICAN ARCHITECTURE?

Architectural education in Sub-Saharan Africa was first established in South Africa at the University of the Witwatersrand (Wits), Johannesburg in 1921, and at the University of Cape Town (UCT) in 1922, both as colonial programmes providing locally trained architects for rapidly growing White cities and private clients. Many scholars from Eastern and Southern African countries historically went to South Africa to study and obtain academic degrees, as its higher institutions had Colonial government accreditation. This was also the case in the disciplines of architecture and planning, particularly at professional practice registration level. Later, in 1952, the Nigerian College of Arts, Science & Technology in Ibadan, and in 1956 the Royal Technical College in Nairobi developed curricula and programmes in planning and building. The first Schools of Architecture, Town Planning and Building were established in Kumasi, Ghana and the University of Khartoum in Sudan, in 1957 (Olweny, 2020; Low, 2014). The inaugural dean in Kumasi, John Lloyd, noted that the new faculty "if it is to truly contribute to the future of the [African] continent, must drastically redefine anew the task of an 'architect'" (Stanek and Uduku, 2017, p. 16).

From our review we have shown that despite the vast size of the African continent, the difference in regional

◀ Faculty of Engineering, University of Nairobi (UoN), Main Campus, Nairobi, Kenya, c. 1960–1961.

climate conditions, history and culture, post-Second World War educational development in Africa had recognisably similar trajectories, which were similar also to most nations globally at the end of the war. The architectural typologies of these buildings, from schools to universities, showcase different phases of international modernism: the University of Ibadan master plan; higher-education buildings in Eastern and Southern Africa, including the federated East African Higher College campus in Nairobi commencing from the 1960s; and university campuses at Witwatersrand, Pretoria (pp. 294–299) and Cape Town (pp. 312–315). These are similar in design styling to early International Style medium-rise office buildings across Africa – from Lagos and Dakar, to Kampala and Nairobi, and also from Casablanca and Cairo to Johannesburg and Cape Town. These incorporate climate-responsive design principles including the incorporation of brise-soleils, orientation for cross-ventilation and the sourcing and use of local materials such as stonework, local timber-stabilised earth and brick construction.

Similarly, from the late 1950s onwards, primary and secondary schools throughout the continent benefitted from significant investment from the International Development Association/World Bank, UNESCO and aid NGOs. This is evident in school-building programmes in North, East and West Africa, and also South Africa through its links to the building-research-centres network across Commonwealth countries.

This first wave of international education design focused on climate-responsive design and also cultural or regional practices, allowing in some cases for the adoption of courtyard design as found in traditional architecture. At the university level, campuses were developed that promoted the recognition of cultural art and space use; examples of this are apparent in the Obafemi Awolowo University (OAU) of Ile-Ife and the University of Lagos (UNILAG). The conceptualisation of the university as a full campus incorporating a residential university community with facilities for staff members and their families, providing primary and secondary schools, sports clubs community centres and libraries, is exemplified by the KNUST campus in Kumasi and the Universities of Ibadan, Zaria and Nigeria. These campus-style institutions all, due to their distance from existing towns and the availability of large campus land areas, were designed as comparatively large, independent, self-sufficient and contained communities far from other urban centres.

The second, later phase of African modernism, i.e. from the late 1970s onwards, is best illustrated by tertiary-education design in the University of Lagos central-area campus with the 1962 Main Library (pp. 240–244), main hall and engineering blocks; the later student hostel

▲ Rute Bota, Gago Coutinho High School (now Nampula Secondary School), Nampula, Mozambique, 1969–1970.

blocks at Makerere University; and the 1970s infrastructure at University of South Africa (UNISA) and University of the Western Cape (UWC) campuses in South Africa. This second-phase modernism, incorporated the use of prefabrication and high-grade concrete construction, as was the case globally since concrete became the material of choice. It also relied on interior environmental comfort being provided by large air-conditioning systems, which took precedence over cross-ventilation and the earlier, regional climate-design aesthetics that were replaced by global Brutalist façades. However, this dependency on mechanical cooling systems, and artificial lighting systems for deep-plan auditoria and other facilities, has made this second-phase modernism ultimately less sustainable and particularly problematic in responding to the planetary climate crisis conditions that have to be confronted today.

At a conservation level, too, the need to learn from the past and involve younger architectural historians is crucial. Docomomo International and other architectural NGOs can support this by enabling local architects to engage and understand the modernist history of their educational buildings and the architects, both indigenous and international, who were central to this. Knowledge is power, and sharing this continentally through organisations such as Docomomo, ICOMOS and others that have coverage across Africa allows for south–south sharing of knowledge and good practice. It also ensures that African states join global alliances promoting conservation and the understanding of architectural histories. Importantly, it gives nations the agency to press for conservation and recording of contemporary modern architecture.

Berlanda states that architectural education is still very much linked to former colonial countries, since "across 13 English speaking countries in Sub-Saharan Africa, the reference model for validating a professional architectural

This text is based on the research undertaken as part of the project Shared Heritage Africa. Rediscovering Modern Masterpieces (FK AZ99210073). It took place between 2021 and 2023 with different African and European partners and was coordinated by Docomomo Germany (https://sha.architectuul.com) and funded by the German Federal Foreign Office). First results have been published in a special issue of the *Docomomo Journal* in 2023 with the title "Shared Heritage Africa" (https://doi.org/10.52200/docomomo.69).

degree is still today the one set forth in the so called 'Green Book' by the Commonwealth Association of Architects" (Berlanda, 2017, p. 71). He even joins Wilkinson in his argument "that University itself is one of the oldest surviving institutions in the Western world. It has colonised the globe, its architecture reflecting the prevailing ideology – of which it is the reproductive machinery" (Wilkinson, 2015, p. 37). At the same time, Olweny claims that "creative ways of collecting/gathering the necessary material for investigation were required" (Olweny, 2023, p. 4) and there is a need for new ways of constructing knowledge as proposed by Lubell and Ruiz (2023) in *Fugitive Archives*. Also, Toye's essay titled "Examining the Recorded Histories of Nigeria's First Post-Independence Universities" (Toye, 2023) draws from her ongoing research on Nigeria's historic universities of the 1960s to reflect on the myriad silenced and excluded sources in mainstream historical records about the founding and construction of higher-education institutions in Nigeria.

Government and international funding for higher education in West Africa has enabled the University of Ghana to refurbish and preserve its campus, and also parts of KNUST (Ghana) and sections of the Universities of Ibadan and Lagos (Nigeria), but not necessarily considering key modernist details. A conservation management plan (CMP) for the Faculty of Humanities of the Obafemi Awolowo University (OAU) had been finalised in 2023, the first one for an African university campus.

We believe that Africa's historical engagement with architectural modernism shows that, as the Pan-Africanist post-war African leaders from across the continent declared in 1948, there still remains more that unites the continent than divides it.

1 There are only a few exceptions: Ethiopia (never colonised) and Liberia (1847), initially settled by returnee African-American emancipated enslaved persons.

2 Fraser, M. and Gregg, C. (March 5, 2021). "Rewritten Banister Fletcher Embraces the Modern World." *The Riba Journal*, Intelligence, President's Awards for Research. https://www.ribaj.com/intelligence/global-perspectives-on-architectural-history-banister-fletcher-president-s- awards-for-research

3 *Docomomo Journal*, 28 (2003) ("Modern Heritage in Africa"), https://docomomo-journal.com/index.php/journal/issue/view/72; *Docomomo Journal*, 48 (2013) ("Modern Africa, Tropical Architecture"), https://doi.org/10.52200/48.I.J4XTEGOK; *Docomomo Journal*, 63 (2020) ("Tropical Architecture in the Modern Diaspora"), https://doi.org/10.52200/63.I.NS41N2DG; *Docomomo Journal*, 69 (2023) ("Shared Heritage Africa").

4 Workshop initiatives have helped with the creation of new chapters of Docomomo across Africa: Docomomo South Africa (2010), Docomomo Angola (2013), Docomomo Sudan (2018) and the Accra Chapter in Ghana (2019). North Africa is also represented by national chapters in Morocco (2007), Egypt (2010) and Tunisia (2022) to document and protect the architecture of the Modern Movement.

5 See "Prempeh College Kumasi", In: Manuel Herz et al. (2015). *African Modernism: The Architecture of Independence. Ghana, Senegal, Côte d'Ivoire, Kenya, Zambia.* Zurich: Park Books, pp. 126–129.

6 After the Second Italo-Ethiopian War, Fascist Italy occupied parts of Ethiopia in 1936. In 1941, Ethiopia was liberated from Italian control by Allied forces in the East African Campaign and Emperor Haile Selassie returned to the throne.

COUNTRIES

ANGOLA

Has a population of 34.5 million and an area of 1,247,000 km².
The climate is arid in one part of the country and equatorial in the other.
The capital is Luanda with a population of 8 million.

Key dates

1575: Portuguese establish settlements in Angola.
1885: Angola becomes a Portuguese colony.
1910: Fall of Portugese monarchy.
1961–1974: Portuguese Colonial War.
1975: Angola gains independence from Portugal.
1975–2002: Civil War.

GHANA

Has a population of 33.48 million and an area of 238,533 km².
The climate is equatorial with a dry winter.
The capital is Accra with a population of 284,000.

Key dates

1471: The Portuguese arrive on the Gold Coast.
1874: The British take control of the Gold Coast.
1957: Under Kwame Nkrumah, Ghana becomes the first Sub-Saharan African country to gain independence from colonial rule.
1966: Nkrumah is overthrown in a military coup.
1981: Flight Lieutenant Jerry Rawlings seizes power in a coup d'état.
1992: Ghana adopts a new constitution and returns to multi-party democracy.
2000: John Agyekum Kufuor becomes president, marking the first peaceful transfer of power in Ghana between democratically elected governments.
2007: Ghana discovers significant offshore oil reserves, boosting the economy.

MOZAMBIQUE

Has a population of 32.97 million and an area of 799,380 km².
Equatorial climate with a dry winter.
The capital is Maputo with a population of 1 million.

Key dates

1891: Mozambique becomes a Portuguese colony.
1964–1974: Mozambican War of Independence against Portuguese colonial rule.
1975: Mozambique gains independence from Portugal.
1977–1992: Civil war between the FRELIMO Government and the rebel group RENAMO.
1992: Signing of the peace agreement to end the civil war.
2004: Mozambique is declared free of landmines.
2019: Cyclone Idai hits Mozambique and wreaks havoc.

NIGERIA

Has a population of 236.7 million and an area of 923,768 km².

The climate varies from equatorial in the south, tropical in the centre, to arid in the north.

The capital is Abuja, with a population of around 3.84 million. Other major cities include Lagos (15.95 million), Kano (4.35 million) and Ibadan (3.88 million).

Key dates

1960: Nigeria gains independence from Britain.

1967–1970: Nigerian Civil War (Biafra War) breaks out, leading to significant casualties and a humanitarian crisis.

1979: Nigeria returns to civilian rule after years of military governance.

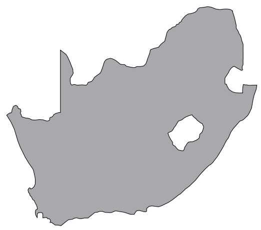
1999: Transition to the Fourth Republic marks the end of military rule, with the adoption of a new constitution.

2015: Nigeria experiences its first peaceful transfer of power between rival political parties.

2020: EndSARS protests erupt nationwide, demanding police reform and greater accountability.

2023: Bola Ahmed Tinubu is inaugurated as president, following a contested election.

SOUTH AFRICA



Has a population of 59.89 million and an area of 1,220,000 km².

Humid coastal climate at lower elevations and a dry interior climate.

The capitals are Cape Town (population 4.6 million), Pretoria (2.47 million), Bloemfontein (556,000).

Key dates

1652: Dutch East India Company establishes a supply station at Cape of Good Hope.

1806: British seize control of the Cape Colony from the Dutch.

1910: Union of South Africa formed.

1948: National Party implements apartheid, institutionalising racial segregation and discrimination.

1961: South Africa becomes a republic, leaving the Commonwealth.

1976: Soweto Uprising student-led protests for better education.

1990: Nelson Mandela is released from prison after 27 years.

1994: First democratic elections held; Nelson Mandela becomes president, marking the end of apartheid.

1996: New democratic constitution is adopted.

2010: South Africa hosts the FIFA World Cup, the first African nation to do so.

TANZANIA

Has a population of 65.5 million and an area of 945,087 km².

Equatorial climate with a dry winter and a cooler and arid zone in the centre.

The capital is Dodoma with a population of 765,000.

Key dates

c. 1000 CE: Swahili culture and city-states flourish along the coast, facilitating trade between Africa and the Middle East and Asia.

1498: Portuguese explorer Vasco da Gama reaches the Tanzanian coast.

1885: Germany establishes control over mainland Tanzania (then known as Tanganyika).

1919: Tanganyika becomes a British mandate after Germany‘s defeat in the First World War.

1961: Tanganyika gains independence from Britain.

1963: Zanzibar gains independence from British rule.

1964: Tanganyika and Zanzibar unite to form the United Republic of Tanzania.

RWANDA

Has a population of 13.78 million and an area of 26,338 km².

The climate is equatorial with a dry winter in the south and fully humid in the north.

The capital is Kigali with a population of 1.8 million.

Key dates

1884–1916: Rwanda is part of German East Africa.

1916: Belgian forces occupy Rwanda during the First World War.

1923: Rwanda becomes a Belgian mandate under the League of Nations.

1962: Rwanda gains independence from Belgium.

1990–1993: Rwandan Civil War between the Rwandan Government and the Rwandan Patriotic Front (RPF).

1994: Rwandan Genocide.

2018: Rwanda becomes a member of the Commonwealth of Nations.

SUDAN

Has a population of 46,87 million and an area of 1.886,000 km².

The climate is arid and dry in the north and rainier in the south.

The capital is Khartoum with a population of 6.5 million.

Key dates

1820s: Ottoman-Egyptian rule begins in Sudan.

1881–1899: Mahdist War against Ottoman-Egyptian rule; Sudan briefly gains independence under Mahdist rule.

1899: Anglo-Egyptian Condominium established, ruling Sudan jointly.

1956: Sudan gains independence from British-Egyptian control.

1983–2005: Second Sudanese Civil War between the Sudanese Government and the Sudan People‘s Liberation Army (SPLA).

2003: Conflict in Darfur begins, leading to a humanitarian crisis and accusations of genocide.

2011: South Sudan secedes from Sudan after a referendum, becoming an independent nation.

2019: Peaceful revolution overthrows the thirty-year regime of Omer El Bashir.

UGANDA

Has a population of 47.25 million and an area of 241,038 km².

The climate is arid with a dry winter in the north and fully humid in the south.

The capital is Kampala with a population of 1.5 million.

Key dates

1894: Uganda becomes a British protectorate.

1962: Uganda gains independence from Britain.

1971: General Idi Amin seizes power in a military coup, beginning a brutal regime.

1979: Idi Amin is overthrown by Tanzanian forces and Ugandan exiles.

1995: New constitution is adopted, establishing a multi-party political system.

2006: Uganda discovers significant oil reserves in the Albertine Graben region.

TYPOLOGIES

RESIDENTIAL AND HOSPITALITY


Prometheus Building (1953), Mozambique


Tonelli Building (1957), Mozambique


Smiling Lion Building (1958), Mozambique


A.B.A. House (1963), Tanzania


Prenda Neighbourhood Unit (1965), Angola


Meridian Hotel (1967), Ghana


State Officials Building (1968), Angola

COMMERCIAL AND ADMINISTRATIVE


Cirilo & Irmão Building (1953), Angola


Monteiro & Giro Ensemble (1960), Mozambique


Cocoa House (1964), Nigeria


Beira Railway Station (1966), Mozambique


Commercial Bank of Angola (1967), Angola


Mutamba Building (1969), Angola

CULTURE AND RELIGION


Majestic Cinema (1955), Tanzania


KNCU (1956), Tanzania


Manga Church (1957), Mozambique


Goan Club (1959), Tanzania


Miramar Open-Air Cinema (1959), Angola


Sudan National Museum (1960), Sudan


German Pavilion (1961), Sudan


Polana Church (1962), Mozambique

SCHOOLS AND KINDERGARTENS (PRIMARY/SECONDARY EDUCATION)


Pyramidal Kindergarten (1958), Mozambique


Quelimane Primary School (1960), Mozambique


Saurimo Elementary School (1961), Angola


Community Schools (1964), Ghana

UNIVERSITIES (HIGHER EDUCATION)


John Moffat Building, University of the Witwatersrand (1953), South Africa


Komfo Anokye Teaching Hospital (1954), Ghana


Aula and Rautenbach Hall, University of Pretoria (1958), South Africa


Examination Hall, University of Khartoum (1958), Sudan


Makerere University Library (1959), Uganda


Senior Staff Clubhouse, KNUST (1960), Ghana


New Mulago Hospital (1962), Uganda


Faculty of Agriculture, Obafemi Awolowo University, (1965), Nigeria

1953 **1955–1959** **1960–1964** **1965–1969**

1931 South Africa gains independence

1956 Sudan gains independence

1957 Ghana (former Gold Coast) gains independence

1960 Nigeria gains independence

1961 Tanganyika gains independence

1962 Uganda gains independence

1963 Zanzibar gains independence

1964 Tanganyika and Zanzibar unite to form Tanzania.


Mary Stuart Hall of Residence Extension (1972), Uganda


Hôtel des Mille Collines (1973), Rwanda


Entreposto Group Headquarters (1969), Mozambique


Mamprobi Post Office (1973), Ghana


Bookshop House (1973), Nigeria


Kariakoo Market (1974), Tanzania


Federal Secretariat Complex (1976), Nigeria


Embassy of Kuwait (1976), Sudan


Arab Bank for Economic Development in Africa (1980), Sudan


Main Library, UNILAG (1964), Nigeria


Bolgatanga Library (1965), Ghana


Central Library (1966), Tanzania


Rádio Nacional de Angola Building (1967), Angola


Quelimane Library (1969), Mozambique


Quelimane Cathedral (1974), Mozambique


Friendship Hall (1976), Sudan


École Belge (1965), Rwanda


Lobito High School (1970), Angola


Polana High School (1970), Mozambique


IWACU Training Centre (1984), Rwanda


Scully Dining Hall, University of KwaZulu-Natal (1965), South Africa


GAEC Clubhouse (1966), Ghana


Faculty of Social Sciences, Obafemi Awolowo University (1965), Nigeria


Faculty of Humanities, Obafemi Awolowo University (1966), Nigeria


Huambo Veterinary Academic Hospital (1974), Angola


Baxter Theatre, University of Cape Town (1977), South Africa


Faculty of Sciences, University of Lagos (1979), Nigeria


Senate House, University of Lagos (1985), Nigeria


Faculty of Education, Kyambogo University (1987), Uganda

1970–1979

1980–1987

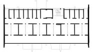
1975 Angola gains independence

1975 Mozambique gains independence

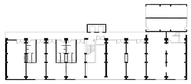
TYPOLOGIES

RESIDENTIAL AND HOSPITALITY

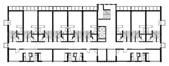
Prometheus Building (1953), Mozambique



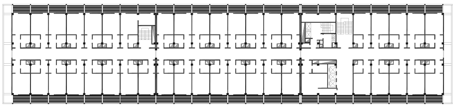
Tonelli Building (1957), Mozambique



Prenda Neighbourhood Unit (1965), Angola

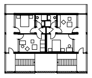


Meridian Hotel (1967), Ghana

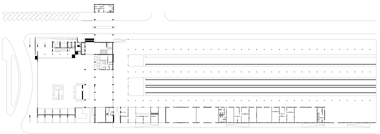


COMMERCIAL AND ADMINISTRATIVE

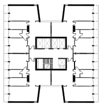
Monteiro & Giro Ensemble (1960), Mozambique



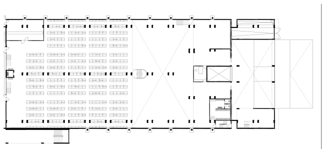
Beira Railway Station (1966), Mozambique



Commercial Bank of Angola (1967), Angola

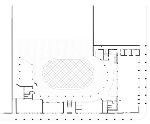


Entreposto Group Headquarters (1969), Mozambique

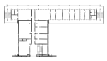


CULTURE AND RELIGION

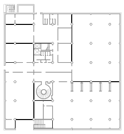
Goan Club (1959), Tanzania



Sudan National Museum (1960), Sudan

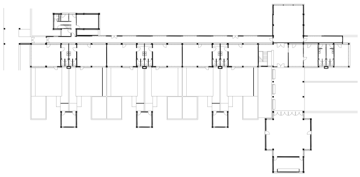


Main Library, University of Lagos (1964), Nigeria

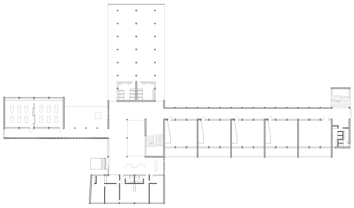


SCHOOLS AND KINDERGARTENS (PRIMARY EDUCATION)

Pyramidal Kindergarten (1958), Mozambique

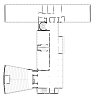


Saurimo Elementary School (1961), Angola

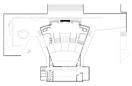


UNIVERSITIES (HIGHER EDUCATION)

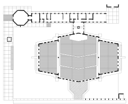
John Moffat Building, University of the Witwatersrand (1953), South Africa



Aula and Rautenbach Hall, University of Pretoria (1958), South Africa

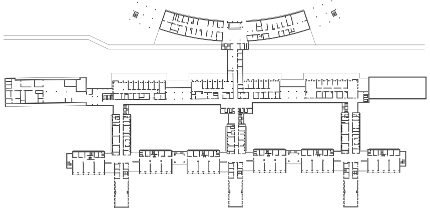


Examination Hall, University of Khartoum (1958), Sudan

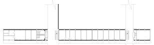


Senior Staff Clubhouse, KNUST (1960), Ghana

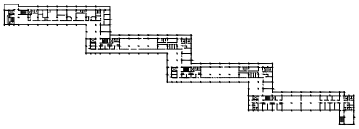
New Mulago Hospital (1962), Uganda



Faculty of Agriculture, Obafemi Awolowo University (1965), Nigeria



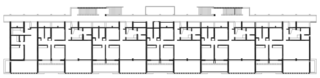
Komfo Anokye Teaching Hospital (1954), Ghana



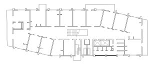
1945 **1950** **1955** **1960**

1:2000

State Officials Building (1968), Angola



Mary Stuart Hall of Residence Extension (1972), Uganda



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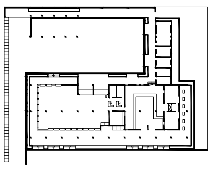
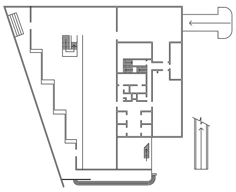
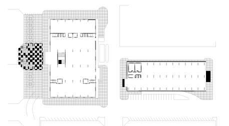
Mamprobi Post Office (1973), Ghana



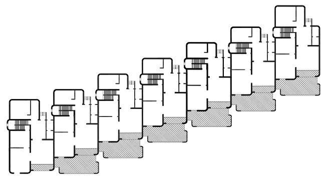
Bookshop House (1973), Nigeria



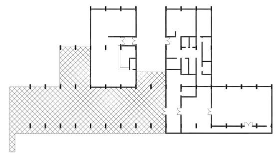
Kariakoo Market (1974), Tanzania



Embassy of Kuwait (1976), Sudan



Arab Bank for Economic Development in Africa (1980), Sudan



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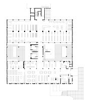
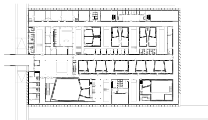
Bolgatanga Library (1965), Ghana

Central Library (1966), Tanzania



Rádio Nacional de Angola Building (1967), Angola



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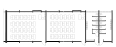
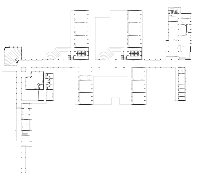
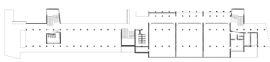
Tema Community Schools (1964), Ghana



Polana High School (1970), Mozambique



Lobito High School (1970), Angola



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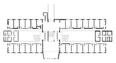
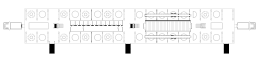
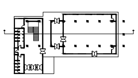
John Bews of Residence, University of KwaZulu-Natal (1964), South Africa



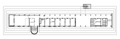
Faculty of Social Science, Obafemi Awolowo University (1965), Nigeria



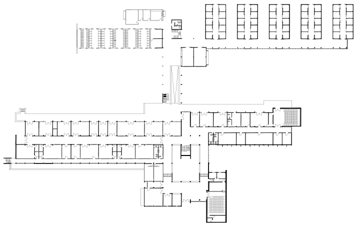
GAEC Clubhouse (1966), Ghana



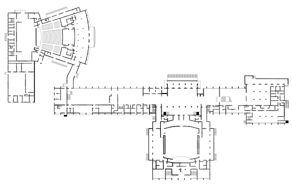
Faculty of Humanities, Obafemi Awolowo University (1966), Nigeria



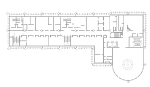
Veterinary Academic Hospital (1974), Angola



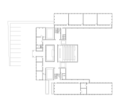
Friendship Hall (1976), Sudan



Senate House, University of Lagos (1985), Nigeria



Faculty of Education, Kyambogo University (1987), Uganda



1965 **1970** **1975** **1980** **1985**

EDUCATIONAL BUILDINGS

WEST AFRICA

Saurimo Elementary School (1961), Angola

Community Schools (1964), Ghana

Main Library, University of Lagos (1964), Nigeria

Senior Staff Clubhouse, KNUST (1964), Ghana

1948 University College Ibadan (Nigeria)
1948 University College Legon (Ghana)

1952 Kwame Nkrumah University of Science and Technology KNUST (Ghana)

1960 University of Nigeria, Nsukka, Nigeria

1961 University of Ibadan, Nigeria
1961 University of Ghana, Legon, Ghana

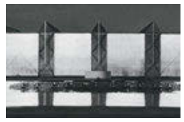
1962 University of Lagos, Nigeria
1962 Ahmadu Bello University, Zaria, Nigeria
1962 University of Ife (Obafemi Awolowo), Nigeria

1945 **1955** **1965**

EAST AFRICA

Examination Hal, University of Khartoum (1958), Sudan

Makerere University Library (1959), Uganda



German Pavilion (1961), Sudan

New Mulago Hospital (1962), Uganda

1947 University College Khartoum (Sudan)
1948 Institute of Teacher Education Kyambogo (ITEK), Uganda
1949 University College Makerere (Uganda)

1956 University of Khartoum (Sudan)
1958 Uganda Polytechnic Kyambogo (Uganda)

1963 University of East Africa (Kenya, Tanzania, Uganda)

1945 **1955** **1965**

SOUTHERN AFRICA

John Moffat Building, University of Pretoria (1953), South Africa

Aula and Rautenbach Hall, University of Pretoria (1958), South Africa

Pyramidal Kindergarten (1958), Mozambique

Quelimane Primary School (1960), Mozambique

1922, University of the Witwatersrand (South Africa)
1948 Expansion University of Pretoria (South Africa)

1959 University College of the Western Cape (South Africa) as "coloured college"

1945 **1955** **1965**

NORTH AFRICA

Ouarzazate Teachers´ College (1961), Morocco

1922 American University in Cairo (Egypt)

1956 University of Khartoum (Sudan)
1957 University of Mohammed V Rabat (Morocco)

1960 First Public University (Tunisia)

1945 **1955** **1965**

POLICIES

1949 Egypt: free and compulsory basic education
1951 Accelerated Development Plan for Education (ADPE)
1951 West African Examinations Council (WAEC)
1952 Ghana: first national school-building programme Gold Coast
1954 Egypt: Decree on Education and the School

1955 Libya: Royal Decree (Art. 1)
Egypt: Premises State Foundation (SPSF)
Mid-1950s Ghana: Ghana Library Board (GLB) Programme
Mid-1950s Nigeria: Universal Primary Education (UPE) Programme
1958 Ghana: second national school-building programme Gold Coast
1958 Tunisia: The Education Reform Law
1960s OECD: Ecumenical Education Programme (EEP)
1960 Morocco: The Institute for Studies and Research on Arabization
1961 Sudan: NESCO School Construction Bureau for Africa in Khartoum (USCBA)
1961 Ghana: free and compulsory basic education
1961 Western Nigeria: free primary-education policy

1945 **1955** **1965**

Faculty of Social Sciences, Obafemi Awolowo Univ. (1965), Nigeria

Faculty of Agriculture, Obafemi Awolowo Univ. (1965), Nigeria

Faculty of Humanities, Obafemi Awolowo Univ. (1966), Nigeria

Lobito High School (1970), Angola

Veterinary Academic Hospital (1974), Angola

Senate House, University of Lagos (1985), Nigeria

1975 1985

1975 1985

Mabel Palmer Hall, Univ. of KwaZulu-Natal (1966), South Africa

Polana High School (1970), Mozambique

Mary Stuart Hall, Makerere University (1972), Uganda

Baxter Theatre, University of Cape Town (1977), South Africa

Faculty of Education, Kyambogo University (1987), Uganda

1970 University of the Western Cape (South Africa) as “coloured university”

1975 1985

Egypt, American University in Cairo (1966), Cairo – Demolished

University Sidi Mohamed Ben Abdellah, Fes-Dhar El Mehraz (1960–1970), Morocco

University of Mentouri (1972), Algeria

University of Benghazi (1973), Libya

Rabat University (1974), Morocco

University of Science & Technology Houari Boumedienne (1974), Algeria

Cadi Ayyad University (1978), Morocco

1975 1985

1963 Algeria: Ministry of Education: Arabisation
1963 Morocco: free and compulsory basic education
1964 Eastern Nigeria: free primary-education policy
1966–1971 Nigeria: UNESCO School Building Programme

Mid-1970s Nigeria: Universal Primary Education (UPE) Programme
1975 Mozambique: Public Works Services of the Province with prototype projects
1981 Nigeria: Universal primary-education policy

1975 1985

ANA TOSTÕES

MODERNITY AND HYBRIDISM: DESIGNING WITH THE CLIMATE

Climate-responsive design has been a growing reality in the African regions from the 1950s. This has certainly been the case for Angola and Mozambique; these large territories of Sub-Saharan Africa testify to a significant development between the end of the Second World War and the Portuguese democratic revolution of April 24, 1974, which, in the following year, led to the political independence of these two African countries. Formal, technological and ideological quests for Modern Movement architecture emerged as a cultural stimulus linked to geographical and climatic specificities, and these promoted new expressions and scales. The adaptation to the local climate was based on architectural programmes and solutions apt to exploit the use of open spaces, using circulation galleries and introducing devices to maintain permanent air circulation and to control the admission of direct sunlight.

THE CASE OF ANGOLA AND MOZAMBIQUE

The Modern Movement was introduced on a large scale in Portuguese-speaking Africa after the end of the war. This modernist evolution took place in a context of hotly contested international politics, starting with the creation of the United Nations in 1945. The outbreak of the Portuguese Colonial War (fought in Angola, Guinea-Bissau and Mozambique, 1961–1974) and the late industrialisation of Portugal with its colonial territories were additional factors in this development. In particular the works developed between the end of the Second World War and the so-called Carnation Revolution of 1974, which marked the beginning of democratic life in Portugal and paved the way for the independence of Lusophone Africa, were informed by modernism.

The orientation of Portuguese colonial policy is best understood by considering the intense pressure placed on Portugal by the United Nations after 1945. As Udo Kultermann (1927–2013) stated, the events following the war, and especially the foundation of the United Nations in 1945, had intense reverberations in several parts of Africa. Among those who were advocating greater freedom were Kwame Nkrumah in Ghana, Leopold Sedar Senghor in Senegal and Julius Nyerere in East Africa. But it was the declaration of the United Nations and the subsequent ideology of the Cold War which had the strongest impact on the long-awaited independence of African states from their colonial rulers. Independence was achieved by Libya in 1952, Ghana in 1957, and in rapid succession, several other African states, such as Ivory Coast, Central African Republic, Nigeria, Congo, Gabon, Dahomey, Niger, Mauritania and Senegal all gained their independence in 1960, a highly significant year for Africa in general (Kultermann, Frampton, 2000). Trying to mitigate these circumstances while maintaining a paternalistic colonialism, the Portuguese dictatorship sought to create the idea of a kind of Lusitanian identity to relieve the diaspora; for this purpose, it adopted the term *Luso-tropicalism* coined by Gilberto Freyre (1900–1987), the renowned Brazilian sociologist.

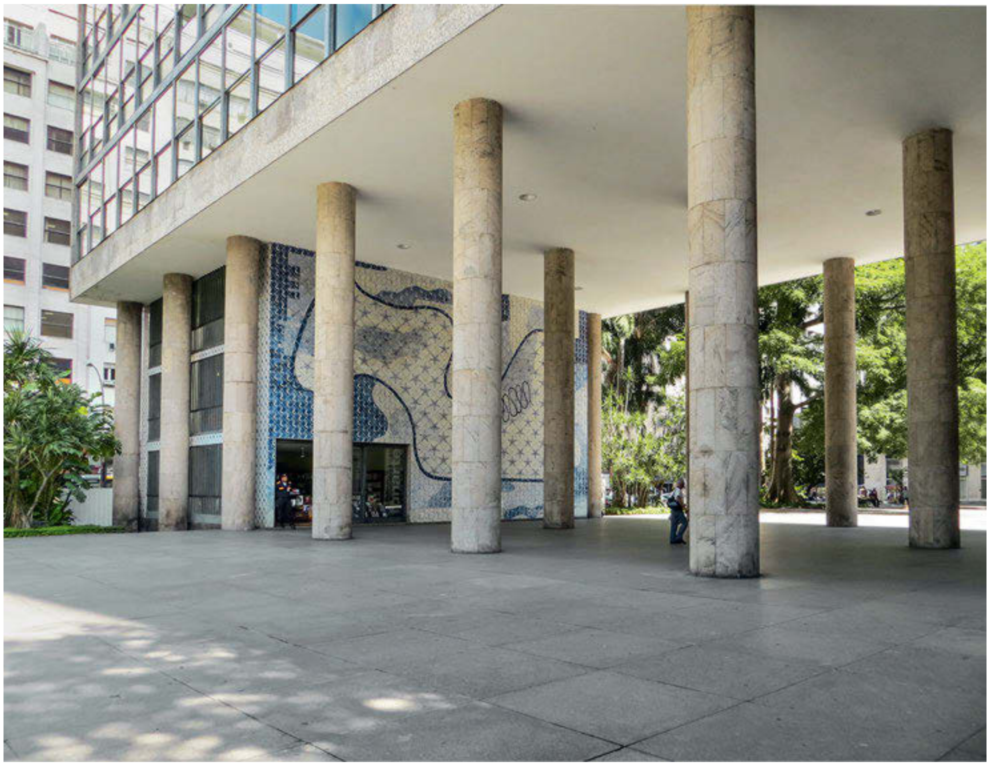
In the former Portuguese colonial territories, a focus on infrastructure was accompanied by a modern expression, which was reinvigorated by the Brazilian influence after the publication of *Brazil Builds* (Goodwin, Smith, 1943) and the widespread diffusion of South American works of architecture through internationally circulated architecture magazines, such as *L'architecture d'Aujourd'hui* and, in Portugal, *Arquitectura* and *Binário*. Throughout the 1950s, many architects who strongly believed in the transformative capacity of architecture and were inspired by the circumstances following the I National Congress of Architecture, in Lisbon, 1948 (Tostões, 2008), travelled to the African colonies, where architectural expression was freer than that practised in the Portuguese metropolis. African geographical and climatic conditions also generated different variations of the modern vocabulary, which acquired new scales and expressions (Tostões, 1997). The further away these territories were from the direct influence of central power, the more receptive they proved to be to the adoption of Modern Movement architecture. In a seemingly less restrictive society, architects found it was possible to build based on the universality of modern ideas. In the post-war climate of contestation, the relationship between architecture and revolution became clear to many, and modern architecture was seen as a way to fight against Salazar's Estado Novo totalitarian regime. It was also perceived as a responsible political commitment towards a healthy infrastructure in the territories and the resolution of housing problems. This period constituted an extraordinary challenge for the "African generation" (Fernandes, 2002) of Portuguese architects, who not only had the possibility to work according to a language founded on the progressive, egalitarian and universal discourse of modernity but also found themselves involved in large-scale projects. Encouraged by the vastness of the African landscape, these architects believed that they were building a new place, a new world that would fulfil the contemporary world. In the adventure of design and construction, in particular in building schools, they believed they could create a *modern utopia* in Africa.

Living in an atmosphere of architectural freedom and possibility, these were the years when Africa was a paradise for designers (Godwin, 2003), allowing women architects to take on significant roles, as exemplified by the pioneering Rute Bota (1930–) in Mozambique. In fact, the ideals of the Modern Movement spread as if architects were working in Africa as "good missionaries" (Folkers, 2010, p. 163), not only to foster colonial welfare but, in many cases, to support the new independent nations in the name of human progress and justice. It is important to understand this output within the African context, as part of a broader process of transformation. There was both a desire and an opportunity to work under sincere and progressive guidance by implementing pioneering work with strong social and urban significance within a twofold colonising framework of politics and architecture.

TOWARDS A CRITICAL TROPICALISM: BRAZIL AND THE EXPERIENCE OF THE MINISTRY OF EDUCATION AND PUBLIC HEALTH

Tzonis, Lefaivre and Stagno (2001) have argued that Tropical Modernism was traditionally regarded as the expression of an architecture adapted to the tropical climate. This school of thought includes the work during the colonial and immediate post-colonial periods of Otto Koenigsberger (1908–1999), Victor Olgyay (1910–1970), Jane Drew (1911–1996) and Maxwell Fry (1899–1987), all of whom were active as architects and urban planners in the field of climatic design but also influential as teachers and theorists. They considered a limited model with a narrow focus, where architecture was primarily seen in technical terms of solar shading and ventilation systems, without addressing broader issues such as the expression of cultural values, the place and the people. While tropical architecture emerged to respond to the challenges of colonialism and globalisation, architects faced the task of sustaining a sense of place and exploring strategies beyond climate concerns, embracing wider themes such as tradition, memory, community, technology and sustainability.

The emergence of new Brazilian architecture was a distinct moment in the modernisation process. With its emphasis on cultural roots, it exerted a major influence on the work of Portuguese architects in the post-war period in Portugal, particularly in the colonial territories of Angola and Mozambique.



▲ Lucio Costa et al., MESP Building (Gustavo Capanema Palace), Rio de Janeiro, Brazil, 1942.

With its definition in the late 1930s and dissemination during the subsequent decade, following the exhibition *Brazil Builds* at the Museum of Modern Art (MoMA) in New York in 1942, and the worldwide reach of its catalogue the following year, Brazilian modern architecture became part of a national strategy of modernisation. The affirmation of Brazilian culture was made not only through the thoughts of Gilberto Freyre (1900–1987), Sérgio Buarque de Holanda (1902–1982) and Caio Prado Jr. (1907–1990) but also in a more visible and recognisable manner through its new architecture, ideologically constructed between the old and new – thus becoming a symbol of national identity.

Lucio Costa (1902–1998) was the leading architect, an opinion-maker and man of action committed to this process, who developed a comprehensive strategy. Costa wanted to lay the foundations for the creation of a modern Brazilian architecture rooted in its traditional buildings. The creation of a National Historical and Artistic Heritage Service (SPHAN) in 1937, in which Lucio Costa was the director of the architecture department, came precisely at the moment when the strategic statement of modern Brazilian architecture emerged (Cavalcanti, 2009). Lucio Costa denounced the dichotomy between past and future as false, and announced a line of investigation focused on researching a history of architecture that was capable of articulating erudite and vernacular solutions in order to unravel the nature of colonial architecture. Part of this research was conducted in Portugal between 1949 and 1954 in a search for the roots of Brazil's architecture, and the observations made with Carlos Ramos (1897–1969) and Francisco Keil do Amaral (1910–1975) ultimately stimulated the survey on regional architecture in Portugal.[1]

Lucio Costa was a true admirer of modern architecture and particularly Le Corbusier. After briefly being director of the school of architecture of Rio de Janeiro, in 1935 he managed to convince the Minister of Education and Health, Gustavo Campanema (1900–1985) to cancel a competition for the ministry headquarters and to invite Le Corbusier to work on the new project with a group of architects of the modern generation. The ideas of Le Corbusier had enormous resonance not only among architects but also with Brazilian intellectuals. In fact, there was a clear affinity between the message of Le Corbusier and the ambitions of intellectuals linked to the Brazilian New State (Cavalcanti, 2010). The political and civic strategy of a fascist/modernist state was to "build the new man" while the message conveyed by Le Corbusier was embodied in the journal *L'Esprit Nouveau*, and in his essays on modernity, *Vers une Architecture* (1923). Regarding the construction of the headquarters of the Ministry of Education and Public Health (MESP), the political and cultural diversity addressed Brazilian concerns for a high quality of life in particular in the realms of health, culture and education.[2]

The MESP Building designed and built between 1936 and 1942 by Lucio Costa's team, which included Oscar Niemeyer (as an intern)[3] and with the consultancy of Le Corbusier, was the vehicle used in this revolution to construct a Brazilian nation. It embodied the search for a genuine cultural and artistic expression specific to Brazil, in a framework that sought to achieve a national identity through the means of progress and modernisation. For the Swiss master, who envisioned the world as a work in progress (Cohen, 2005), it provided an opportunity to fulfil the desire to build: "It is indispensable to create architectural works, large or small, but significant."[4]

The MESP addressed the need for a symbolic modern building, simultaneously becoming a metaphorical landmark. It was historic because it saw the first application of a continuous glass façade on a monumental scale. It was symbolic because, in a socially and technically underdeveloped country, it was built with a vision of the future. The building was completed in 1942, in time to be photographed by G. E. Kidder Smith (1913–1997) and published in *Brazil Builds*, and later gained wider circulation in the *Architectural Forum* of February 1943. It was classified by SPHAN five years later, in 1948, as national heritage, revealing this wonderful ambiguity between past and future.

Regarding the originality of its programme and form, construction and functional space, entirely different typologies were used to address the challenges of public buildings. Most notably, the three terraces developed at various levels, scenically created by Roberto Burle Marx (1909–1994), and the innovative use of brise-soleils proposed by Le Corbusier in his studies for Algiers and Barcelona in 1933. It became an icon of modernity, a worldwide symbol of progress and the universal scale achievable by the Modern Movement's architecture, serving as an ideological symbol of progress, efficiency, modern adventure, challenge and hope for a promising future. Form and space were orchestrated to emphasise a continuous visual experience developed through various platforms, stairs and ramps, promoting magnificent architectural promenades. The structural technique of independent building façades ensured a free plan, with curtain walls incorporating sun-protection systems to control light, while the floor was suspended between two robust volumes that intertwined gracefully. The influence of this work on Portuguese architects was profound and had significant implications for architectural production in Angola and Mozambique following the Second World War.

FROM BRAZIL TO CHANDIGARH AND ANGOLA

Although one could argue that what motivated Portuguese architects working in the African colonies was the great ideal of the Modern Movement, the truth is that

▲ Vasco Vieira da Costa, Association of the Natives of Angola (now Anangola Building), Luanda, Angola, 1963.

these ideas were significantly influenced by their experience with modern architecture in Brazil. Indeed, the methods required to manage the challenging conditions of warm climates were already evident in various architectural structures, particularly in the schools that these modern architects had constructed in Angola and Mozambique. The place and the weather proved to be sources of inspiration for the creation of inventive and effective control devices, while also serving as a catalyst for the development of a formally exuberant modern language, characterised by plasticity, volumes and dynamic effects of light and shade.

The climate adaptation programmes relied on architectural solutions aimed at optimising the use of outdoor spaces, utilising access galleries and circulation, and implementing sunlight-control devices such as the brise-soleil. These devices included fixed or removable, vertical or horizontal, or even prefabricated grids in materials like concrete or ceramics, akin to the Brazilian *combogó*.[5] The use of removable flap brise-soleils was first seen on the northern façade of MESP and was subsequently extensively adopted in public buildings in Chandigarh and Brasília, alongside other shading solutions. Angolan architect Vasco Vieira da Costa (1911–1982) took this concept further, as Le Corbusier did in the Palace of Justice in Chandigarh, by integrating the grid system with a visor concept. He designed numerous variations of large grids combined with fixed concrete shading flaps, thereby integrating solar protection and ventilation effectively (Caldas, 2011).

The term "tropical architecture" is often associated with Maxwell Fry and Jane Drew, largely due to the international impact of their publications Tropical *Architecture in the Humid Zone* (1956) followed by *Tropical Architecture* *in the Dry and Humid Zones* (1964). Their modern architectural approach was developed in Nigeria during the Second World War, where Fry and Drew served as advisors for the British Colonial Office's territorial development. Engaged in the theories of the Modern Movement, they participated in Congrès Internationaux d'Architecture Moderne (CIAM) and co-founded the MARS Group (Modern Architectural ReSearch) in 1933. They also facilitated a visit by Walter Gropius and Marcel Breuer to the UK. In Nigeria, they designed significant projects such as Ibadan University (1949–1960) and, in Ghana, St. Francis College (1950) and Adisadel College (1951). Diverging from European practices in African colonies, Fry and Drew pioneered a new architectural approach that came to be known as tropical architecture. Their work *Architecture in the Humid Tropics* aimed to collaborate with nature, "to fill a gap in general information for architects and town planners" (Fry, Drew, 1964, p. 7) and sought "to understand how to deal with the circumstances by which they were surrounded and invent what was necessary" (Fry, Drew, 1964, p. 18). They recognised "how invigorating it has been for us architects working in England to shake free from the crippling mental state brought about by too great a reverence for habits and customs which have outlasted their time" (Fry, Drew, 1964, p. 18). In the early 1950s, Fry and Drew collaborated with Le Corbusier and Pierre Jeanneret (1896–1967) on the construction of Chandigarh in Punjab. They played a pivotal role in advancing the concept of climate-responsive design. Their significant contribution was to elucidate, through widely circulated publications, the principles underlying Brazilian modern architecture and its formal responses. Emphasising an efficient approach rooted in Anglo-Saxon precision, they articulated technical and systematic design tools with sanitary requirements, establishing a paedagogical and methodological framework that resonated widely. This became associated with the creation of the course on "Tropical Architecture" at the Architectural Association (AA) in London in 1955, organised with Otto Koenigsberger (1908–1999) following a conference of the same name in 1954 (Kultermann, Frampton, 2000). The AA curriculum encompassed climatology, building materials, responsible climate design, health and hygiene.

Otto Koenigsberger was one of the pioneers in this process. Trained in the principles of modern architecture, he studied under Hans Poelzig (1869–1936) and Bruno Taut (1880–1938), from 1927 to 1931. His architectural thought and practice underwent a significant transformation when he went into exile in Mysore, India in 1933. In Mysore, he served as the chief architect of the state from 1939 to 1948 and later became the director of housing (1948 to 1951) for the Ministry of Health in the government of Jawaharlal Nehru (1889–1964). In 1951, Koenigsberger emigrated to London and joined the Department of Tropical Architecture at the AA, where he played a crucial role as director of the department from 1957 until its closure in 1971. He also worked with the United Nations Housing Missions and in 1970, he established the Development Planning Unit (DPU) at University College of London (UCL). His seminal work, *Manual of Tropical Housing and Building*, was published in 1974. More recently, Vandana Baweja has explored the topic, focusing on the sustainable use of resources and energy in tropical architecture. She theorises on climate-responsible architecture, advocating for energy-efficient practices and the use of local resources – thus linking architecture with tropical ecology. The emergence of environmentally aware architecture marked a significant shift, with proponents focusing on the responsible design and development of passive climate-control technologies. Notably, Hungarian twins Victor and Aladar Olgyay contributed greatly with their influential work, *Design with Climate: Bioclimatic Approach* *to Architectural Regionalism*, which had substantial transcontinental impact from 1963 onwards. The term "tropical architecture" serves as a bridge between colonial planning and modern architecture. Conferences held after 1950 played a crucial role in defining tropical architecture as a set of design principles aimed at climatic responsiveness. Initially associated primarily with hygiene, tropical architecture evolved into a discipline encompassing broader architectural considerations for tropical environments. In Portugal, authors such as Ruy Gomes (1967) and José Pacheco (1963), made significant contributions to adapting construction and buildings to tropical climates.

IN SEARCH OF A NEW AFRICAN ARCHITECTURE: THE WORK OF UDO KULTERMANN

Up to the beginning of the 1950s, critical essays on African architecture published by certain newspapers and magazines only showed French and British architectural output in African colonies.[6] This situation changed in 1956 when the couple Fry and Drew presented a cross-section of research work by other architects facing the modern African experience. Here, they concentrated on design experience focused on specific tools, creating a sort of case-study manual. From the start of the 1960s, the art historian Udo Kultermann became a seminal reference in the analysis of modern architecture in Africa thanks to his pioneering work *Neues Bauen in Afrika* (1963)[7] which analysed an area never previously studied by scholars. "For Kultermann the new African architecture could not just be the expression of a response to the climate factor, he called for a wider cultural approach" (Quintã, 2013, p. 5). As already acknowledged, 1960 seemed to be the "Year of Africa", coinciding with the peak of the beginning of the process of decolonising Africa. This followed the post-war situation and the creation of the United Nations in 1945, with the independence of seventeen countries and the beginning of rebellions leading to the end of colonial rule all over the continent.

Kultermann's approach, questioning the link between tradition and innovation in African architectural production, was unprecedented. Moved by the optimism of the early 1960s, he demonstrated the existence of an African architecture, believing that the new task was to build the new nations and that this would imply an evolution in African architecture.

In 1963, Udo Kultermann signalled that Africa was beginning to develop under new laws and that the world had started to view the "black" continent differently. While Leo Frobenius' (1873–1938) investigations had provided an understanding of ancient African culture, the focus had now shifted to the new culture emerging. With his 1963 work *Neues Bauen*, which compiled architectural works from across Africa, Kultermann aimed to prove the existence of African architecture – a concept that had been denied until then. He argued that architecture in Africa drew from a tradition thousands of years old and was now entering a completely new phase. Kultermann believed that only an architectural concept sensitive to experimentation with constructive forms could achieve the lightness, variability and permanence inherent in African architecture. "Twentieth-century European and American architecture follows a surprising path that has analogies with African architecture. Additionally, the general characteristics of Africa correspond to some concepts of modern civilisation, such as overcoming the distinction between artistic creation and the reproduction of artworks, between the beautiful and the useful, as well as the differentiation between a work of art and one that adheres to a strict artistic procedure." (Kultermann, 1963, p. IX). It was especially important to consider the relationship between humans and nature, and to understand that "to build in Africa meant creating a crystallisation centre

▶ Pancho Guedes and Mann George, Navique Building – Mozambican Navigation Company S.A.R.L., Maputo, Mozambique, 1953.

for human relationships." (Kultermann, 1963, p. VIII). Finally, he argued that it would not be possible to properly meet the demands of construction in Africa from the drafting table of an architect's office in Europe. This was because, "when analysing architecture in tropical countries, certain characteristics must be taken into account: extensive information about temperature, air humidity, the class and direction of winds, the movement of the sun and the type of vegetation" (Kultermann, 1963, p. IX). Convinced that there was no single solution and that the most appropriate one should be found for each case, he emphasised the necessity of ensuring the principle of cross-ventilation to balance the degree of air humidity and solar radiation through architectural elements that both protect from the sun and allow air permeability. However, it was not a matter of mechanically aligning these elements, as the art of construction involved spaces and volumes, light, movement and harmony in relation to the context.

Six years later, in *New Directions in African Architecture* (1969), Udo Kultermann recognised the existence of an African architecture, pointing towards a future and a path through the analysis of typologies to show trends and draw conclusions. Finally, in the volume published in 2000, *World Architecture 1900–2000: A Critical Mosaic* (Kultermann, Frampton, 2000), he used the chronological summary of 1963 and chose to illustrate 100 buildings from the 20th century in Sub-Saharan Africa, establishing a border line in the Sahara, and defining Sub-Saharan cultural unity to build the idea of the continent of hope. As Margarida Quintã (2013) relates, Kultermann's progression evolves from optimism to room for doubt in 1969, and then to hope on the threshold of the 20th century.

Kultermann assumed the demand for a new modernity would rescue the African tradition, emphasising its cultural uniqueness while focusing attention on buildings with educational functions as the most significant architectural achievements in Africa. As we shall see, in the case of the Portuguese colonies, the development of school architecture had a profound influence, confirming its connection to colonial strategy (Uduku, 2003). During the post-war period, alongside the rise of the liberation movements, school architecture evolved, adopting the expressions of modern production. In Mozambique, as we will explore, this typology was extensively developed by a group of architects, notably including the work of Fernando Mesquita (1916–1990).

Kultermann argues that the evolution of African architecture from colonialism till the maturity of the first strands of an African identity took place in a short period of time, promoted by the introduction of Western contributions into construction techniques and technology. At the same time, these rapid changes favoured the awakening of a return to tradition. Of architects active in Portuguese-speaking Africa, Pancho Guedes (1925–2015) is the only one recurrently referred to and analysed by Kultermann, drawing a parallel between the regional and global contexts (Tostões, 2013).

The work of Kultermann is followed in 1996 by Nnamdi Elleh in *African Architecture: Evolution and Transformation*, reinterpreting the concept of triple heritage, arising from indigenous, Islamic and Western cultures as a crossroads of influences exerted on modern African architecture. Ulli Beier (1922–2011), whom Kultermann crossed paths with in 1962 at the 1st International Congress of African Culture organised by Frank McEwen (1907–1994), believed that it was crucial to find a shortcut between traditional African art and contemporary forms of expression. According to Beier, the most successful individuals in this endeavour were Frank McEwen in Salisbury (then Rhodesia) and Pancho Guedes in Maputo, reinforcing Kultermann's position. Within the context of Portuguese-speaking African production, it indeed became evident that Pancho Guedes was the author who pushed the relationship between the regional and global framework the furthest, both in built work and in fostering local artistic production, as will be discussed.

VASCO VIEIRA DA COSTA AND THE IMPACT OF LE CORBUSIER IN ANGOLA

The influence exerted by Le Corbusier was decisive for the generation that worked in Angola, such as Vasco Vieira da Costa (1911–1982) and Fernão Simões de Carvalho (1929–), who worked in Paris at the Rue de Sèvres studio and attended the Urbanism Course at the Institut d'Urbanisme de l'Université de Paris.

Vasco Vieira da Costa had conceived a unique and creative approach, using the constraints of place and climate to stimulate technically effective and aesthetically innovative responses, in order to create a modern work in all respects exceptional. Following the design principles adapted to a tropical climate based on the idea that effective ventilation is essential to ensure comfort, Vasco Vieira da Costa always sought "to deploy the construction according to the prevailing winds" (Vieira da Costa, 1984 [1948], p. 63), while coordinating this condition with the requirement to reduce direct sunlight on the building surfaces. Combating the use of air conditioning in buildings, Vasco Vieira da Costa argued that adequate shading and ventilation ensured the best conditions of comfort. Devoting constant attention to issues of sun protection, natural ventilation and rainwater runoff, he created a set of passive control systems to warrant environmental efficiency that at the same time informed the creative expressive grammar of Mutamba Building (1968, pp. 116–119) or Secil Tower (1960).

The State Officials Building (1968, pp. 108–111) is another landmark work in which the condition of low-cost construction led to imaginative solutions, including the use of fair-faced concrete with wood. In the Huambo Veterinary Academic Hospital (1970, pp. 120–125), the horizontality of articulated volumes together with the harsh texture of materials contribute to the integration into the landscape. Exposed concrete within the brickwork repeatedly deter-

▶ Francisco Castro Rodrigues, Flamingo Open-Air Cinema, Lobito, Angola, 1963.

mines the appearance of Brutalist architecture as well as, in other cases, a gridded concrete façade. Both stylistic devices clearly show the structure in its tectonics through the essentiality of the design combined with the use of materials, thus following the principles of the New Brutalism, as developed by Reyner Banham (1922–1988) in 1955. The reference to Le Corbusier's *béton brut* is tempered by the influence of British architecture of the last CIAM, particularly when using the long galleries in the block distribution of the State Officials Building, in an allusion to the "streets in the sky" of Alison (1928–1993) and Peter Smithson (1923–2003).

In this long apartment building for employees in Luanda, Vieira da Costa uses similar devices but applies them to a building for the upper class where the apartments' distribution is achieved through galleries, now made spatially luxurious and exquisite. In the Headquarters of the Associação Naturais de Angola (Association of the Natives of Angola, now Anangola Building, 1963), in Luanda, Vasco Vieira da Costa takes on a monumental modern expression capable of representing the collective with iconographic meaning; this work is continued in the brilliant complex of Mutamba Square (1968–1969, now the Ministry of Urban Planning and Public Works of Angola).

Fernão Simões de Carvalho was inspired by the Athens Charter to address the serious problem of uncontrolled growth in Luanda. He advocated for organising the economic and social life of territories through the application of regional, national or even global plans. "Observing our Provincial capital – Luanda – its sphere of influence, its region – we feel that it must be studied as part of a whole, as both influencer and influenced. ... With its tentacles, the city has criminally annexed more and more land, causing, as Le Corbusier would say, 'the apoplexy of the center and paralysis at the extremities.' The time has come to define land use, to establish population densities, to establish the plan for its 'human-scale' equipment and to develop the Master Plan of the City that will guide the growth of the city and the region it supports" (Carvalho, 1963, pp. 27–29). The plan was not approved but set guidelines regarding the circulation system and enabled the implementation of neighbourhood-unit plans. The Prenda Neighbourhood Unit (1963, pp. 86–95), built on the *musseque* of the same name, was one of these units, including housing, amenities and commercial centres. The plan proposed racial integration, a much-discussed topic in the 1960s, whereby the architect sought to integrate various social groups. The Prenda Neighbourhood Unit bears witness to Corbusian

◂ Pancho Guedes, Garage, Offices and Sales Hall Otto Barbosa (now Visa Segurança), Maputo, Mozambique, 1953.

influences, particularly the hierarchical road system suggested in the Athens Charter and implemented in the cities of Chandigarh and Brasília, inaugurated in 1953 and 1960 and hence around the same time.

Other architects employed climate-control devices and distribution grids or galleries, such as José Pinto da Cunha (1921–1985) in the Cirilo & Irmão Building (1953, pp. 68–71) or the Castilho brothers, i.e. engineer António Garcia de Castilho and architect Luís Garcia de Castilho, in the Coqueiros block in Luanda. The ideal of an outdoor life became an architectural programme combined with a generous conception of communal areas. These transitional spaces, as they would be called in the 1960s, were often transformed into significant spatial events within an exceptional contemporary architecture.

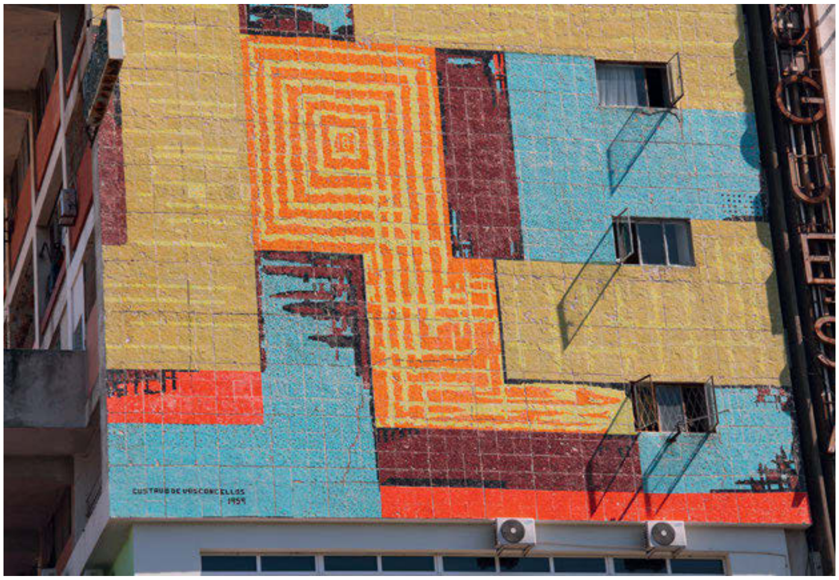
In Lobito, architect Francisco Castro Rodrigues served as chief architect of the Lobito City Council, where he developed urbanisation plans based on the principles of the Athens Charter, organising the city according to its four vital functions: housing, leisure, work and circulation. Additionally, he designed various public facilities that vividly illustrate the concept of leisure adapted to an African culture, a specific location and a tropical climate: the Lobito High School (1966–1967, pp. 100–107), the Lobito Market (1958–1964) and the Flamingo Open-Air Cinema (1963).

MOZAMBIQUE HEADING EAST: FANTASY MUST BE BROUGHT BACK INTO ARCHITECTURE

In Mozambique, particularly in Lourenço Marques (today Maputo), a number of examples blend elements of modernism with the requirements of representation. Near the cathedral and the town hall in the city centre, the TAP Montepio Building, by Alberto Soeiro (1917–?), is a spectacular case. Responding to the will of monumentalisation expressed in Plan Aguiar,[8] this building is unequivocally modern because it blends a large podium, occupied by services and trade functions, with a high parallelepiped volume intended for housing. Developed in a duplex system, the access consists of suspended long galleries that span both sides of the housing block; they accentuate the façades and reference colonial hierarchies. The corner position and the location's centrality are urban qualities enhanced by the large portico atrium under the plinth, with its colossal columns, and by the ceramic gable facing the avenue.

A radically innovative approach, diverging from the canon of the Modern Movement, was pursued by Pancho Guedes, the Luso-African architect (University of Witwatersrand, 1953), active from the 1950s in Mozambique. He made significant contributions to the reassessment of architectural modernity through his writings and works, bridging different disciplines and cultures, and establishing connections with various designers. His "magical" and fantastical architecture stemmed from its stimulation by an international network of artists and thinkers from diverse origins whom he cultivated: modernist architects, notably influenced by South African Rex Martienssen and the inspiring contributions of Brazil's Lucio Costa and Oscar Niemeyer (1907–2012); critical responses to CIAM within Team 10, where he participated in the Royaumont meeting alongside the Smithsons, Aldo Van Eyck (1918–1999), Georges Candilis (1913–1995) and Giancarlo de Carlo (1919–2005); from Antoni Gaudi (1852–1926) to Dadaism; from the creative power of Frank Lloyd Wright (1867–1959) to the emerging African artists he promoted.

Pancho Guedes had a keen eye for discovering talents and promoting their creativity. He functioned as a mediator between art and architecture. In Maputo, he formed a deep bond with Malangatana Ngwenya (1936–2009), the surrealist painter-poet whose inventive spirit knew no bounds. Malangatana, a conjurer of the supernatural,



▲ Alberto Soeiro, TAP Montepio Building, Maputo, Mozambique, 1955-1960.

inspired Pancho in his quest to listen to "the voices that speak to us from the other side of dreams" (Guedes, 2007 [1965], p. 54). Pancho believed that in the 1950s, in the apartheid-ridden Africa between Mozambique and South Africa, it was necessary to found an authentic and raw civilisation (Guedes, 2007 [1986]). Therefore, he sought an architecture rich in meaning and imbued with a personal dimension, based on an exploration of how architectural elements could contain narrative and express emotion: "I claim for architects the rights and liberties that painters and poets have held for so long" (Guedes, 2007 [1953], p. 13). Pancho wanted to enjoy the universal grounds of primitives, crossing them with a sophisticated architectural culture in his buildings and creating environments equivalent to de Chirico's (1888–1978) painting. Pancho knew that architecture is not understood as an intellectual experience but as a feeling, as an emotion (Huet, 1962). Hence his interest in seeking this quality "long lost among architects, which produces spontaneous architecture resulting in magic intensity" (Guedes, 2007 [1953], p. 12). This search resulted from the desire to create, in the mid-1950s, an alternative modernity to the mechanical International Style, which was also increasingly spreading in Africa. Unlike most architects working in Africa who were focused on designing with the climate in mind, Pancho sought the right to the innocence of the creator, inspired by the sensuality and dramatic power of the African culture that surrounded him.

This desire to find an alternative modernity was a response to an inner call, as well as to an Africa emerging into contemporaneity, into a new world in a state of fermentation (Tzara, 1962). Pancho was both a witness and an actor of a time when architecture was opening up to popular culture, where architecture without architects (Rudofsky, 1964) or the architecture of fantasy was being recognised. But it was also a moment of complexity and multiple paths opening up to either the continuity or crisis of the Modern Movement (Rogers, 1957), which Sigfried Giedion (1888–1968) identified as resulting from the unresolved equation that invokes both emotion and reason.

From Maputo, Pancho Guedes created a network among African, American and European designers that allowed him the audacity to, in the context of a colonial dictatorial regime, present himself at the São Paulo International Art Biennial in 1961 as the individual representative of a country called Mozambique, officially endorsed by the Mozambique Tourism and Information Centre.

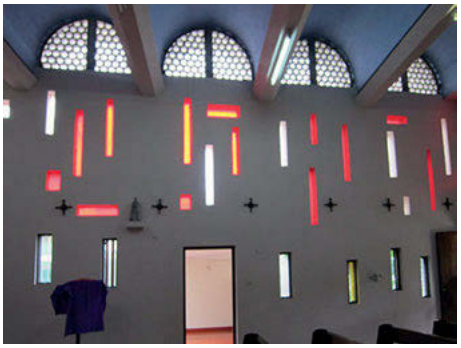
1960 was a year of great discoveries. It was "the annus mirabilis MCMLX" (Santiago, 2007, p. 6) of the grand tour to Europe: Pancho met Alison and Peter Smithson in London, visited the works of Fernando Távora (1923–2005) and Álvaro Siza Vieira (1933–) in Porto, encountered the editors of *Architectural Design* in London and paved the way for his first international publications in prestigious magazines. In 1961, the *Architectural Review* published a critique by South African architect Julian Beinart (1932–), following meetings with Reyner Banham and James Maude Richards (1907–1992), who wrote about him in *The Times*. The following year, Pancho was invited to participate in the Royaumont Abbey meeting, marking the beginning of his involvement with Team 10. His entry into the French scene was facilitated by the influential magazine *L'Architecture d'Aujourd'hui*, where he contributed a self-presentation titled "Y Aura-t-il une Architecture? – Oeuvres et Projets" in an issue dedicated to "Fantastical Architectures" (Huet, 1962), following the *Visionary Architecture* exhibit curated by MoMA in 1960. Subsequently, he collaborated with *World Architecture*, edited by John Donat in London, serving as the Mozambique contributing editor, with his work featured in the 1964, 1965 and 1967 volumes. Simultaneously, Pancho's recognition grew in the international circuit as both an architect and a patron or promoter of African art. In Paris, his article "Les Mapogga" about the painted houses of the Ndebele people of South Africa was published as the cover story of *Aujourd'hui: Art et Architecture*, the magazine directed by André Bloc (1896–1966). In 1961, the most notable event was the 1st International Congress of African Culture, organised by Frank McEwen to discuss the aesthetics of contemporary African art. It was held at the National Gallery in Salisbury, Rhodesia (now Harare, Zimbabwe) and was a significant gathering with 37 delegates in attendance: Alfred Barr from the MoMA in New York; William Fagg (1914–1992) from the British Museum; Jean Laude (1922–1984) from the Sorbonne; Roland Penrose (1900–1984), a surrealist painter and president of the Institute of Contemporary Arts (ICA) in London, accompanied by the photographer Lee Miller (1907–1977); James Porter (1905–1970) from Howard University, Washington; Udo Kultermann; the dadaist poet Tristan Tzara (1896–1963); John Russell (1919–2008), then a critic for *The Sunday Times*; South African musicologist Hugh Tracey (1903–1977); and Nigerian historian and Vice-Chancellor of the University of Lagos, Saburi Biobaku (1918–2001). Pancho Guedes was among the delegates. According to John Russell, with his presentation "Things Are Not What They Seem – The Auto-Biopharsic Hour", Pancho Guedes "put the Congress to its feet with a stunning (dazzling) and poetic account of how fantasy has to be returned to architecture in Africa" (Russell, cited in Pearce, 1998, p. 22). Russell felt he had grasped the very essence of African culture as Picasso had before him, but more intensely; with his captivating humour, he makes us believe that all this is part of African art and life. From technical issues to poetic approaches, pop art and African expression, Pancho promoted the possibility of modernity through a complex process fuelled by diverse and eccentric cultural sources. Pancho shed the colonial hegemony of his time and immersed himself in the myriad of cultural motifs and influences that constituted the unique African cosmopolitanism of Lourenço Marques in the 1950s and early 1960s. He championed the potential success of a new African art rooted in local characteristics and cultural conditions. By establishing bonds with the local population, Pancho found in Africa an atmosphere conducive to realising his projects. Known for his fertile imagination, Pancho believed that each project naturally emerged from its environment, climate, geology and the culture of its users. Through his prolific output, Pancho Guedes anticipated several trends and modes of thinking that are still being explored in the international context today, inspiring the interplay between art and architecture.

PROGRAMMES, CROSSROADS AND INTERSECTIONS

The Modern production within the Sub-Saharan African context manifests a desire and possibility to work according to a true and progressive orientation, through pioneering works of great urban and social significance. It is in this context that African architectural heritage affiliated with the Modern Movement begins to be recognised by critics, stimulating research and comparative studies.

According to Kultermann, the most significant architectural achievements in Africa were found in educational buildings: "The basic schooling of the African – as well as the education of his teachers – ranks before all economic, political, military, and other considerations. Elementary and technical schools, teacher's colleges, and universities are thus the primary tasks of building in the new nations" (Kultermann, 1969, p. 25). Indeed, according to developments initiated by UNESCO from 1951 onwards, educational programmes constituted one of the main areas of investment, following strategies present in many African countries (De Raedt, 2012). In Mozambique, within a framework of increasing autonomy, a programme of building schools was primarily led by architect Fernando Mesquita (1916–c. 1990) under the Public Works Services of the Province. This initiative was reconfigured and expanded across various levels, from primary to secondary and higher education. The result was an extensive and varied set of prototype projects, adaptable to different requirements both programmatically and territorially. In response to a constant and growing need to address the shortage of educational facilities that marked the decades of the 1960s and 1970s, these projects were implemented throughout the territory. Characterised by rationality, economy and functional efficiency, their large-scale application today still has a strong presence throughout Mozambique, constituting a distinguished modern heritage (Ferreira, 2012).

Religious architecture constitutes a realm in which modernity asserted itself, distinct from the historicist practices prevalent in Portugal. From the 1950s onwards, religious facilities unfolded in major cities of Mozambique, starting with the Quelimane Cathedral (pp. 214–217), designed by Megre Pires in 1955. This was followed by the Episcopal Palace initiated in 1955 by João Garizo do Carmo (1917–1974) in the same city, where the exploration of vaulted roofing systems and a symbolic expressionism of great plasticity reminiscent of Niemeyer's São Francisco Church in Pampulha or the Mexican churches by Félix Candela (1910–1997) became apparent. Around the same time, João Garizo do Carmo designed the Church of the Immaculate Heart of Mary (1954–1957, inauguration 1962, pp. 186–171) in Manga, Beira, utilising a parabolic vault that created a spectacular nave space. The parabolic structure unfolds into a lower paraboloid that fits the altar area. In the early 1960s, Beira once again became a focal point for religious architecture with the Sacred Heart of Jesus Church in Macúti (1961), designed by José Bernardino Ramalhete (1921–2018). Inaugurated in June 1964, its interior features a vast single nave with an altar and assembly, supported by a structure of metal pillars under a curved zinc roof covering the concrete nave, solid brick, wood and glass. The entrance is marked by a lattice providing shading for the courtyard. In Maputo, the expressive Santo António da Polana Church (1959–1962, pp. 206–209) by Nuno Craveiro Lopes (1921–1972) stands out as one of the city's most iconic buildings. In Angola, modern religious architecture emerged in the 1960s, with



▲ João Garizo do Carmo,
Episcopal Palace, Quelimane,
Mozambique, 1955.

notable projects including the Church of the Holy Family (1964) by António Sousa Mendes and Sabino Luís Martins, and the Sumbe Church (formerly Novo Redondo) designed by architect Francisco Castro Rodrigues in 1966.

Health facilities were built in major urban centres under the direction of a duo of architects specialising in this programme, Francisco Assis and Luiz Filipe de Vasconcelos, notably in Maputo, where they constructed a significant hospital complex starting in 1961 on generous plots in the southern expansion area of the city centre, known as the Central Hospital Maputo (1961). The escalation of the Colonial War and the strategic focus placed on Nampula as a military centre also justified the creation of a large hospital complex, the Nampula Central Hospital (1968), by the same architects.

New transportation facilities naturally accompanied the development surge, inaugurated in Luanda with the project of the General Craveiro Lopes Airport (1947–1954) by Francisco Keil do Amaral, a veteran and influential figure in architectural production and thought who had previously designed Portugal's first airport in Lisbon in the late 1930s. This was followed by the Lobito Aerogare project (1964) by Francisco Castro Rodrigues. In Mozambique, the iconic Beira Railway Station (1957–1966, pp. 192–199) designed by Paulo de Melo Sampaio (1926–1968), João Garizo do Carmo and Francisco José de Castro (1923–2016) stands as an inaugural work of intense iconographic expression. It marked the zenith of cosmopolitan modernity in the city of Beira and highlighted the strategic importance of the city in transporting goods to the central Sub-Saharan African continent via its port. The Gago Coutinho Airport (now Maputo International Airport, 1963) by Cândido Palma de Melo (1922–2003); the Headquarters of the Civil Aeronautics Services (1959, now Mozambique Civil Aviation Institute) in Maputo by João José Tinoco (1924–1983); Alberto Soeiro and Maria Carlota Quintanilha (1923–?); in Beira, two years later, the Sacadura Cabral Airport (now Beira International Airport, 1965) by Cândido Palma de Melo (1922–2003); the Quelimane Airport by Octávio Rego Costa; the Porto Amélia Airport (1961, now Pemba Airport) by João José Tinoco and Maria Carlota Quintanilha; the Nampula Aerogare (1960) by João José Tinoco, Maria Carlota Quintanilha and Alberto Soeiro; and the Tete Aerogare by João José Tinoco and António Matos Veloso (1923–2014) complete this array of intense production within such a short period of time.

From the late 1950s onwards and during the last phase of the Mozambican colony, a number of administrative facilities were built, according to several development plans. These include the Government Buildings Palace (1959) by João Garizo do Carmo, the Porto Amélia Government Offices (1963–1966) in Pemba by João José Tinoco

▲ José Bernardino Ramalhete, Church of the Sacred Heart of Jesus in Macúti, Beira, Mozambique, 1961.

▶ Francisco Assis and Luiz Filipe de Vasconcelos, Central Hospital Maputo, Maputo, Mozambique, 1958–1961.

and Maria Carlota Quintanilha, the Vila Cabral Government Offices (1966, now the Provincial Government Headquarters of Niassa) in Lichinga by João José Tinoco and Maria Carlota Quintanilha, and the Government and Public Services Building (1971) in Chimoio by José Bernardino Ramalhete.

Tourist facilities were regarded as a useful investment in the Mozambican territory, capitalising on its stunning landscapes. They were primarily linked to the *dolce vita* induced by the pleasant climate of Beira city. It all began with the Grand Hotel of Beira (1946–1955) by José Luís Porto (1883–1965) and Francisco José de Castro, followed by Paulo de Melo Sampaio's Hotel Miramar in Beira. In a clear context of seaside leisure, connected to Macuti Beach, there is the expressionist Motel do Estoril (1959), also by Paulo de Melo Sampaio, and the Hotel Embaixador (1958) in Beira, by Francisco José de Castro. In Quelimane, the Monteiro & Giro Ensemble (1954–1960, pp. 172–177), designed by Arménio Losa (1908–1988), Cassiano Barbosa (1911–1998), and António Ribeiro da Costa (1928–), developed as a city landmark alongside an industrial complex created during the heyday of the company. It was focused on creating a multi-functional programme integrating housing, commerce and services in a single urban presence, including the paradigmatic Hotel Chuabo (1954–1968).

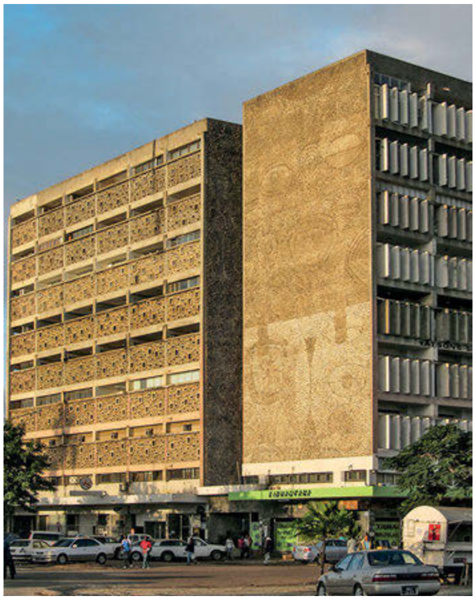
▲ João Garizo do Carmo, Government Buildings Palace, Quelimane, Mozambique, 1959.

▶ Paulo de Melo Sampaio, Estoril Motel, Beira, Mozambique, 1957–1959.

◀ José Luís Porto and Francisco José de Castro, Grand Hotel of Beira, Beira, Mozambique, 1946–1955.

The open-air cinemas of the period are public facilities that vividly illustrate the concept of leisure, characteristic of Western culture after the Second World War, adapted to an African culture and tropical climate. The modernity of collective life in Angola is closely tied to this type of leisure building, representing a uniquely Angolan typology. Examples include Atlântico (1964) and Miramar (1964, pp. 78–81) in Luanda and the Flamingo (1963) in Lobito. In Mozambique, cinemas followed the classic Western model with a public and urban presence in major cities from the 1950s onwards. Clubs also had a sophisticated and cosmopolitan expression – especially in Beira, where a colonial society brought to life facilities such as the Beira Automobile Touring Club (1958, now the Weddings Palace, pp. 188–191) by Paulo de Melo Sampaio and the magnificent Lion's Golf Club by Eduardo Naya Marques (1917–1985).

Office buildings in Mozambique represent prestigious landmarks that underscore their cosmopolitan character. The Banco Nacional Ultramarino (1956, now Bank of Mozambique) in Maputo, designed by José Gomes Bastos (1914–1991) and Marcos Miranda Guedes (1924–2001), stands out in the city centre. Throughout the 1950s, Pancho Guedes played a crucial role in revitalising the central district of Maputo, beginning with the Abreu, Santos & Rocha Building (1953–1956) and later with the Spence & Lemos Building (1964, now Petromoc Headquarters – Petróleos de Moçambique) and the Boror Building (1966, now Ministry of Transport and Communications). In the 1970s, the Millennium BIM Headquarters (1972) by João José Tinoco became a central landmark, a towering structure marking the city skyline. In Beira, notable office buildings were the Megazza Building (1958) by Francisco José de Castro, followed by the Commercial Association of Beira (1961) by Paulo de Melo Sampaio, and later the Muslim Association of Beira (1971) by José Bernardino Ramalhete. Luanda's city centre is divided into two poles: the Mutamba Square, located in the centre of the plateau near the palace and the convent, which features the Mobil Building (1951) by Alberto Pessoa with Angolan architects the Castilho brothers. The iconic Mutamba Building (1969, pp. 116–119) by Vasco Vieira da Costa marks the second pole, where the classic Bank of Angola still stands with its



▲ Pancho Guedes, Abreu, Santos & Rocha Building, Maputo, Mozambique, 1953–1956.

▶ Pancho Guedes, Saipal Bakery (now FIPAG – Water Supply Investment and Heritage Fund), Maputo, Mozambique, 1952–1954.

▶ Luís Taquelim da Silva, Cuca Building, Luanda, Angola.

historicist design by Vasco Regaleira (1897–1968). From the 1960s onwards, Luanda's skyline began to be defined by iconic buildings such as the Secil Building (1960) by Vasco Vieira da Costa, and the BPC Tower (1967) by Januário Godinho (1910–1990), Correia de Araújo and Alfredo Campos Matos (1928–2023). Along the waterfront, near the Alfândega Square and the Glass Palace, the northern end is crowned by the President Hotel, completed in 1974, designed by António Campino (1917–1996).

In Maputo, guided by the prolific Pancho Guedes, unusual and singular industrial facilities emerged, such as the Saipal Bakery (1954, now Water Supply Investment and Heritage Fund) and the Otto Barbosa Garage, Offices, and Sales Hall (1953, now Visa Segurança). Other notable examples include the Reguladora Clock Factory (1970, now Luso-Vinhos Warehouses) and the Entreposto Group Headquarters (1970, pp. 218–221) with a corporate-design project in the industrial fringe of the city, both designed by João José Tinoco.

Residential and commercial buildings attained equally iconic expressions, reflecting the creative explosion in Angolan territory – particularly in its capital. The Cuca Building, designed by Luís Taquelim da Silva and erected in the early 1950s, deserves special mention. Until about ten years ago, it stood as a landmark of the city – not only due to its imposing volume perched atop the plateau, offering a splendid view of the bay, but also for its prominent Cuca beer signage suspended, visible from all parts of the city.

NEW DIRECTIONS IN AFRICAN ARCHITECTURE, CULTURAL HERITAGE AND THE TEST OF TIME

In 2008, the demolition of Kinaxixe Market (1950–1952), designed by Vasco Vieira da Costa and erected in Luanda in the early 1950s, dramatically ignited the debate about African modern heritage. This discussion is not merely historical; it underscores how this modern legacy, often incorporating climate-adaptive features, can be viewed as a cultural asset. Today, this heritage is being embraced by younger generations, and some iconic residential buildings are recognised as valuable. This recognition has helped prevent their demolition and replacement with new buildings featuring curtain walls, which require expensive

◀ ▶ Vasco Vieira da Costa, Kinaxixe Market, Luanda, Angola, 1950–1952.

mechanical systems to address climatic challenges, posing sustainability and energy-performance concerns. The shading and ventilation systems of both modern and pre-modern architecture in Angola and Mozambique relied on natural and sustainable processes, albeit with varying degrees of effectiveness. However, they were connected to a passive development logic that is now being questioned. Several authors have argued that the internationalist architecture of the post-war era was nothing more than a formalistic and material interpretation of previously existing models (Folkers, 2010). Perhaps that is why so little or no attention has been given to the dissemination of these works carried out in Angola and Mozambique. The presented works are just a small example of the potential asserted by modern architectural production in Angola and Mozambique, evident in the iconic, tectonic and programmatic qualities of this singular legacy. Although Pancho Guedes' works have been recognised as a cultural treasure in Mozambique and Vasco Vieira da Costa as a reference in Angolan culture, the fact remains that this magnificent heritage lacks legal protection. However, even with the fragilities of fifty-year-old constructions and little maintenance, these buildings and cities still demonstrate surprising resilience. Perhaps the architecture of the Modern Movement was designed and conceived with greater-than-expected consistency, climatic concerns, and spatial and tectonic dignity, which have ensured this survival over time. It is important to understand this production as the result of a transformation process that followed a truly progressive orientation.

This text follows the research project "EWV_Exchanging Worlds Visions: Modern Architecture in Lusophone Africa (1943–1974), Looking Through Brazilian Experience Established Since the 1930s" (PTDC/AUR-AQI/103229/2008). This research was undertaken at Instituto Superior Técnico – University of Lisbon, with the collaboration of the University of Minho, and was funded by the Portuguese Foundation for Science and Technology (FCT). The results have been published in Ana Tostões (ed.), *Modern Architecture in Africa: Angola and Mozambique,* Lisbon: Caleidoscópio, 2014. This essay also draws on the following publications by Ana Tostões: "Looking both Sides: A Lab on Architecture Between Globalism and Localism", in Ana Tostões (ed.), *Modern Architecture in Africa,* 2014, pp. 62–113; "How to Love Modern [Post-] Colonial Architecture: Rethinking Memory in Angola and Mozambique Cities", *Architectural Theory Review,* 21(2), 2016, pp. 196–217; "Clima y cultura. Arquitectura moderna en África", *Proyecto, Progreso, Arquitectura,* 26, 2022, pp. 16–31; "Design with Climate in Africa: the Rise of a School Type Series (1955–1975), from Mesquita to José Forjaz", in *Arquitectura escolar (1919–1975), una necesidad permanente,* Pamplona: T6 Ediciones, 2024, pp. 87–108.

Today, there is a successful cultural diffusion of these pioneering works and a recognition of their social and urban significance. These buildings continue to be inhabited, but their future is under threat. In fact, today cities like Luanda are transforming at an unthinkable pace. Beyond the traces left by the post-independence war that ended in 2002, and beyond overpopulation, their fabric changes every day. There is a growing investment in both infrastructure and urban transformation, focused on densification and the occupation of public open spaces, systematically overlooking the possibility of rehabilitating many of these complexes. This heritage prompts us to contemplate their relevance and utility for the future. I would like to pose a number of important questions: What is the significance of this heritage in today's context? How can we define its purpose? In a region teetering on the edge of poverty, is maintaining it sustainable? Are we preserving it to create museums of memory, works of art, or because we envision a future for these structures, sites and cities that embody life, suggesting they have not lost their meaning? Yet, how should we proceed in constrained environments where the rational and frugal use of resources is imperative, and modern heritage is perceived as a symbol of colonial dominance? I believe that heritage embodies a collective sense of belonging, and that it is important to recall the utopian vision of the role of Modern Movement architecture in improving living conditions for all. My conviction is that this heritage has the potential to evolve into a culturally and economically sustainable resource, benefitting the entire community.

1 AA.VV. *Arquitectura Popular em Portugal*. Lisbon: Sindicato Nacional dos Arquitectos, 1961.
2 In this context, the educational aspect of Le Corbusier's work should be mentioned: he had a mission to teach people how to inhabit modern architecture. This stance was ideologically aligned with the legitimacy that the Brazilian Estado Novo conferred on modern architects and architecture. Le Corbusier's participation in the project in Brazil contributed to the general recognition of modern architecture, leaving the previous orientation towards the old Academy of Fine Arts behind.
3 "Le projet de l'édifice du Ministère de l'Éducation et Culture a été objet d'un étude long et attentif. Face à l'importance de l'œuvre, divers études préliminaires ont été dévelopés, dont il faut souligner ceux qui ont été réalisés par le Corbusier." Cf. "Memória Descritiva do Trabalho Elaborado com Oscar Niemeyer, Affonso Eduardo Reidy, Carlos Leão, Jorge Moreira e Ernani Vasconcellos, tendo Le Corbusier como Consultor", *Arquitectura e Urbanismo,* Rio de Janeiro, July–August 1939. In: A. Xavier (ed.), *Lucio Costa: Sobre Arquitectura,* Porto Alegre: Centro de Estudantes Universitarios de Arquitectura – UniRitter, 2007, p. 57.
4 Le Corbusier. Letter to Gustavo Capanema, May 5, 1936. [Archive Capanema]. In: M. Lissovsky and P. S. Moraes de Sa, *Colunas da educacao: a construcao do Ministerio da Educacao e Saude (1935–1945),* Rio de Janeiro: MC-IPHAN, Edicoes do Patrimonio, 1966.
5 Hollow elements which compose a structure that enclose or divide spaces while providing sun protection, a type of latticework that was created by engineers Amadeu Oliveira Coimbra, Ernest August Boeckmann and Antônio de Góis from Pernambuco in the 1920s. The term ComBoGo is derived from their surnames.
6 *L'Architecture d'Aujourd'hui:* "France d'Outre-Mer", no. 3, 1945; "Tunisie", no. 20, 1948; "Maroc", no. 35, 1950; "Afrique du Nord", no. 6, 1955; "Afrique Noir", no. 7, 1957. *Architectural Review*: "Commonwealth 1", 126(752) (1959); "Commonwealth 2", vol. 128, no. 761, 1960.
7 Udo Kultermann, *Neues Bauen in Afrika,* Tübingen: Wasmuth, 1963; Udo Kultermann, *Architecture Nouvelle en Afrique,* Paris: Morancé, 1963 (French translation); Udo Kultermann, *Arquitectura Moderna en África*, Barcelona: Gustavo Gili, 1963 (Spanish translation).
8 Urban Development Plan, developed between 1947 and 1955, under the coordination of the architect João Aguiar (1906–1974), Director of the Colonial Planning Office (Gabinete Colonial de Urbanização).

INTERVIEW WITH JEAN MOLITOR

TO THIS DAY, I CANNOT IMAGINE DOING ANYTHING ELSE BUT TAKING PHOTOS

▼ Roger Bastin, Church on Kiriri Campus (Collège du Saint-Esprit), University of Burundi, Bujumbura, Burundi, 1961.

▼ Cameo Cinema (previously Kit Kat Cinema), Bujumbura, Burundi, c. 1950.

In 2019, the Bauhaus celebrated its 100th birthday. Bauhaus aesthetics and functionality are still omnipresent today and can be found in architecture worldwide. Making global connections visible is one of the aims of the art project, which was initiated by Jean Molitor in 2009 in East Africa. Bau1haus is a homage to an era and a certain way of building houses: functional, bold, industrial. Since 2016, the Berlin photographer has been receiving academic support from Munich-based architectural historian Dr Kaija Voss.

KV *Mr Molitor, you have been working on bau1haus, your project on modern architecture, since 2009. Can you tell us where the project began? Where did you first notice modernist buildings in particular?*

I can actually pinpoint the beginning in Burundi. At the time, I was invited as a photographer to document buildings threatened with demolition. I had not expected to see modernist architecture in the centre of Bujumbura – especially not to this extent.

KV *You do not only photograph in Africa. How and where did you continue?*

This trip in 2009 provided an impetus. I then began to research and familiarise myself with the subject of classical modernism. Further travels took me to Magnitogorsk, Bandung, Miami and back to Africa – this time to Bukavu in the Congo.

KV *Could it be that you found your way to modernism in Europe via Africa? Did you know in 2009, or at least perhaps had an inkling, of the scale that the project would reach?*

▲ Private residence "Le Champignon", Gitega, Burundi, c. 1946.

▼ Butcher shop "Boucherie Charcuterie Italbu", Bujumbura, Burundi.

That is indeed how I see it. But I had no idea what scale my project would eventually encompass. I realised that it would probably be more than five countries, but that today, in the year 2024, I would have photographed buildings of the same architectural orientation – classical modernism and post-war modernism – in almost eighty countries, no, I could not even imagine that.

UP *What characterises the bau1haus project?*

The speciality lies in the global approach. Over the course of time, I came to know many specialists such as Prof. Ola Uduku for modernism in West Africa; Dr Eduardo Kögler, an expert in modern architecture in Asia; or Dr Andreas Butter, focused on interwar and post-war modernism in Germany. Extending such a project across the globe, photographing it to a high standard of craftsmanship and financing it yourself is probably unique at present.

UP *Let's stay in Africa: can the bau1haus project be realised in the same way in all African countries?*

There are special features in every country. Whether it is the weather, such as temperatures of 40° C in Tanzania or Ghana, or the political conditions, which can be unstable, such as in Ethiopia. There are also issues of personal safety. I do not see my job solely as the skilful operator of my camera but rather as a holistic complex. The intrepid adventurer is just as important as the far-sighted, seasoned traveller.

▲ Petrol station with apartments, Bukavu, Congo.

▼ Pierre van der Oudera, Courthouse, Bukavu, Congo, c. 1952.

▼ Police station, Bukavu, Congo.

Eating, drinking and sleeping often play a subordinate role. Long-haul flights, communication, a lot of walking and dragging of equipment are unavoidable. It is not even possible to generalise within a continent. Every country, every region, every journey has its own special challenges. It is important to recognise these particularities and, as far as image quality is concerned, to achieve my photographic goals within the overall concept.

UP *Are there any particular features and what are the special challenges in Africa?*

Definitely the climate. The sun is mostly pleasant, meaning more light and more stable light. The sometimes lush, green vegetation has to be taken into account; it often obscures the view of the architecture. Perpetually moving traffic adds a certain nervousness to the picture. The same applies to the retail trade in front of the buildings and in the streets. In some cases, it is only possible to take a calm, good picture of the building on a Sunday. Fences and walls may obstruct the view. Sometimes there are also language barriers to explaining what you are actually doing there.

KV *You are probably often asked how you find all the houses? I assume that is not easy, especially in Africa?*

That is indeed a frequently asked question at exhibitions and lectures. I can now clearly identify three approaches that were still rather vague at the beginning of this work. The literature research via libraries and the Internet is the basis. I can search almost anywhere in the world for the architectural forms I am interested in. Secondly, there is now a network of enthusiasts. I receive information about buildings from all over the world almost every day. The third and most exciting point for me, however, is the

▲ Office building for Bank Coocec-Kivu (Coopérative Centrale d'Epargne et de Crédit du Kivu), Bukavu, Congo.

journey itself. In addition to the well-known icons of modernism, I also find many unknown treasures, functional architecture such as petrol stations or toilets.

UP *The project bau1haus also addresses the general public. Does it find an audience in African countries as well?*

In my view, the celebrations in 2019 to mark the centenary of the Bauhaus have raised awareness among the general public, although I should point out that my exhibitions often focus on a local reference. There was a lot of public interest in the first exhibition in Bujumbura in 2009, where I documented buildings threatened by demolition. The same applies to the exhibitions in 2022 in Lagos and 2023 in Kampala as part of the Docomomo project Shared Heritage Africa.
However, it is understandable that a certain amount of social freedom must exist to enable interest in architectural modernism. Art is not so important in times of economic pressure. In general, Africa is an up-and-coming continent with an enormous thirst for knowledge, especially among the young population.

KV *It is said that there are no coincidences, but does chance perhaps play a role in finding exciting objects on site?*

Working on site is always exciting. The communication with the people, the exchange, is rewarding and there is always a sense of treasure hunting. I think chance plays a role in life in general. I can think of an example from Guatemala City. I had taken a taxi to take me to a particular place. The driver took a route I was unfamiliar with and claimed that the detour was necessary because of congestion. For a while, my thoughts revolved around too many kilometres and the corresponding bill. Then I reconciled myself with the extra city tour and was incredibly rewarded. One of my favourite buildings to date appeared as I was looking out of the window. The driver took me to my destination, sketched the site we had been passing on a map and the bill was even less than expected. I would never have visited that street. That unknown petrol station is now on the cover of my first book.

▲ Private house, Rabat, Morocco, 1940s.

▼ Private house, Casablanca, Morocco.

▼ Goya Cinema, Tanger, Morocco, 1940s.

KV *Do you hope that the bau1haus project will help to save modernist buildings from demolition or decay by drawing attention to their value?*

I probably cannot stop the course of events with my work. I also know from many private homeowners that professional conservation is very expensive. But the example of Bujumbura shows that good documentation is valuable for us and, above all, for future generations. In Bujumbura, the 2009 exhibition stimulated local discourse and indeed many of the houses were saved. They are still standing, some of them with a new function after renovation, and continue to shape the cityscape. This trip led to other excursions, for instance to Morocco and Kenya.

UP *Particularly in the case of modernism in Africa, it is important to remember that the buildings were built in a specific political context. Often the houses are also evidence of colonialism. Who planned the houses, who built them and for whom? There is a seemingly irresolvable contradiction between visual aesthetics and architectural history. But there appear to be similarities here to other important works of cultural history, such as the Egyptian pyramids or the Baroque palaces. What does it mean, for example, that Asmara has been a UNESCO World Heritage Site as the so-called "Modernist City of Africa" since 2017?*

This is a very complex set of questions, touching upon both the political realm and the sphere of architecture. Of course, the colonial aspect must be taken into account. On the political level, territories are occupied and the victor brands the colony according to his time and fashion. In Africa, the Europeans came with ships and weapons and subjugated the indigenous population. As far as buildings are concerned, they brought on the one hand familiar architectural forms from their homeland.

▲ Office building, Nairobi, Kenya, c. 1940.

▼ Odeon Cinema, Nairobi, Kenya, c. 1940.

▲ Giuseppe Pettazzi, Fiat Tagliero Petrol Station, Asmara, Eritrea, 1938.

On the other hand, they saw an opportunity to try out new architectural elements in the colonised countries, i.e. progressive forms that were difficult to realise in the established structures of their homeland. Thus, after the First World War, modernism arrived in Africa with a time lag and in a very different formal language. One example of this is Asmara, which was also known as "Piccola Roma". Here, Italian architects built in the rationalist style, which characterised building in Italy at the time but was viewed critically by Mussolini. In Asmara, far away from home, they were able to realise their ideas of modernity. In order to make life pleasant for the Europeans, modernity was adapted to the new climatic conditions.
For the indigenous population, however, Asmara was mostly not accessible. According to the 1908 master plan, only one out of four zones was designated for Eritreans. During the 1920s and 1930s, the city grew rapidly and came to accommodate 70,000 Italians.

As opposed to the political (and military) realm, I see the sphere of architecture as occupying a different place in terms of cultural history. A construction represents a collective human endeavour that is not geared towards destruction. The implementation of a design on site should also be understood as a joint effort. The circumstances at the time were certainly far from equality and fairness, and yet these buildings carry not only *one* story within them. There is no other way to explain why, on my first trip to Asmara in 2018, I was often asked about my – possible – Italian origins in a friendly manner. Moreover, many people of European origin have made their home there long after independence.
Asmara has been a World Heritage Site since 2017. I know that this is controversial and it is also clear that colonialism in the world is far from over. More open exchange and face-to-face conversations are needed.

▲ Apartment and commercial building, Asmara, Eritrea, 1938.

▼ Bruno Sclafani, Apartment and commercial building, Asmara, Eritrea, 1942.

KV *The Shared Heritage Africa project showcases the cultural heritage of modernism in four African countries: Ghana, Nigeria, Rwanda and Uganda. What do you think of the theory that – in addition to the artistic, documentary and architectural-historical approach – the project also contributes emotionally to international understanding and mutual respect?*

The Shared Heritage Africa (SHA) project in 2021–2023 involved many participants. It was a good cooperation and there is always a unifying spirit in creating something together. The more we meet, talk to each other and tackle things together, the better we get to know, respect and honour each other. I myself learnt a lot during this time and we are all still in good contact today. Further plans are on the horizon.

KV *At the major exhibition at Neue Kunsthalle Pfaffenhofen in 2022 with over 150 large-format photographs, I was able to get a comprehensive picture of your work. It reminded me of the black-and-white photographs by Bernd and Hilla Becher. You have been called the Helmut Newton of architectural photography. What do you make of that?*

I know these wonderful works but find it difficult to make comparisons. Like Newton, I come from Berlin, and just as the Bechers influenced subsequent generations of photographers with the Düsseldorf Art Academy, I was able to sharpen and train my photographic eye in Leipzig at the Academy of Visual Arts under Arno Fischer. But there are countless colleagues as well as truly talented amateurs who have made photography what it is today. Even though my project has a documentary approach, I see it as an artistically orientated work. It does not receive financial support and in that sense I am not beholden to

▲ Beltrame, Spinelli Warehouse, Asmara, Eritrea, 1940.

anyone but myself, which I really enjoy. At the moment, there are already well over 500 objects ready for exhibition, as the recent trips to São Paulo and Quito and the invitation to the Thomas Mann House in California were very productive. I was able to add buildings by Richard Neutra, Julius Ralph Davidson, Rudolf Schindler and Frank Lloyd Wright to my collection.

KV *Why do you do all this work, what is the goal, where does your motivation come from, because there is almost no prospect of financial reward for a freelance project?*

I realise today that I have found my calling in my profession. Since I was fifteen years old, photography has been my focus, first as a hobby and later as a career. It started with my first photo lab in my parents' coal cellar, amongst all the coal soot; next to piles of wood and pickled food; the mingling smell of resin, dust and chemicals I had prepared myself. I quickly made my first photograms, and what a sensation it was when the contours slowly appeared on the white sheet of photographic paper in the developer bath. To this day, I cannot imagine doing

The interview was conducted by Dr Uta Pottgiesser and Dr Kaija Voss in Berlin in January 2024. Translation: Ria Stein.

▲ Private house, Asmara, Eritrea, c. 1937.

anything else but taking photos. And then there are the possibilities of travelling and first-hand experiences, as I mentioned at the beginning. Always close to the pulse, always with people, communicating and learning. Now, after so many years of work, I have the opportunity to bring my work back into the world. Since 2018, there have been numerous exhibitions, both in Germany and internationally, from Skopje, Tirana, Ibiza, Ankara, Copenhagen, Madrid, Guadalajara, Buenos Aires, Jakarta to Vancouver, São Paulo, Quito, Havana and Tel Aviv. The Shared Heritage Africa photographs were shown in Lagos (University of Lagos – UNILAG) and in Kampala (Kyambogo University).

KV *What are your plans for the near future? Will there be more exhibitions on modernism in Africa?*

I will definitely continue to work on bau1haus. In 2023, I was in Nigeria in collaboration with Docomomo Germany, not primarily as a photographer but also as a mentor and curator in the Shared Heritage Africa project. In 2024, my photographs of Sharon's buildings were exhibited. Arieh Sharon, once a student at the Bauhaus, then project manager of the ADGB Federal School under Hannes Meyer in Bernau, from 1938 urban planner in Palestine and Tel Aviv, built in Africa in the early 1960s and planned the Obafemi Awolowo University (OAU) in Ile-Ife, Nigeria. Another exhibition presenting various African countries was shown in Berlin.
Generally speaking, the whole project is beyond the scope of my possibilities. By the time I have taken pictures of ten houses, I have usually discovered ten new buildings that I did not know about before. Even though I have been to eighty countries, new architectural treasures are constantly surfacing. Some time ago, when I proudly considered my digital archive of 500 good photos, I exuberantly spoke of 20 percent photographic capture. Today, after a more years of focused work, I hardly dare put it at 5 percent. I probably would not even manage to photograph all the modernist buildings in Germany in my remaining life time. But I have also realised that this is not the point. I see my work as a first good step and subsequent generations will continue to do it differently, perhaps even better. What a reconciling final remark.

ANA TOSTÕES

ANGOLA

▼ Silvério da Silva, Kalunga Cinema, Benguela.

▼ Mimoso Moreira, Post Office Building, Lobito, 1941.

▼ Vasco Vieira da Costa, Pio XII Institute (now Institute of Religious Sciences of Angola), Luanda, 1968.

▼ BCI - Banco de Comercio e Industria Building, Luanda, Angola.

▼ Benguela Municipal Market,
Benguela.

▼ Cathedral of Our Lady of Fatima, Benguela, 1970.

ANA TOSTÕES

CIRILO & IRMÃO BUILDING

Luanda, 1953
ARCHITECTS Francisco Pereira da Costa, José Pinto da Cunha

▲ View of the southwest façade. A long concrete shading device runs along the length of the block on the ground floor.

▼ Figure-ground plan, 1:10,000, 08° 48' 33" S 13° 14' 19" E

The production of coffee in Angola is one of the oldest in Sub-Saharan Africa, dating back to the early 19th century. After the Second World War, Angola's export revenues increased substantially as feedstock prices went up. Coffee, in particular, benefitted from this development and became the country's main exported good between 1946 and 1972. Angola ranked as the third-largest coffee producer in the world that year. Despite a decline in production levels in recent decades, coffee remains one of the key agricultural products of the country.

The extensive coffee plantations were located in the country's northwest, namely Baixo Cuanza, where the Monserrate Plantation was one of the largest in the municipality of Dembos.

This great settlement from 1952 – comprising main residence, church, foremen residence, electrical power house, hospital, workers' settlements and production facilities – belonged to the Cirilo family. Thus, the firm of Cirilo & Irmão could afford to commission a new head-quarters, which was built in 1958 at no. 10 Major Kanyangulo Street (formerly, Luanda's Straight Street). Designed by Francisco Pereira da Costa (1923–?) and José Pinto da Cunha (1921–1985), the building is inspired by Corbusian principles such as an open ground floor with shading devices and louvred façades.

The double-height ground floor was designated for commercial purposes, the first floor for offices and the remaining floors for residential use. The façades are clearly legible: there are duplex apartments on the second and third floors, as well as on the seventh and eighth floors, with private terraces on the ninth floor.

The circulation is housed in a block with staircase and lift, located on the rear façade, positioned at a distance of about 4 metres from the main volume and connected to the apartments' access galleries. This block is connected to access galleries leading to the apartments and features

▲ The main façade, facing southeast. While the ground floor with the shading canopy accommodates commerce, the first floor hosts offices and the topmost two floors feature duplex apartments.

▼ The building entrance granting access to the residential floors above.

a remarkable detail – a concrete gridwork pattern following the upward trajectory of the stairs, enabling the ingress of natural daylight and ventilation.

The main façade, oriented towards the southeast, receives sunlight in the morning. To mitigate the direct impact of sunlight, a shading system was incorporated into this façade. However, it is noteworthy that contemporary standards have deemed this system insufficient, thus explaining the proliferation of air-conditioning units within the building.

The building's orientation was thoughtfully aligned with the prevailing southwest winds, allowing it to benefit from breezes from this direction cooled by the northward-flowing Benguela Current. This strategic positioning enhances natural ventilation through the building's expansive windows. In duplex apartments, the kitchens are situated behind the main façade, featuring a more compact concrete-grid design, while in single apartments, the kitchens face the access galleries, equipped with fixed horizontal blades. Access to the apartments is facilitated through semi-private spaces, permitting a gradual transition from public to private areas. Regrettably, these semi-private areas have been enclosed with security grilles in recent years, deviating from the original concept.

▲ Exterior access gallery to the apartments, showcasing the shading and natural-ventilation system of a kitchen in the background.

▼ Vertical access unit with concrete-gridwork patterns that allow in natural daylight and ventilation.

Concrete is the predominant material used in the building's construction, serving various functions from the load-bearing structure to the guardrails on the access galleries, as well as in the various shading devices. The original wooden window frames have largely been replaced by aluminium, particularly in enclosed spaces such as the balconies on the main façade.

One of the most distinctive elements of the building is the long concrete shading device running the length of the block on the ground floor. Another remarkable feature is the building's entrance, granting access to the residential floors above. This entrance comprises a generous double-height space with a mezzanine level, accentuated by a mural fashioned from a glass-ceramic mosaic portraying African themes in a palette of cool colours with yellow and red accents. This multi-coloured ceramic cladding is evident in various parts of the building.

The Cirilo & Irmão Building is characterised by a number of features typical of Angola's modern architecture of the 1950s – namely, the meticulous consideration of wind and solar exposure in the building's orientation, the artistic incorporation of materials and the integration of art into the sculptural development of structural elements.

Nowadays, the building has undergone substantial modifications due to the enclosure of communal spaces within the access galleries. The uppermost storey is completely different: its private terraces of the duplex apartments have been converted into bedrooms through the addition of aluminium-frame structures, resulting in a significant transformation of the building's overall appearance.

▲ Detail of the vertical access staircase connected to the horizontal circulation galleries of the apartments.

▶ Interior of the vertical access block, showing the ingress of natural light along the upward trajectory of the stairs through the gridwork patterns.

▼ The multi-coloured ceramic cladding at the building entrance.

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MARGARIDA QUINTÃ

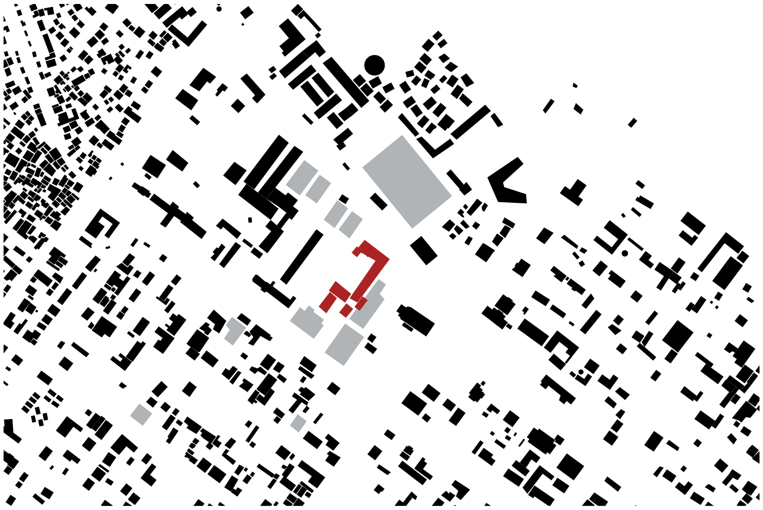
SAURIMO ELEMENTARY SCHOOL

Saurimo, 1958–1961
ARCHITECTS Antonieta Jacinto, Francisco Silva Dias

The Saurimo Elementary School, previously known as the Henrique Carvalho Boarding School, was designed by Antonieta Jacinto (born Huambo 1930, died Lisbon 2021) and Francisco Silva Dias (born in Lisbon in 1930) in Saurimo (formerly Henrique Carvalho), between 1958 and 1960.

▲ Entrance.

▼ Figure-ground plan, 1:10,000, 09° 39' 14" S 20° 23' 28" E



In 1958, Antonieta Jacinto was commissioned to design a boarding school for the children of the engineers of Diamang, Angola's only diamond company, based in Lunda. The project was carried out as part of a public-private partnership between the provincial government and the national diamond company, with the aim of benefitting both the development of Lunda province and the welfare of the diamond industry. Jacinto was the first female architect hired by Angola's Department of Public Works, based in Luanda, immediately after graduating from Lisbon School of Fine Arts in 1956. While developing projects for the public agency, she also took on private commissions, such as the boarding school she began to design, inspired by her thesis project: "a school centre in a

tropical country". Francisco Silva Dias – her future husband – joined her a few months later.

Jacinto and Silva Dias' project envisaged an ambitious complex of some 5,000 square metres, comprising several buildings, including a high school, male and female dormitories, a chapel, an indoor sports hall, an outdoor swimming pool, sports fields and gardens. However, due to budget constraints, only the school facilities were built as planned. Given the scarcity of building materials in this remote region and the need to optimise costs, the architects developed a straightforward structural system and used simple construction details to give shape to the school complex. Modularity and repetition were therefore key strategies to overcome these limitations and maximise the school's space.

A central courtyard connects four pavilions, each containing different parts of the school programme: classrooms to the north, laboratories to the south, school administration to the east and the playground to the west. The ten classrooms are arranged in a two-storey pavilion, with five classrooms on each floor. The classrooms are accessed via a west-facing gallery and each classroom has a large east-facing balcony. The arrangement of independent volumes improves health and hygiene standards by bringing additional natural light and ventilation into the classrooms. As a result, the school is essentially an open-air structure, with shaded and well-ventilated circulation areas that act as cooling devices for the classrooms.

During the design process, Saurimo's climate was taken into account. The architects analysed the climatic data of the region, classified as a tropical savannah (Aw), and used passive design strategies such as shading and ventilation to create a comfortable environment. The building section was designed with solar diagrams, with the aim of installing efficient shading solutions on both façades: on

◄► Views of southeast façade. Each classroom has a large balcony.

▼ Shaded and ventilated circulation areas.

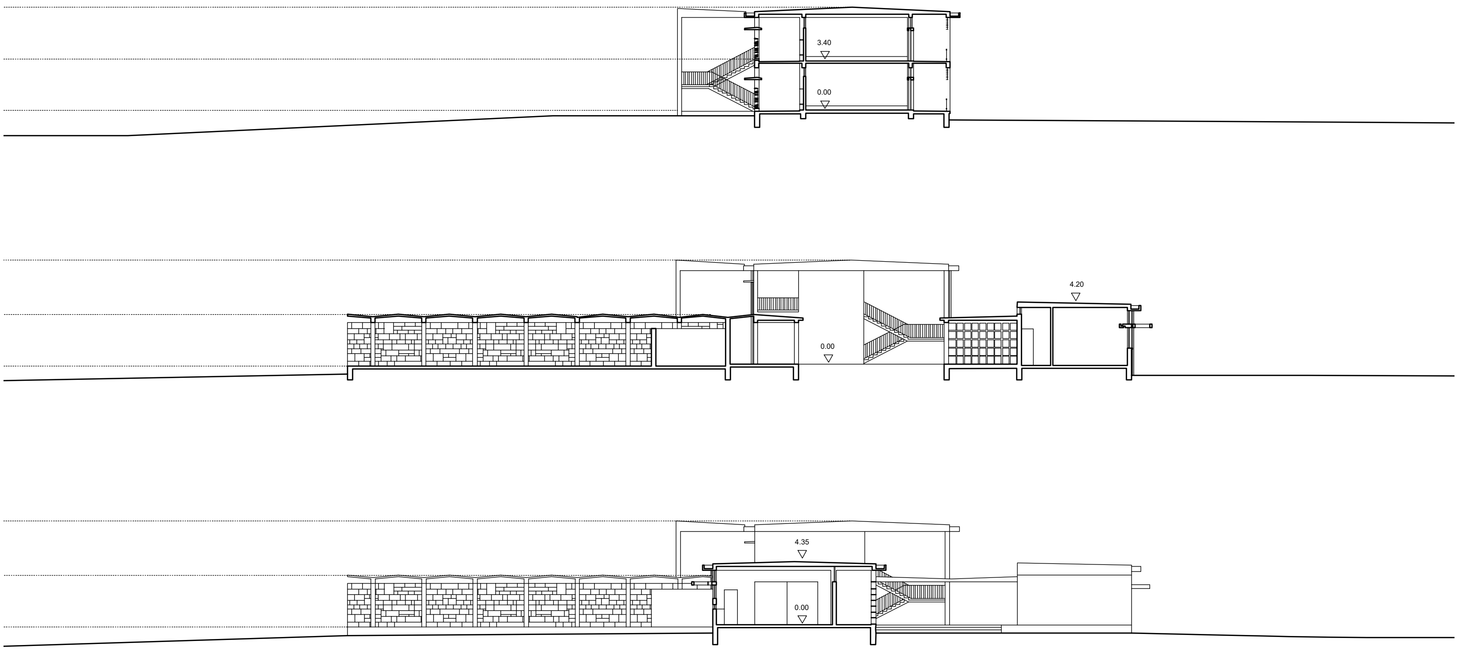
▲ Inside the exterior access gallery to the classrooms, on the northwest façade, protected from the sun with shading devices.

▼ View of the access gallery from the outside.

the west, a concrete grid separates the gallery from the outside, while on the east, a wooden brise-soleil prevents direct sunlight from entering the classrooms in the early morning. Fixed shading devices made from durable materials provided a cost-effective and durable building envelope. The reinforced-concrete structure with short spans is evident in the regular composition of the façades and in the modular areas designed to accommodate the different functions of the school.

The building demonstrates great clarity in responding to functional requirements, thermal comfort and budget constraints. It presents a consistent architectural language with an optimised economy of means. The constraints promoted rationality and facilitated the design of a modern building of ascetic beauty.

In 1961, the school opened as a public high school rather than a private boarding school as originally planned. Although the master plan was not completed as first devised, the dormitories were built in 1964 and the high-school facilities were extended in 1972. The Municipal Services Department was responsible for the extension, which aimed to mimic the original façades and use the



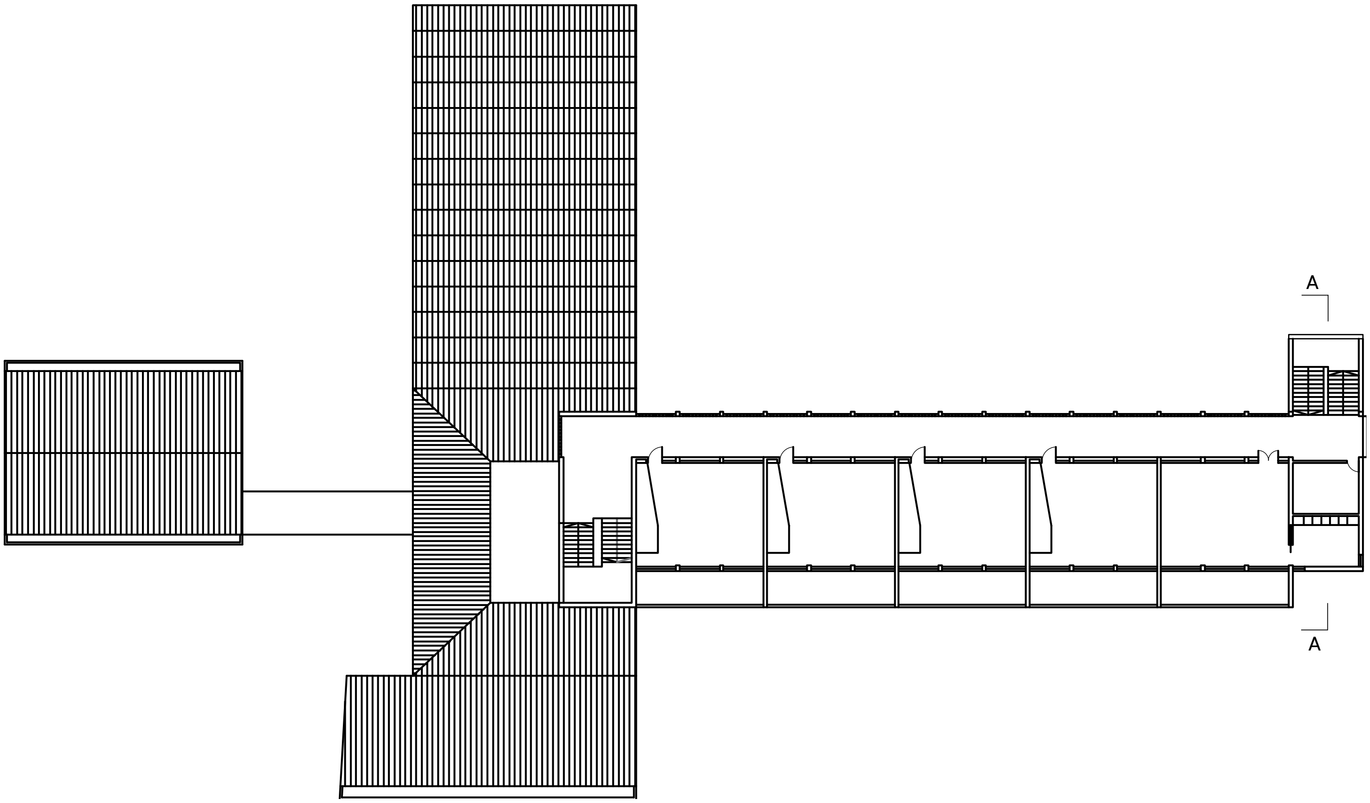
▲ Sections A–A, B–B, C–C, 1:500 (top to bottom).

▼ Northwest façade.

same materials, but made significant changes to the orientation, scale and proportion of volumes, indicating a lack of understanding of the original design.

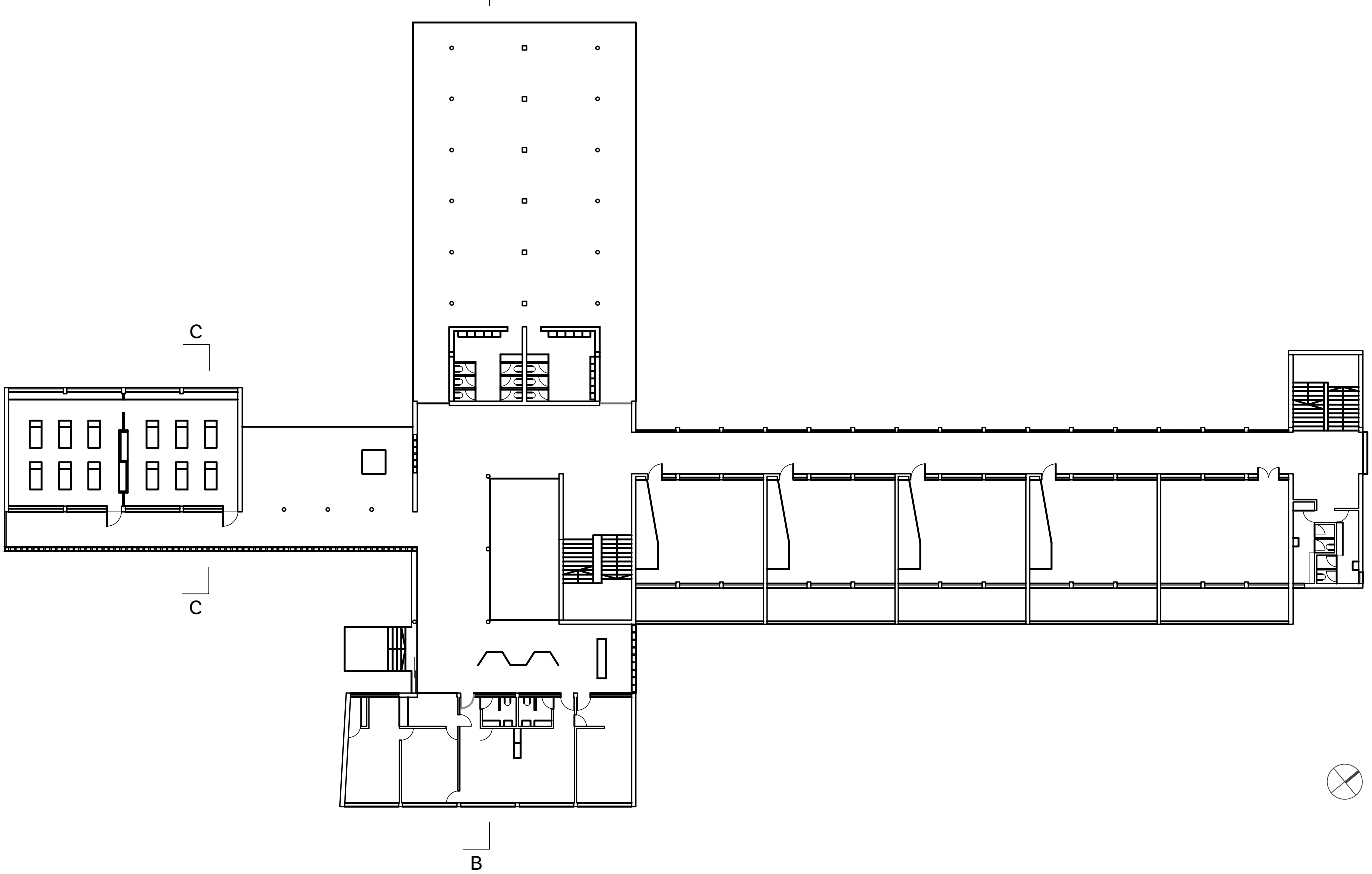
In 1975, following Angola's independence, the number of children attending this school increased exponentially. The building remained functional during the long period of Angola's civil war (1975–2002), but suffered from severe decay and neglect. Since 2002, the country has been recovering from the effects of the war and many school facilities have been renovated as part of the national reconstruction plan. However, in 2023, Saurimo School had not yet been included in this large-scale effort.

Today, overcrowding is a major problem at Saurimo Elementary School, with more than sixty students per class and two schedules: primary school in the morning and university classes in the afternoon. Despite these challenging conditions, the building remains functional and serves the community as an informal, open structure: people from all levels of education use the building's facilities to study at weekends because of its open layout and comfortable environment. The school has shown remarkable adaptability to change over the years, proving that the principles of the original architectural design – which focused on thermal comfort, economy and durability – are still relevant today.



▲ First floor plan, 1:500.

▼ Ground floor plan, 1:500.



▲ Access gallery to the classrooms protected from the sun.

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ANA TOSTÕES, ZARA FERREIRA

MIRAMAR OPEN-AIR CINEMA

Luanda, 1959
ARCHITECTS João Garcia de Castilho, Luís Garcia de Castilho

▲ View of the 1,622-seat amphitheatre.

▼ Figure-ground plan, 1:10,000, 08° 48' 23" S 13° 14' 58" E

Cine-esplanadas – open-air cinemas – whether partially covered or entirely open-air, constitute a unique architectural typology in Angola, determined by the specific climatic conditions. Architectural typologies often adapt to the prevailing climate, finding their identity in their interaction with nature. In Angola, structures must be shaded and promote air circulation; therefore covered spaces without walls are highly functional and acquire the distinctive spatial characteristics primarily found in tropical regions.

Open-air cinemas, as both a programme and an architectural response to the context, also embody the notion of well-being that has generally characterised Western culture since the post-Second World War era. This atmosphere was particularly evident in the urban bourgeoisie of the Portuguese colonies. If cinema symbolised progress, the architecture of these spaces sought to assert that awareness: the open-air cinema was inherently cinematic. The modernity that Angola's middle and upper class aspired to was intimately tied to this type of leisure building, making it a typology particular to Angola from an international perspective. These buildings' spatial structures offer architectural promenade experiences akin to long cinematic tracking shots. The architecture of these open-air cinemas exemplifies a society eager to embrace modernity.

The three most emblematic cases are the Miramar, the Atlântico Open-Air Cinema (designed by António Ribeiro dos Santos and Eduardo Paulino, 1964) in Luanda and the Flamingo Open-Air Cinema (designed by Francisco Castro Rodrigues, 1963) in Lobito.

Their symbolic nature and their built expression in relation to the surroundings define them as landmarks in the landscape. These large-scale buildings, catering to mass audiences, are largely influenced by functional requirements, such as the need for large canopies,

◀ ▶ The cinema combines various textures, colours and materials, such as stone, tiles, stucco and concrete.

▼ The amphitheatre overlooks the panorama of Luanda Bay.

achieved by the expressive means of a wide cantilever. Alternatively, in the case of Miramar or Flamingo, great significance is given to the dimensions and plasticity of the screen. This plasticity, as well as the combination of textures and colours, directly reference the free modernist forms used by Brazilian architects from the 1940s onwards. The exploration of the structural and plastic potentials of reinforced concrete facilitated this remarkable structural innovation and formal freedom, employing a compilation of forms that gradually lead us to pure solids and to the *Poem of the Right Angle* seen in Le Corbusier's early works.

▲ The wooden canopy is supported by concrete columns and tensioned by metal cables.

▼ Technical support space at the back of the amphitheatre.

▼ Curved screen (23 x 9 metres).

The Miramar was the first of its kind in the city of Luanda. It presents itself as a classical amphitheatre with 1,622 seats, taking full advantage of its location atop Miramar Hill, serving as a terrace overlooking the breath-taking panorama of Luanda Bay. Understanding the topographic and geographic qualities of the site is crucial to the poetic dimension of this work. The cinema, surrounded by amenities and support spaces, comprises a projection booth and an audience area partially covered by a wooden canopy supported by concrete columns tensioned by metal cables. The slightly curved screen measures 23 metres in length and 9 metres in height. The building housing the theatre and support areas showcases a modern architectural language exemplified by the flat roof, the interplay of horizontal louvres with vertical lighting towers and the use of various materials such as stone, tiles, stucco and concrete.

The cinema was commissioned by the Sulcine film distribution company, led by Joaquim Ribeiro Belga (1913–1972), who, after the 1950s, became the primary film distributor in Angola and Mozambique, driving the construction of new cinemas in major cities in both countries. Many of the biggest international film hits were screened at Miramar. It is said that, being an open-air cinema, the youngest cinephiles in the vicinity found a way to watch adult films from the terrace of the Hunters' Club (Clube dos Caçadores). The combination of attending the cinema, enjoying warm evenings outdoors and taking in the view of the bay was considered a special leisure activity. Long-time residents describe that visiting the Miramar Cinema at night, with the lights of the bay and

▲ Lighting tower.

the port, was a double spectacle. Within the enclosure of Miramar, people strolled through the gardens during the cinema intermissions and enjoyed hot chocolate during the *cacimbo* season (the dry season).

In 2013, following an agreement signed between China and Angola that foresaw the construction of a new Embassy of China building at that location, the demolition of the complex was planned. However, after ten years, nothing has happened yet.

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ANA TOSTÕES

ENGINEERING LABORATORY OF ANGOLA

Luanda, 1963
ARCHITECT Vasco Vieira da Costa

▲ View of laboratories D, E, F and G.

▼ Figure-ground plan, 1:10,000, 08° 50' 31" S 13° 13' 03" E

The Engineering Laboratory of Angola (LEA) stands out in the ouevre of Vasco Vieira da Costa (1911–1982), since the architect did not have many opportunities to work on projects that went beyond the scale of individual buildings. Encompassing approximately 7 hectares, LEA is situated near the Prenda Neighbourhood Unit (Fernão Simões de Carvalho, 1963–1965) in Luanda, distinguishing itself as a large-scale complex within the *musseque*, the poor informal settlements of the city.

Vieira da Costa orchestrated the spaces and volumes with a particular focus on the laboratories while also giving due attention to support facilities such as the library, cafeteria, administration and workshops. They consist of pavilion buildings organised along orthogonal axes and surrounded by planned green spaces. This comprehensive approach was set within a broader urban-planning framework, featuring a deliberate attempt to establish a hierarchy of pathways for both vehicles and pedestrians, incorporating small squares that play a pivotal role in structuring the overall space. Rainwater gutters have been ingeniously integrated into this system, tracing pedestrian paths and shaping the public realm.

In his project description, Vieira da Costa explained the crucial role played by the site's topography in determining the placement of buildings. Concerning the Geotechnical (A), Roads and Aerodrome (B) and Buildings and Structures (C) pavilions, he noted that maintaining the pavement level consistent with the natural terrain contours dictated the parallel alignment of these pavilions along topographical lines, thereby avoiding extensive earthworks that would disrupt the landscape. However, this placement resulted in a less favourable solar orientation, with the major axis of the buildings aligned north-south. Through meticulous analysis of cross-sections, Vieira da Costa sought practical and cost-effective solutions to address challenges arising from this less advantageous

▲ Block C. The gap between the roof and the concrete walls, together with openings in opposing walls, creates a funnel effect to enhance air circulation and cool the workspace.

▶ The laboratories are connected to small courtyards.

▼ Detail of shading devices that provide rain protection and the necessary openings for ventilation.

orientation. To achieve this, he exploited the exposure of one façade to prevailing southwest winds, creating conditions conducive to natural ventilation throughout the workspace. Longitudinally oriented walls, suspended from the slab without touching the ceiling, were incorporated to facilitate cross-ventilation. The sloped roof, introducing a gap between the roof and the concrete slab, together with openings in opposing walls, established a funnel effect to enhance air circulation and cool the workspace. These expansive spans were crowned with concrete fins or fixed, moulded fibre-cement shutters, serving both as shading devices and rain protection. The formal aesthetic arising from these elements contributes significantly to the Brutalist expression of concrete.

The façades feature a simple, modular design with precise plan modulation. This, along with Beta windows on the eastern façades and concrete fins interspersed within the office spaces, engenders a rhythmic interplay of solid and void elements. (Beta windows was a Portuguese brand of a type of window with a slim iron frame fitted with narrow, horizontal and rotating slats of glass that was often used in colonial Mozambique and Angola.)

These three pavilions are strategically located at the northernmost extremity of the complex, maintaining a

▲ Façade of the pavilions A, B and C.

◀ Entrance to the pavilions A, B and C.

▼ The secretary's office has adjustable wooden slats.

spacing of 30 metres between them, while workshops and the Construction Materials Pavilion intersect perpendicularly. This layout provides ample space for experiments.

The pavilions' layout remains consistent, accommodating four primary functions: secretarial services, work offices, the general hall and special rooms. The general hall serves as the core, housing machinery and equipment, seamlessly connected to offices and special rooms.

On the western side, the general hall features larger openings equipped with tilting, adjustable and fixed doors that function as awnings. These components, combined with concrete grilles, lend these single-storey, double-pitched-roof volumes a dynamic plasticity. Access from the south leads to the secretary's office, connected to the waiting room and the Chief of Service's office. An external hall, demarcated by a suspended wall and a concrete grille wall, serves as the entrance. The secretary's office incorporates adjustable wooden slats and Beta windows within its walls, ensuring transparency and ventilation.

Both the Administration and Library building and the Chemistry Pavilion are oriented in a north–south direction. The Chemistry Pavilion has a wall-like appearance, featuring higher-level openings crowned with concrete fins and is flanked by smaller laboratories (D, E, F and G), oriented east–west, accessible via small courtyards.

▲ Gable wall of laboratory.

Towards the entrance, these pavilions display highly plastic façades, with the architect utilising colour and courtyard walls to transform a distinctly functional architecture into a poetic composition. They predominantly exhibit a closed aspect, with upper openings designed for air intake and ventilation.

The administration building, comprising three storeys, is marked by a pronounced horizontality stemming from its substantial length of 135 metres, accentuated by extended galleries projecting outwards. The horizontal character is punctuated by a stairwell volume, rising above the roof of the building.

Despite the diversity of building types, a unified design language permeates the entire complex. Consistent colour schemes (incorporating orange, green and white), concrete grilles, fins, gargoyles, structural elements and wooden slats collectively forge a cohesive visual identity. This vocabulary, rich in sculptural elements, sustains coherence while liberating itself from the confines of functional monotony.

For some time, ongoing changes have been altering the character of the complex. Large wooden doors are being replaced with sliding metal ones, concrete fins are repurposed as supports for air-conditioning units and one pavilion has undergone a floor addition, featuring tiled cladding.

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ANA TOSTÕES

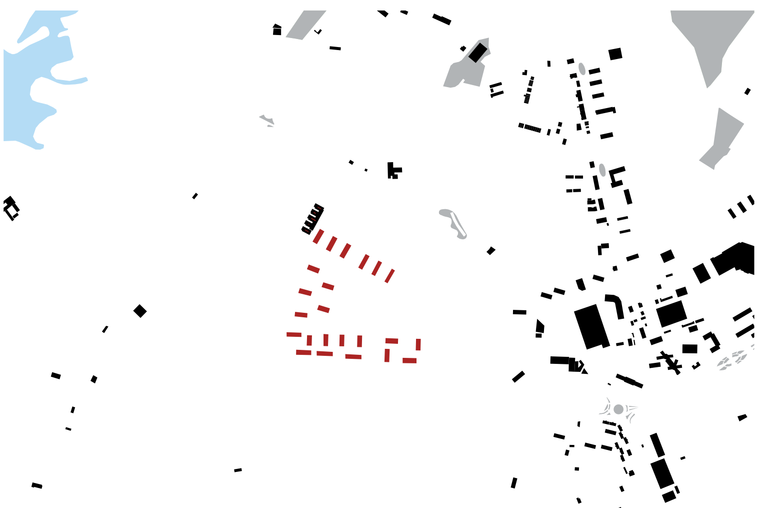
PRENDA NEIGHBOURHOOD UNIT

Luanda, 1963–1965

ARCHITECTS Fernão Simões de Carvalho, José Pinto da Cunha, Fernando Alfredo Pereira

▲ General view.

▼ Figure-ground plan, 1:10,000, 08° 50' 10" S 13° 13' 26" E



The Prenda Neighbourhood Unit (historically named Precol Neighbourhood Unit no. 1) illustrates Le Corbusier's direct influence across three distinct scales: urban planning, collective housing blocks and single-family housing.

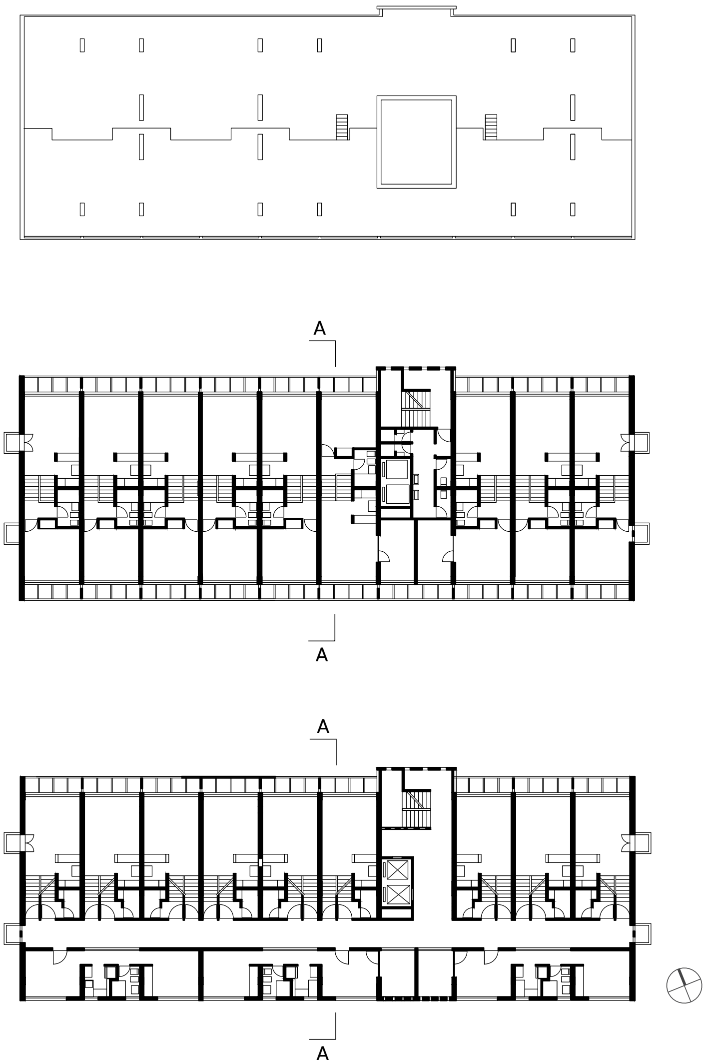
Following an internship with Le Corbusier and André Wogenscky in France in 1959, Fernão Simões de Carvalho (born in 1929) returned to his hometown, Luanda, where he joined the Municipal Council as an architect and urban planner. In 1961, he led a multi-disciplinary team at the Municipal Urbanisation Office, sharing his knowledge of modern principles acquired from Le Corbusier. Simões de Carvalho referred to this office as "a true school of urbanism". He built on concepts from Robert Auzelle, a critic of the Athens Charter who advocated for the integration of socio-economic factors into urban planning. Simões de Carvalho had studied with Auzelle at the Sorbonne Institute of Urbanism and was very interested in Le Corbusier's experiences with *béton brut*, and the Modulor system, which he learnt from his involvement in the design and construction of the Unité d'Habitation in Berlin and the Convent of La Tourette.

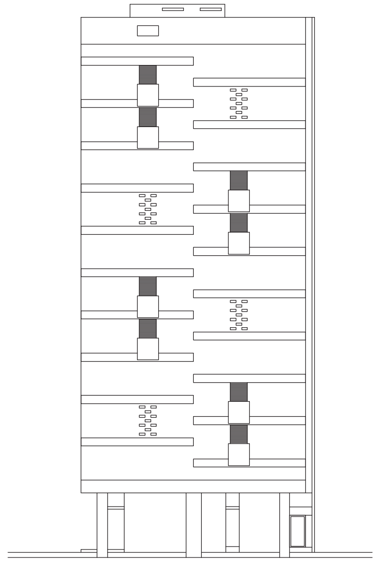
In Luanda, Carvalho worked within the context of the city's demographic expansion driven by the economic boost from the coffee trade and the "II Development Plan", aimed at addressing the housing shortage and managing the city's rapid, informal expansion, which had been going on since the 1950s. Luanda was inhabited by natives, Europeans and Africans from other countries who established businesses while evading fiscal control.

He developed urbanisation plans, including the Futungo de Belas Urbanisation Plan (1960–1962), the Luanda Master Plan (1961–1962) and plans for Neighbourhood Units. The Luanda Master Plan introduced a road hierarchy, establishing major thoroughfares and minor routes. Instead of zoning by functions as previously advocated, the plan adopted a system of neighbourhood units where residential, work, equipment, industry and service functions were grouped together. It aimed not only to develop new areas but also to transform the downtown area, where circulation challenges would be addressed by implementing two main penetration axes, one from north to south and another from east to west, connecting the city centre to Angola's interior through four ring roads. Additionally, three large multi-storey parking facilities were proposed at the intersections of these major roads before entering downtown. While this plan was never implemented, it served as the foundation for structural city axes and the development of three neighbourhood units in Prenda *musseque*, with two being realised.

▲ View of the tallest block today.

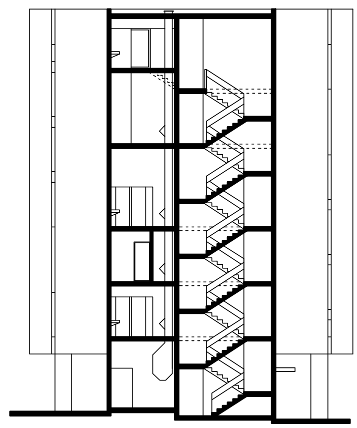
▼ The tallest block in the 1960s.

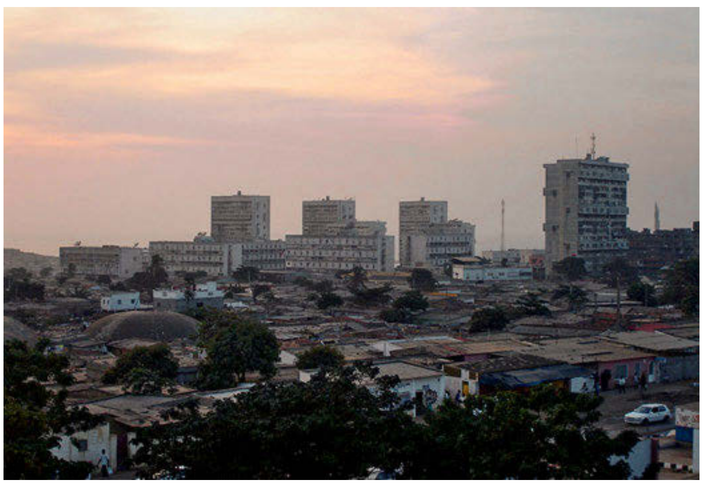




▲ Block A. West-northwest elevation, 1:400.

◀ Block A. First, second and top floor plan, 1:400 (from bottom to top).



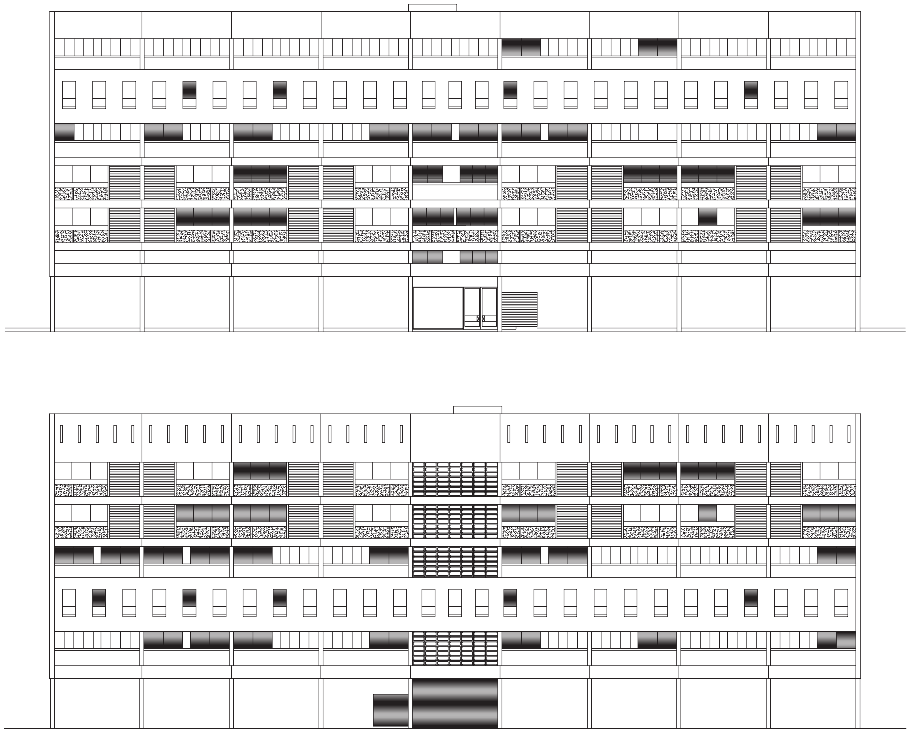


▲ Block D2. Section, 1:400.

◀ Northwest view. The buildings stand out on the city skyline.

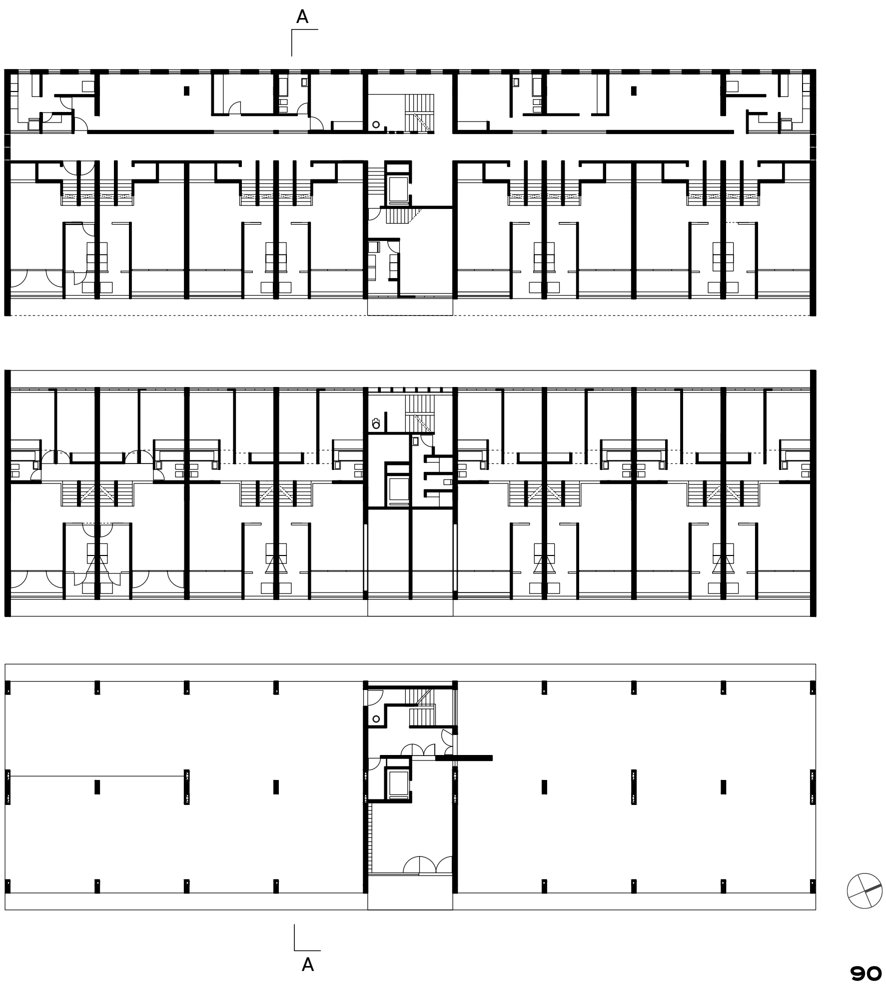
▲ Block A. North-northeast (left) and south-southwest (right) elevation, 1:400.

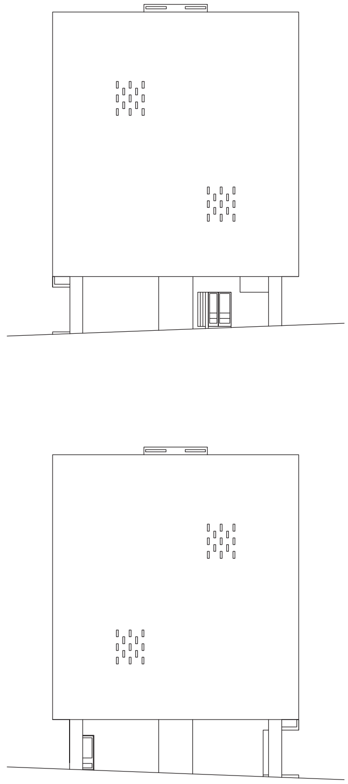
▼ The tall high-rise buildings contrast with the horizontality of the *musseque*.



▲ Block B1. Northwest (top) and southeast (bottom) elevation, 1:400.

▼ Block B1. Ground, second and third floor plan, 1:400 (bottom to top).





▲ Block B1. Northeast (top) and southwest (bottom) elevation, 1:400.

▼ Block B1. Section A–A, 1:400.

Between 1963 and 1965, Fernão Simões de Carvalho collaborated with Luiz Taquelim da Cruz to create a detailed plan for Neighbourhood Unit No. 1, organised according to the “7V’ system” (“Les sept voies de circulation”), a traffic hierarchy system proposed by Le Corbusier and developed by Maxwell Fry and Jane Drew for Chandigarh. This unit covers about 30 hectares and comprises 22 residential buildings. To integrate various social groups, diverse housing types and amenities, such as a cinema and shopping centres, were defined. The unit features a winding commercial street (V4) where traffic moves slowly and a meandering access road (V5) for residences. Between these two roads, many facilities were planned but never constructed. Dead-end streets (V6) were designed for single-family homes and row housing, and small squares were placed between the collective housing blocks.

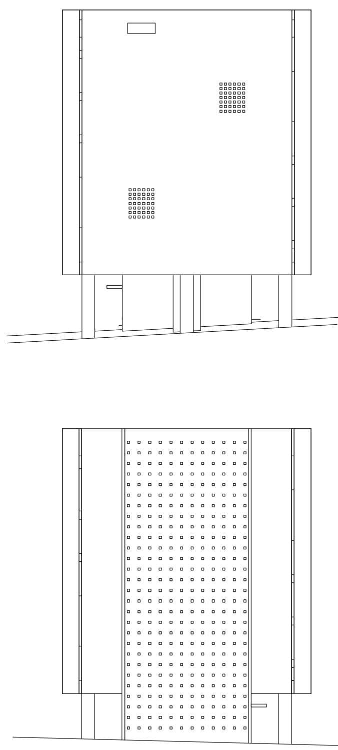
One-bedroom apartment blocks and office towers concentrated on the commercial street, bounded by V3 roads. This circulation hierarchy, along with open spaces created by piloti-supported buildings, aimed to foster community gatherings and build trust among residents of varying socio-economic backgrounds. The planned population ratio comprised 1/3 indigenous and 2/3 European residents, with 1,150 housing units. The architect hoped this ratio would evolve over time, contributing to a multi-cultural society.

Simões de Carvalho emphasised socio-living aspects over climatic or hygienic concerns, which had dominated planning in African colonies. Nevertheless, he considered climate factors by adopting the semi-duplex design, facilitating cross-ventilation and avoiding block alignment with prevailing winds in Luanda. External louvres were integrated for shading.

Prenda presented an opportunity to synthesise architecture and urban planning, as Simões de Carvalho, in

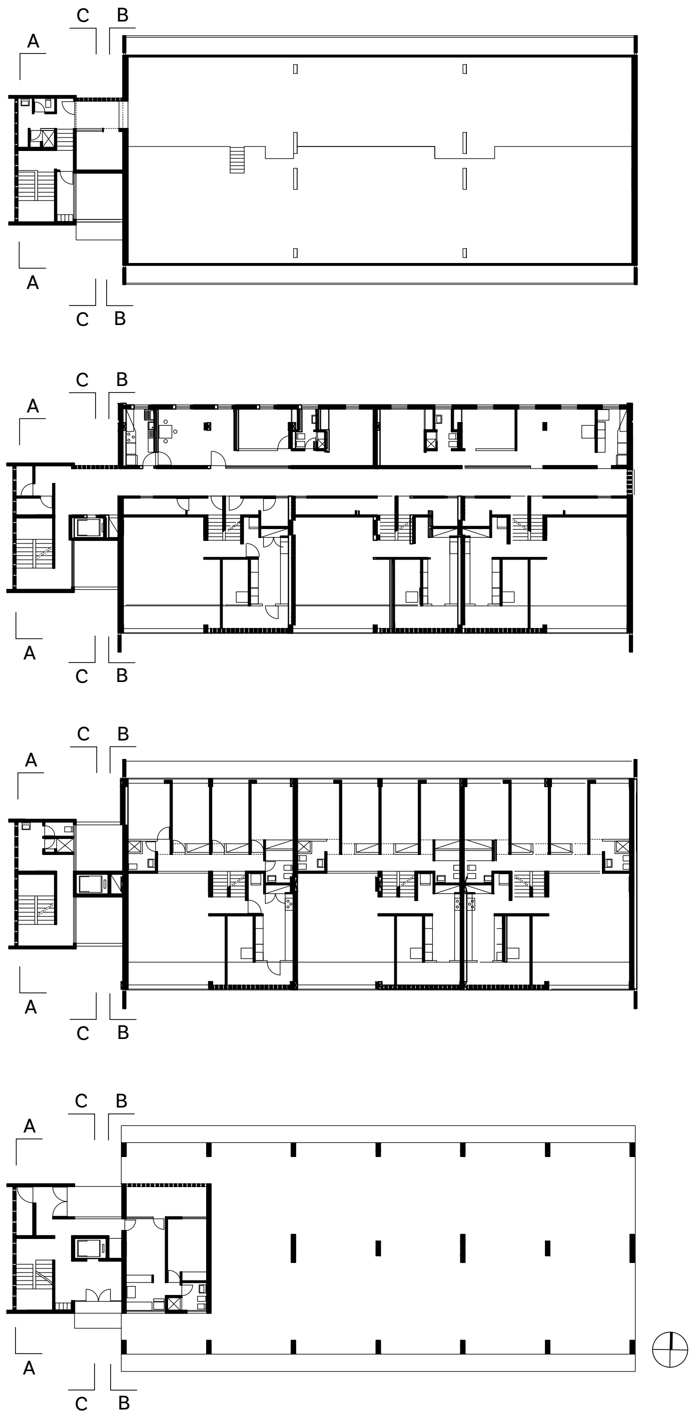
▲ Block D2. West (top) and east (bottom) elevation, 1:400.

▼ Block D2. South (top) and north (bottom) elevation, 1:400.



▲ Block D2. Section A–A (left), B–B (centre), C–C (right), 1:400.

▼ Block D2. Ground, first, second and top floor plan (bottom to top), 1:400.



▲ Informal settlements have occupied the open spaces and areas between the pilotis.

collaboration with architects José Pinto da Cunha (1921–1985) and Fernando Alfredo Pereira (1927–), also accepted a commission from Precol, initiated by the Luanda Municipality, to design the residential blocks of the neighbourhood. The blocks varied in height and typology, with 12 floors (Type A, west), seven floors (Type B1, north, and Type D1, south), six floors (Type D2, south), and 16 floors (west and southeast). They shared a consistent formal solution, elevated on pilotis with horizontal circulation galleries, allowing for diverse housing modules. Out of the 28 planned blocks, 22 were realised.

While the Prenda Neighbourhood Unit has undergone alterations, with informal settlements encroaching on open spaces and between pilotis, it still stands out in the city's skyline and layout—a symbol of modern urban planning, an isolated island where efforts were made to uphold the principles of the Athens Charter during a time when it was believed that the city's rapid growth could be regulated, populations integrated and pleasant living conditions created for all.

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ANA MAGALHÃES

RÁDIO NACIONAL DE ANGOLA BUILDING

Luanda, 1963–1967
ARCHITECTS Fernão Simões de Carvalho, José Pinto da Cunha, Fernando Alfredo Pereira

▲ The corner of the northwest and southwest façades accentuates the protruding volume of the auditorium.

▼ Figure-ground plan, 1:15,000, 08° 49' 50" S 13° 14' 19" E

The Information and Tourism Centre of Angola organised a competition in 1961 called the "Angola Broadcasting Plan" (Portaria 1961) among architects residing in the province. Following the competition, the project was commissioned to Fernão Simões de Carvalho (1929–), who had some knowledge of the programme due to his final course project for a television centre and who would develop it in collaboration with José Pinto da Cunha (1921–1985) and Fernando Alfredo Pereira (1927–). Simões de Carvalho, a graduate of the School of Fine Arts in Lisbon, completed an internship at Le Corbusier's studio under the guidance of André Wogenscky between 1956 and 1959. Simões de Carvalho's training was deeply influenced by the significant projects taking place at Le Corbusier's studio during this period – including experiments with the construction and plasticity of *béton brut* and the application of the Modulor system. This training would play a pivotal role in the work he would later undertake in Angola.

The programme envisaged the phased development of a complex that would include, in addition to the broadcasting studios, a television centre, a large auditorium and an administrative-services block. Only the first phase of the complex plan was realised, with the development of the project and the construction of the studio block, located next to the main thoroughfare and situated in the centre of the plot, and a workshop building, located to the northeast of the site.

The studio block is a large rectangular-based parallelepiped volume, positioned in the centre of the plot and set back from the perimeter, creating surrounding landscaped spaces. The building functions as a dense box contained within a grid of exposed concrete, resting on a partially submerged base floor, with functional spaces only at the periphery of the building.

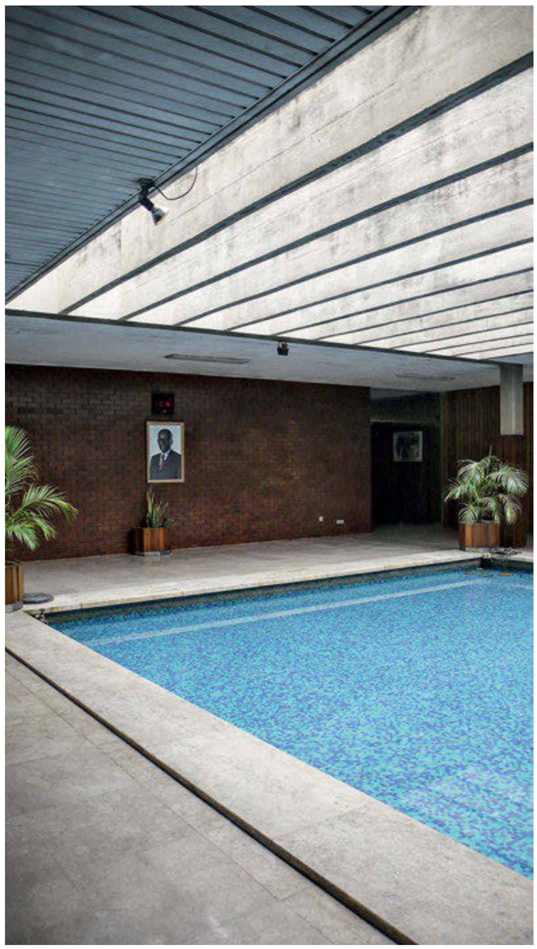
▲ Concrete façade grid with gargoyle.

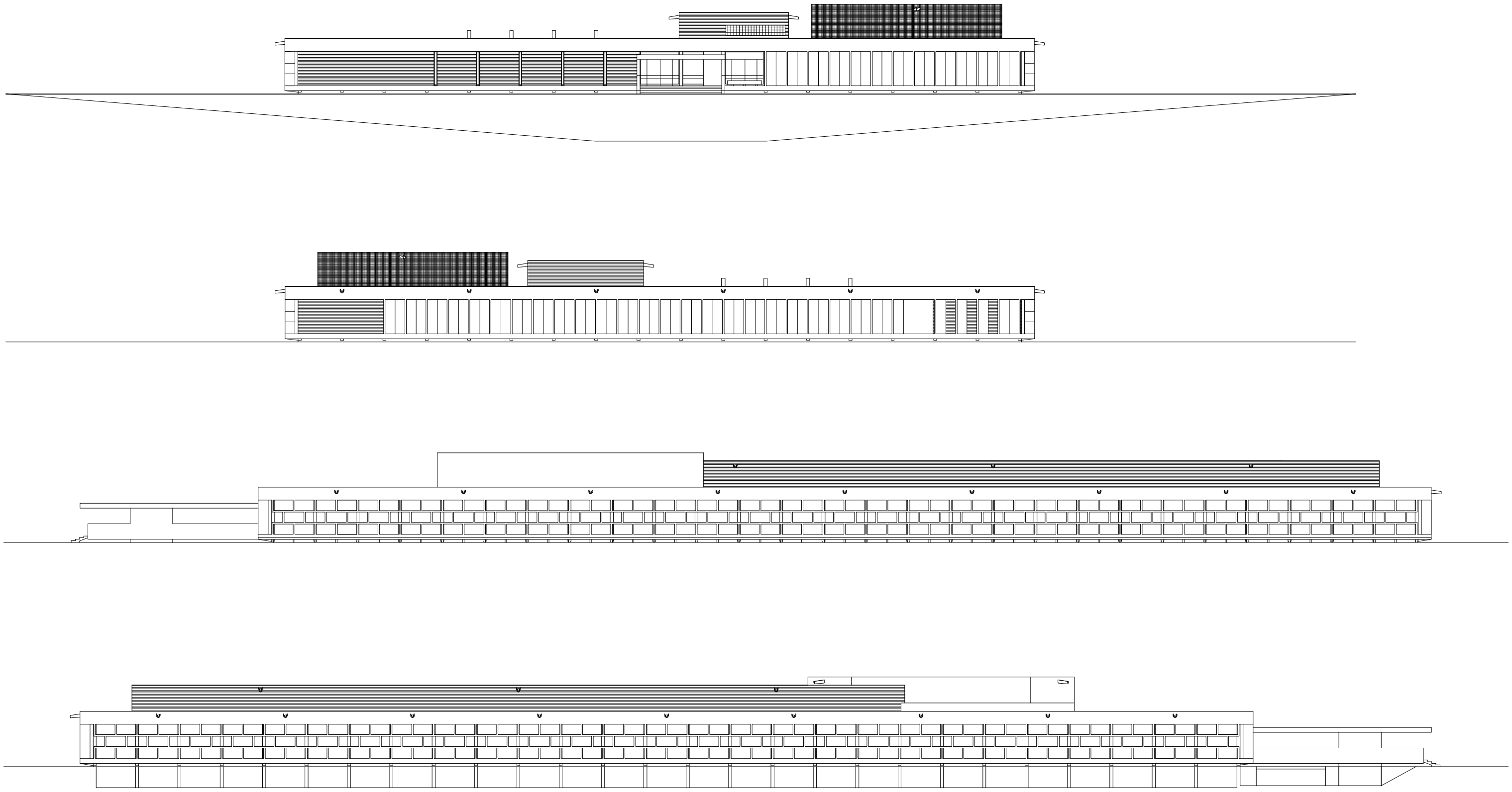
◀ Southwest elevation..

▼ Entrance atrium.

The building's design is based on the harmonious measurements of Le Corbusier's Modulor system. Thus, the rectangular floor plan is organised using modules of 3.66 metres (which correspond to one of the base modules in the Modulor's blue series) (Le Corbusier, 2000). In addition to the application of the Modulor, which Simões de Carvalho used in all his projects (Prado, Martí and Spencer, 2011, p. 236), references to Le Corbusier are very prominent in this work. The design of the broadcasting centre clearly harkens back to Le Corbusier's research on the expression of *béton brut* in his later works, especially in projects undertaken in Chandigarh and Ahmedabad, or in the plasticity of the Convent of La Tourette. In addition to the alternating grid geometry, Simões de Carvalho incorporates Corbusian formal elements, as can be observed in the expressiveness of the concrete gargoyles or in the interplay of materials: the dominant exposed concrete combined with tiled or glazed surfaces.

Effectiveness in responding to the tropical climate was one of the concerns that guided the design of the building. In addition to its favourable orientation with respect to the prevailing winds in the Luanda region, the layout of circulation spaces promotes efficient cross-ventilation. The design and placement of sunshades were carefully considered based on solar exposure, although compositional choices prevailed. Thus, the façades are designed in pairs: a grid pattern on the northeast and southwest façades, and vertical sunshades oriented at 45 degrees on





▲ Northwest, southeast, southwest and northeast elevation, 1:650 (top to bottom).

◀ The staircase is lit from above by several skylights.

▼ Main entrance portico.

◄ View of one of the interior courtyards.

▼ Northeast façade.

the upper façades, which are more exposed to harsh sunlight. The grid pattern is set back from the glazed surface by movable-glass-blade frames of the Beta window type to allow for façade ventilation. On the main façade, which is more exposed to the afternoon sun, partially opaque, narrow ventilation slits enclosed by pivotable shutters have been introduced. The semi-external entrance atrium and the array of interior landscaped courtyards are elements that promote natural ventilation and airflow. It is important to highlight the presence of water mirrors, both in the atrium and around the building's periphery, which, in addition to their formal character, serve the dual purpose of cooling and reflecting sunlight.

The Luanda broadcasting centre, a facility of great programmatic and technological complexity, was, during this period, a pioneering equipment within the framework of Portuguese architecture. The Rádio Angola Building (also called Centro de Radiodifusão – Emissora Oficial de Angola) is a contemporary work similar to European infrastructure of the same kind, which was visited by Simões de Carvalho and extensively featured in architecture magazines.

Today, the National Radio of Angola remains fully operational and, despite being in good condition, its service area has expanded beyond the limits of the building. On the periphery of the plot, a series of makeshift constructions have been added, which do not allow for a comprehensive reading of the building and diminish its quality. The Rádio is an exemplary work of the Modern Movement heritage and, very specifically, a legacy of the modern models disseminated by the globalised work of Le Corbusier.

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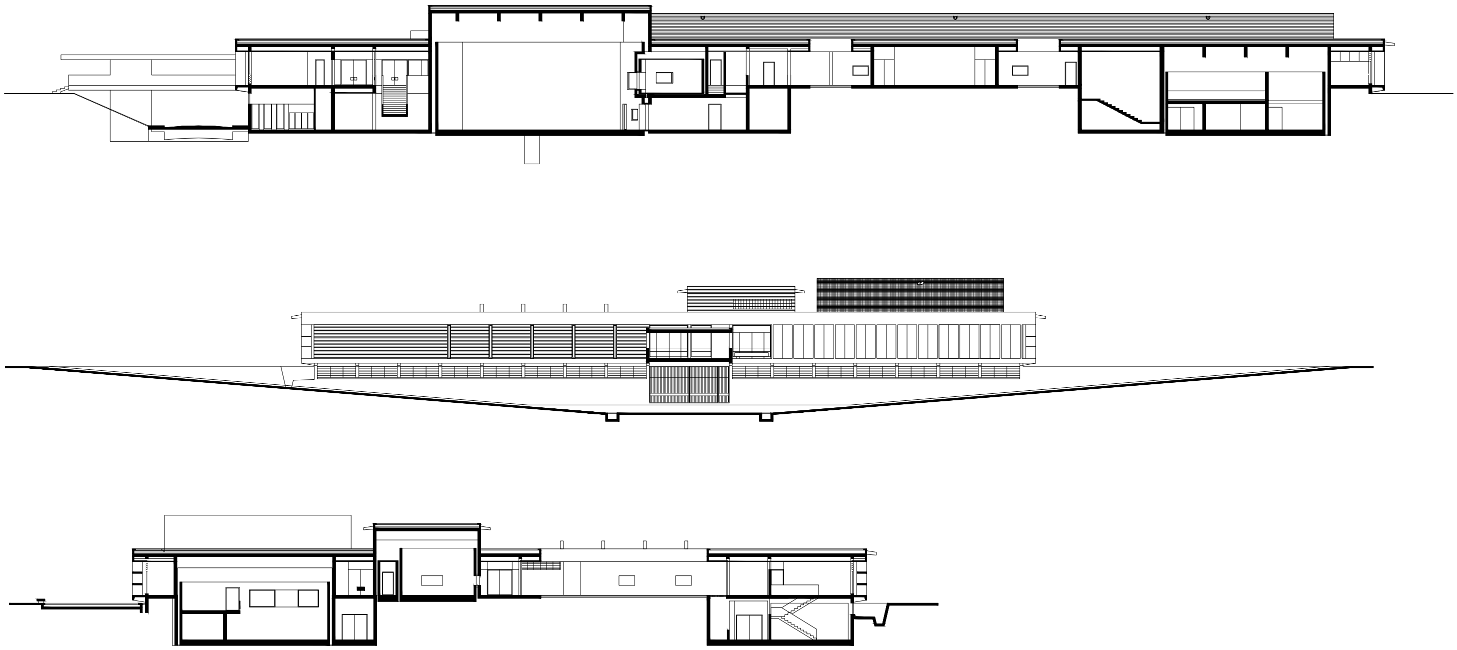
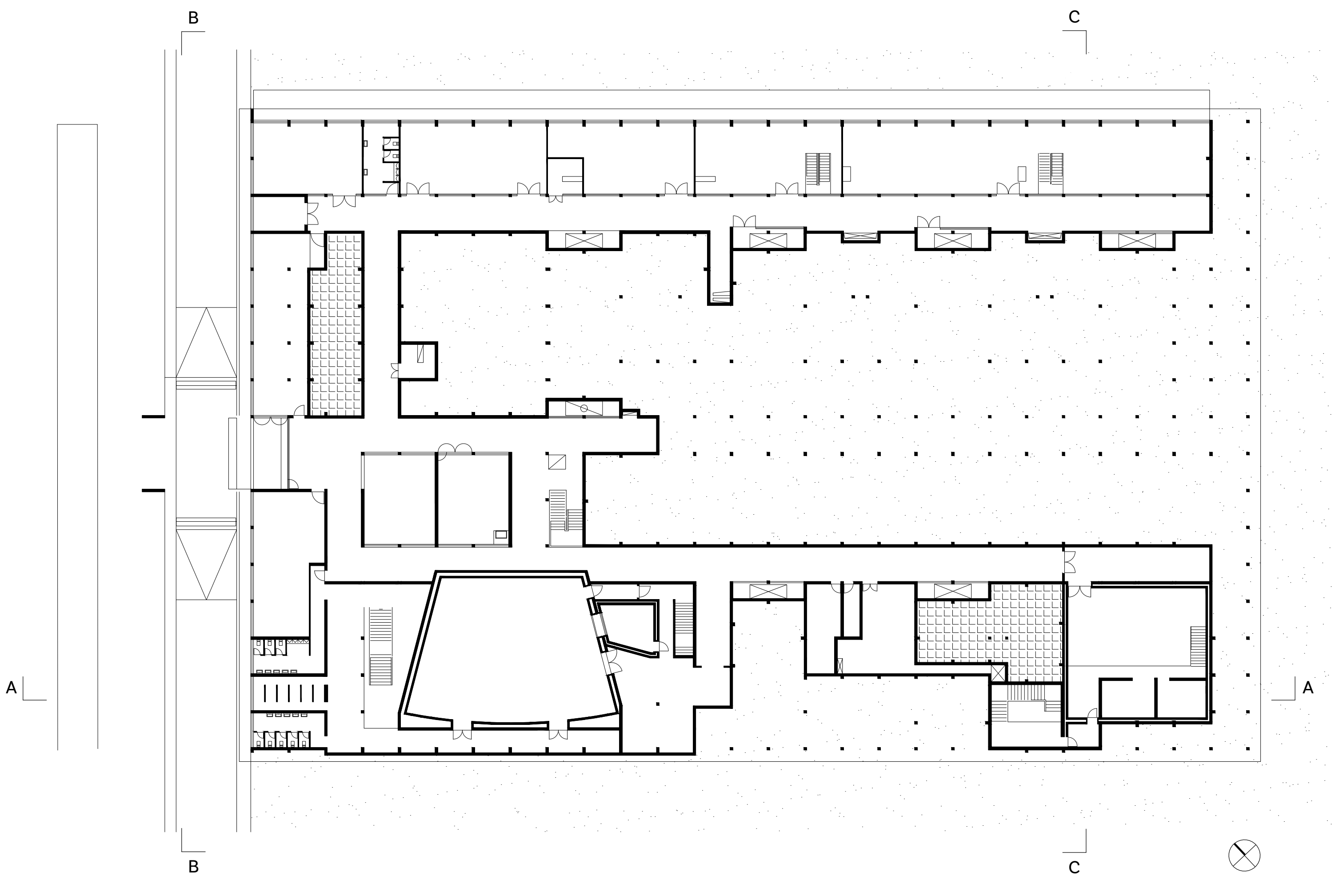
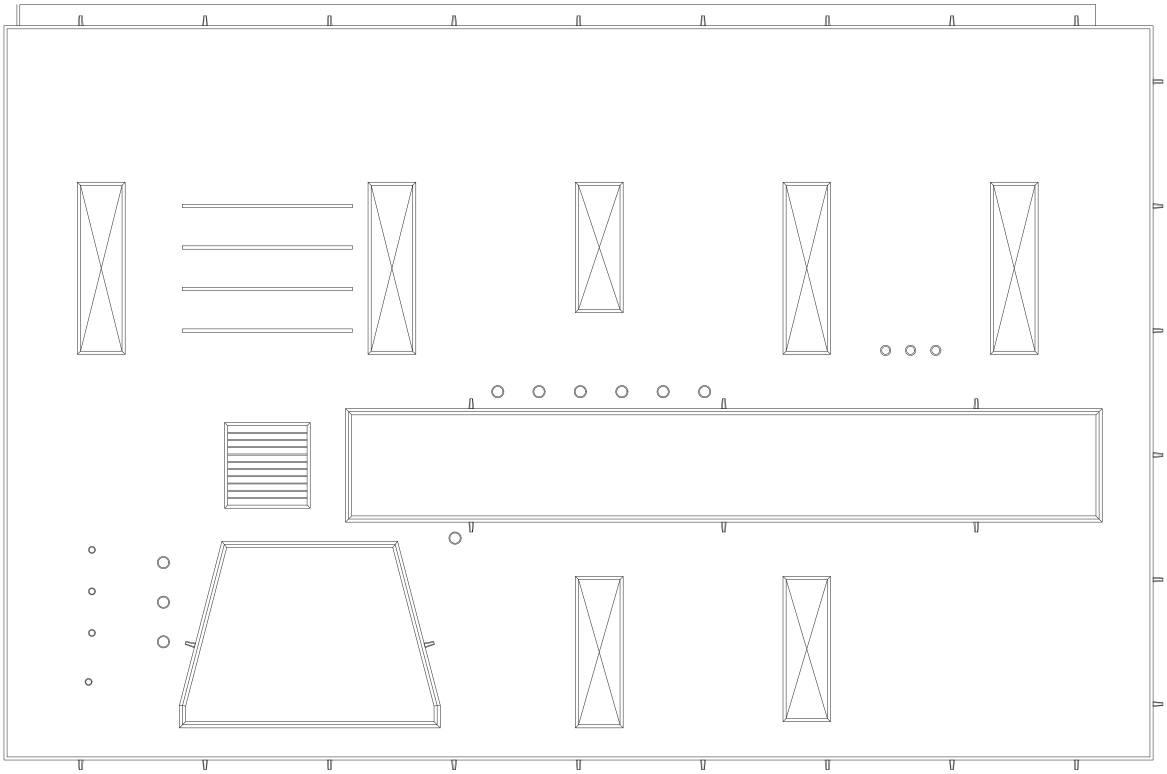


▲ Section A-A, B-B, C-C, 1:650 (top to bottom).

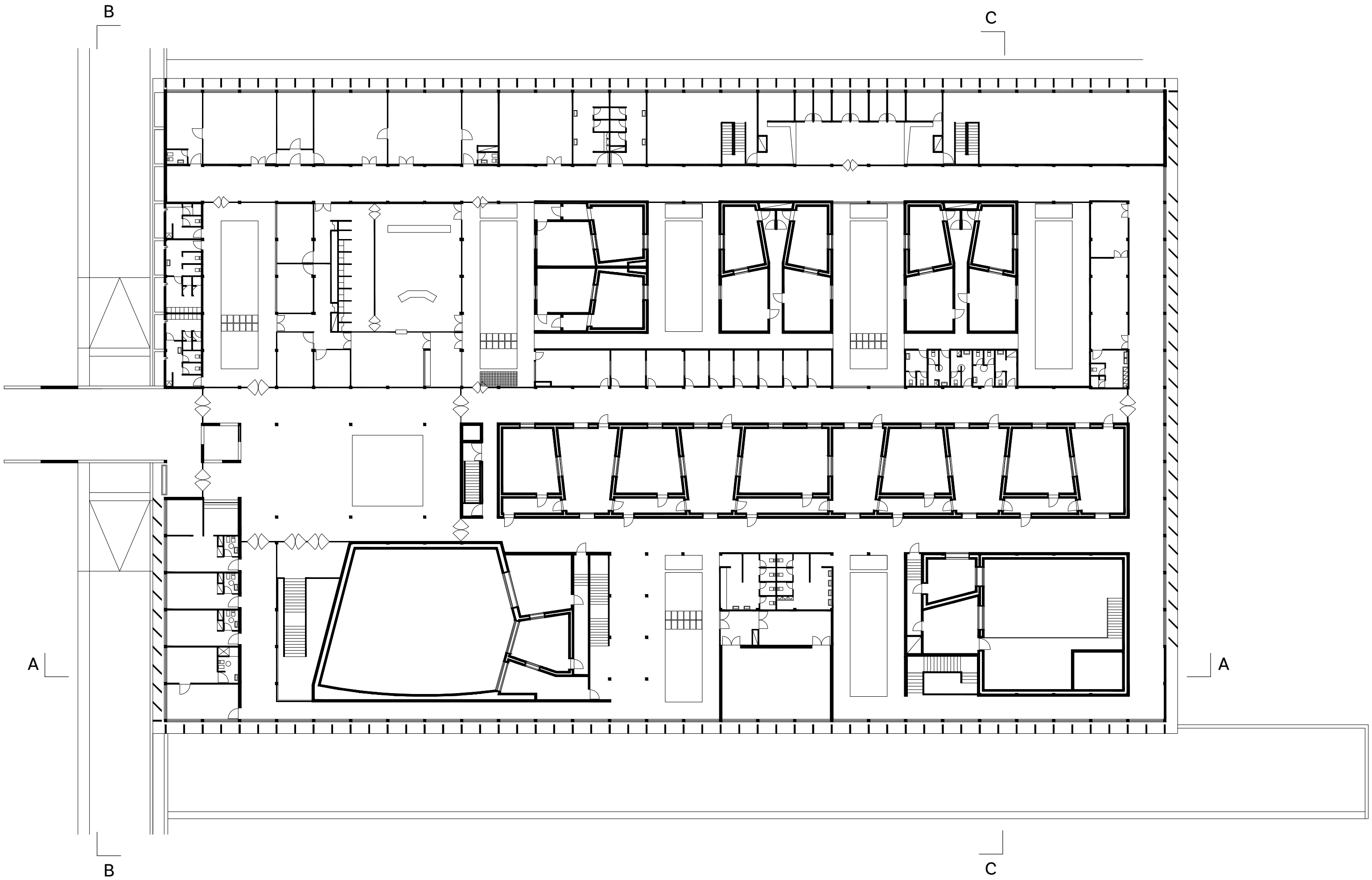
▼ Ground floor plan, 1:650.





▲ Top floor plan, 1:650.

▼ First floor plan, 1:650.



MARGARIDA QUINTÃ

LOBITO HIGH SCHOOL

Lobito, 1963–1970
ARCHITECT Francisco Castro Rodrigues

▲ Northeast façade of the first block of classrooms, built in 1964–1966.

▼ Figure-ground plan, 1:10,000, 12° 21' 20" S 13° 32' 14" E

Lobito High School (formerly Liceu Almirante Lopes Alves) was designed by Francisco Castro Rodrigues (1920–2015) in Lobito between 1963 and 1970. The construction of a lyceum in Lobito – the most industrialised city in the province of Benguela – was part of the colonial government's policy of expanding Angola's existing school network at the beginning of the Angolan War of Independence (1961–1975). The lyceum was founded only a few months after the outbreak of war (February 4, 1961) and operated in temporary facilities until 1966.

Meanwhile, in 1962, the education authorities drew up a preliminary programme for a mixed secondary school for 800 pupils. This programme included classrooms, laboratories, assembly rooms, a canteen, two gymnasiums and an auditorium. The project was then entrusted to Castro Rodrigues, a Portuguese architect who had lived in Lobito since 1954. At that time, he had already designed several public and private buildings, was highly respected and eventually became known as "the architect of Lobito", having developed several urban plans and the city's most important buildings between 1954 and 1975.

Castro Rodrigues' design, completed in 1963, called for the construction of eleven blocks connected by covered galleries that were to organise outdoor paths and provide shelter from the sun. In all, the school would have a gross floor area of 8,000 square metres on a site of 57,400 square metres. Construction began immediately, but in stages: first a large block of classrooms was built (1964–1966), then the administration block (1965–1967), a second block of classrooms (1969–1970) and finally a gymnasium (1970).

The classroom blocks consist of two long, three-storey parallel structures, slightly offset: the first, measuring 90 by 12 metres, for the second and third cycles, and the second, measuring 60 by 12 metres, for the first cycle of the secondary school. The volumes are partially raised

from the ground on pilotis, creating fully ventilated, shaded play areas. In both blocks, on the two upper floors, there is a series of classrooms along the southwest façade facing the street, and an access gallery on the northeast side facing the schoolyard.

The southwest façade is made up of a fibrocement openwork conceived by the architect and the design team from the Lupral fibrocement company in Benguela. This pattern combines a trapezoidal grid with tubular elements, prefabricated by the company. On one side, the classrooms are bounded by this porous wall. On the other side, large windows with glass louvres for air intake separate the classrooms from the access gallery.

The standard classrooms are 60 square metres in size and are designated to accommodate thirty students. In the first block, these classrooms have an additional 20 square metres of space adjacent to the southwest façade. This additional space consists of a balcony in order to distance the learning area from the façade and to protect the students from direct afternoon sun. This additional space was not built in the second block in order to optimise costs.

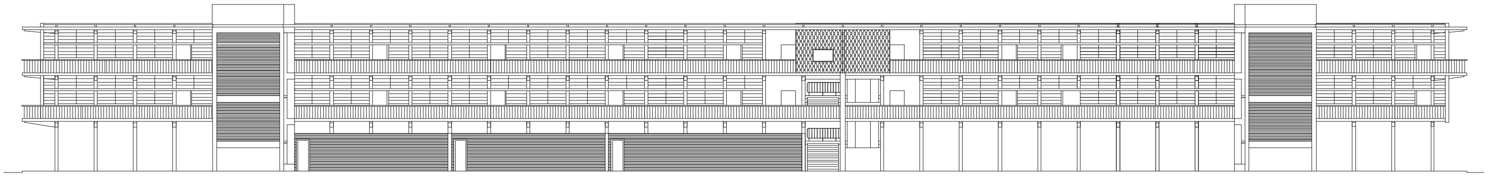
The administration block is a two-storey rectangular volume that acts as the school's entrance building, where teachers, students, parents and the community meet. Its front façade is composed of a grid of two-storey fibrocement ventilation blocks. The double-height entrance hall is thus a semi-open space, shaded and naturally ventilated.

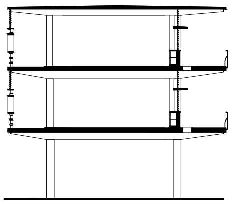
The gymnasium is made up of two juxtaposed volumes: a larger and taller one, which accommodates the sports hall, and a slimmer and lower unit, which houses the changing rooms, toilets and storage areas. The building is formed by a 3-metre-high brick wall surrounding a 7-metre-high concrete structure. A void between these two elements creates a 4-metre-high continuous

◄ The classroom blocks are partially raised from the ground on pilotis, creating airy, shaded play areas.

▲ The southwest façade of the classroom blocks is composed of a fibrocement grid, allowing for fully open classrooms that thus receive natural ventilation from the prevailing winds.

▼ Headmaster's office block.





▲ First block of classrooms. Northeast elevation, 1:900.

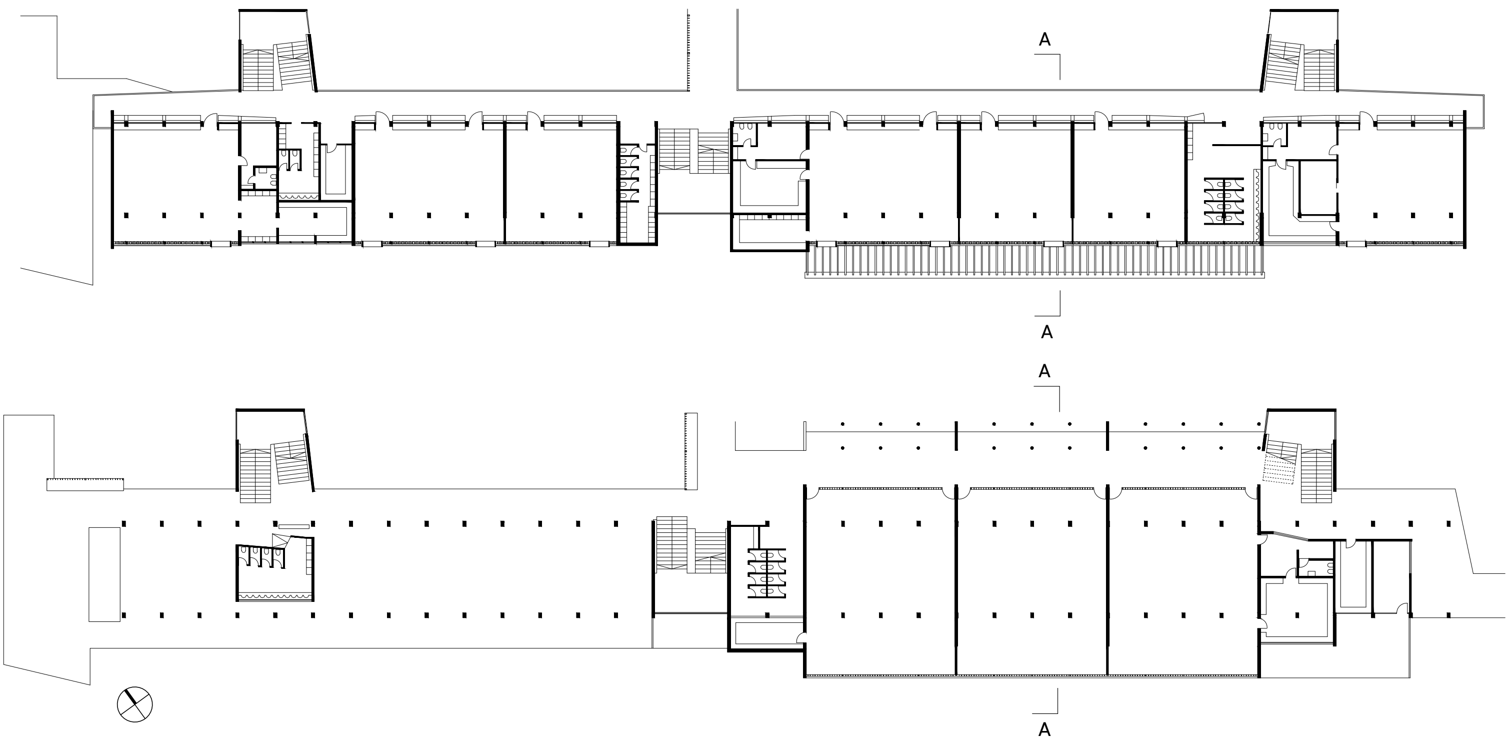
◀ First block of classrooms. Section A–A , 1:900.

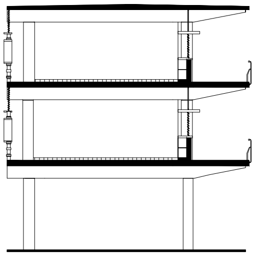
▼ First block of classrooms. Ground and first floor plan, 1:900 (bottom to top).

opening that brings natural light and cross-ventilation into the gymnasium. To the northeast, a set of five folding doors opens the space completely to the outside, promoting a direct relationship with the outdoor training areas.

Lobito's hot, semi-arid climate was the catalyst for Castro Rodrigues' open-air solution for the school. The architect believed that the only way to alleviate student discomfort and fatigue caused by the high humidity and temperatures was to ventilate the interiors naturally with constant crosscurrents of air.

Castro Rodrigues, an advocate of the open-air-school movement, believed that a "school without walls" was conducive to the physical and moral development of young people in a new educational environment: "With the greatest possible contact with nature, the spirit of youth is raised to all that is beautiful, true and superior. The blue sky, the clouds, the play of the trees in the

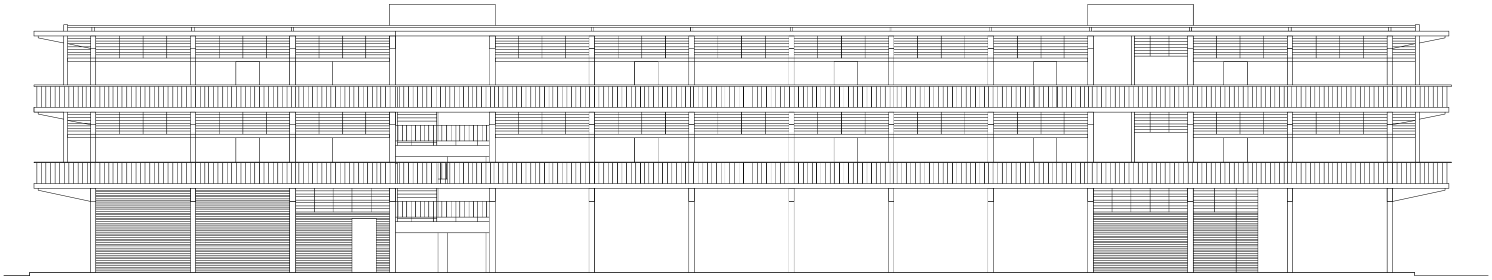


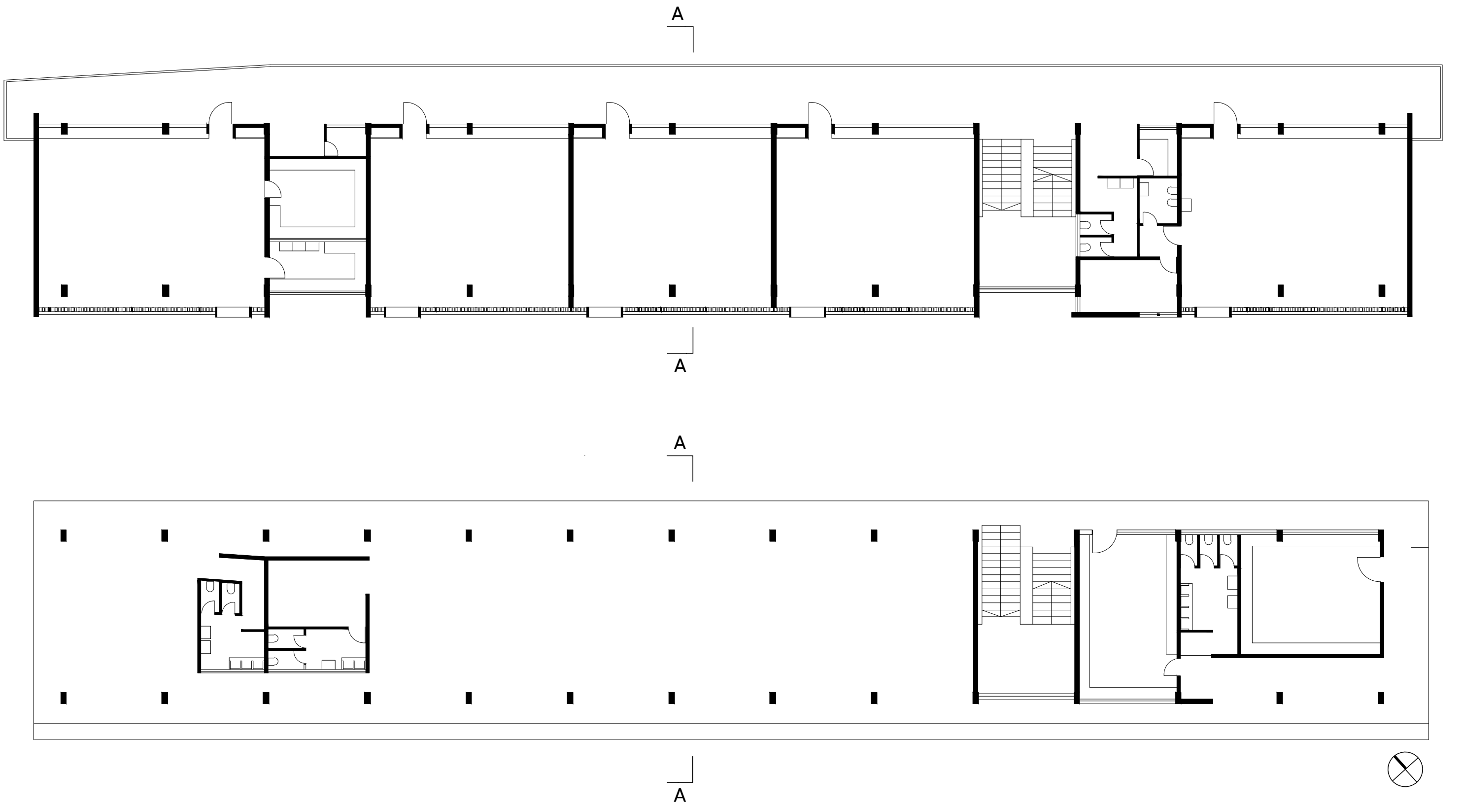


▲ First block of classrooms. Exterior and open vertical-access cores link the access galleries to the classrooms.

◀ Second block of classrooms, built 1969–1970. Section A–A , 1:900.

▼ Second block of classrooms. Northeast elevation, 1:900.



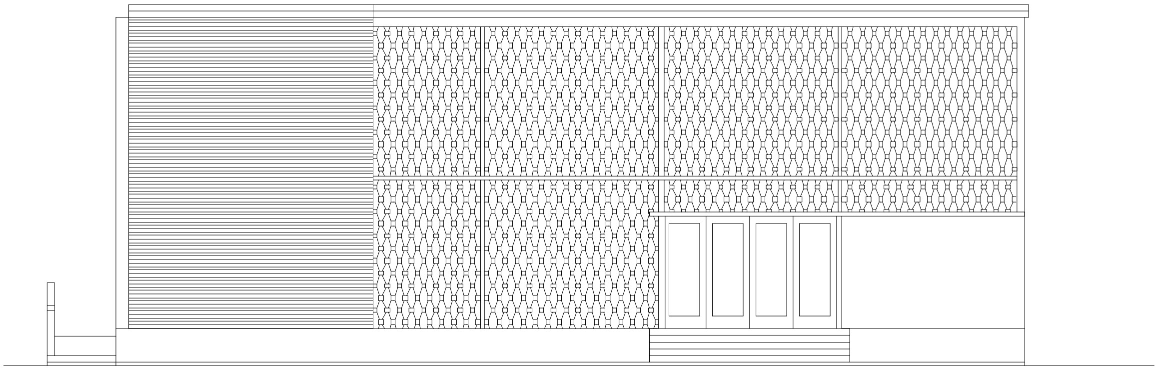


▲ Second block of classrooms.
Ground and first floor plan, 1:900.

▼ Interior view of classroom.

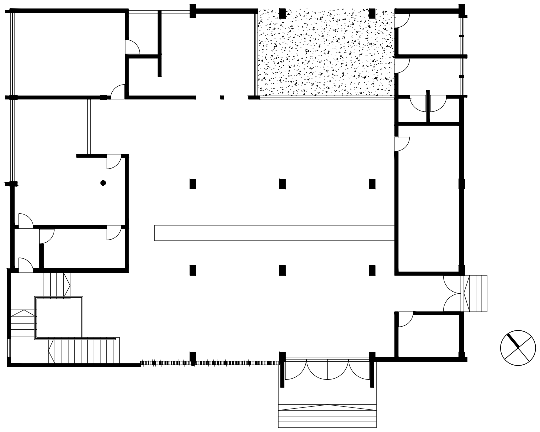
landscape, the flowers, the passing train, even the passing car, are stimuli and support for the elevation of the spirit. The child also learns by appreciating the events and aspects of life that surround him" (Castro Rodrigues, 1963, p. 1).

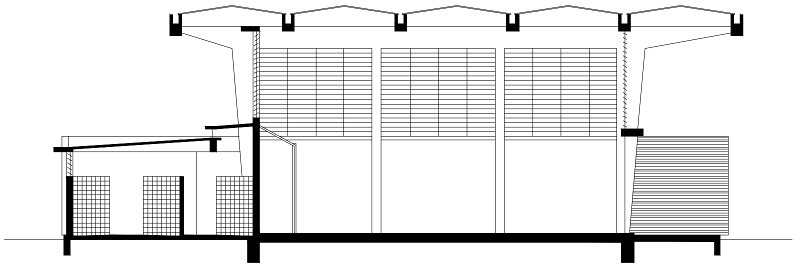
Today, the building is still used as a secondary school and is now called "Escola Secundária do Primeiro Ciclo Comandante Valódia". For many decades, the school was left in its original state with very little maintenance, until the Ministry of Education funded the renovation of the buildings in 2014. This resulted in several significant changes, such as the replacement of the original windows, the installation of a new roofing system and the enlargement of structural elements. The refurbishment project also included the removal of the façade ventilation blocks, but this was opposed by both the school community and the municipality as it would have significantly altered the appearance of the building. In this case, despite the lack of heritage protection for the complex, community mobilisation has informally contributed to the preservation of this important building, which has a place in the collective memory of Lobito.



▲ Administration block, built 1965–1967. Elevation, 1:900.

▶ First block of classrooms. On the northeast façade, large windows with glass louvres for air intake separate the classrooms from the access galleries.

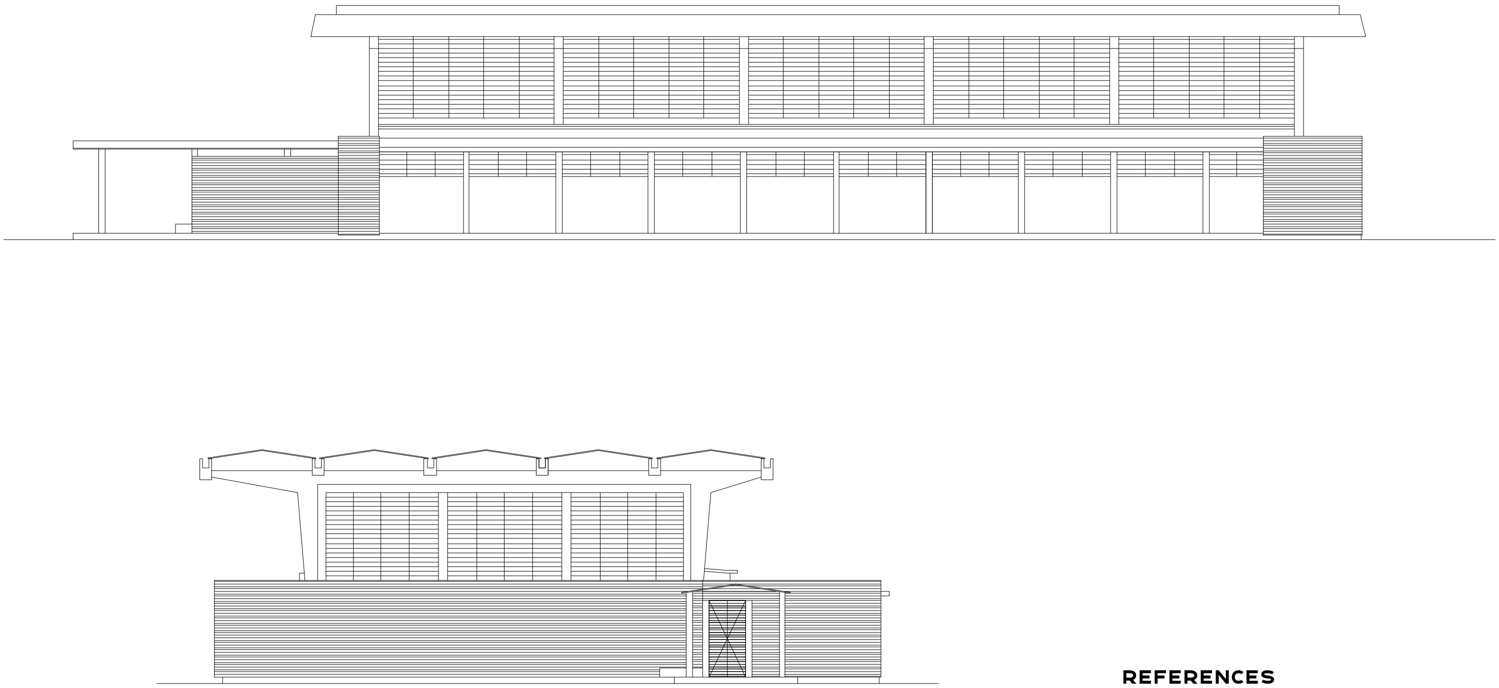




▲ Administration block. Ground and first floor plan, 1:500.

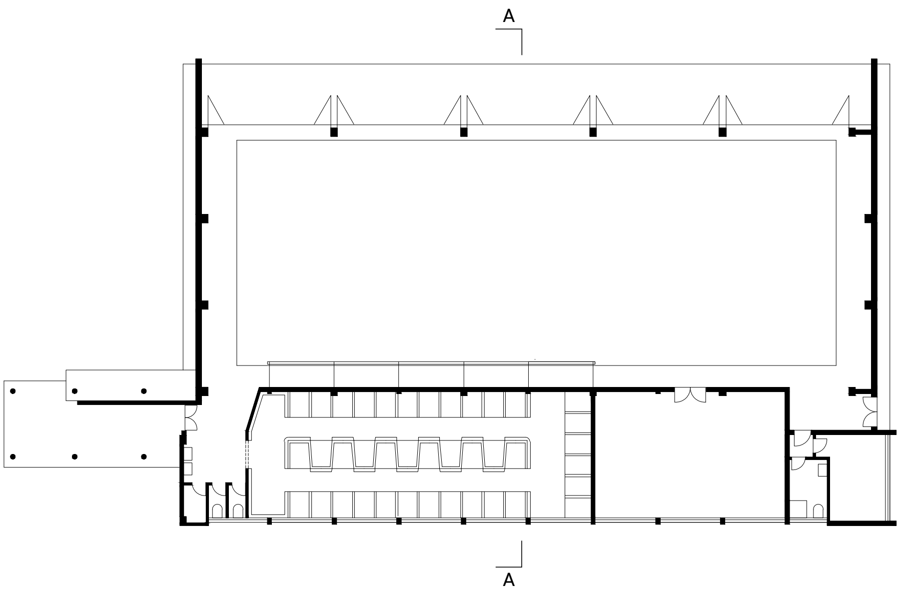
▶ Gymnasium. Section A–A , 1:350.

▼ View of gymnasium. A 4-metre-high opening allows for cross-ventilation.



▲ Gymnasium, built 1970. Southwest (top) and northwest (bottom) elevation, 1:350.

▼ Gymnasium, ground floor plan, 1:500.



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ANA TOSTÕES

STATE OFFICIALS BUILDING

Luanda, 1965–1968
ARCHITECT Vasco Vieira da Costa

▲ View of the west façade.

▼ Figure-ground plan, 1:7000, 08° 49' 38" S 13° 13' 38" E

The State Officials Building is a collective housing building designed by Vasco Vieira da Costa (1911–1982) in 1965 to accommodate civil servants working in Luanda. It is positioned parallel to one of Luanda's busiest thoroughfares, connecting the city centre to the airport (Amílcar Cabral Street), and a secondary road (Padre Francisco Gouveia Street), transitioning into a low-rise residential neighbourhood that extends to the Alvalade district.

The building is a mega-structure comprising five floors elevated on pilotis, supported by a colossal base that takes advantage of the varying elevation between the two streets, creating a wide, open and permeable public space at ground level. The access volumes are centrally located within a symmetrical composition. The entrance area, which includes a lift is flanked by two pure volumes housing stairwells. These stairwells are connected to long, horizontal distribution galleries, each measuring 80 metres in length and 2 metres in width.

These galleries serve as semi-private corridors, positioned approximately 1.50 metres away from the main volume, intermittently interrupted to provide access to the apartments through an uneven a rised private entrance composed of three steps signifying the transition from communal to private spaces. These galleries emphasise the longitudinal aspect of the block through a volumetric interplay of light and shadow, projecting and recessed planes, raw concrete grids, and transverse beam structures that extend beyond the building boundaries, defining the rhythmic and Brutalist expression of the complex. The typologies are carefully coordinated to maintain a consistent volumetric interplay, consisting of a sequence of five three-room apartments (two bedrooms plus living room, 166.10 square metres altogether) culminating at the northern tip with a one-room unit (81.30 square metres).

The functional organisation of the flats is defined in relation to the façades: service areas such as the kitchen, bathrooms, storage and one bedroom are oriented towards the eastern façade, adjacent to the galleries. On the western façade, one finds the more communal areas comprising the living room, dining room, balcony as well as the two main bedrooms. The design of the domestic space places a strong emphasis on communal areas, particularly the living room (35 square metres) and the balcony (21 square metres), which occupy roughly half of the apartment's space.

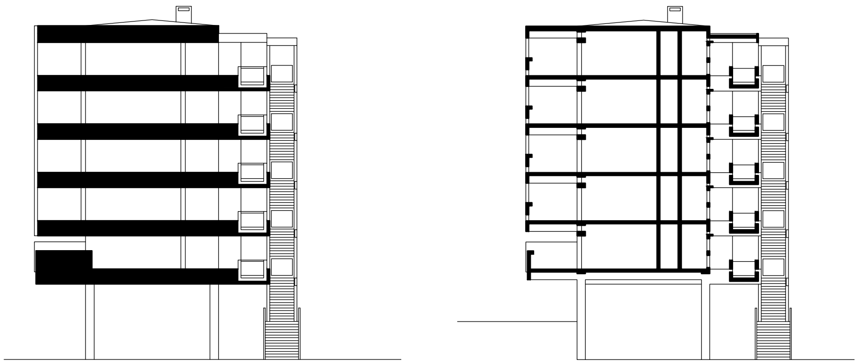
The building is oriented in a northeast-southwest direction, an unfavourable position with respect to insulation and ventilation. However, these limitations have been ingeniously addressed through smart climate-control mechanisms. On the western façade, this issue is overcome through the creation of an exterior box, projecting forwards from the façade plane, which is fully enclosed from the parapet by a series of wooden louvres functioning as a brise-soleil. This transformation converts the balcony space into a flexible environment that can be utilised in an open or closed configuration. This interior-exterior balcony connects directly to the double-height living area, allowing for adaptable use throughout the day. The shading and ventilation systems are based on shutters and windows with adjustable glass or wooden blades, as well as fixed concrete grilles.

On the eastern façade, functional areas are shielded from solar exposure by the galleries themselves, as well as adjustable wooden slats (Beta windows) that facilitate natural ventilation for the bedroom, kitchen and bathrooms. Transverse natural ventilation is further facilitated within the apartments through an open strip between the ceiling and the wall. This innovative solution features adjustable wooden slats, not only in the wall separating the living room from the balcony but also in the wall

▲ Volume housing the vertical-access stairs, protected from the sun by vertical shading devices.

◀ View of the east façade.

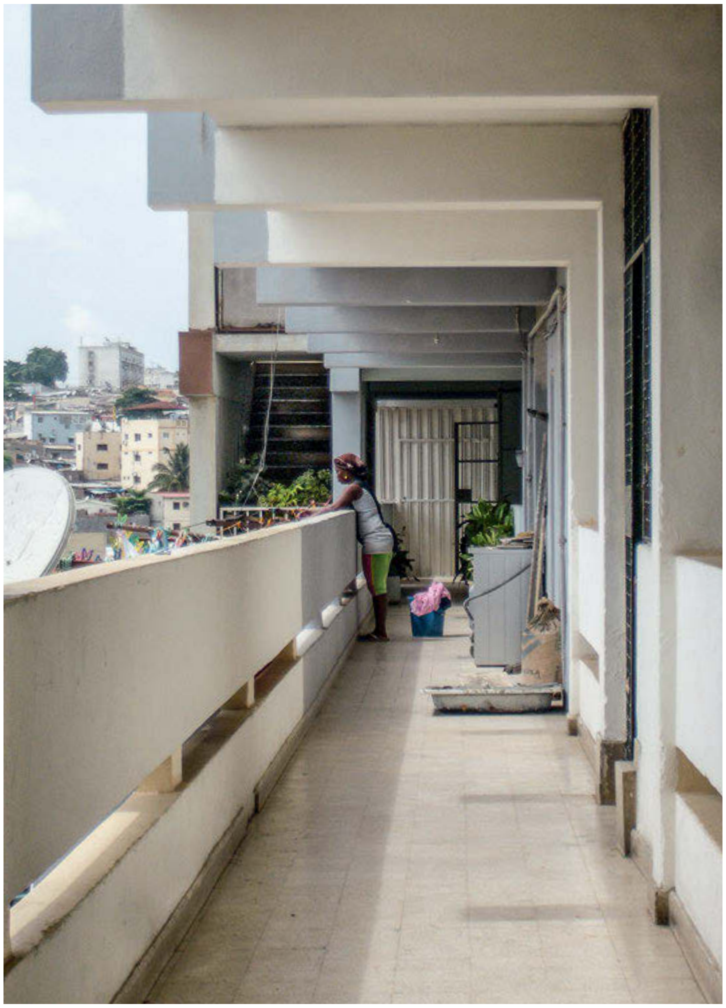
▼ Sunlight protection and ventilation solutions.



▲ Horizontal access galleries connected to the vertical-access volume.

▶ South elevation (left) and section A–A (right), 1:650.

▼ Exterior access galleries to the apartments.

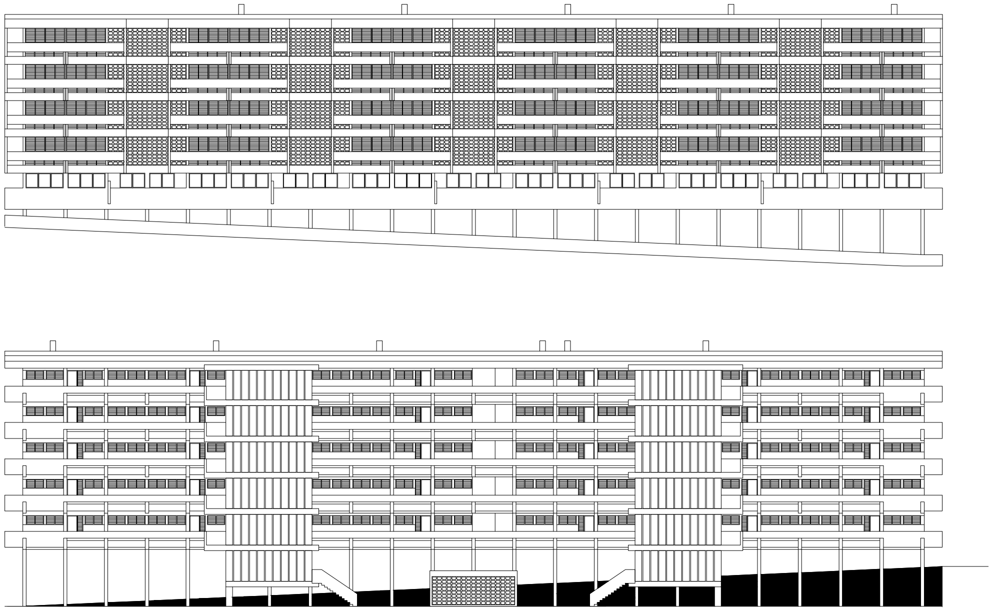


separating the bedroom corridor, the entrance wall beside the door and the interior doors. The ventilation and shading systems extend beyond the interior of the apartments, with concrete grilles also found within the stairwell volumes. Consequently, these blocks do not impede the circulation of air in the external galleries. Instead, they serve as both openings for airflow and as shading elements simultaneously.

The State Officials Building emerges within the cityscape as a prominent residential block. It distinguishes itself through its scale and volumetric design, showcasing the architect's ingenious ability to seamlessly integrate and harness construction systems to its advantage.

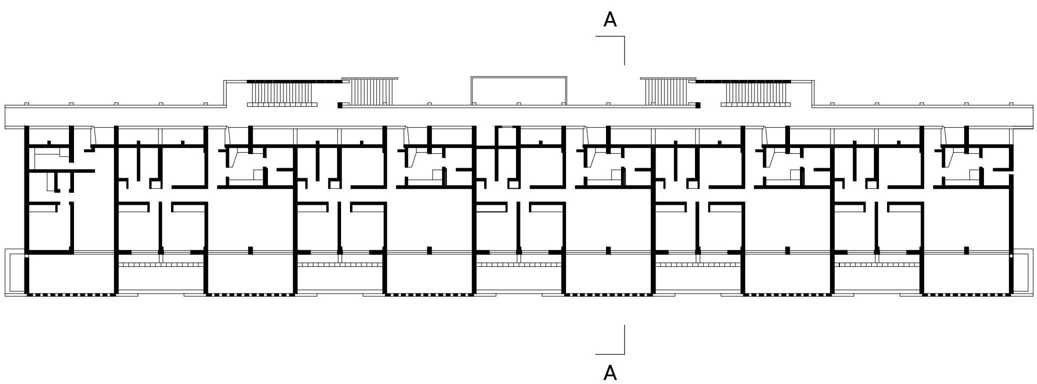
With clear references to the works of Le Corbusier, the sky streets of Alison (1928–1993) and Peter Smithson (1923–2003), and the construction traditions of many tropical African and Asian regions, Vasco Vieira da Costa manipulated structures in a plastic manner. He employed volumetric interplays of light and shadow, solids and voids, projections and recesses. The constraint of low-cost construction implied imaginative solutions and meticulous design, forming the basis for precise construction and a tectonic approach to the concept of "dry construction", which was prevalent in the 1960s.

Today, the State Officials Building has undergone significant changes. The original design intentions have been reversed, as public and semi-private spaces have been repurposed into compact apartments or commercial units. Moreover, many of the balconies have been enclosed, and mechanical air-conditioning systems have been introduced.



▲ West (top) and east (bottom) elevation, 1:650.

▼ Typical floor plan, 1:650.



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ANA TOSTÕES, MARGARIDA QUINTÃ

COMMERCIAL BANK OF ANGOLA

Luanda, 1967
ARCHITECTS Januário Godinho, Correia de Araújo, Campos Matos

▲ Januário Godinho, BCA perspective (ink drawing).

▼ Figure-ground plan, 1:5000, 08° 48' 42" S 13° 13' 60" E

Completed in 1960 after a seven-year construction period, the Commercial Bank of Angola's (BCA) tower, a 22-storey skyscraper designed by Januário Godinho (1910–1990), served as the headquarters of Angola's first private bank. Announced as "Portugal's tallest building", it aspired to represent the growing modernisation and economic progress of the Portuguese colony. Since it comprised the first ducted air-conditioning system in the country, it represented the pinnacle of modernisation in the Portuguese African colonies at the time. Its location near the seaside bay transformed the city's skyline, with the BCA logo illuminating the corporate rooftop and becoming a city symbol.

Godinho, an established architect in Oporto city, did not relocate to Angola but significantly contributed to Luanda's image and technological modernity by designing the BCA tower. This skyscraper stands as his interpretation of the International Style, tailored to address the challenges posed by the tropical environment and local culture. In Godinho's initial sketches from 1954, the influence of Gio Ponti's Pirelli Tower (1950–1958) in Milan on his design process is evident. He meticulously re-sketched Ponti's architectural plans, taking detailed notes and measurements of the tower's "served" and "servant spaces".

The tower's functional programme included both offices and residential spaces, with the bank's headquarters occupying the bottom three levels and the apartments soaring above. The building's base covered nearly the entire plot, forming an imposing podium with a U-shaped plan, offering 2,700 square metres per floor. From the 3rd to the 22nd floor, the tower ascends from the centre with a square plan of 700 square metres. To the north, the adjacent plot was cleared to create a public square and parking area. The bank's public entrance faces north towards Luanda Bay, while access to the upper

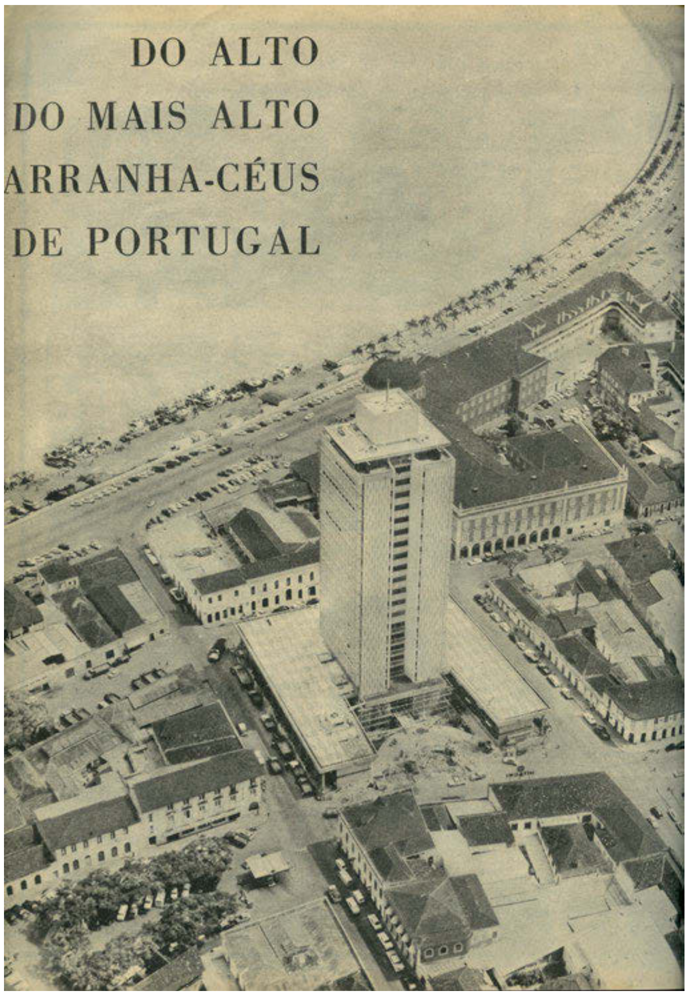
levels of the tower is located on the opposite side. The tower's standard floor plan measures 26 by 27 metres, featuring a central core of 8.5 by 9 metres. This core, defined by concrete walls, houses a staircase, five lifts, a fire column and ventilation ducts. The space is organised around four technical pipeline cores, which also accommodate the bathrooms. This rational layout facilitates equidistant placement of service spaces and offers flexibility in combining different apartment types and office configurations. The architectural scheme allows for two four-room apartments (three bedrooms plus living room) or four one-room apartments, as well as the option for one, two or four offices per floor. The building's façades follow a consistent pattern: the north and south sides feature long concrete walls, while the east and west façades incorporate glazed openings and large balconies.

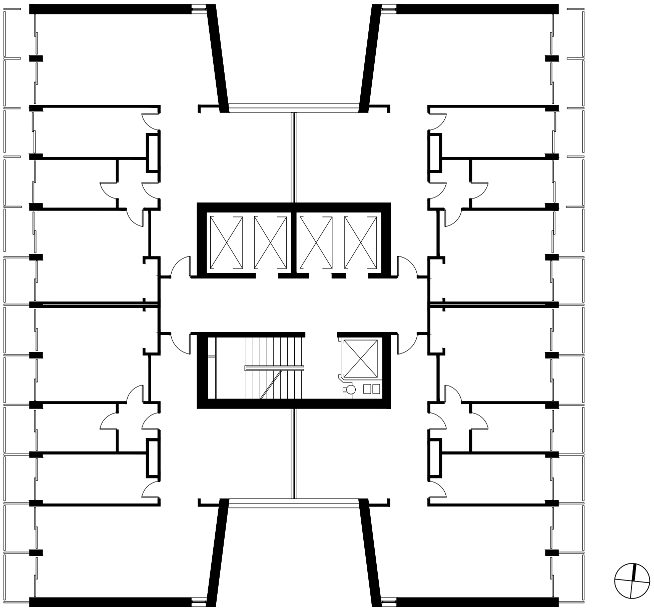
At that time, most buildings in Angola relied on passive climate-control methods. The new bank headquarters, however, responded to a clear demand for modernity, which meant having large glass façades and, concurrently, an innovative, ducted air-conditioning system. The system had been developed by the Portuguese engineer António Loureiro and installed by the local enterprise Lusolanda.

Despite the tower's initial provision of a controlled environment within the bank premises, it also integrated cooling strategies into the building's structure. At the base, a covered gallery around the perimeter creates a 2-metre gap between the glass façade and the building's structure, shading the fully glazed double-height façades and thus reducing the need for cooling. On the upper floors, balconies provided easy outdoor access, and were designed to serve as shading devices and protect the interior from solar heat gain. However, as they proved less effective due to the low sun angle in those orientations, exterior blinds were installed around the building's perimeter to prevent excessive sunlight from entering the

▲ View of Luanda Bay in the 1960s.

▼ The cover of *Notícia* magazine announced with pride in 1967 the BCA tower as the tallest building in Portugal.





▲ Typical floor plan, 1:250.

▶ The BCA tower in the silhouette of the city, which has since grown.

▼ Southward view towards the north and the bay.

rooms during the day. The building exhibits a clear dual composition, not only in terms of its form, with a plinth and a tower, but also regarding its environmental-control strategies and envelope characteristics. The hermetically sealed façade at the bank premises contrasts with the operable façade on the upper levels, featuring large sliding doors and movable blinds. This architectural solution fosters distinct usage patterns for public and private spaces within the building, each imbued with its unique character.

However, while the central air-conditioning system was limited to the public areas of the bank agency, and initially no artificial cooling was provided on the upper storeys, thermal-comfort expectations were not met. Consequently, the architect devised an alternative solution for cooling the apartments and offices a few months after the building's inauguration. Instead of having residents individually instal AC units, which would blemish the façades, the architect proposed four compact air-conditioning units per floor. These mechanical devices were positioned above the bathrooms and connected to short ducts on the ceiling, which cooled three to four rooms. This technical innovation was groundbreaking within this specific context and often relied on a trial-and-error approach.

Although the tower was built before the first oil crisis of 1973, a period marked by great enthusiasm for artificially controlled environments, it offered a hybrid solution that promoted a rather sensible use of energy. The origin of this sustainable formula can be traced, however, to economic and technical constraints rather than to ecological awareness.

▲ The bank's headquarters occupies the bottom three levels and the apartments soar above.

▼ The bank's public entrance faces north towards Luanda Bay, while access to the upper levels is located on the opposite side.

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JOÃO VIEIRA CALDAS

MUTAMBA BUILDING

Luanda, 1969
ARCHITECT Vasco Vieira da Costa

▲ South façade.

▼ Figure-ground plan, 1:10,000, 08° 48' 56" S 13° 13' 54" E

The Mutamba Building, designed by architect Vasco Vieira da Costa in 1968, functions as an office, commerce and services building. Its name originates from its prominent location on the southern side of Mutamba Square, which remains at the heart of Luanda's city centre, flanked by landmarks like the Finance Ministry to the west and the City Hall to the east. Today, it serves as the headquarters of the Ministry of Urbanism and Public Works of Angola.

Situated at the junction of downtown Luanda and the ascending upper city with newer buildings, the Mutamba area symbolises the intersection of different times, featuring what remains from the old city with buildings dating back to the 19th century; the modern city, mainly developed between the 1950s and the 1970s – brilliantly exemplified by the Mutamba Building – and the contemporary city developed after the 1980s, quite literally mirrored in the high-speed glassy (and thus reflecting) transformations taking place in buildings from different eras.

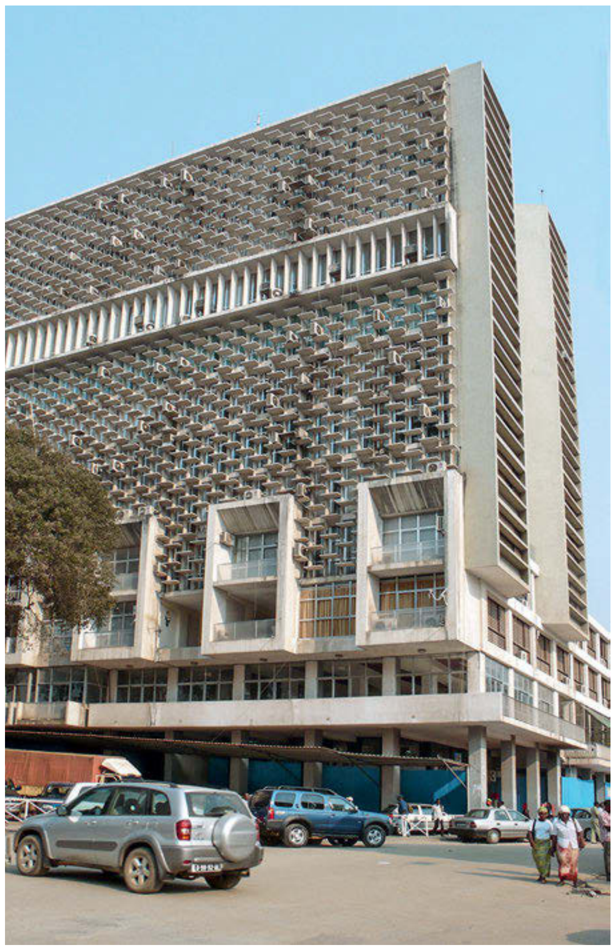
The Mutamba Building, at first sight, may appear as a parallelepiped-shaped block emerging above the trees. However, a closer look reveals more complexity. It is a building composed of distinct volumes occupying the northern part of a city block, with three façades and two right-angled corners, formed by the intersections of three streets in the Mutamba area. Starting with the north-facing "main façade", there is a ten-storey rectangular block partially supported by pilotis. Behind it are one or two additional floors set back from the upper volume. This setback forms an additional recessed floor above the slab/balcony where the columns are located. When the trees had not yet grown, the block from the northern side must have appeared to float above the columns, as if subject to a magnetic field.

Yet, turning any of the corners dispels this illusion. The side walls of the parallelepiped reveal that it consists of

▲ On the extensive north and south façades, brise-soleil slats create a consistent texture, concealing and obscuring the view of structural elements and floor panels.

▲ West view.

▼ On the northern façade, the textured surface is interrupted on the first two floors by projecting concrete "boxes". An arcaded gallery runs along the three street façades, providing shelter to pedestrians.

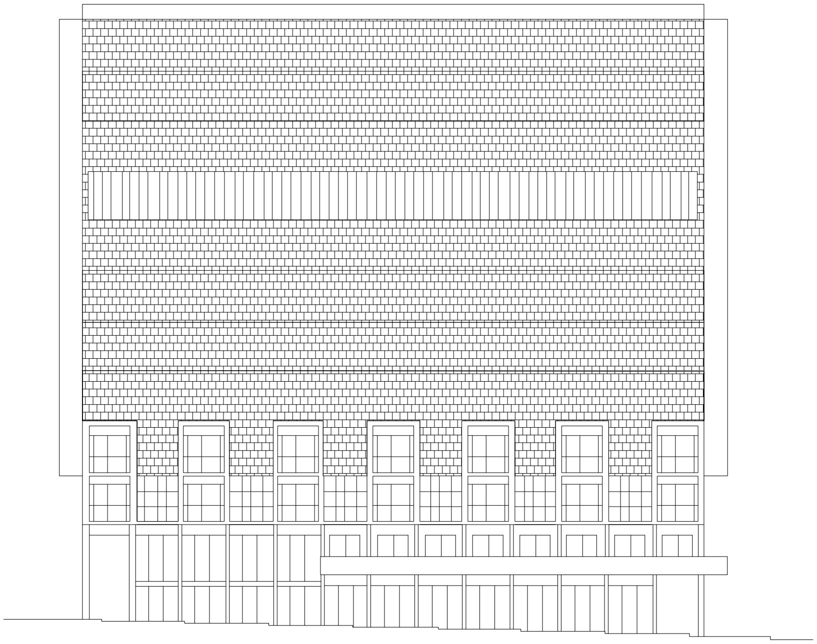


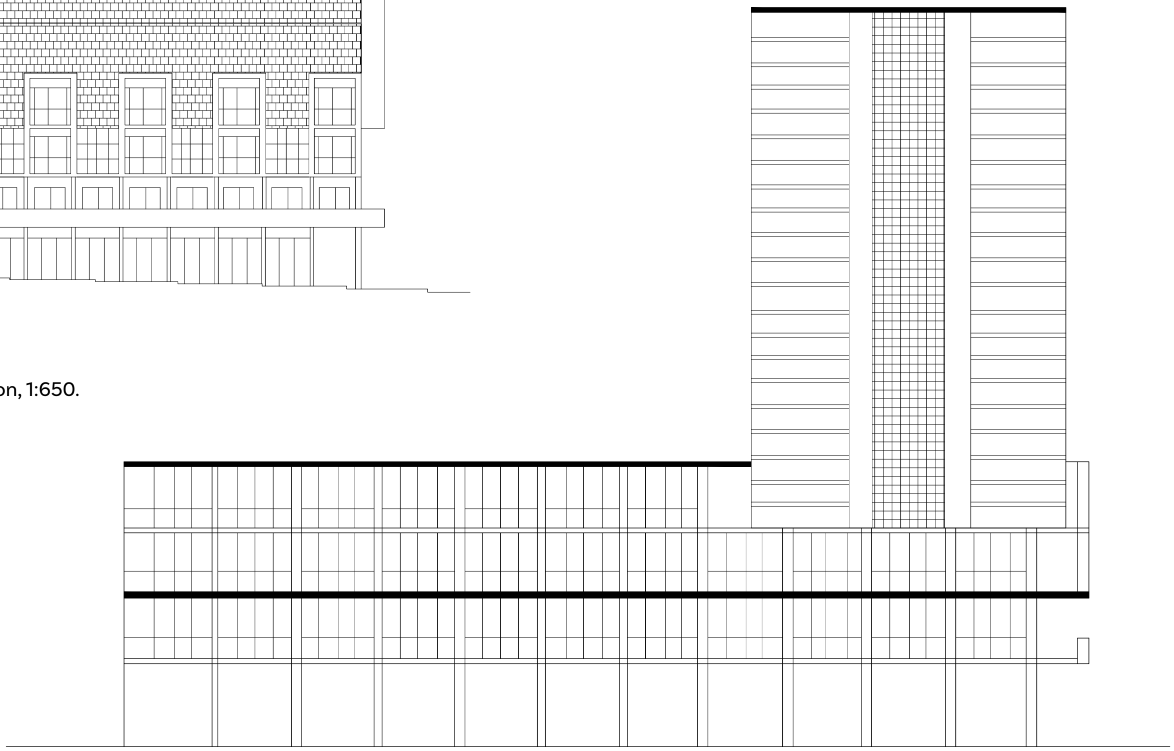
three narrower volumes, with the central body set back between the other two. Viewed laterally, the taller volume has only nine floors, rising above a podium of three storeys elevated on pilotis, asymmetrically extending along the side streets. From the south, the base appears as two unequal arms flanking an open courtyard behind the main block. An arcaded gallery runs along the three street façades, providing shelter to pedestrians and access to commercial and service spaces.

The building's structure is functional and straightforward. Each outer strip contains offices, interrupted by the stairwell and lifts near the middle. The central strip consists of wide axial corridors for distribution, ventilated at the ends by a checkered grille filling the vertical slits in the side walls.

The architectural design reflects two primary concerns of modern architects in former Portuguese colonies: ventilation and protection against solar exposure. Their designs were often guided by the objective of protecting occupants from tropical heat and humidity through natural means like shading and ventilation. Vieira da Costa aimed to strike a balance between ideal solar orientation and prevailing winds, seeking what he called a "compromise solution".

In the Mutamba Building, while the lower floors are shaded due to the stepping back of their façades, the

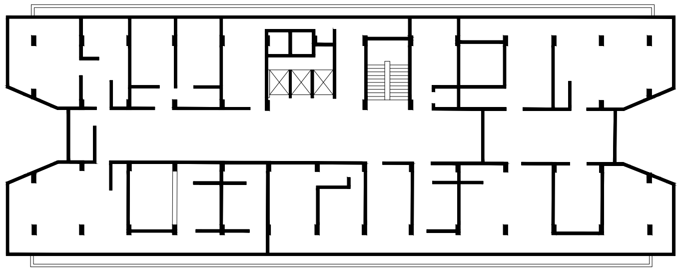


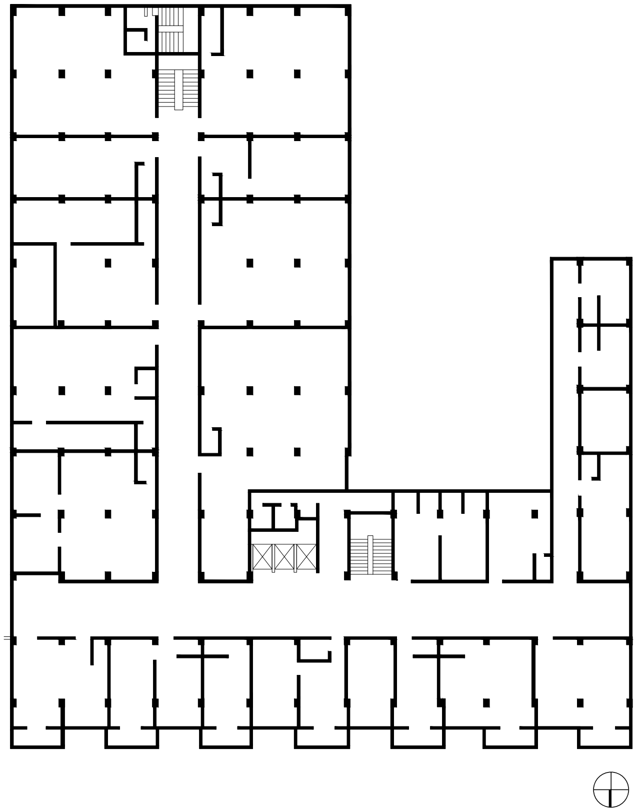


▲ North (top) and east (right) elevation, 1:650.

◀ The lower floors are protected by sliding shutters made of slanting wooden slats.

▼ On the northern façade, on the seventh floor, the brise-soleil grid is replaced by an extensive horizontal "box", with vertical fins affixed.





basement levels are solely protected by sliding shutters made of slanting wooden slats, as they can benefit from the shade provided by the surrounding buildings and the trees planted along the sidewalks. Solar protection on the upper floors is achieved through a brise-soleil grille consisting of continuous vertical slats made of reinforced concrete. Small horizontal slats of the same material and thickness are integrated within the intervals between the vertical slats. These blades, combined in two perpendicular directions, shield the building from the sun's rays. Furthermore, openings above the entrance doors capture air currents sweeping through the central corridor, facilitated by grilles concealing vertical openings in the gables.

On the extensive north and south façades, brise-soleil slats create a continuous texture, concealing and obfuscating the visibility of framing elements and floor slabs. Consequently, the southern façade presents a uniform, textured surface. On the northern façade facing Mutamba Square, the textured surface predominates but is interrupted on the first two floors by projecting concrete "boxes." These rectangular elements encompass a structural module, spanning the width of the building and rising two storeys in height. On the seventh floor of the parallelepiped block, the brise-soleil grid is replaced by an extensive horizontal "box", less prominent than on the lower floors but more so than the slats of the continuous texture. Fixed vertical fins, consistently spaced apart, are affixed within this box.

Is this ensemble an explicit reference, albeit on a different scale, to the commercial floors of the Unité d'Habitation in Marseille? Certainly, and that is not the only one common feature, considering the axial distribution corridors and other Corbusian aspects. In the context of influences from Europe, Brazil and Africa, Vieira da Costa aligns more closely with the Franco-Swiss master than with the formal freedoms inspired by Brazil.

◀ The main volume rises above a podium of three storeys elevated on pilotis.

▶ Ground floor and standard floor plan of the tower, 1:650 (bottom to top).

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MARGARIDA QUINTÃ

HUAMBO VETERINARY ACADEMIC HOSPITAL

Huambo, 1971–1974
ARCHITECTS Vasco Vieira da Costa, José Quintão

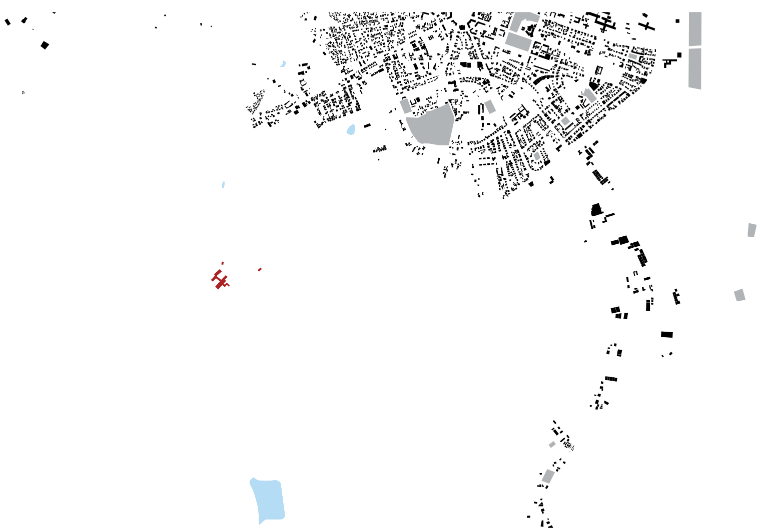
The Veterinary Faculty of Huambo (formerly Nova Lisboa) was the most ambitious university complex developed in Angola in the late 1960s. It was a major undertaking, built on the country's central plateau, with

the aim of promoting not only the regionalisation of university studies but also the agricultural development of Angola's interior. The faculty was located on 1,200 hectares of land next to the Angolan Institute of Veterinary Research (IIVA), which had been there since 1927.

The University of Luanda awarded the project to Vasco Vieira da Costa (1911–1982) in 1968, and the complex was built in stages between 1969 and 1975. During this period, only a small part of the original plan was realised, with the construction of three buildings: the Outpatient Clinic (1969), the Sports Field (1970) and the Veterinary Academic Hospital (1971–1974). The Veterinary Academic Hospital was one of the last works in Vieira da Costa's career and undoubtedly the most significant building designed during the period of his partnership (1970–1973) with José Quintão (1940–2021).

▲ General view.

▼ Figure-ground plan, 1:20,000, 12° 47′ 48″ S 15° 42′ 60″ E

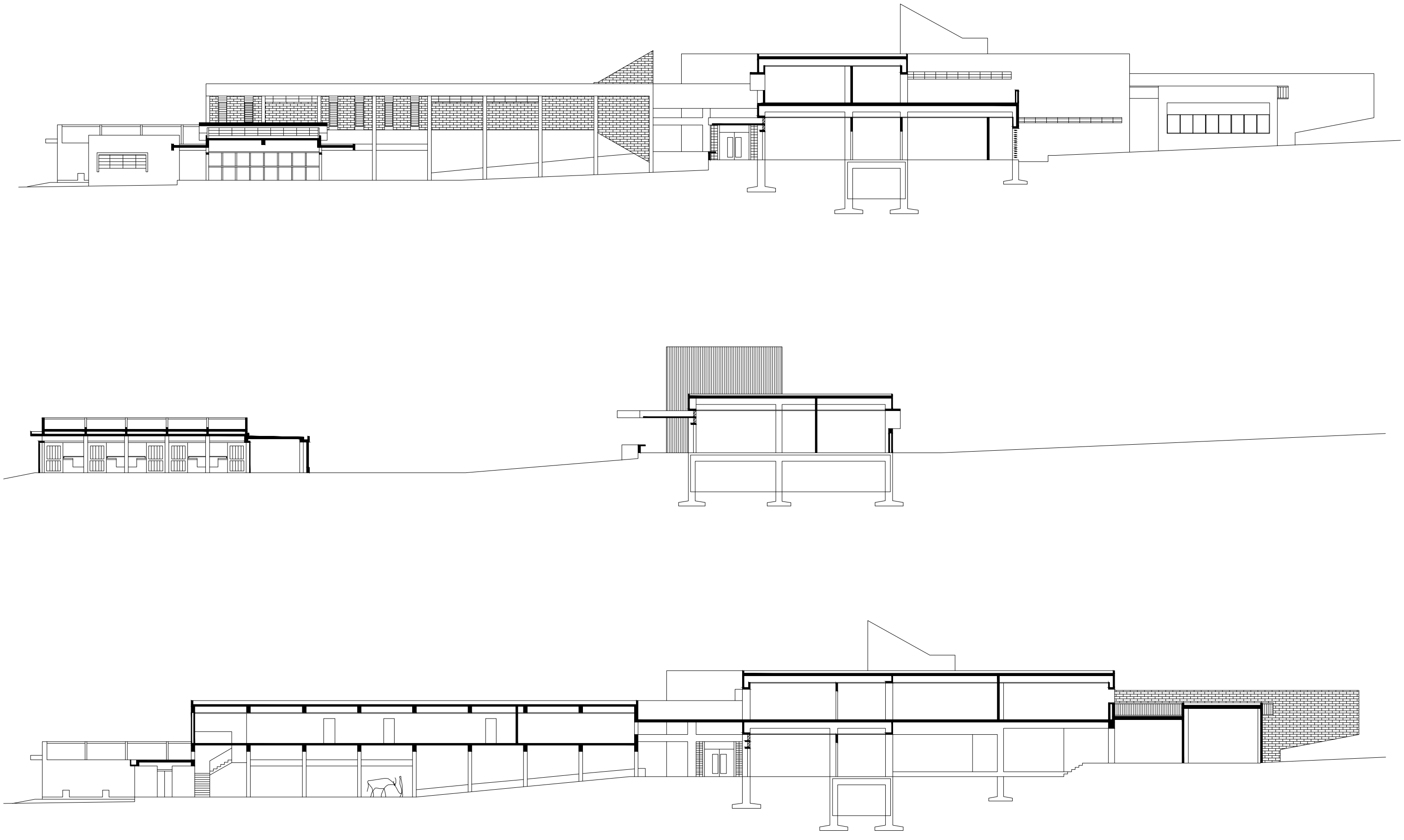


Vieira da Costa and Quintão's architectural project followed a very ambitious programme, resulting in a building of around 7,000 square metres that includes classrooms, laboratories, operating theatres and animal accommodation. Spanning 170 metres, the building of exposed brick and concrete consists of four distinct volumes arranged in an H-shaped plan. A central court-yard marks the main entrance to the building and organises the circulation of the hospital, linking the classrooms to the north, the operating theatres to the south and the animal shelters to the west. A brick volume

◄ West view.

▲ View of stables serving as animal shelters.

▼ Pens for smaller animals.



▲ Section A–A, B–B and C–C , 1:600 (top to bottom).

suspended on exposed concrete columns covers the passage from the courtyard to the animal areas and serves as accommodation for the vets on duty.

When reading descriptions of Vieira da Costa's projects, it becomes clear that his main objective in all of them was to achieve indoor comfort without the need for artificial cooling. It was a process of using analytical design methods and scientific knowledge of the climatic parameters, solar map and wind rose of each location to provide what he considered to be desirable indoor qualities. The architectural projects he developed with Quintão were no exception. But the climate of Huambo was very different from the hot and humid climate of Luanda, where he developed most of his projects. Instead, Huambo had a sub-tropical plateau climate, with heavy rainfall throughout the year and a wide range of daily temperatures.

The architects created a massive, compact building in Huambo, in contrast to the lightweight structures of Luanda. Huambo's temperate climate favoured passive environmental solutions, limiting the use of air-cooling

▲ Accommodation block for the vets.

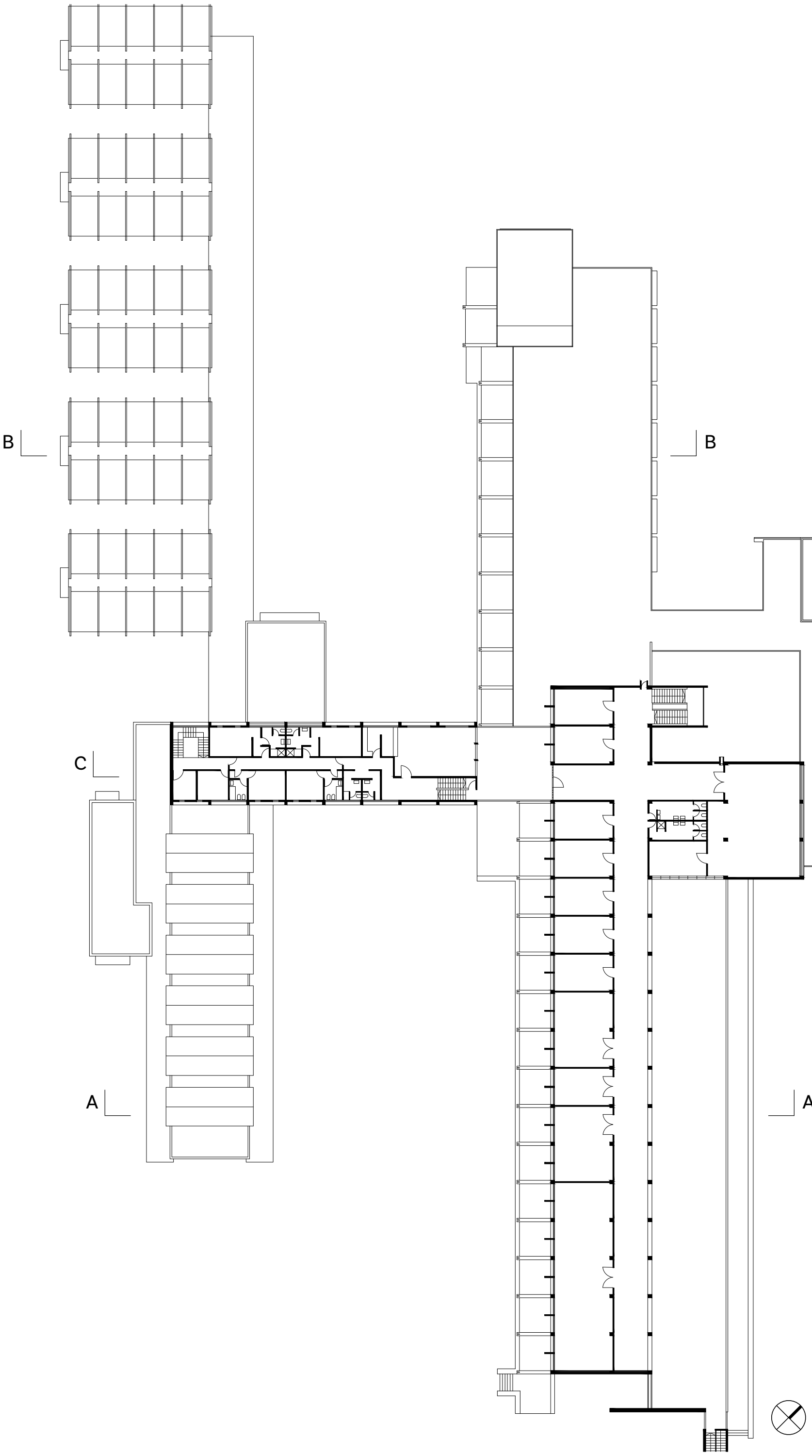
▼ Covered external passages provide protection from the elements.

systems to the operating theatres. Between October and April, Huambo experiences daily rainfall, which is usually heavy, sudden and accompanied by thunderstorms. Due to the long rainy season, the architects designed several sheltered outdoor spaces, using inverted beams with spans of 4 metres to cover all the external passages next to the building. By exposing the structure of the building and highlighting the concrete elements against the large brick surfaces, they succeeded in creating a continuous relationship between the interior and exterior spaces. The large horizontal slabs, the transparency of the concrete grid and the use of unclad materials contribute to the integration of the building into the natural environment.

By 1975, the campus was far from complete, but the construction of the Faculty of Veterinary Medicine was interrupted by the outbreak of the civil war that followed the country's independence. In the following decades, the central region was the main battleground of the Angolan Civil War (1975–2002), and the city of Huambo was heavily attacked during the "55-day war" in 1993. At the time, the Academic Veterinary Hospital served as a shelter for the

▶ Treatment, observation, and operating rooms.

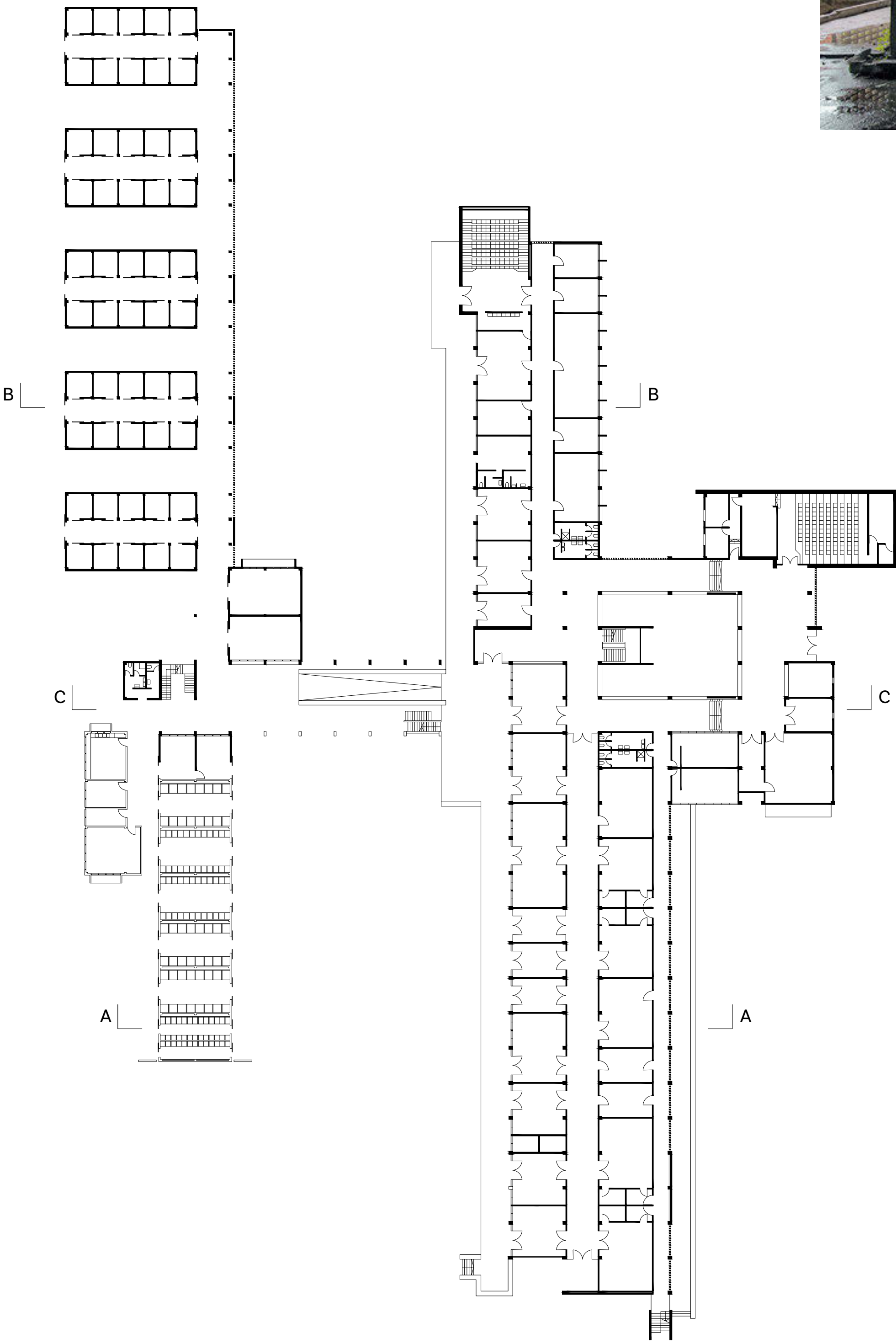
▼ Ground floor plan, 1:1200..



population during the air raids, and the campus was later converted into a military headquarters, alternately for the two warring political parties, the MPLA and UNITA. Peace was restored in 2002, but the Veterinary Hospital is still used as a military barracks and around thirty soldiers live in the ruins to protect the building from vandalism. The state-run José Eduardo dos Santos University is now responsible for the complex, and the Ministry of Education is dedicated to the renovation of its facilities.

▶ View of courtyard.

▼ First floor plan, 1:1200.



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JEAN MOLITOR

GHANA

▼ Private house, Tema, 1960.

▼ Private house, Tema, 1962.

▼ Goethe-Institut, Accra.

▼ Theodore Kanyi, VISTA Architects, Parking garage, Accra, 2000.

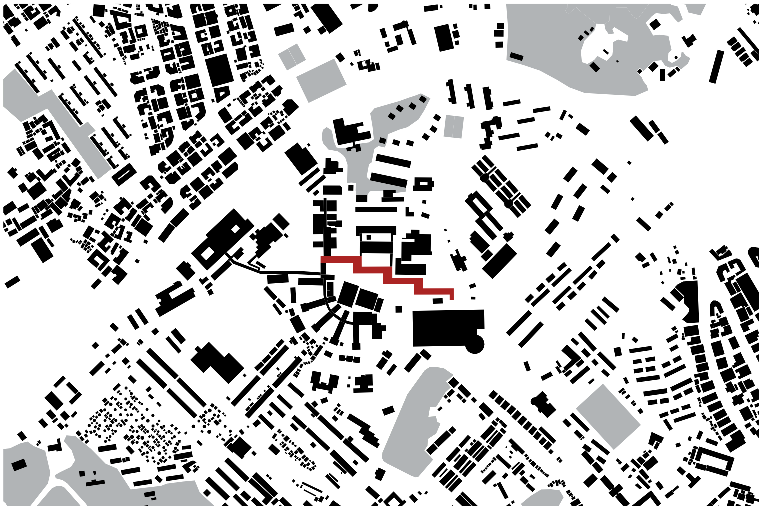
NICHOLAS KWAME AFADZI

KOMFO ANOKYE TEACHING HOSPITAL

Kumasi, Ghana, 1952–1954
ARCHITECT A. G. Paton

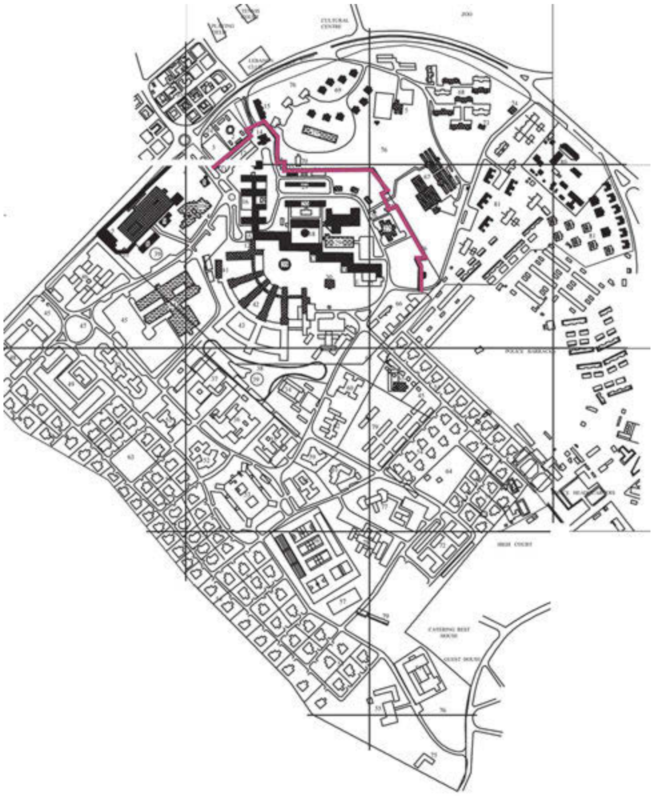
▲ The main entry to Block A shows a combination of the unique design features: horizontality, verticality, vernacular motifs and the barrel roofs.

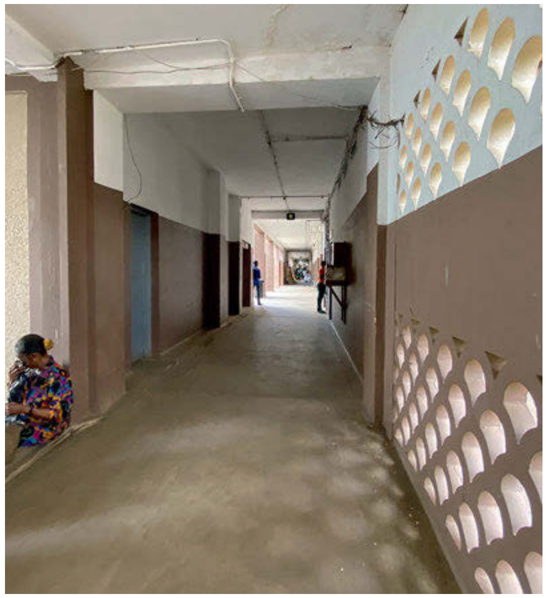
▼ Figure-ground plan, 1:5000, 06° 41' 49" N 01° 37' 45" E



In 1695, when the powerful Ashanti traditional priest Okomfo Anokye conjured down the golden stool to unite the Ashanti Empire at the current hospital site, it is said that he also prophesied that many people would seek healing from that same site in the future. In the 1940s, there was a hospital located on the hill overlooking the Bantama Township designated to accommodate an African and a European hospital. As their names imply, the African side treated Africans while the European branch was for European patients. However, on some rare occasions, high-ranking African government officials were given treatment in the European section.

The establishment of the Kumasi Public Health Board in 1925 led to the building of the Kumasi Combined General Hospital, the Kumasi Mental Hospital and the Nurses Training Centre (Donkoh, 2004, p. 174). In 1952, Kwame Nkrumah, as Leader of Government Businesses, became the Prime Minister of the Gold Coast Colony. In that period of immense economic growth, a five-year £120 million development plan was drawn up to include a new hospital to cater to the fast-increasing population of Kumasi and the Ashanti region at the cost of £1.5 million (Gocking, 2005, p. 100). The European part of the existing hospital was transferred to the Kwadaso (Sofo Line) Military Quarters to make way for the new project. Initiated by the Sir Charles Noble Arden-Clark Government, the new hospital complex was designed by A. G. Paton, a licentiate of the Royal Institute of British Architects (RIBA) and the Senior Architect at the Public Works Department (PWD). According to the plaque at the entrance to Block A, H. H. Clark, London, was the consultant, W. V. L. N. N Mice Mistruct, London, was the structural engineer and Ernest R. Barns & Sons, London, was the quantity surveyor. In 1954/1955, the hospital complex was completed by Messrs. GEE Walter & Slater from the UK and named the "Kumasi Central Hospital".





It is said that Anokye placed an unmovable sword in the middle of the Ashanti Empire. Many have tried but failed to remove the sword. Supposedly, GEE also attempted to pull out the Komfo Anokye sword, even using heavy-duty machinery, but did not succeed. They abandoned the idea after several efforts because each time the sword disappeared and reappeared, which frightened them. Thus, the contractor eventually preserved the legendary Komfo Anokye Sword on the hallowed ground by constructing around it.

The hospital complex comprises four five-storey blocks (A, B, C and D) as the medical blocks, Block E for surgical purposes, and an Outpatient and Administration Department set off from Block A. The Nurses Training Centre was established earlier in the 1950s (Govindaraj et al., 1996, p. 17).

Paton combined the concept of tropical architecture with several other features, drawing on the vernacular to create this unique composition of Tropical Modernist health-care architecture. It has a generally linear organisation that facilitates easy pedestrian circulation from one block to another, particularly on the ground floor.

◄ Site plan, 1:5000.

▲ Pedestrian corridors on the north (top) and south (bottom) sides of the ground floor.

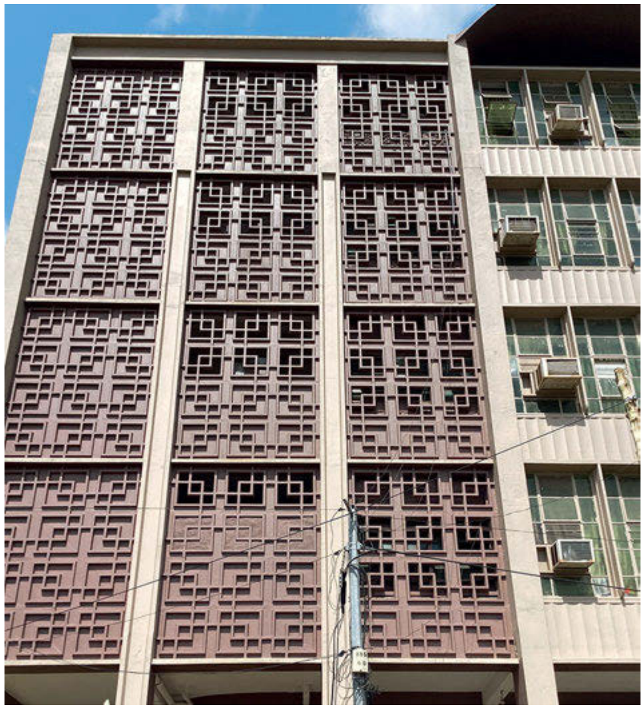
▼ An undated photograph of the Outpatients Department and Block A shows Paton's use of circular holes in walls at the beginning and the end of Block D.

◄ Block D continues Paton's hole-in-wall composition.

▼ The open floor wards are complemented by ample fenestration on both sides for cross-ventilation and vision.

The prominent east–west orientation of the main blocks allowed primary windows to be located on the north and south elevations, and with Kumasi located only 6° 41' north of the equator, sun shading of the windows was minimal and effective. The structural emphasis on the elevations, capped with the false barrel vaults, gives the building a unique tropical look. The construction was primarily in reinforced concrete. The cantilevered, flat entrance canopy (added later) is complemented by Le Corbusier-style pilotis to create pedestrian emphasis on the ground floor and allow continuous, wide-open and shaded corridors on both the north and south sides of the blocks. Each primary elevation displays four unique storeys with special elements. The vertical and open appearance of the ground floor reflects the pedestrianised zone; then the four storeys above are glazed for the domestic wards; the trellised elevation on the end comprises motifs of a traditional Ashanti house, to conceal the support services; and finally, the roof of concrete barrels that protect, cool and aerate the lower, flat concrete roof, making it effective as well as aesthetic and iconic.

Paton began his composition with holes in walls on the Outpatients Department Building and Block A, and ended with a similar language at the end of Block D. The open floor plan for the main wards is naturally lit with tall segmented glass fenestration that rises from the sill to the structural beam above. Horizontally pivoted windows in the mid-third portion of the height provide ample cross-ventilation for the wards. Sightlines from the interior of the wards to the outdoors are also unimpeded. Upon completion, the $10.2 million 510-bed facility was officially



▲ Slightly recessed windows on the upper floor.

▶ Detail of the trellis work.

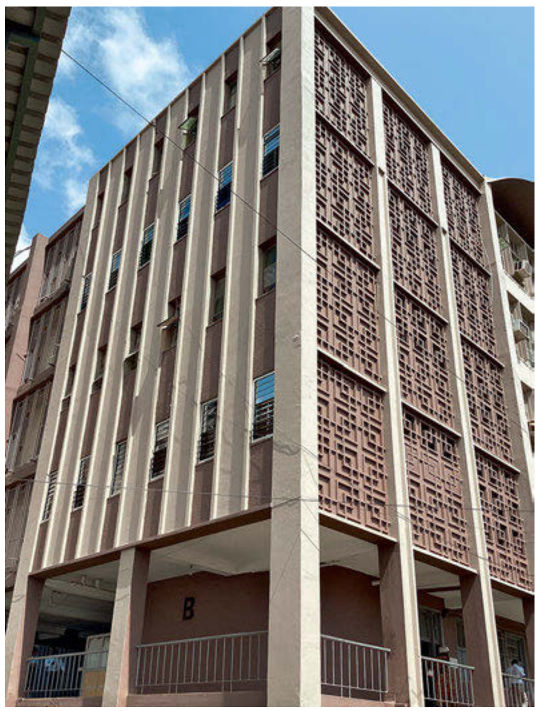
▼ Each block is identified by a letter.

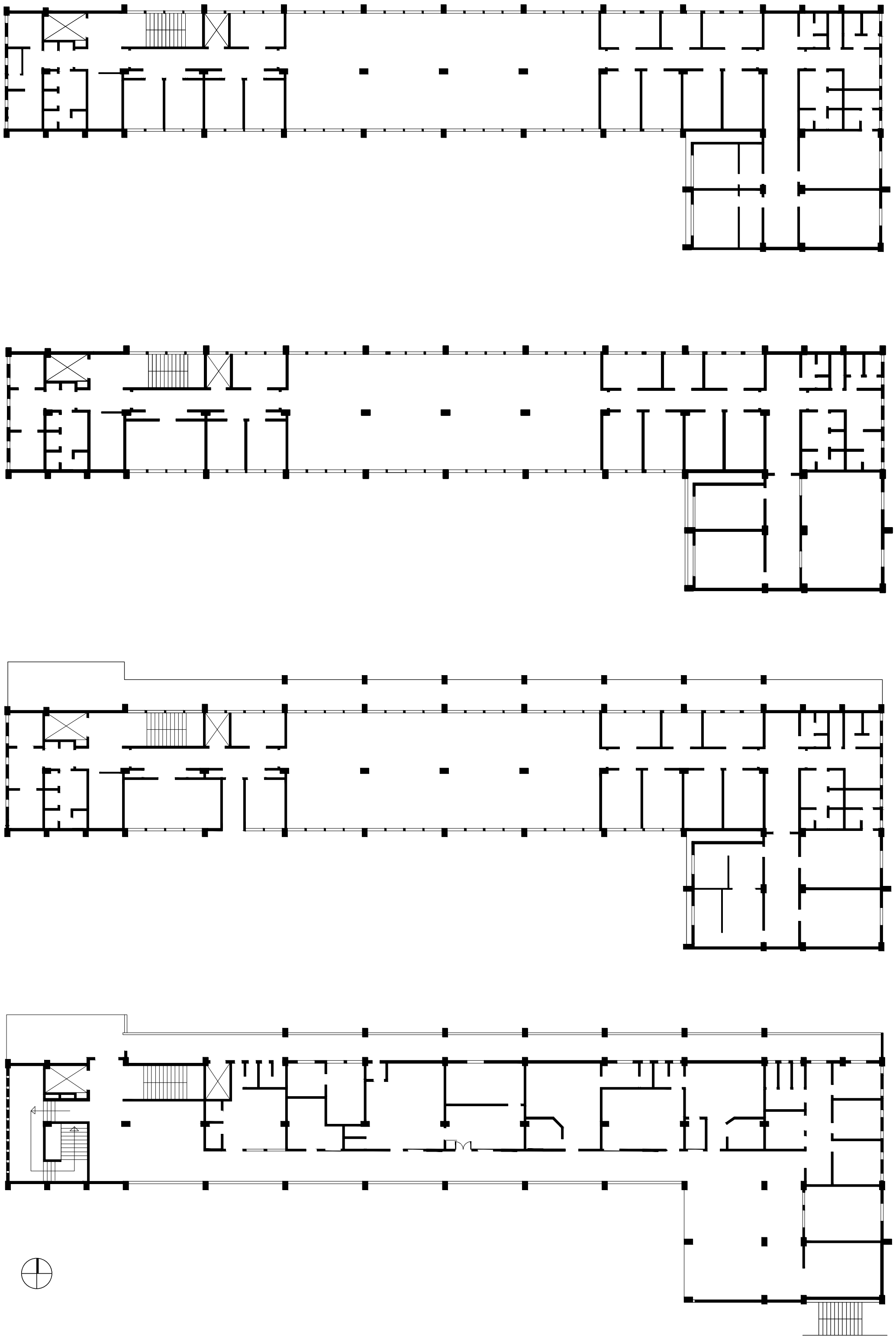
named the Kumasi Central Hospital. The locals, however, referred to it as GEE. Samuel Gee, the primary contractor's representative, thus became synonymous with the hospital.

In 1957, after independence, its name was changed to the Komfo Anokye Hospital in honour and memory of the powerful fetish priest Komfo Anokye. It attained the status of a teaching hospital in 1975 for the training of medical students in collaboration with the School of Medical Sciences of the Kwame Nkrumah University of Science and Technology (KNUST). Later, it was renamed the Komfo Anokye Teaching Hospital (KATH).

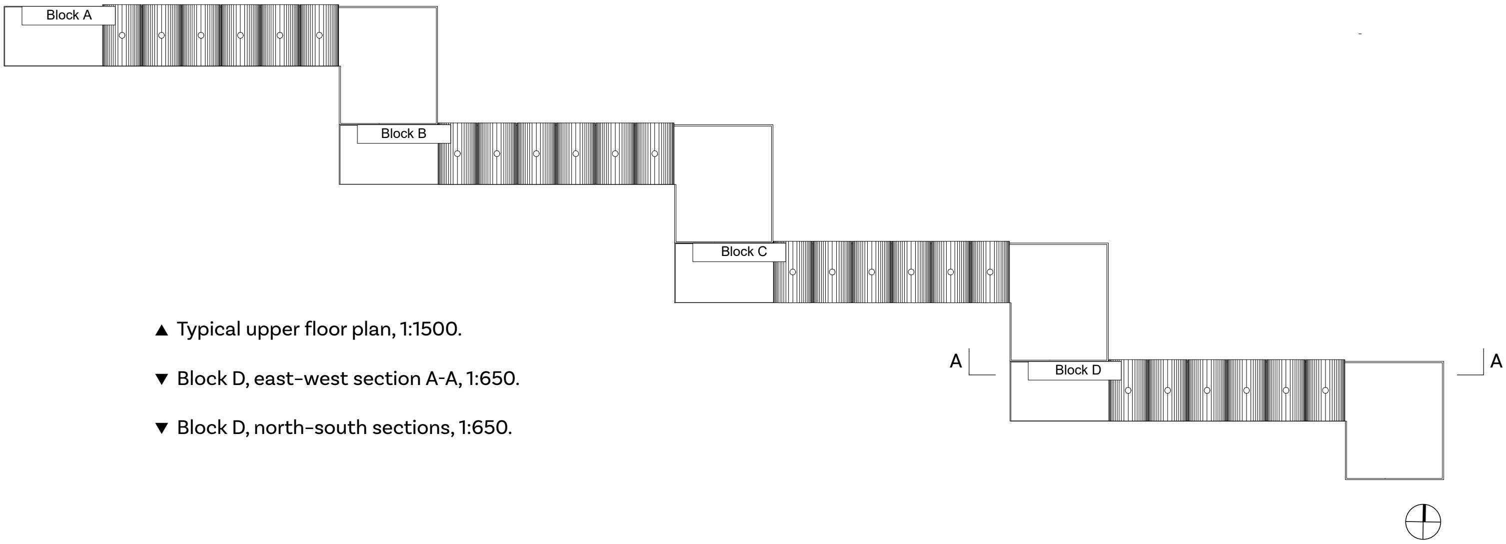
The currently 1,200-bed hospital receives referrals from thirteen out of the sixteen regions in Ghana. By virtue of its location, it has a catchment area of about ten million people, almost a third of the nation's population.

The hospital currently has thirteen clinical directorates, two non-clinical directorates and seventeen support units. KATH is currently the second-largest hospital in Ghana, second only to the Korle Teaching Hospital in Accra, the capital of the country.





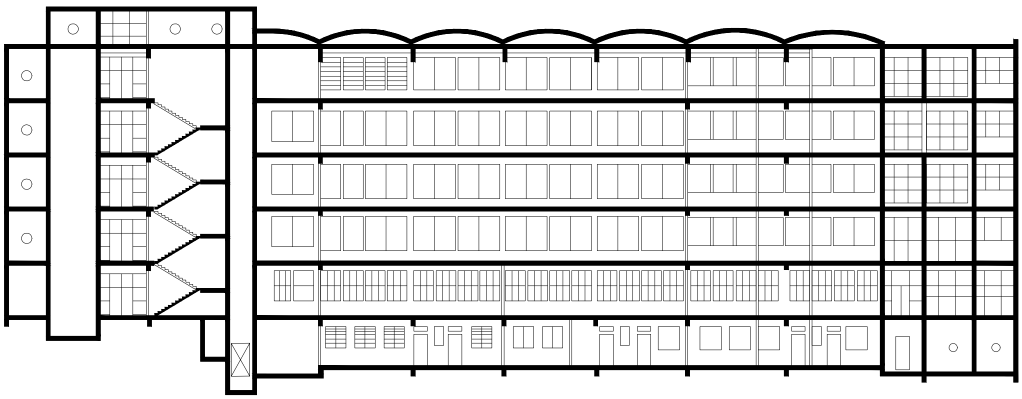
▲ Block A, ground floor, first floor, second floor and third floor plan, 1:650 (bottom to top).

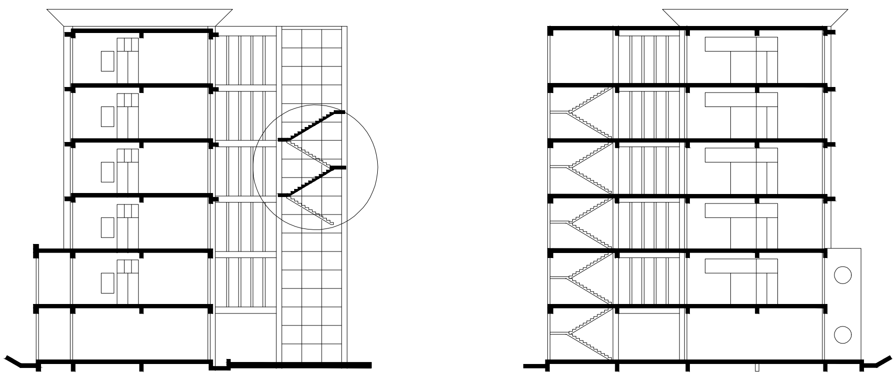


▲ Typical upper floor plan, 1:1500.

▼ Block D, east-west section A-A, 1:650.

▼ Block D, north-south sections, 1:650.





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AFUA AMPOMAH-AMOAKO

GAEC CLUBHOUSE

Kwabenya, 1960–1966
ARCHITECTS Soviet architects and engineers/GNCC

▲ Front view of the current Medical Physics Department, the former clubhouse of the Ghana Atomic Energy Commission (GAEC).

▼ Figure-ground plan, 1:7000, 05° 39' 58" N 00° 13' 49"W

The term "atomic" became a household name in Ghana when Dr Kwame Nkrumah, the first leader of independent Ghana, introduced the so-called "Ghana Nuclear Reactor Project" in 1961. In collaboration with the Soviet Union, the Atomic enclave was developed to accommodate the main Ghana Atomic Energy Commission's (GAEC) main site, a hospital, police station and residence for both senior and junior staff. Notable amongst these facilities was a clubhouse for the senior staff purposely for religious and other social gatherings. In line with training for nuclear advancement, in 2006, the School of Nuclear and Allied Sciences (SNAS) was established and the clubhouse was converted to accommodate its Information, Communication and Technology Unit, lecture rooms, library, offices and a printing centre.

From Atomic Junction about 6 kilometres down the Haatso-Atomic Road lies the entire Atomic enclave, about 24 kilometres from the centre of Accra. The main road climbs gently through the trees and offers a view of the lush, green area and an instantly recognisable building; the former GAEC clubhouse. Through the Nucleus gate and down the Proton link, the road leads to the building in a vast open space amidst grass and trees. As of 2024, it houses the Medical Physics Department of the University of Ghana and a conference room and it is part of a host of post-colonial buildings at the GAEC enclave development.

The north-south orientation of the building avoids the harsh sun and maximises natural light and ventilation. It possesses a vertical tripartite division with bold architectural features. The ground floor houses a conference room, washrooms and an entrance foyer; the double-volume first floor has offices, small-sized lecture rooms and an eating area; and the second floor accommodates the administrative offices of the department. Strong visual interest has been created with the cantilevered floor over the ground floor. Atop all the floors is a concrete-slab roof

▲ On the rear façade, vertical fins shade the full-height louvred windows.

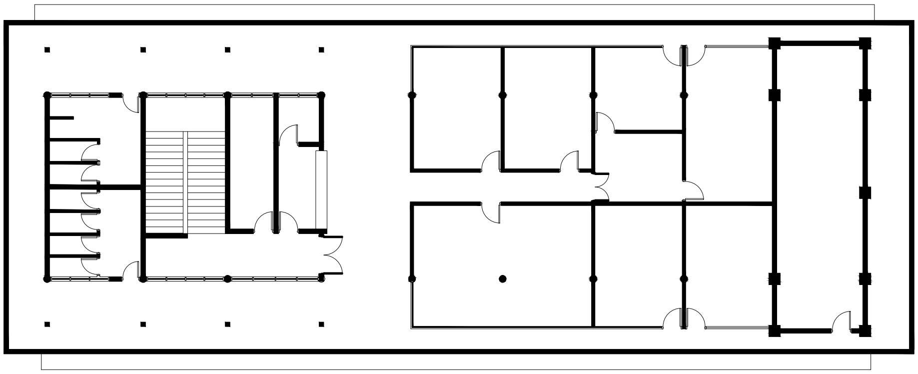
▶ Southeast view of rear façade.

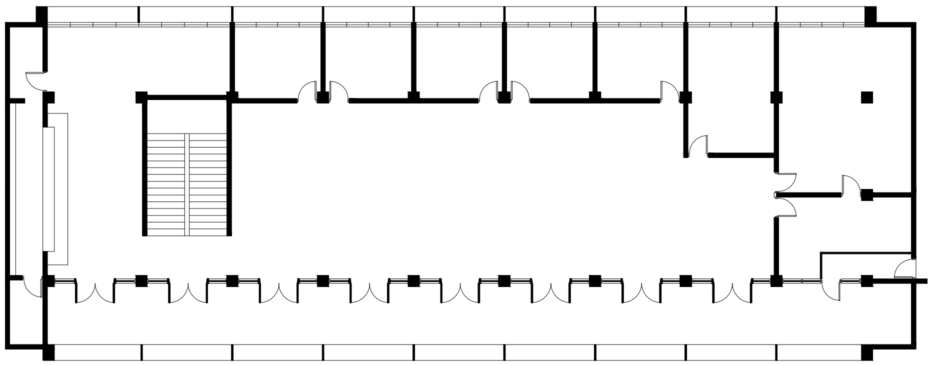
◀ View of the generous open area on the first floor.

▶ The servery on the first floor.

◀ View of main staircase connecting the floors.

▶ The second-floor servery.

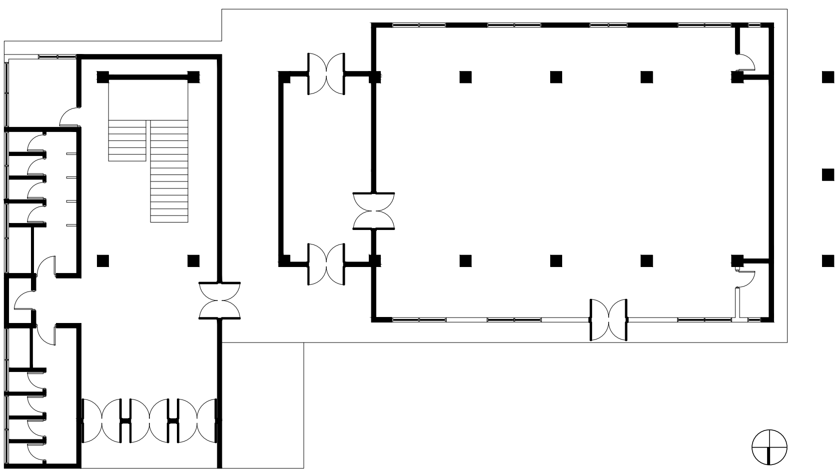




▲ Second floor plan, 1:250.

▲ First floor plan, 1:250.

▼ Ground floor plan, 1:250.



▲ A generous veranda is located on the second floor.

▼ Veranda on the first floor.

with a parapet wall neatly lined with spouts. The consistent vertical concrete fins on the façade have been arranged in a series. A concrete band running from left to right on the rear façade wraps the rhythmic pattern of vertical fins and simultaneously shades the full-height louvred windows. The uniformity that characterises the façade of the first and second floors is aesthetically appealing. On the contrary, the ground floor has smaller fenestration that is out of sync with the rhythm of the upper façade. In unison, the walls have continuous, smoothly rendered surfaces free of superfluous ornamentation.

The interior of the building reflects the modernist features of the exterior; daylighting and natural ventilation flood the spaces. Stack ventilation is enhanced in most spaces of the building through high-level louvred windows. From the ground floor, one is ushered through two large openings (double doors) into a foyer and towards a monolithic stair, directly leading to the generous double-volume first floor. The vast open area in front of the current offices continues without any barrier from one end to the other, conveying a sense of greatness that extends to the entire floor. All offices on the first floor have very basic rectangular and square shapes.

The Medical Physics Building is an example of Soviet modernism in Ghana, constructed with modern materials according to modernist principles and positively responding to the climate. The concrete form, clean lines and geometric precision succinctly amplify the characteristics of modernist architecture, confirming the principle "Form follows function".

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JONATHAN KPLORLA AGBEH

SENIOR STAFF CLUBHOUSE

Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, 1964
ARCHITECTS John Owusu Addo, Niksa Ciko, Miro Marasovic

▲ East view with the terrace in the foreground.

▼ Figure-ground plan, 1:10,000, 06° 40' 25" N 01° 34' 42" W

In 1961, Yugoslavian President Josip Broz Tito paid a visit to Ghana and later the Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi. His visit fortified the already strong relationship with Dr Kwame Nkrumah – the first Prime Minister and President of Ghana – who was proud to associate with the socialist world and Non-Aligned Movement. A special collaboration in the form of a bilateral technical cooperation between the newly sovereign Ghana and Yugoslavia was sparked. This cooperation led to the appointment of Miro Marasovic and Niksa Ciko to head the university's development office as well as contribute to the architectural training of Ghanaian students. They designed the Senior Staff Clubhouse together with John Owusu Addo, who later became the first Ghanaian Head of the Architecture Department at KNUST.

The Senior Staff Clubhouse, which is in the southwestern locale of the university, was designed to serve as an unwinding destination for senior academic staff. It sits in the staff residential area and is in tandem with the undulating topography of the site. The building looks like two stacked "Lego" blocks facing opposite directions. Notably, it pays homage to the Yugoslav Pavilion showcased at the 1958 World Expo in Brussels, adding a layer of historical significance to its aesthetics. The careful arrangement of the blocks creates a mirage of a weightless building, exhibiting design and structural ingenuity.

At first glance, the ground floor is characterised by slender columns that function as pilotis, highlighting Le Corbusier's first point in his Five Points of Modern Architecture. The expert use of pilotis in its grid not only enhances the building's aesthetics but allows for effective passive ventilation and dynamic use of space. It notably boasts a 900-millimetre elevated floor featuring a live-band performance-and-dance area suspended over an evaporation pool, creating an immersive and refreshing

▲ East view: the upper level is supported by pilotis.

▼ Southeast view showing the veranda.

atmosphere. A restaurant and an accompanying kitchen, which serve patrons with freshly cooked meals, also form part of the elevated floor area. The lower area is designed for relaxation and entertainment, offering seating, board games like table tennis and draughts, providing a diverse range of leisure activities. Going below ground level is the washroom, which takes advantage of and blends seamlessly into the natural terrain, forming a sub-basement while affording the required privacy.

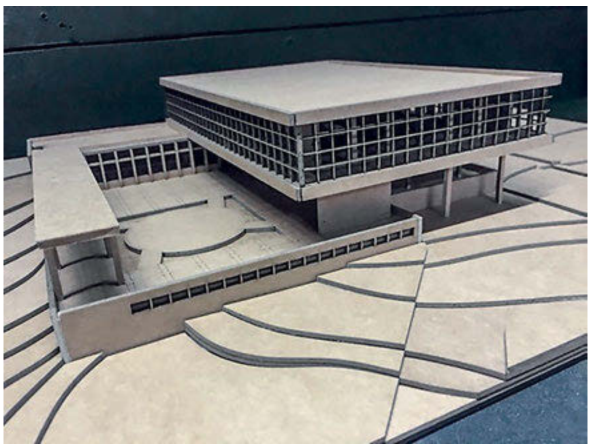
The upper floor, which accommodates a space for more contemplative activities, is linked to the ground by a central, carefully detailed staircase. This floor features a terrace, timber-detailed bar, lounge, dance area, picture/projection area – altogether offering an ambiance that exudes both style and comfort. To reflect the relatively subdued nature of functions carried out on this floor and the discerning taste of senior staff, its interior is crafted with polished timber cladding and floors. The generous headroom, emphasis on transparency and an open floor plan contribute to an expansive and airy upper floor that is designed for repose. The space offers a welcome interlude where the minds of academics can wander freely beyond the confines of books and scholarly work.

The most striking exterior feature of this showpiece is perhaps the veranda that loops around the upper floor. This feature allows for unimpeded ventilation and affords

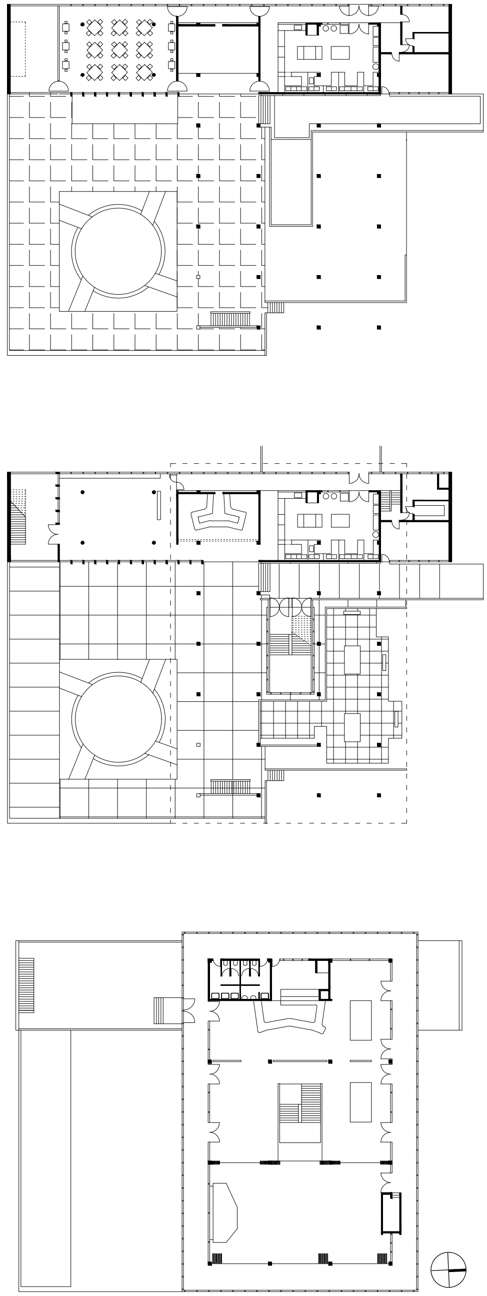
▲ Aerial view.

▼ Interior view of ground floor with bar, lounge and dance area.

◀ Exhibition model.



▲ View of timber-clad bar.



▶ Ground, first and second floor plan, 1:1000 (bottom to top).

users an awe-inspiring 360-degree view of the lavish landscape. For comfort and safety, it is ensconced within a protective balustrade that blends seamlessly with the structure's aesthetic. Additionally, a full-height insect screen acts as a shield against unwanted pests while preserving the open-air experience.

In essence, the Senior Staff Clubhouse emerges not merely as a space for relaxation and contemplation but as testimony to the fusion of form and function within the realm of tropical architecture. Through its careful integration of open spaces, luxurious interiors and meticulous attention to detail, the clubhouse transcends conventional boundaries, evolving into an architectural masterpiece. The Senior Staff Clubhouse stands as a structure and living narrative, a testament to the symbiotic relationship between architectural brilliance and the lush tropical setting it inhabits.

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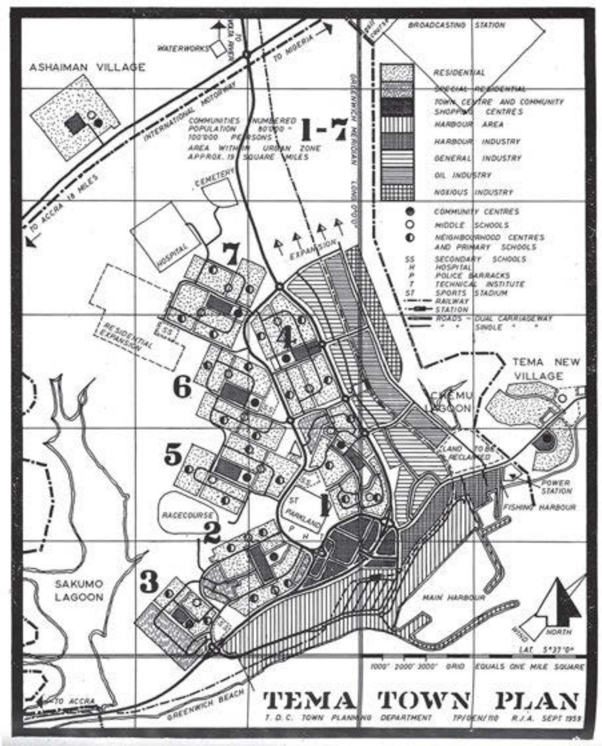
EMMANUELLA AMA CODJOE

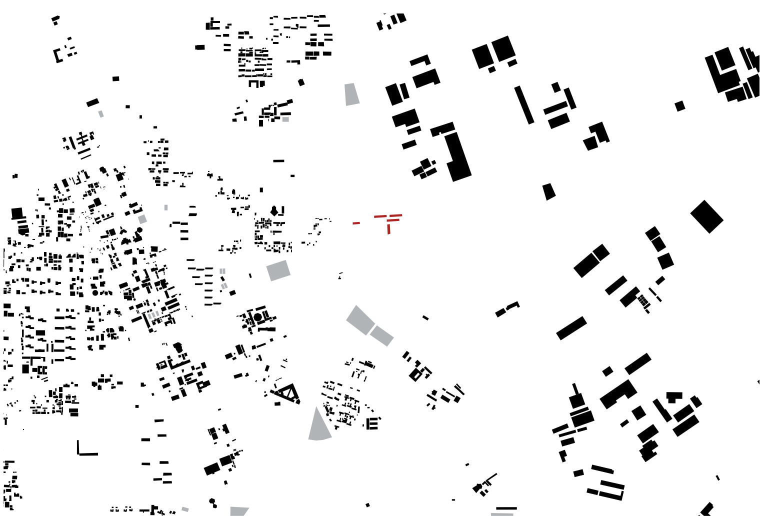
TEMA COMMUNITY SCHOOLS

Tema, 1964
ARCHITECTS Constantinos Doxiadis, Patrick Wakely



▲ Doxiadis' Tema Town Plan.

▼ Figure-ground plan, 1:10,000, 05° 39' 17" N 00° 00' 11" W (Republic Road School) and 05° 38' 44" N 00° 00' 10" W (Padmore School)



After Ghana gained independence in 1957, Kwame Nkrumah, its first president, embarked on a visionary quest to transform the country's education system, encouraging every child to embrace the gift of knowledge, free of charge. The central government of Ghana, through the Ministry of Education, allocated a substantial portion of the national budget to support educational initiatives and the construction of schools throughout the nation. The philosophy that informed the designs was Ekistics – the science of human settlements – a term coined by Constantinos Doxiadis himself. When the Greek architect was commissioned in 1960 to redesign the master plan of Tema, the city soon became a pilot project for educational reform in Ghana.

Doxiadis, renowned for his architectural and urban-planning expertise, emphasised the importance of creating neighbourhoods that provided a safe environment for children's growth. This approach was in line with Nkrumah's vision of ensuring access to quality education for all Ghanaian children. The planning and design of community schools in Tema by Doxiadis Associates was based on relevant data collected from May 1961 onwards, with due consideration of a new educational programme and the proper distribution of educational buildings (Final master plan, DOX-GHA-A 91, 1964). Patrick Wakely, graduate of the AA and the Kumasi School of Architecture, was responsible for the actual school design.

Tema, a planned city on the outskirts of Accra, embraced principles of modern New Town planning. The city's layout adhered to an orthogonal grid system influenced by mathematical and hierarchical considerations, and it was oriented to harness the prevailing southwest winds. Central to the distribution of educational facilities in the Tema master plan was the inclusion of a community school in each neighbourhood. These schools were deliberately positioned to eliminate the need for children

to cross highways when commuting to school, thereby ensuring that the longest distance from home to school did not exceed 500 metres. Given the large number of community schools to be built in Tema, Doxiadis developed a prototype for these institutions that could be replicated across the city. Such proximity and the proliferation of schools were crucial elements of Nkrumah's vision for universal educational access. Padmore School, found in Community 1, and Republic Road School, situated in Community 4, are two cases of community schools built in Tema.

The community-school designs had a similar aesthetic, with minor variations such as the designs of breeze-block walls. The typical classroom unit adhered to a linear configuration made up of two classrooms and a washroom, occupying a total area of 240 square metres. Repetition and standardisation were deliberate and essential design elements found in a classroom unit, involving prefabricated barrel roofs, breeze-block walls and structural columns, resulting in a rhythmic façade. According to Doxiadis, such repetition was not only integral for the rational formation of schools but also a fundamental aspect of aesthetic appeal.

The classroom units facilitated the seamless flow of activities from indoor to outdoor spaces, with breeze-block walls, verandas and courtyards serving as vital connectors. The breeze blocks served a dual purpose,

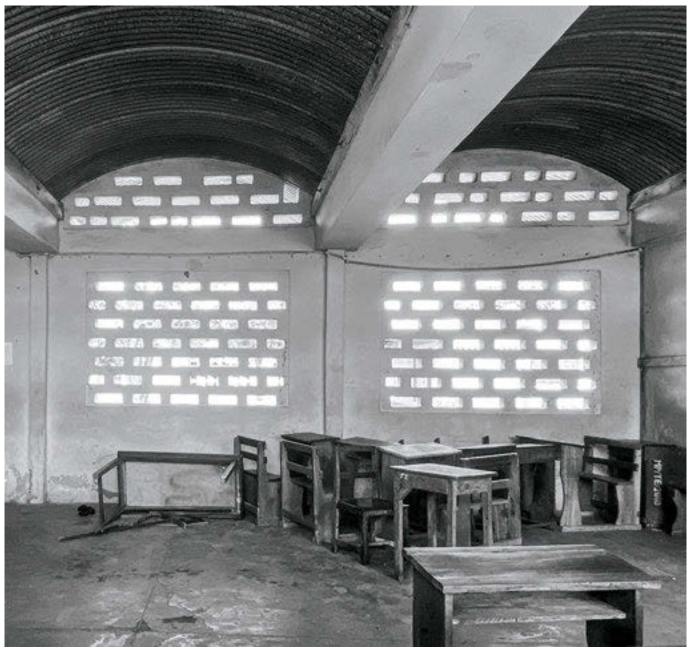
▲ Republic Road School in Community 4.

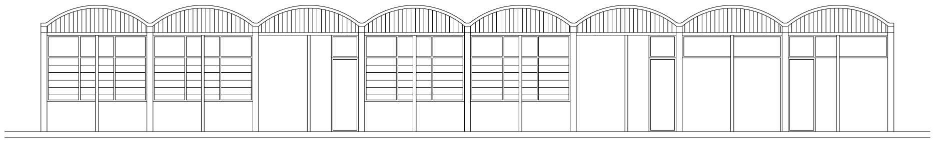
▼ School in Community 5.

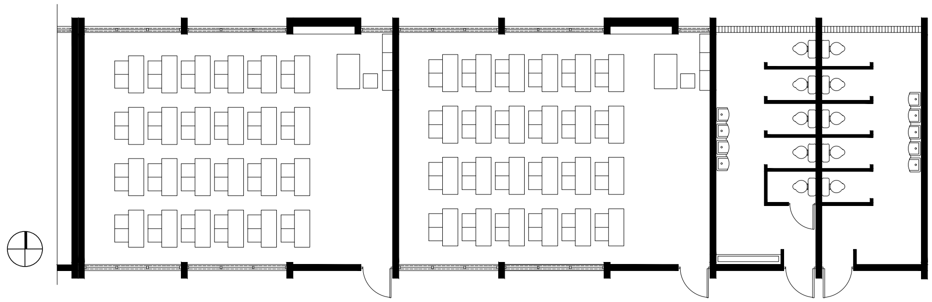
▲ Padmore School in Community 1.

▶ View into a typical classroom.

▼ Typical construction site at the time with female workers in Tema, photo 1957.







▲ Elevation of typical classroom unit, 1:250.

▲ Ground floor plan of typical classroom unit, 1:250.

functioning as both exterior walls and openings to ensure adequate daylighting and natural ventilation throughout the day. The presence of verandas on the southern side, which also featured long roof overhangs for solar shading, aided circulation along the classroom units.

Outdoor areas were thoughtfully integrated into the design, with placement of vegetation in courtyards to mitigate heat and enhance the visual appeal of the environment. The predominant east–west orientation of these classroom units, coupled with courtyards interspersed between the classroom units, enabled free airflow across the site, enhancing the overall climate responsiveness of the design.

Remarkably, more than half a century since their establishment, these community schools have remained resilient, retaining their original form and function. They have required minimal renovations, and the utilisation of classroom spaces has remained largely unchanged. In some instances, extensions have been added to accommodate the growing student population.

The community schools in Tema stand as a testament to the enduring significance of thoughtful, functional and climate-responsive architectural design in creating conducive and inspiring learning environments. The collaborative vision of Kwame Nkrumah's commitment to free education in Ghana and the innovative design approach of Doxiadis Associates, with the use of standardised, prefabricated elements brought to life a pioneering educational infrastructure.

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SELORM ABLA AFEKE

BOLGATANGA LIBRARY

Bolgatanga, 1965
ARCHITECT Max Bond

▲ The front elevation with the striking roof.

▼ Figure-ground plan, 1:5000, 10° 47' 37" N 00° 51' 22" W

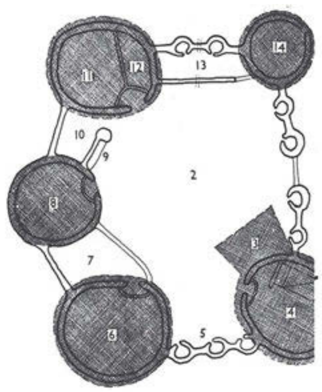
"Although I am not particularly fond of regionalism in architecture, the design of this library was very much influenced by the traditional domestic architecture of Northern Ghana" (Bond, 1968). Designed in 1965, the Bolgatanga Library indeed relied heavily on the architecture of the local setting and climate, as the main intention was to create a building close to vernacular practices in this northern region of Ghana.

Designed to be a prototype community asset, it was a step towards promoting education and literacy in the new country, Ghana, after attaining independence. As the first country in Africa to gain freedom from colonial rule in 1957, education was among the top priorities of its first president, Kwame Nkrumah. The Bolgatanga Library's goal was to make education accessible to people and communities in the country, part of the vision of building a self-sufficient nation. It was no surprise when Max Bond, an African-American architect associated with the new Department of Tropical Architecture established by Kwame Nkrumah in Kumasi, was tasked with designing a library that would be useful to its community. Bond cooperated with local artisans and craftsmen, such as chief draftsman Nat Cofie and the Ghana National Construction Corps as the general contractor and engineer. The Bolgatanga Library was, therefore, a response to promoting literacy, especially in underprivileged and remote communities, in Ghana.

The Bolgatanga Library draws on its environment and was originally conceived as a prototype for other libraries to be built around the country (which remained unrealised). The building is characterised by perforated walls and an umbrella-shaped roof, allowing for air circulation and connecting its four main volumes. The library brings together Bond's experience in the USA, France and Ghana (Uduku, 2008), and is arguably his most significant contribution to modern architecture in Ghana, where he

▲ Side elevation. The expansive roof unites the four volumes.

▶ View of shaded area on the exterior.

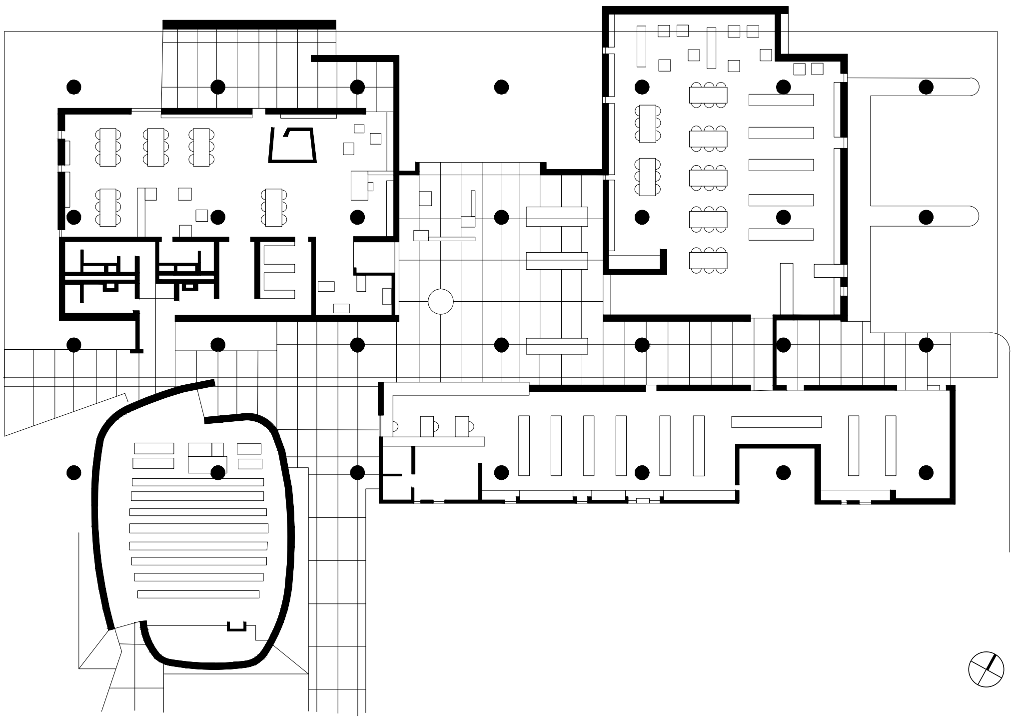


lived for three years, teaching at the country's first architecture school at the Kwame Nkrumah University of Science and Technology (KNUST).

One design influence on the library is the local Fra-Fra house typical for this part of Ghana. These buildings were made of local materials such as mud by local craftsmen and facilitated the farming lifestyle of the inhabitants. The concept of round huts huddled together with a single entrance indicating the abode of one family can be seen in Bond's design approach. These huts are wrapped around a common courtyard that supports family gatherings. The main four blocks of the library are sequenced under one roof to emphasise their single purpose of serving the community. This also provides a sense of security and privacy as it is characteristic for a Fra-Fra compound. These blocks then open to communal areas that can accommodate multiple uses such as community gatherings and events, while protected from the elements. The rounded edges of the four blocks evoke the circular shapes of Fra-Fra houses. The use of flat roofs

▶ Plan of a typical Fra-Fra house ensemble.

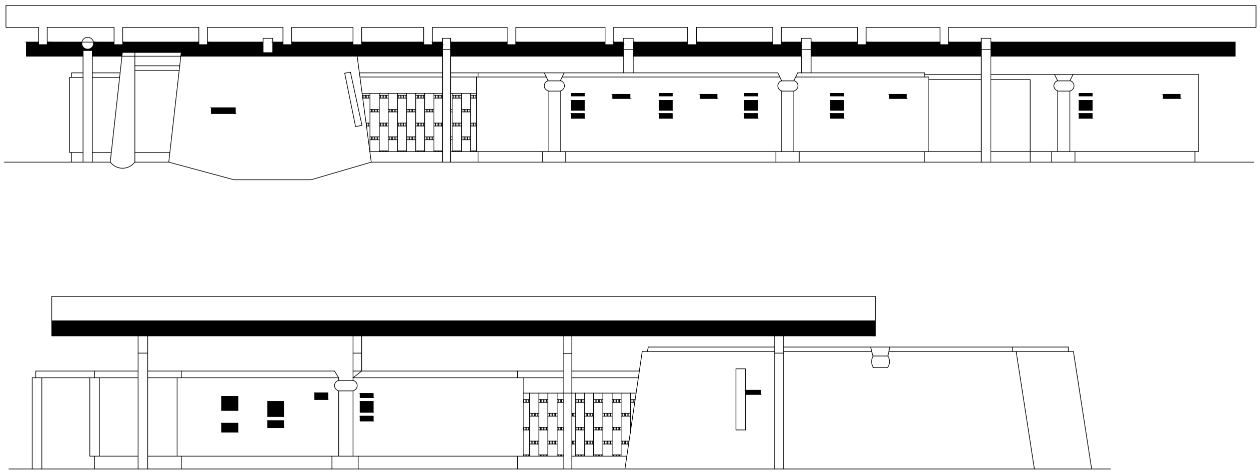
▼ Today, the library is also used by a local evangelical church.



▲ Interior view with the perforated wall visible outside.

▲ Ground floor plan, 1:500

◀ Interior view.



▲ Front (top) and side elevation (bottom), 1:200.

in buildings is of great significance in the Fra-Fra communities as they were used for sun-drying crops and grains, the main staple and livelihood of the community. While the flat roof of the community library is typical of modernism, it draws on the vernacular at the same time.

The Bolgatanga Library plays an unusually clever role in mimicking its local settings as well as the experiences of its designer. Here, architect Bond perceives modernism in a way that seems to reflect its surroundings whilst prioritising human comfort levels and familiar visual features and elements.

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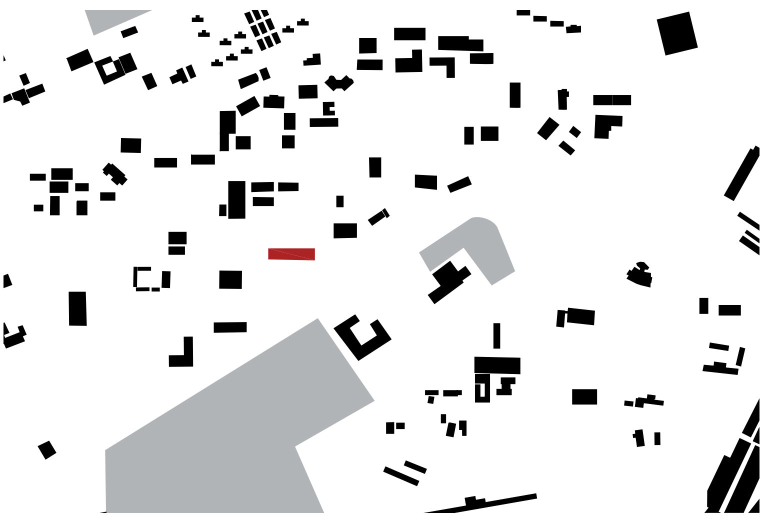
EMMANUELLA AMA CODJOE

MERIDIAN HOTEL

Tema, 1967
ARCHITECT Constantinos Doxiadis

▲ Exterior view of plinth and tower.

▼ Figure-ground plan, 1:5000, 05° 38' 07" N 00° 00' 03" W



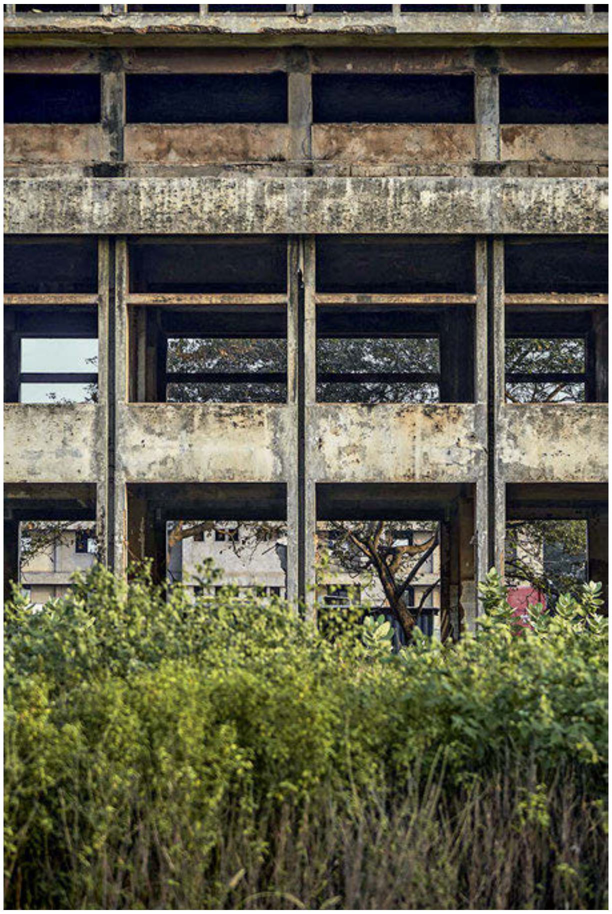
On August 2, 1961, a letter was dispatched from the office of the Ghana Industrial Development Corporation to the office of the Industrial Promotion Secretariat. In the letter, J. Mensa Bonsu, the Chairman of the Ghana Industrial Development Corporation, wrote about the need to build a State Hotel in Tema. He further explained that the first-class hotel should be built to satisfy the potential urgent need of this prospective city due to the tremendous growth of the harbour in Tema. In April 1962, following conversations with the Chief Development Officer of the Tema Development Corporation (a body set up in 1952 to manage Tema's growth), Constantinos Doxiadis, a Greek architect and urban planner, was commissioned to design the hotel. Prior to this, the Government of Ghana had already sought the expertise of Doxiadis Associates to redesign the master plan of Tema, and deal with the fast pace of development of the growing city.

Located along the Greenwich Meridian, the once revered State Hotel was the epitome of prestige and excellence. The 185-room luxury hotel was strategically positioned in the city centre of Tema, with its southern side overlooking Tema Harbour and the Atlantic Ocean. As an example of modernist architecture in the tropics, the Meridian Hotel was designed to respond to its bioclimatic context. The building had a precise east-west orientation to capture breezes from the southwest trade winds. The eastern and western façades had cantilevers of concrete beams with embedded brise-soleils serving as shading devices on each floor.

With a total of eleven floors and a basement, the hotel consists of a tower and a horizontal base. The first two floors that make up the horizontal base had spaces for public amenities such as restaurants, bars, meeting rooms and shops. The tower, a private zone with limited access, was characterised by a central corridor running parallel to

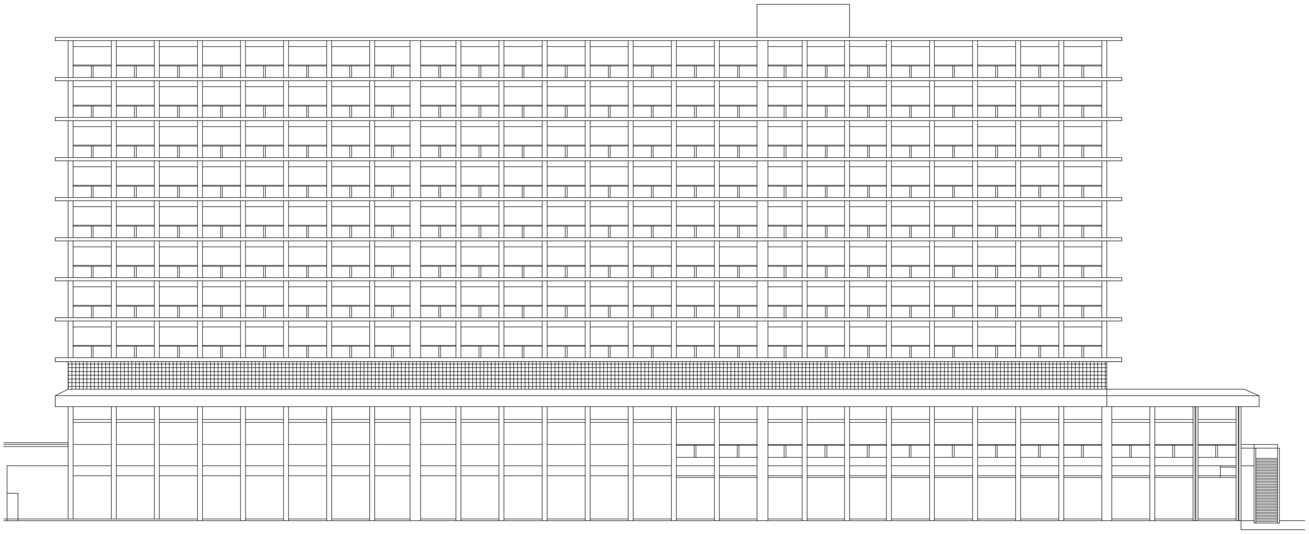
▲ Southwest view of the abandoned structural remains.

▼ Detail of the dilapidated facade.



double-bunked hotel rooms with private balconies. The only means of vertical circulation within the hotel was by the use of staircases and lifts placed at specific intervals. The layout of a standard hotel room encompassed a sleeping area, a bathroom and a private balcony with a large window, which allowed natural lighting and ventilation to permeate into the space and also provided hotel guests with amazing views.

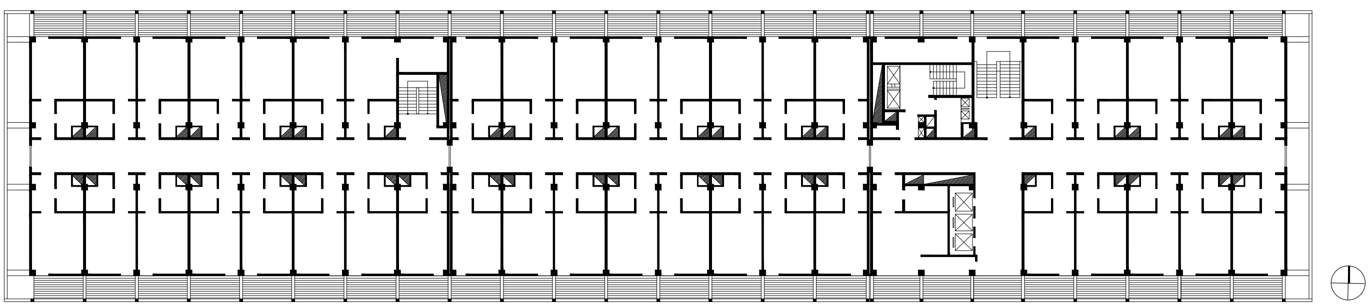
Concrete was used extensively in the construction of the building – i.e. for its walls, façade and structural system. The material served a vital role in achieving a rectilinear form; reinforced-concrete columns and beams were arranged in a grid system throughout the building. The even spacing of the grid is reflected on the façade and structural elements, creating a rhythmic pattern. The use of glass was evident in the large operable windows adorning the façades of the building, while wood was used as a cladding material on some wall surfaces and aluminium was used for balcony balustrades.



One of the unique features of the hotel is the preserved baobab tree found at the northern entrance. The tree is believed to possess a local deity; it was enclosed by a circular concrete wall to restrict people from getting too close to it. It is interesting to note that by preserving the sacred tree, the architect incorporated the history and religious beliefs of the land into the design of the building despite operating within a modernist ethos. Furthermore, the building occupied the collective imaginary of people when the Ghanaian music band Wulomei released a song titled “Meridian” in 1975 to celebrate the social activities that took place at this grand hotel, immortalising the venue in Ghanaian pop culture. The song narrates the tale of a young man extending an invitation to his lover, urging her to join him at the Meridian Hotel for a delightful evening of dining, indulging in drinks and dancing the night away.

▲ Front elevation, 1:850.

▼ Upper floor plan, 1:650.



▲ The front view shows the cantilevered concrete beams with embedded brise-soleils.

Following the collapse of the State Hotel Corporation (established in 1962 to manage hotels owned by the government) in 1994, the Meridian Hotel was privatised and sold to new owners, who stripped the building of its materials. Unfortunately, it has not been restored and is dilapidated.

The Meridian Hotel is an abandoned modernist building with many tales, myths and mysteries. When it functioned as a vibrant luxury hotel, it was a clear representation of industrialisation and modernisation. The design took into account the bioclimatic context by capturing breezes and utilising solar shading. The architectural features combined both functionality and a connection to the local culture and history. This poignant transformation serves as a reminder of the need to preserve architectural and cultural heritage for future generations, highlighting the intersection of history, architecture and the collective memory of a community.

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LAQUAYE GLOVER-TAY

MAMPROBI POST OFFICE

Mamprobi, 1973
ARCHITECTS A. K. Amartey, Hannah Schreckenbach

▲ Partial elevation highlighting the roof system.

▼ Figure-ground plan, 1:5000, 05° 32' 01" N 00° 14' 14" W

After fifty years since its construction, the Mamprobi Post Office building remains a prominent landmark, exemplifying Tropical Modernism along Guggisberg Avenue, 1 kilometre west of the Korle-Bu Teaching Hospital in Accra. A. K. Amartey and Hannah Schreckenbach, architects from the Public Works Department, aimed to create a structure that harmonised with its local surroundings and operated effectively without relying on active cooling systems, in contradiction to the emerging architectural trends of the 1970s and the advent of air conditioning.

Despite its single-storey height, the building commands attention in the streetscape due to its distinctive design. Situated at a bustling road junction in a semi-urban area, it enjoys unobstructed visibility from both the front and sides. The building showcases a vaulted roof system that produces expansive overhangs, complemented by a plinth area which is defined by clean lines and horizontal bands. Its design interacts dynamically with natural light, creating captivating shadows throughout the day. Neighbouring buildings are mostly single-storey structures from the colonial era; a contrast that highlights the unique features of the post-office building.

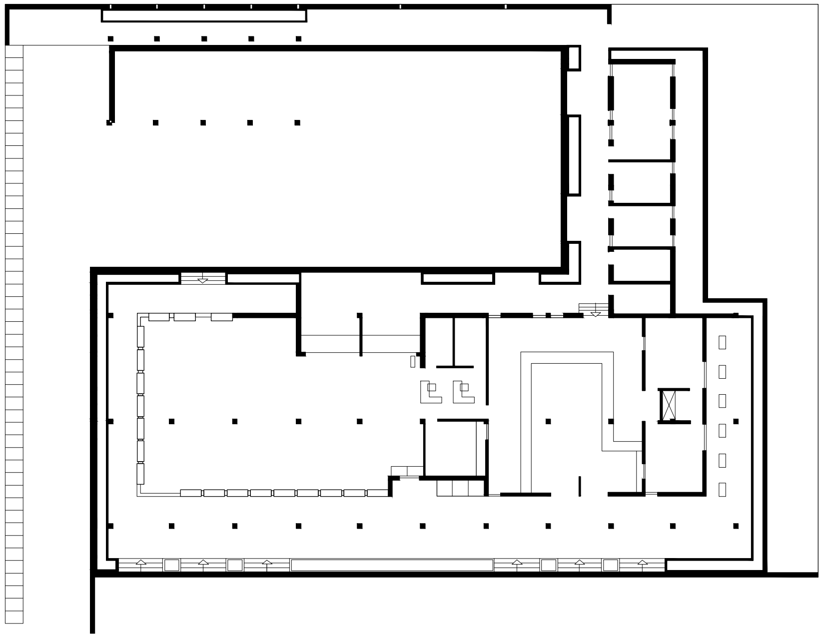
Perhaps the most striking feature is the vaulted roof system consisting of repetitive, self-supporting aluminium barrel vaults. These vaults rest on concrete gutters, positioned on a concrete roof slab, with both ends left open to facilitate cross-ventilation. This design not only enhances airflow through the double-roof system but also contributes to a cooling effect within the internal spaces of the building. The expansive roof overhangs offer protection from the sun and rain while providing shelter for an open veranda, which wraps around the entire structure, serving as a transitional space between indoors and outdoors. The veranda has multiple purposes, including acting as an extension of the customer-service

▲ Northeast view with the vaulted-roof system.

▼ Front elevation close-up showing one bay covered with the vault of the roof.

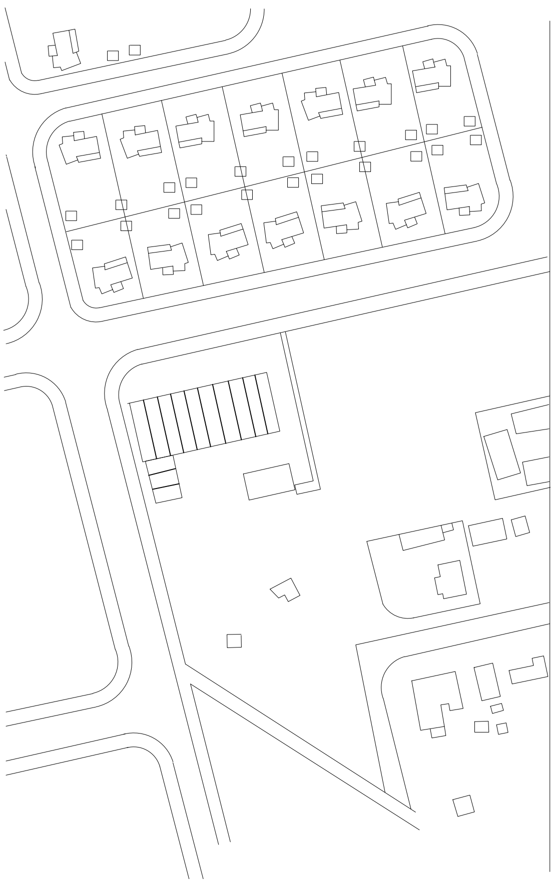
area within the building, while providing a communal area which invites pedestrians to find shelter. Positioned to face north and south, the building is strategically oriented to shield itself from the tropical sun while taking advantage of the prevailing wind direction from the northeast and southwest for maximum ventilation. A horizontal band of louvred windows encircles the building, promoting cross-ventilation and natural daylighting throughout the interior spaces. The clean lines of the concrete-and-brick exterior are complemented by flower beds bordering the terrazzo-finished veranda that surrounds the building.

Careful attention was given to the organisation of the interior spaces to optimise operational efficiency. Areas for sorting, handling and distributing mail, as well as customer-service areas, were planned for accessibility, security and enhanced customer experience. It features open-plan layouts but ensures a clear distinction between the sorting office, staff facilities and the customer service area. As postal services have evolved significantly due to advancements in communication technology, the spatial requirements to sustain them have decreased. While the post office continues its operations, some of its spaces

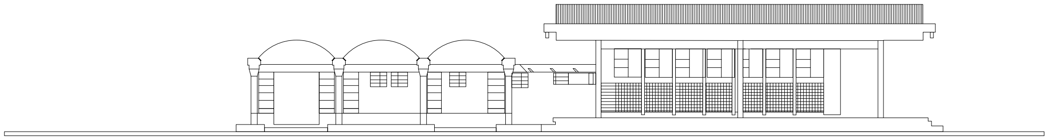


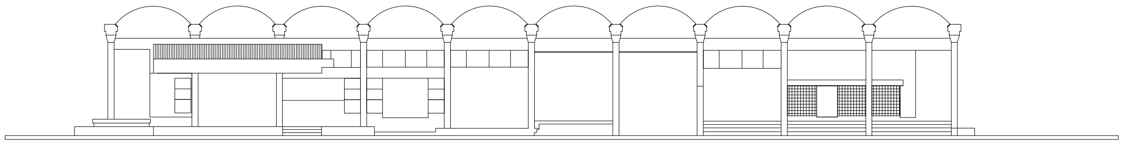
▲ Ground floor plan, 1:650.

◀ Site plan, 1:2500.



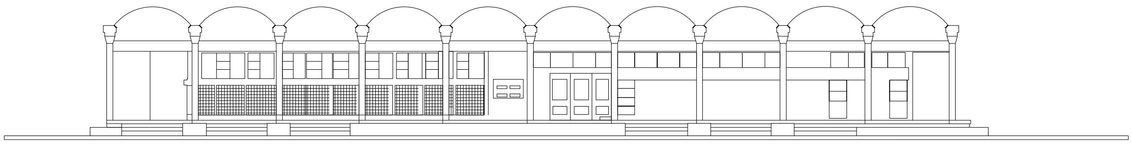
have been repurposed for private commercial activities. The building's architecture has largely remained unchanged, undergoing occasional renovations to both the exterior and interior to accommodate these new uses. Despite the installation of air conditioners and interior partitions, current occupants report experiencing a considerable level of comfort even when the units are not in use. The building has weathered well over its fifty-year lifespan, although there are some visible cracks along the roof gutters. Thus, the Mamprobi Post Office building still stands out in Accra's urban-landscape setting – blending a clean, modern aesthetic with regional influences.

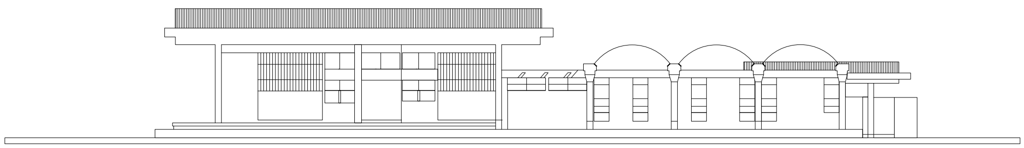




▲ East (top) and south elevation (bottom), 1:650.

▼ North elevation (towards Guggisberg Avenue, top) and west elevation (towards Link Road, bottom), 1:650.





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JEAN MOLITOR

MOZAMBIQUE

▼ Marcial Freitas e Costa, Catedral Metropolitana de Nossa Senhora da Conceição (now Maputo Cathedral), Maputo, 1936.

▼ Busstop and public toilet, Maputo.

▼ Francisco Assis, Luiz Filipe de Vasconcelos, Central Hospital Maputo, Maputo, 1958–1961.

▼ Cinema Manuel Rodrigues (now Cine África), Maputo, 1948.

ANA TOSTÕES

PROMETHEUS BUILDING

Maputo, 1951–1953
ARCHITECT Pancho Guedes

▲ Main entrance of the building with original wooden door frames.

▼ Figure-ground plan, 1:5000, 25° 58' 4.65" S 32° 35' 49.04" E

Between 1951 and 1953, Pancho Guedes (1925–2015) designed his first collective-housing building in Maputo (formerly known as Lourenço Marques), which he named Prometheus due to the scale he managed to achieve with a mere five-storey block. This designation originates from Greek mythology, where Prometheus is a Titan, a deity descended from the larger-than-life and resilient Gods.

This building belongs to the group that Pancho Guedes refers to as "Stiloguedes", "a bizarre and fantastic family of buildings with spikes and fangs, with beams tearing into the spaces around them, invented as if some parts are about to slip off and crashing down, with convulsive walls and armoured lights" (Pedro Guedes, 2009, p. 79), based on the drawings and paintings of Pablo Picasso around 1928, for sculptures he never realised.

Prometheus is located very close to the sea at the corner of major roads that play a fundamental role in the city's dynamics: Mao Tse Tung Avenue and Julius Nyerere Avenue, running parallel to Marginal Avenue. It is located within a well-established urban grid with orthogonal geometry, in the vicinity of the Church of Santo António da Polana (1959–1962, pp. 206–209), the Polana Hotel (1922), the Polana High School (1970–1973, pp. 226–229) and the Parque Building, also designed by Guedes.

The building consists of four residential floors and a fifth setback floor, elevated on columns, resulting in a total volume equivalent to six storeys. The entrance is from the northeast via Mao Tse Tung Avenue. Initially, the ground floor was open and intended for parking but was enclosed and transformed into a bank branch in the 1960s. The vertical circulation within the building is located on the southwest-oriented rear façade and consists of two stairwells and a lift. This arrangement is reflected in the façade through small openings.

Like all the buildings that are part of "Stiloguedes", the internal organisation of the building is simple and

◀ Main façade, oriented towards the northeast.

▲ The ground floor was open and intended for parking but was enclosed and transformed into a bank branch in the 1960s.

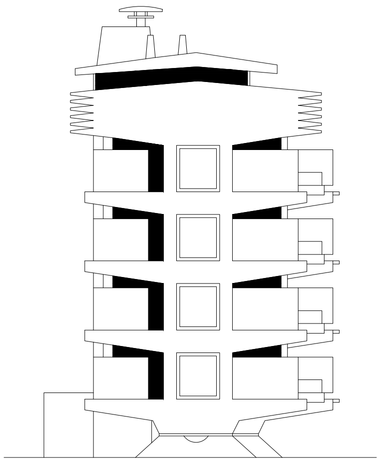
▼ The balconies on the northeast façade served as horizontal shading devices, but many have since been enclosed.

functional. Connected to the vertical circulation, there is a collective distribution corridor for each of the three apartments per floor. The four residential floors are identical, each comprising one T1 (one bedroom) and two T2 (one bedroom plus living room) apartments, for a total of twelve small-size apartments. The T1 apartments have an area of 32.81 square metres and the T2 apartments have 56.08 square metres, all with fronts facing Mao Tse Tung Avenue. The T2s are located at the ends of the building while the T1s are in the centre. The top floor is set back and serves as a utility area, housing small storage rooms, studios and a laundry area.

All the apartments feature a similar, functional layout with an entrance hall that provides access to the various rooms in the unit. Simplified, they can be described as a square with a compartment in each corner. The functional organisation of the apartment rooms allows the living rooms, the main bedroom and the balconies located along the northeast-oriented main façade to obtain several hours of sunlight, while the less frequently used rooms, i.e. the kitchen and the bathroom facilities, are oriented to the southwest, receiving less direct sunlight. In the T2 apartments, there is a smaller bedroom with a southwest orientation for which Guedes designed openings on both lateral façades of the building to increase sunlight exposure.

The predominant construction material is concrete. Structurally, the chosen solution is the column-beam system, although the columns are far from ordinary. They

▲ The column-beam system is expressed at each end of the building with ornaments shaped like pointed fingers, reminiscent of a strange creature with outstretched arms.



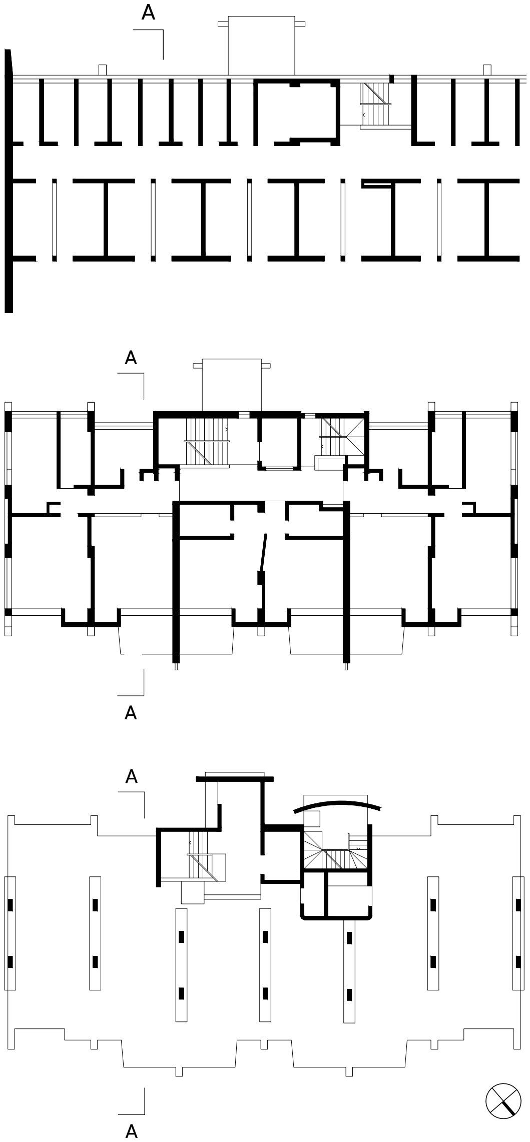
▲ Northeast (top) and southwest (bottom) elevation, 1:300.

▼ Lateral elevation, 1:300.

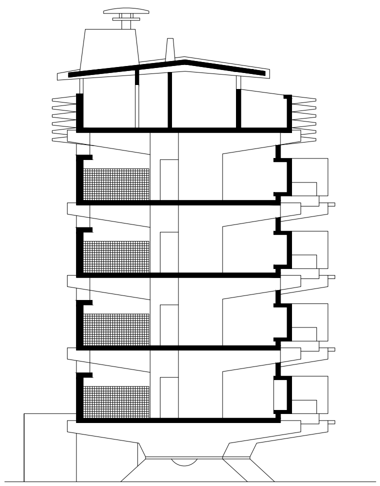
appear as planes that resemble figures with multiple outstretched arms, extending in height, as can be observed on the lateral façade. This system repeats itself seven times along the block according to the structural modulation. The building is balanced on a central row of these unusual columns, from which beams extend like branches on a tree, supporting generously sized balconies, emphasising the distinctive balance of the building.

Like in other works by Guedes, it's possible to find sculptural elements that he himself imagined and created. In the case of Prometheus, the column-beam system at each end of the building is crowned with ornaments shaped like pointed fingers, as if they formed the head of a strange creature with outstretched arms. According to Guedes, the Prometheus Building presents itself in the city as a peculiar apartment block. The architect employs modern devices, such as elevating the building on pilotis, to accentuate the expressionism and adjectivisation of forms, inaugurating a truly unique work. In the original design, Guedes had envisioned another building with similar characteristics to be placed next to Prometheus, named the "Woman of Prometheus", but in its place, a ten-storey residential block was constructed.

In recent years, Prometheus has undergone significant alterations: the ground floor has been occupied by shops; the gables have lost their expressiveness; and the top floor, which was originally set back, has been expanded and converted into additional housing.



◀ Ground floor, typical floor and roof plan, 1:300 (bottom to top).



▼ Cross-section A–A, 1:300.

◀ Rear façade, oriented southwest, where the vertical circulation within the building is located.

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ANA MAGALHÃES

MANGA CHURCH

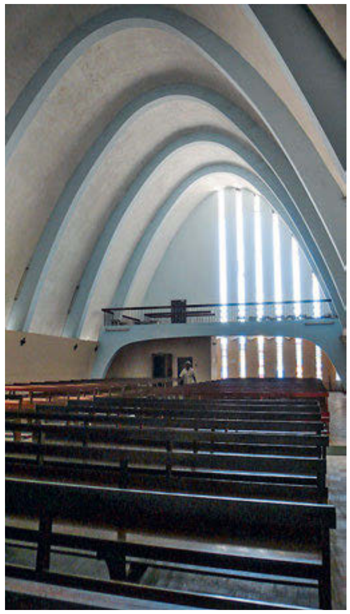
Beira, 1954–1957
ARCHITECT João Garizo do Carmo

▲ View from the main entrance, southeast façade. The parabolic façade of the church and its tall, slender tower are interconnected in a sequential gesture.

▼ Figure-ground plan, 1:5000, 19° 46' 16" S 34° 52' 16" E

The Imaculado Coração de Maria Church is located in the Manga neighbourhood of Beira, Mozambique. It stands as an exemplary work in applying new programmes for renovating liturgical spaces, developed in the wake of the Second Vatican Council. This church was commissioned by the Diocese of Beira, under the leadership of its first bishop, Dom Sebastião Soares de Resende (1906–1967). Bishop Resende was known for his open-mindedness and criticism of the policies of the Estado Novo regime and Portuguese colonialism. In contrast to the historicist architectural models previously constructed in Mozambique, he advocated for the design of religious buildings based on international models advocated by the Modern Movement.

The Manga Church was designed by João Garizo do Carmo (1917–1974), an architect educated at the Schools of Fine Arts in Lisbon and Porto, known for his extensive portfolio of projects in the city of Beira. Garizo do Carmo's chosen architectural language is an example of conceiving liturgical spaces in response to the tropical climate by



drawing upon international models rooted in the formal ideals of the Modern Movement, particularly influenced by modern Brazilian architecture. In this project, the formal repertoire of the Church of São Francisco in Pampulha by Oscar Niemeyer is clearly embraced by its author, who affirms that the architectural concept stems from a universal formal model, much like classical orders: “The point of view I adopted as the main theme for composing the Immaculate Heart of Mary Church in Manga, which best architecturally expressed the purity of devotion in this temple, was the parabola, which, in mathematics, is an extremely pure line. Long before Oscar Niemeyer, the parabolic form was extensively employed, both in religious and civil architectural works … in all cases where large spans in reinforced concrete were to be overcome with the utmost economy and elegance” (Carmo, 1956).

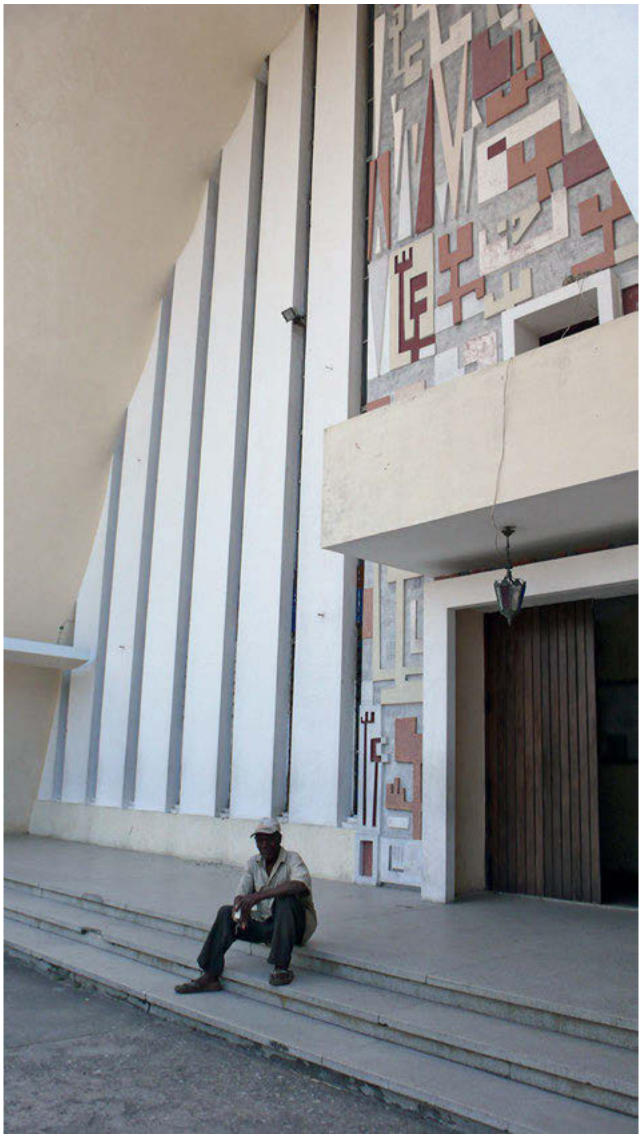
◄ The positioning of the church on the site creates a welcoming square.

▲ Vertical openings in the main façade allow for indirect lighting of the church.

▼ Ceramic mural by Jorge Garizo do Carmo, mimicking the undulating and curvilinear character of the architectural form.

▲ The parabolic shell and the expressive beams define the liturgical space inside the church.

◀ Main entrance, incorporating sculptural façade elements.



The parabolic shell, as seen in the Church of São Francisco, is divided into a second identical volume, in this case shorter, which forms the altar and creates, at their intersection, an indirect light entry. In contrast to Niemeyer's church, where the vault extends all the way to the floor, in the Manga Church, the parabolic shell is divided into two layers. This design allows for the creation of a natural-ventilation system between these layers. Another significant difference lies in the construction system: while the Pampulha Church is built with reinforced concrete, the parabolic roof of the Manga Church nave is made of brick vaults, using, as explained by the structural engineer Marcelo Moreno Ferreira, "the same technique as the traditional vaults found in the Alentejo region" (Magalhães, 2010), supported by parabolic arches. Another distinctive element of the Manga Church, in relation to its Brazilian model, is its bell tower and the expression of the façade, characterised by vertical concrete sunshades. The parabolic façade of the Manga church and its tall, slender tower are interconnected in a sequential gesture.

The design of the parabolic vault shapes the sacred space both formally and volumetrically, while also imparting a unified sense of a total work through the dialogue between art and architecture, a fundamental theme in modern architectural discourse. In the Manga

▲ Embodying the principle of the synthesis of arts inspired by Brazilian modernism, the building beautifully integrates architectural design, painting and sculpture.

Church, João Garizo do Carmo collaborated with his brother, Jorge Garizo do Carmo (1927–1997), who created a ceramic mural that mimics the undulating and curvilinear character of the architectural form. João Garizo do Carmo reinforces the sense of unity in the work, achieved through the "synthesis of the three major arts: architecture, painting, and sculpture." He explains that "as a synthesis, the decorative part is intimately linked with the whole", and it should not be "more than the logical consequence of the architectural concept of the work." His position is clear: "decoration should not be artificial, nor should it be used to 'camouflage' the work, and certainly not be a means to enhance architecture. It should merely be an integral part of the whole, with a beginning and an end!" (Carmo, 1956).

Located in a peripheral neighbourhood of Beira, the building defies the boundaries of the plot and is positioned diagonally, aiming to take advantage of solar exposure and prevailing winds while creating a large, welcoming square. In addition to its urban context, which defines and organises the public space, the sculptural and monumental character of the Manga Church serves as a landmark in the territory.

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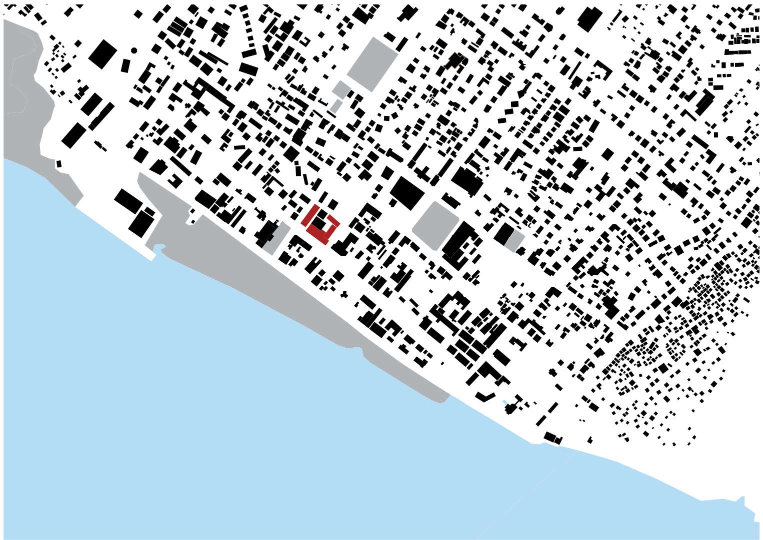
ANA TOSTÕES, MARIA MANUEL OLIVEIRA

MONTEIRO & GIRO ENSEMBLE

Quelimane, 1954–1960
ARCHITECTS Arménio Losa, Cassiano Barbosa

▲ The urban complex of Chuabo occupies an entire city block, combining a hotel, blocks for commerce, offices and housing.

▼ Figure-ground plan, 1:5000, 17° 52' 48" S 36° 53' 05" E (urban complex) 17° 43' 04" S 36° 53' 34" E (industrial complex, not on map)



The firm Monteiro & Giro (M&G), based in Oporto, had diverse interests in Mozambique, including raw-material extraction, livestock farming, and cotton and tea cultivation. In the 1950s, they decided to relocate their headquarters to Quelimane due to its strategic location as a commercial hub in the Zambézia province and the desire to expand their business into the hotel and real-estate sectors. This move prompted them to commission a major architectural project from the studio of Arménio Losa (1908–1988) and Cassiano Barbosa (1911–1998), also based in Oporto. The commission also explicitly specified the construction of a "modern building". This ambitious project, on an unprecedented scale for all of northern Mozambique (despite being affected by colonial urban-planning impositions), involved significant local workforce training and had a lasting impact on the city's urban development over the decades. It profoundly marked the small city of Quelimane, endowing it with a cosmopolitan and modern Western character.

The M&G ensemble is composed of two distinct poles: the urban complex of Chuabo (1956), located in the centre of Quelimane, and the M&G industrial complex, located on the outskirts of the same city. Chuabo occupies an entire city block and is arranged in a square shape around a large courtyard. It consists of distinct volumes that serve various purposes, including a nine-storey hotel on the main urban frontage; three blocks of five to eight storeys for commerce, offices and housing (A, B, C); and a two-storey volume within the block that contains a service station and various sales stands – namely, the city's first supermarket, offices and warehouses. The programme is organised in layers: the ground floor of blocks A-B-C is dedicated to commerce; the level above is multi-functional (offices, consulting rooms, studios); and the upper floors are designated for residential use, organised into duplex (A, B) or individual (C) apartments.

◀ The Chuabo complex is arranged in a square shape around a large courtyard.

▼ Spiral staircase connecting the atrium of the Hotel Chuabo with the banquet hall, set against a sculpturally composed wall.

The hotel features a double-height atrium, with a mezzanine connected to the social areas. This volume stands out on the exterior of the building, acting as a kind of pedestal upon which the hotel rooms' volume rises. The top floor, slightly set back, houses the dining room and the nightclub, connected by a large terrace that opens up to the river and the surrounding landscape.

The distribution galleries, resembling "streets in the sky" protected by sunshades, are positioned above the central courtyard and envelope the buildings, reinstating the concept of an interior, communal courtyard – a significant planning element within the African tradition. The variety of typologies, functions and layers reflects the modern concept of integrating different uses.

Through a blending of various scales, the architects created a comprehensive global design, bringing together urban-planning decisions – for instance, embracing the monumentality of the block – with the conception of furniture, cutlery and signage. There are also European and native artworks that can be appreciated in the entrance atrium, and the wall of the Chuabo Hotel's nightclub is adorned by an extraordinary fresco created by five local artists.

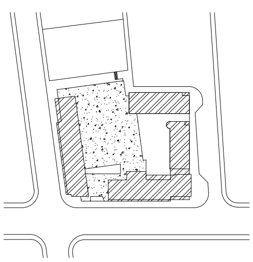
Located 15 kilometres from Quelimane, the M&G industrial complex was established near a clay deposit and is strategically placed adjacent to the railway line. Planned as a structure organised axially around a road connecting the outer edge of the site to its centre, the complex comprises a ceramics factory, housing for qualified workers and communal facilities. The dining-hall area stands out as a building that centralised social life and provided meals to the residents. Defined by a vaulted roof – a cruciform structure supported by its four corners – it functions as a large, protective sunshade. At the geometric centre of the vault, the dining room occupies a square defined by the ceiling – an inverted star suspended

▲ The Chuabo Hotel's snack bar is a lavishly detailed space: wood, stone, ceramic finish, leather and textured plaster define the ambiance.

◀ The chair designed for the dining room in the top floor of the Chuabo Hotel.

▲ The wall of the nightclub at Hotel Chuabo is adorned by frescos created by local artists.

▼ Block plan, 1:1000.

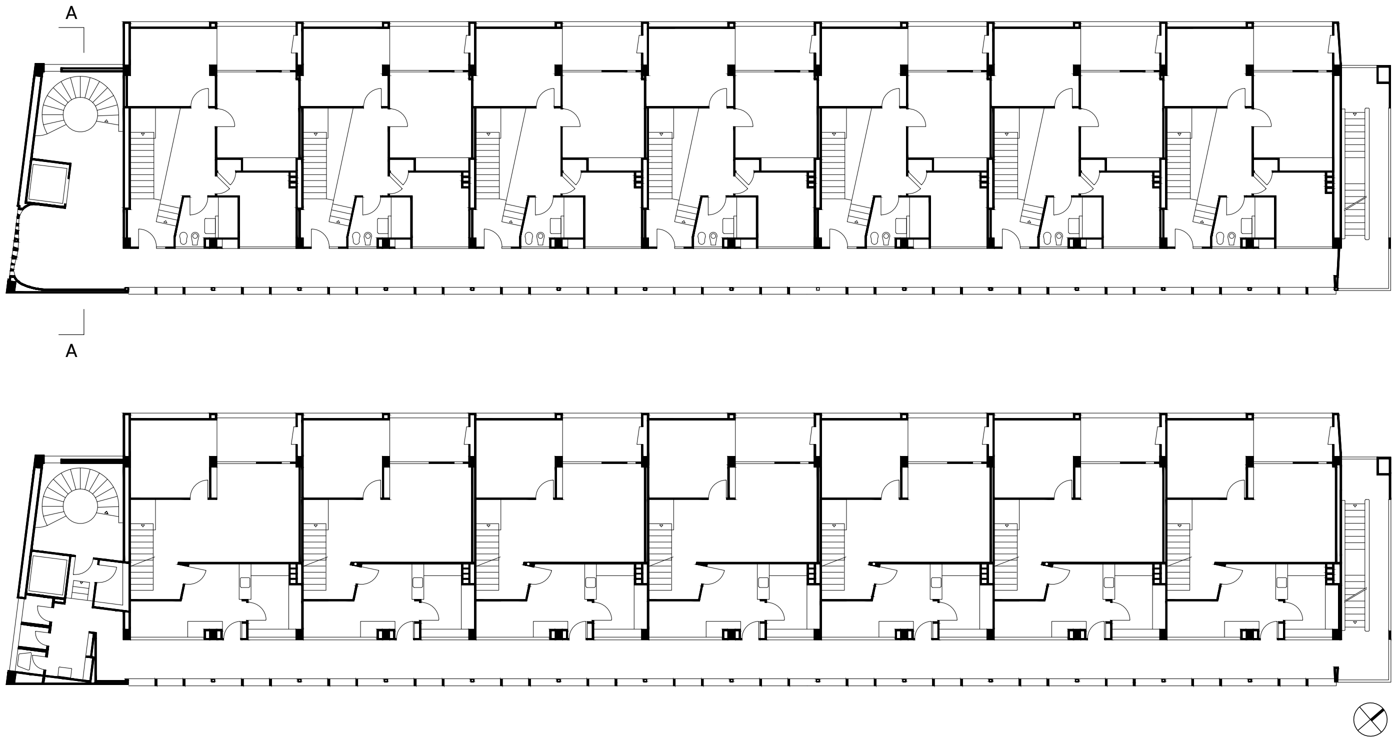


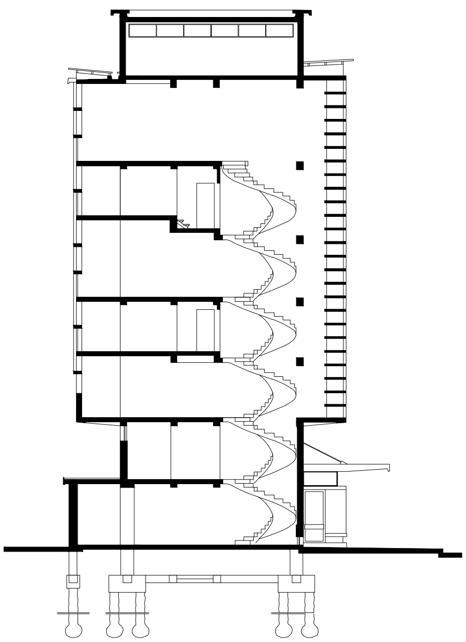
at its four points – and large sliding windows that afford an extensive connection with the outdoor terrace. Responding to climatic considerations and drawing inspiration from contemporary research on the lightness provided by thin-concrete structures, the designers devised a formal solution that combined a sophisticated structural framework with the traditional construction method of brick vaults.

The houses, semi-detached, are parallelepiped volumes elevated on pilotis, creating a sheltered area on the ground floor (for servants' accommodation, children's recreation, garage and access staircase). They are enveloped by ceramic grilles and topped by a ventilated gable roof covered with ceramic tiles. Both projects formally explore the features necessary for maximum shading and ventilation. This is achieved through site planning; perforated walls; deep, covered balconies; the use of sunshades; extensive, covered open areas; and ventilated roof spaces.

The industrial complex is today partially abandoned and in a state of decay. The housing and commercial spaces of Chuabo, though fully occupied, are also in advanced degradation. The hotel, despite some deterioration, still maintains admirable conditions in terms of the original integrity of its spaces and furniture.

The M&G ensemble represented a masterpiece of its era, marked by the attention given by modern architects to new contexts; connecting and exchanging world visions; drawing inspiration from European to Brazilian, Colombian or Mexican architecture – all while focusing on the specific circumstances of colonial Africa.

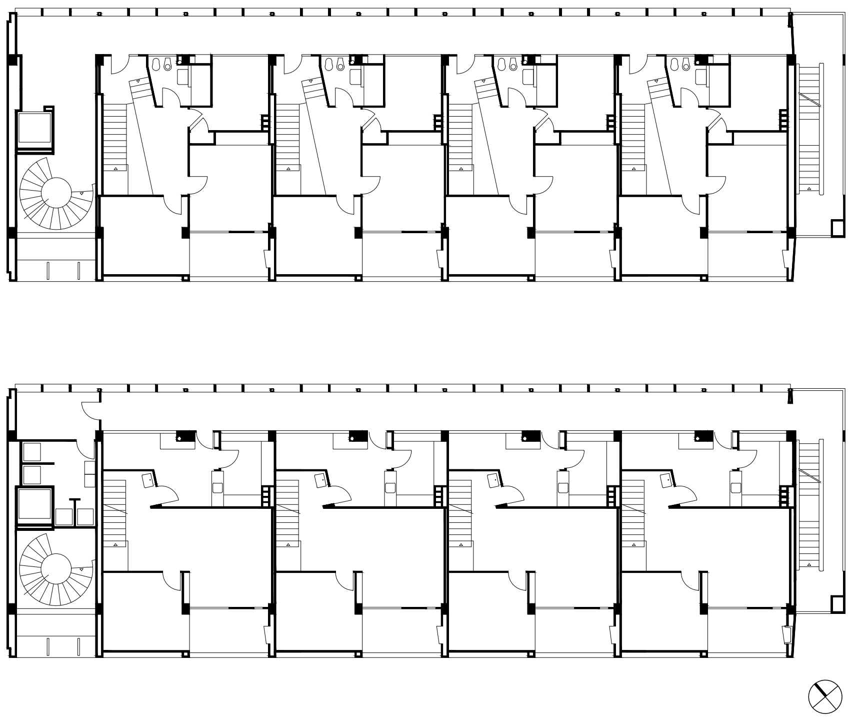


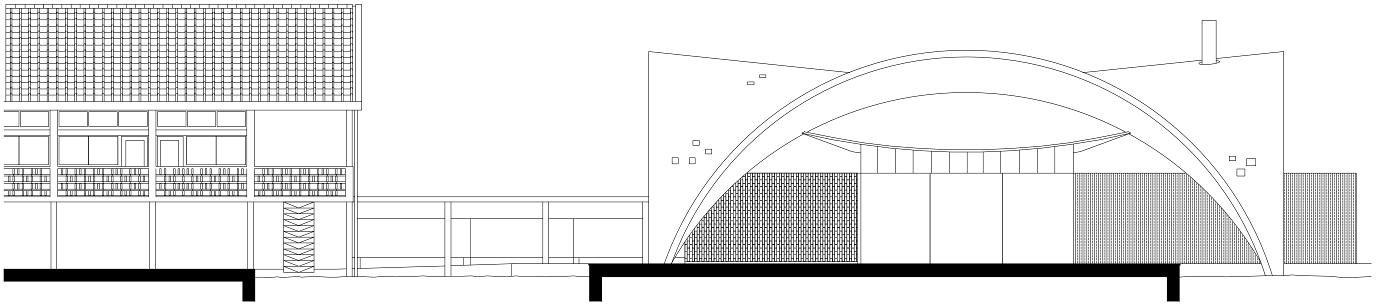


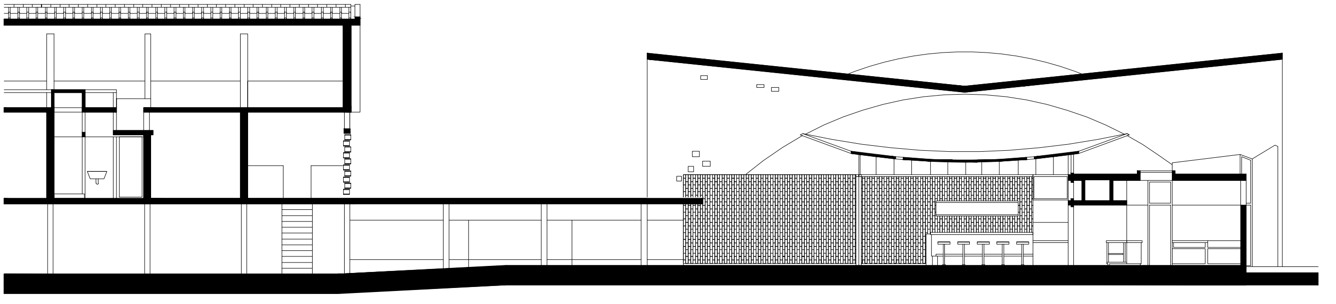
▲ Block A. Third and fourth floor plan, 1:300 (bottom to top).

◀ Block B. Cross-section A–A, 1:300.

▼ Block B. Third and forth floor plan, 1:300 (bottom to top).



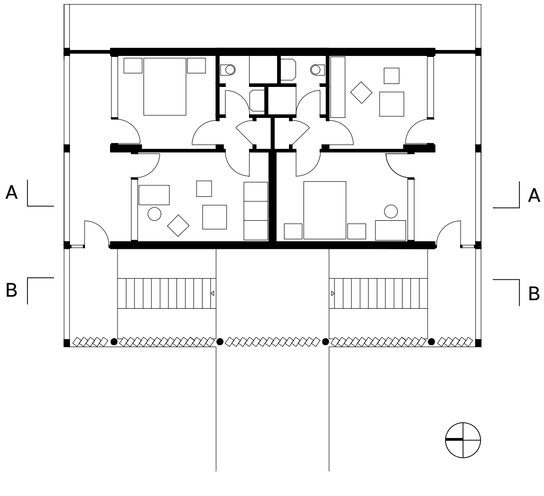


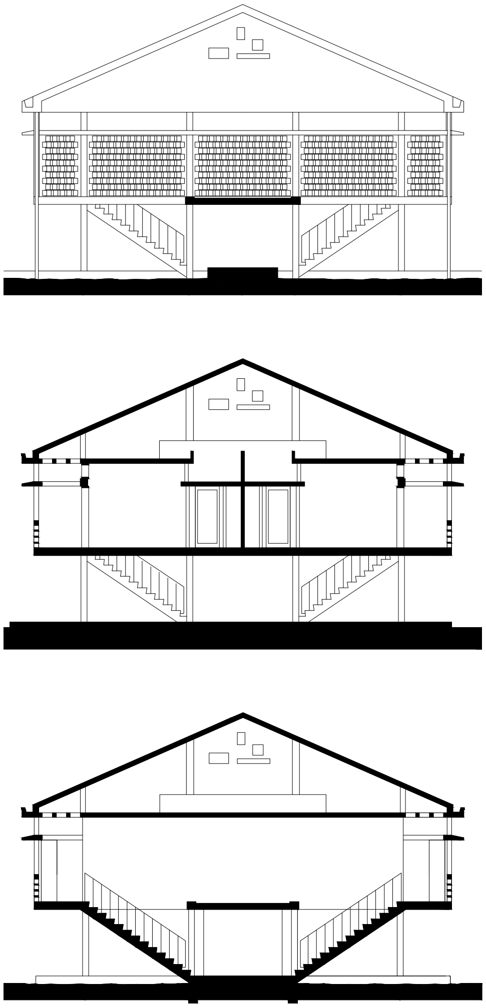


▲ Detached house and dining hall of industrial complex. North elevation (top) and longitudinal section (bottom), 1:250.

▶ The semi-detached houses of the industrial complex. Their elevation on pilotis creates a sheltered area on the ground floor for servants' accommodation, children's recreation, garage and access staircase.

▼ Semi-detached house of industrial complex. Ground floor plan, 1:250.





▲ Semi-detached house of industrial complex. Side elevation (top), cross-section A-A (centre) and B-B (bottom), 1:250.

▶ The design emphasises maximum shading and ventilation, through site planning; perforated walls; sunshades; extensive covered, open areas; and ventilated roof spaces.

▼ The dining hall of the industrial complex has a vaulted roof – a cruciform structure supported by its four corners – that forms a large, protective sunshade.

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ANA TOSTÕES, ZARA FERREIRA

SMILING LION BUILDING

Maputo, 1955–1958
ARCHITECT Pancho Guedes

▲ Southeast-facing main façade with a sculptural design, featuring African combs on the upper part of the side elevations and a low-relief mural with triangular patterns in orange, white and black on the top floor.

▼ Figure-ground plan, 1:5000, 25° 57' 46" S 32° 35' 26" E

The Smiling Lion is considered the most famous building designed by Pancho Guedes (1925–2015). Built between 1955 and 1958, it is located in a residential area of Maputo, at the corner of Kwame Nkrumah and Salvador Allende Avenues. It was the building where Pancho Guedes lived and worked until 1975, which he referred to as "his symbolic home and tomb" (Pedro Guedes, 2009, p. 15).

It is a residential building with three floors, supported on pillars: on the open ground floor, there were six parking spaces; on the first and second floors, there are six apartments, three per floor; and on the rooftop, there were laundry tanks, clotheslines and cabins for domestic workers with sanitary facilities and showers, where, according to Pancho Guedes, employees lived under undulating shells.

Guedes classified his architectural works into various "families" and organised them in a catalogue of 25 architectures, which he called *Vitruvius Mozambicanus*. The Smiling Lion belongs to the "Stiloguedes" (Pedro Guedes, 2009, p. 79), a family characterised by rational plans contrasting with expressive sections.

The Smiling Lion has rectangular and orthogonal floor plans. The two vertical access cores are located at the ends of the building, connected to the horizontal circulation galleries that provide access to the apartments along the southeast façade. At the northeastern end, there is a service staircase that goes up to the third floor. At the southwestern end, the main staircase, which only goes up to the second floor, has a front opened to the outside. The apartment floor plans are equally orthogonal, making rational use of space.

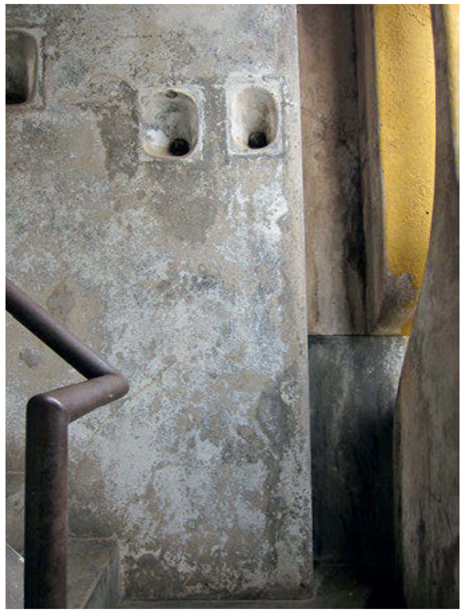
As in other buildings of this *Vitruvius Mozambicanus* family, it is in the sections and the outer building envelope that we find the architecture of the extraordinary and the fantastic. The main façade, facing southeast, is vertically divided by seven robust pilotis that protrude over the

◀ The rooftop terrace is defined by six domes, intended for the worker cabins, almost imperceptible when viewed from the street.

▲ The ground floor of the building, supported by pilotis, has today been partially filled with commercial spaces and garages.

▼ Windows with frames and grilles on side elevation.

façade plane. These pilotis, which give the impression that the building is suspended above the ground, are approximately 1.20 metres high and are covered with limestone-pebble mosaics. Sculpturally shaped, they form, in their continuation at the ground floor level, reminiscent of false corbels, and at the parapet level, at the uppermost part of the side façades, African combs that harken back to the Prometheus Building (1951–1953). On the second and third floors, this façade features three projected and developed balconies set between the sculptural walls that touch the carved bases of the pillars; the two outer ones are relatively narrow while the central balcony has double width. Gargoyles for water drainage have been placed on the balcony parapets. In the recessed panels, horizontal adjacent windows open, enclosed with different types of frames and/or grilles. The roof is defined by six domes that close over the two long low-relief murals, with triangular geometric patterns painted in soft shades of orange, white and black. These murals, resembling those of the Tonelli Building (1957), define the third floor as a parapet, concealing the terrace and the uncovered access to the worker cabins, which become almost imperceptible when viewed from the street. The balustrade of the main staircase consists of metal motifs – a set of arms and shields taken from Guedes' early paintings of pirate ships. The service staircase is protected by walls sculpted with



▲ The smiling lion statue at the entrance, crafted collaboratively by Pancho Guedes and a Mozambican stonemason, that inspired the building's name.

▶ Detail of the access stairs.

▼ The main staircase balustrade consists of metal elements: arms and shields inspired by Guedes' early pirate-ship paintings.

curvilinear surfaces, like membranes stretched to the maximum and torn, reminiscent of the entrails of fantastic animals. Several bell-shaped chimneys crown the rooftops. The name "Smiling Lion" was given to the building after construction, in homage to the statue of a laughing lion placed at the entrance of the building. This statue was created by Guedes and an African stonemason from Inhambane named Gonçalves, mimicking the artisanal lions that were sold in Goa in India.

The building was evidently inspired by the constructivism of Pablo Picasso, the dadaism of Jean Arp, the surrealism of Salvador Dali, the abstractionism of Joan Miró and the primitivism of Rufino Tamayo; moreover, Pancho Guedes admits that when he completed his architecture degree in 1953/1954, just before designing this building, he couldn't distinguish between painting, architecture and sculpture. However, with an intriguing and contrasting relationship between the (orthogonal) plan, the (organic) section and the façade, the author applied in this project what he claims to have been one of Salvador Dali's teachings: artists should "become carnivorous fish, swimming between two types of water – the cold water of art and the warm water of science" (Guedes, 1985, p. 16). He demanded for architects "the rights and liberties that painters and poets have held for so long; ... buildings

▲ The service staircase is shielded by curvilinear walls, resembling stretched and torn membranes.

must become presences – like vast apocalyptic monsters or gently floating albatrosses; they must be invented to be remembered forever" (Santiago, 2007, p. 13).

Having fostered close bonds with the local population and artists like Malangatana Ngwenya (1936–2011), Pancho Guedes found in Mozambique the fertile ground to bring fantasy back to architecture. By merging the architect's erudite international background with African popular culture deeply rooted in local traditions, the Smiling Lion stands as evidence of its creator's wild imagination. The building responds to the context, the climate, the geology and the culture of its users.

Today, the building is entirely painted in yellow, the ground floor has been partially filled in with commercial spaces and garages, and the apartment balconies have been enclosed.

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ANA TOSTÕES

TONELLI BUILDING

Maputo, 1957
ARCHITECT Pancho Guedes

▲ The building, located above the city, has a strong urban presence.

▼ Figure-ground plan, 1:10,000, 25° 58' 16" S 32° 34' 33" E

The Tonelli Building, designed by Pancho Guedes (1925–2015) for Maputo in 1957, falls into the category that the architect refers to as "Habitable Boxes and Shelves for Many People" in his *Vitruvius Mozambicanus* – the catalogue in which Guedes organised his work into 25 families (Pedro Guedes, 2009). According to the author, "these boxes and shelves model themselves on the early works of the Modern Movement which were like huge cubical machines, *Machines à Habiter*, but they are mostly quite brightly painted. In some of them each apartment is identified by expressing it as an unit on the cellular façades. In all of them the access and circulation is schema tic and direct" (Pancho Guedes, 2007, p. 11).

The building was commissioned by the Italian engineer Franco Tonelli for a plot of land in Maxaquene, Maputo, located next to the Tunduru Botanical Garden, the only large public garden in the city centre. The building stands with a strong urban presence on a high point in the city. It has a three-storey base for commercial spaces, warehouses and garages, while the nine storeys above are designated for collective housing. This division is accentuated by the sgraffito mural occupying the side of the third floor's gable and the overall volumetrics, as the façade of the block slightly tilts over the base. There is a volumetric interplay between the horizontal character of the distribution galleries, their openings at various heights, and the verticality of the protruding stair and elevator core to the south and setback to the north, effectively dividing the building into two symmetrical bodies. The main entrance to the building is accentuated through this setback, and the large plane separating the building's base. Pancho Guedes takes advantage of the difference in level to create an inner courtyard and to incorporate the warehouse and garage. The other two levels house shops and upper-storey shops with double-height spaces. The façades adhere to a modern aesthetic and reveal the

concept of shelves with their projecting slabs and wall panels that rest upon them in a regular rhythm, following a modular structure with a 5.30-metre centre-to-centre distance. Within these modules, the "habitable boxes" are inserted. These units have a width of 5.20 metres and a length of 10.30 metres, with an approximate 1:2 ratio. There is an obvious parallel with the Unité d´Habitation in Marseille by Le Corbusier, where each unit was described as a "bottle" that could be built independently and inserted into its container. In some cells of the Unité, the proportion is also 1:2, developed based on the double square of the Modulor.

Currently, the Tonelli Building has 56 apartments: 40 one-room (T1) units with 52 square metres and 16 three-room (duplex) units (T3) with 104 square metres. The access to the apartments, via the galleries, is differentiated based on social and typological hierarchy: the T1 units have only one access from galleries with a height of 3 metres, while the T3 units are served by two different galleries, one for service with a 2.10 metre height and one principal gallery of 4 metres.

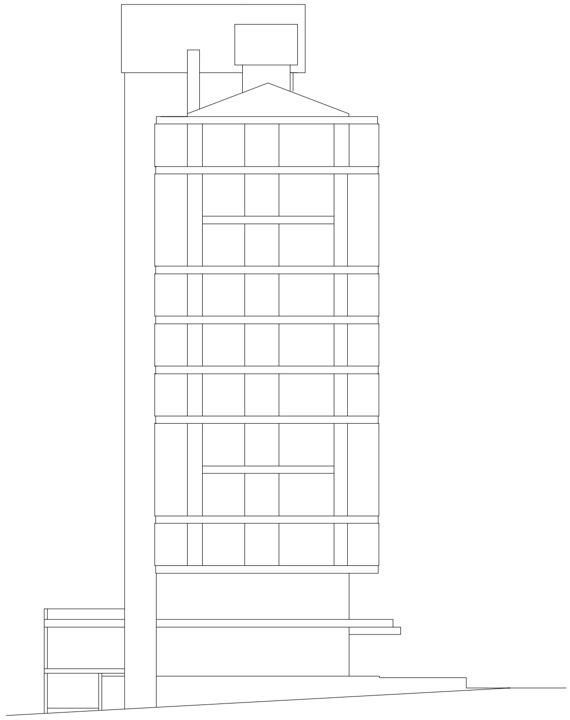
The functional organisation of the T1 apartments is very straightforward, with just a kitchen, bathroom, bed-room-living room and a balcony. The T3 apartments, on the lower level, have a kitchen with a dining area, storage, laundry area and a living room with a balcony, while on the upper level there are two bedrooms, a sewing room, a bathroom and a balcony. The more frequently used spaces, such as bedrooms and living rooms, face north-east, receiving ample daylight and the prevailing northeast and east breezes. The service areas, facing southwest, have less direct sunlight and are regulated by smaller openings and louvres that collect light and breezes from the southeast.

Pancho Guedes prioritises the correct solar orientation over the northward view of the sea. Only the horizontal

◀ The northwest façade with its projecting slabs and wall panels supported by them is reminiscent of shelving.

▲ The protruding stair-and-lift core connect with the horizontal distribution galleries, dividing the building into two symmetrical bodies.

▼ The separation between the three-storey base housing commercial spaces, warehouses and garages, and the nine storeys above designated for collective housing is highlighted by a sgraffito mural.

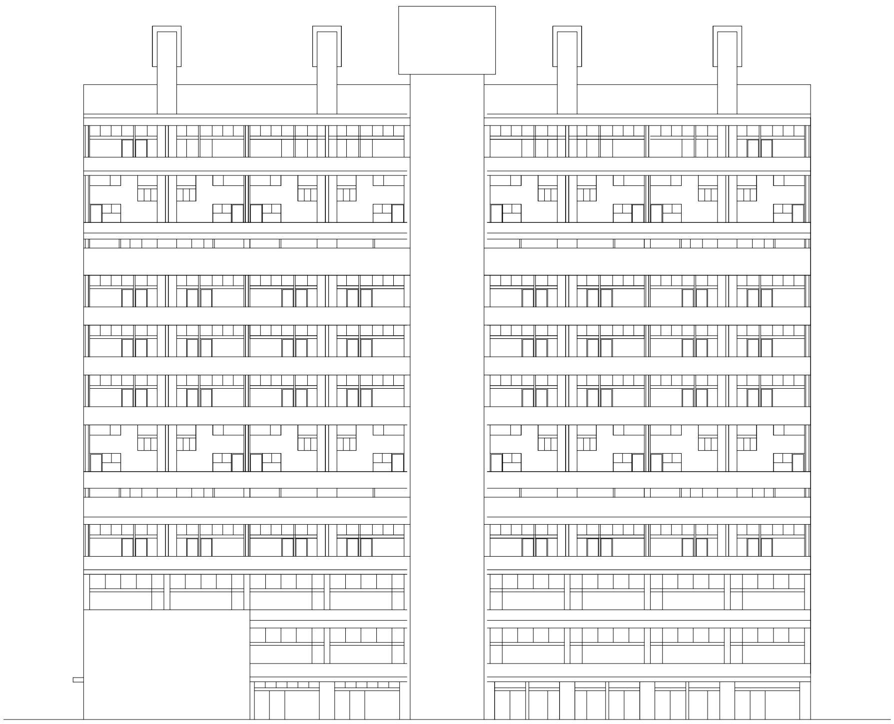


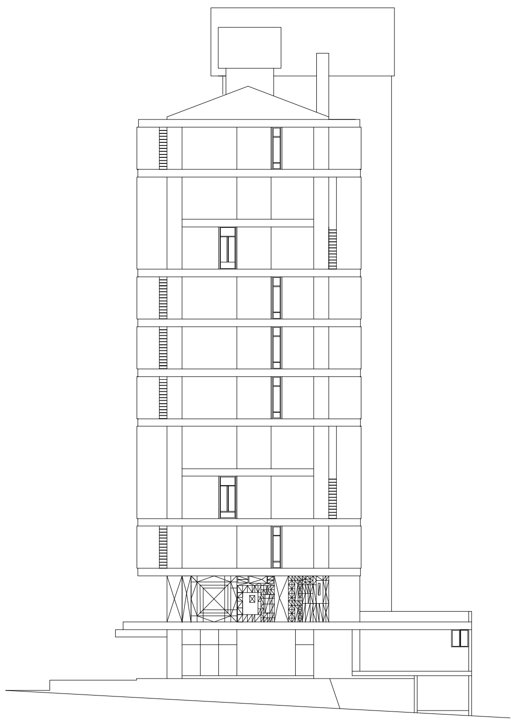
▲ Northeast elevation , 1:500.

▼ Southwest elevation , 1:500.

▲ Southeast elevation , 1:500.

▼ Northwest elevation, 1:500.

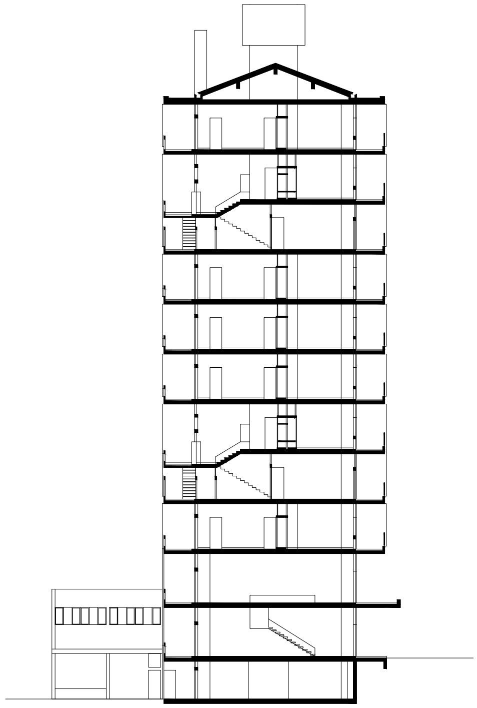




▲ Pancho Guedes prioritises solar orientation over views. Only the open access galleries allow a view towards the sea.

▶ Cross-section A–A, 1:500.

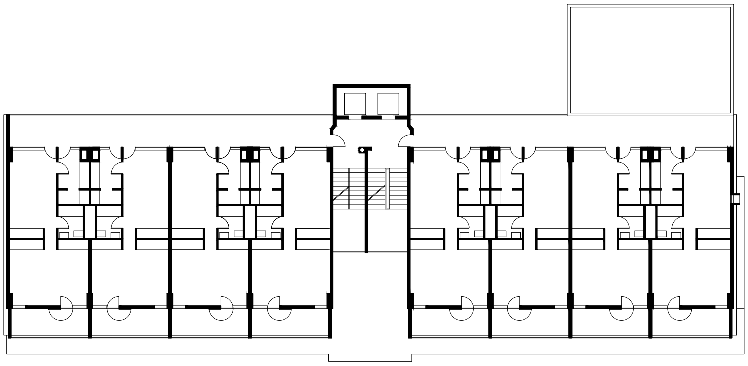
▼ The flats service areas are equipped with smaller openings and louvres that receive light and breezes from the southeast.



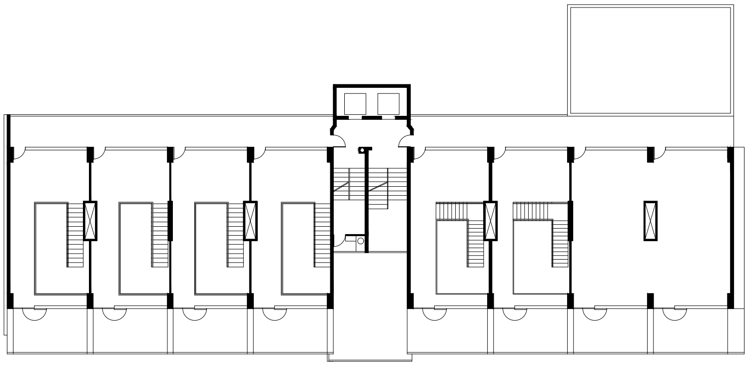
accesses provided by the long open galleries enjoy the open view.

Closely linked to various forms of artistic expression, Pancho Guedes often spoke of his murals as a means of expression, projection and integration of his graphic universe. In the case of the Tonelli Building, the geometric patterns etched and painted on the plaster can be compared with the designs of the Mapogga tribe or some motifs from the "caniços" doors photographed by the architect. "Caniço" (slender cane) is the term used in Mozambique to name spontaneously built urban settlements by the indigenous population, forming an apparently chaotic and improvised urban continuum characterised by precarious constructions made of perishable materials such as wood, thatch and the slender cane from which they take their name. Unfortunately, the impact of the murals is no longer that prominent due to the changes made over the years.

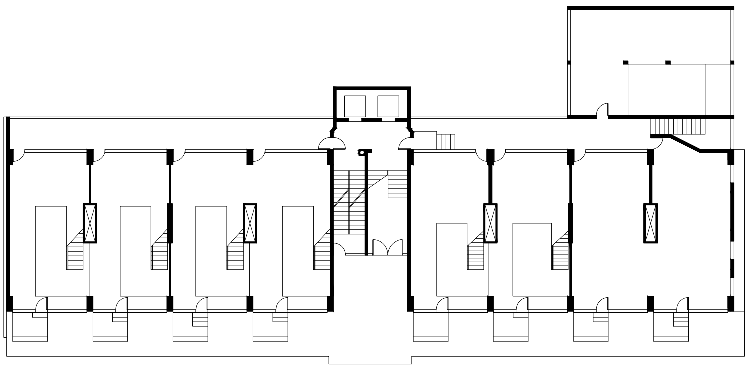
The significance of this work lies in its interpretation of Modern Movement architecture. While following an objective rationality and functionality rooted in various aspects of the Modern Movement's lexicon, the Tonelli Building reveals various subtleties that reject the canonical formalism of the International Style. On all the façades, there are clues to distinguish the different functions behind the façade panels. The modulation of openings on the front



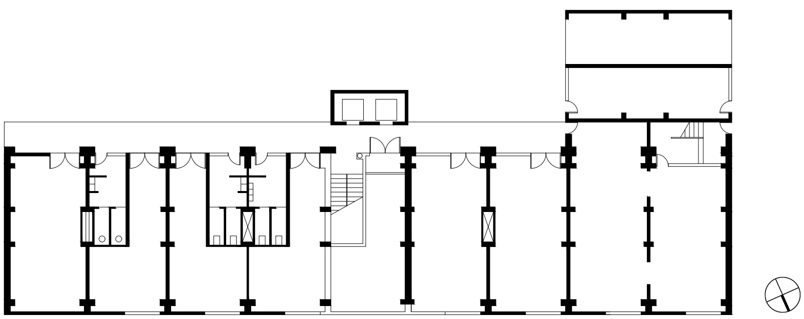
◀ Floor plan of levels 4, 7, 9 and 12, 1:500.



◀ Floor plan of level 3, 1:500.



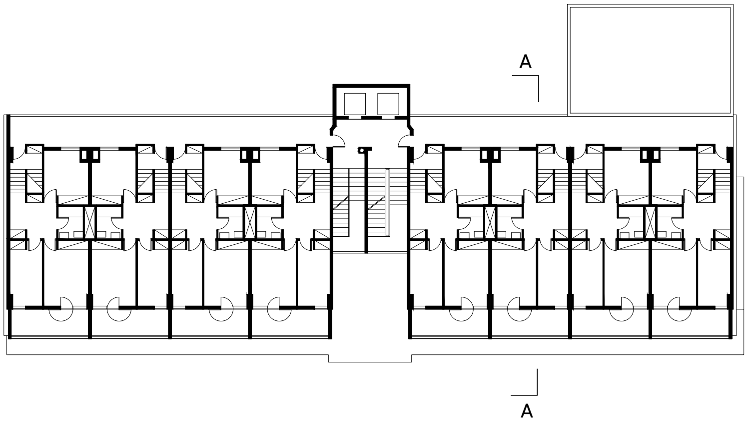
◀ Floor plan of level 2, 1:500.

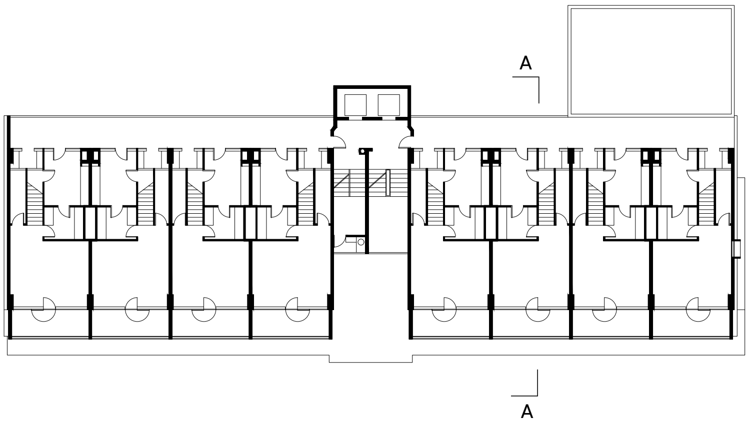


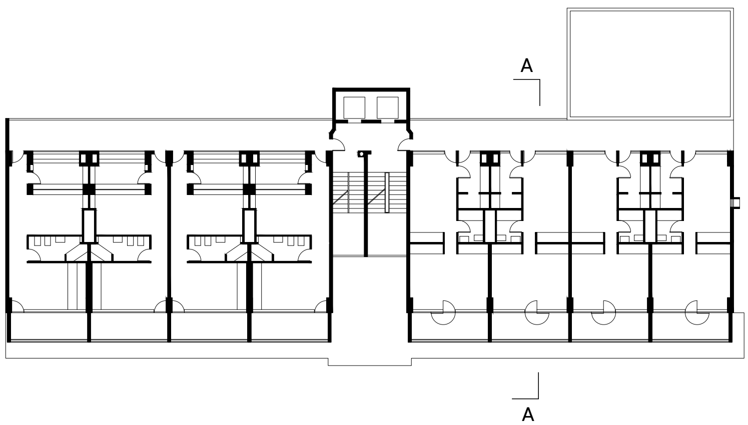
◀ Floor plan of level 1, 1:500.

▲ Common laundry space next to a circulation gallery.

▼ Wooden door and window frames at the apartment entrance, accessed from the circulation gallery.







▲ Floor plan of levels 6 and 11, 1:500.

▲ Floor plan of levels 5 and 10, 1:500.

▲ Floor plan of level 8, 1:500.

façade, the differences in ceiling height in the south-west-facing galleries, and the artistic composition of the lateral façade with projecting openings of various sizes capturing views of the Tunduru Botanical Garden subtly reveal the differences in typologies and hierarchies present in the building. These small variations break the monotony without compromising the coherence and homogeneity of the whole.

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ANA TOSTÕES, ZARA FERREIRA

WEDDINGS PALACE

Beira, 1957–1958
ARCHITECT Paulo de Melo Sampaio

▲ The former Automobile Touring Club is a distinctly horizontal curved structure, located between the Artur Brandão Square and the sea.

▼ Figure-ground plan, 1:10,000, 19° 50' 47" S 34° 50' 22" E

Clubs had a qualified and cosmopolitan presence, especially in Beira, where a sophisticated colonial society gave life to facilities like the Beira Automobile Touring Club, designed by Paulo de Melo Sampaio (1926–1968) between 1957 and 1958.

This building (which later became the Weddings Palace) is located at the end of the Ponta Gea neighbourhood, a district composed of a series of single-family houses overlooking the Indian Ocean, and where the Grand Hotel of Beira, designed by architect José Luís Porto (1883–1965) in 1946, is situated. The Beira Automobile Touring Club is strategically positioned, directly between the sea and Artur Brandão Square. Its curved plan form emphasises the circular design of the vast square where the building is located, integrated into the outdoor arrangements. The convex face of the arch is oriented towards the sea, maximising the potential of its view, while its concave side faces the city, as if embracing it.

It is a distinctly horizontal structure, with only two floors. Half of the ground floor is open, elevated from the ground by parallelepipedal pillars (facing the sea) and attenuated pyramidal pillars (facing the city), connected to triangular beams that fit into the upper floor, resembling a spinal column. These pillars are made of exposed stone masonry. The built part of the ground floor is set back from the upper floor, where administrative and service spaces are located, including management, storage, bathrooms, kitchen, bedroom and a common room. The open space formed by the supporting pillars of the building creates a generous area to the north, functioning as a covered terrace overlooking the garden inside the plot and the sea.

The upper floor houses the social spaces such as the restaurant and bar, with their respective kitchens, a library, two games rooms and a large banquet hall occupying one-third of the floor. All these spaces are

▲ The building is elevated from the ground by parallelepipedal pillars.

▲ ▼ The vertical access volume is open and shaded, covered with glazed tiles featuring blue, black and white geometric patterns.

connected to the vertical access through a single long, covered outdoor space. Designed as a circulation gallery and a social area, this space defines the main façade facing east, open to Artur Brandão Square and the city through a horizontal opening that spans the entire length of the façade at nearly its full height. In the enclosed rooms, this large opening is fitted with a grid frame, alternating fixed glass with Beta-type frames.

The west façade, taller than the east one as the roof slopes up towards the sea, is mostly blind, with only a series of low horizontal openings between pillars near the ceiling. The same applies to both façades of the ground floor, with Beta-type windows on the east side. The rear façade is opaque, with only a narrow and long opening, emphasising the building's connection to the square.

Intersecting the horizontal volume is a vertical volume containing the access stairs, totally open to the outside. With an asymmetrical location within the façade, it is defined by a concrete canopy resting on two cylindrical columns the height of the two floors, and on a vertical plane covered with glazed tiles with blue, black and white geometric patterns. This plane appears to float without touching the ground since it is only supported by two blocks of stone masonry, similar in appearance to the columns and walls surrounding the atria that perforate the built volume next to the stairwell core. With the same

▲ The pillars are made of exposed stone masonry.

▼ The stone mural created by Mozambican painter and sculptor Ernesto Shikhani exemplifies the principle of integrating the arts.

◀ ▶ The upper floor houses the social spaces, including the restaurant and bar, within a spacious area.

logic, the horizontal canopy also appears to hover in the air without touching the built volume, whose structure is further reinforced by two tension rods connected to a beam supporting the second flight of stairs. Next to the eastern façade, there is a stone mural created by Shikhani, a Mozambican painter and sculptor, showcasing the principle of integrating the arts; the building design drew inspirations from Le Corbusier and Brazilian plasticity.

After Mozambique's independence in 1975, the building was transformed into the Wedding Palace, and it continues to serve this function today, demonstrating its remarkable adaptability and spatial resilience. In 2010, the building was in reasonably good condition, with annexes added to the rear façade, and some of the space on the ground floor enclosed. Today, the building is in an advanced state of decay. It has been suffering from severe coastal erosion, and the cyclones IDAI (2019), Chalane (2020), and Eloise (2021) have worsened the situation. The rehabilitation of the building has been considered, but its feasibility remains uncertain due to the high costs involved. Without intervention, the building will collapse.

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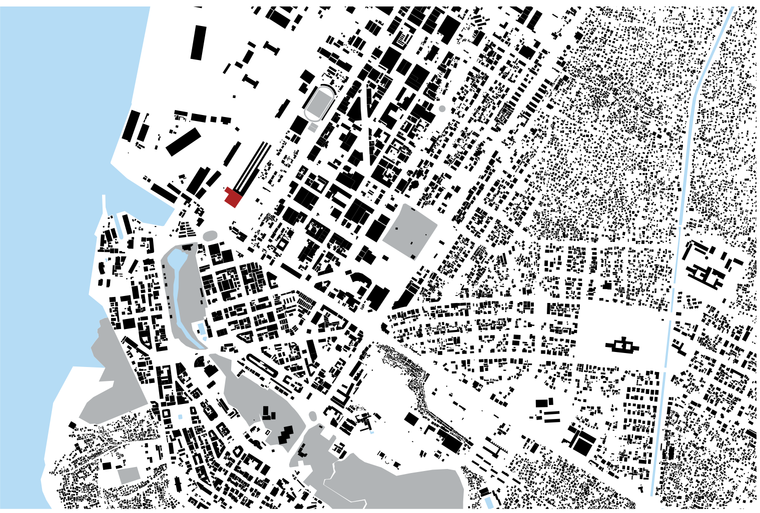
ANA MAGALHÃES

BEIRA RAILWAY STATION

Beira, 1957–1966
ARCHITECTS João Garizo do Carmo, Paulo de Melo Sampaio, Francisco José de Castro

▲ Southwest façade. The vaulted nave of the grand station is asymmetrically juxtaposed with the office block.

▼ Figure-ground plan, 1:10,000, 19° 49' 33" S 34° 50' 16" E



The history of Beira, the second-largest city in Mozambique, is intrinsically linked to the history of the railway in Africa. With the significant economic development generated by the construction of the Beira Railway Line, concessioned to the Beira Railway Company in 1893, the Directorate of Ports, Railways and Transport Services in the Province of Mozambique determined, from the late 1940s, the need for the construction of a large train station. Thus, the Beira Central Railway Station (Estação Central de Caminho de Ferro da Beira in Portuguese) would become the largest public work in the city, addressing the need to accommodate the existing movement of passengers and goods in the so-called "Beira Corridor", which served as a connection to the interior of Africa. Its location was defined in the functional zoning proposal of the Urbanisation Plan for the city in 1951. Situated at the northern end of Beira, near the port, this significant infrastructure building served as a focal point in the city plan. In the early 1960s, the construction of the railway station signalled the hustle and development of the city. The railway complex was developed by a team that included the leading architects residing in Beira. The plan of the complex delineated three functional areas, each with distinct volumes. Consequently, the project was divided into three parts, with each architect on the team responsible for one: the grand station was commissioned to Francisco José de Castro (1923–?), the terminals and service area to João Garizo do Carmo (1917–1974) and the office block for administrative purposes and coordination of the project to Paulo de Melo Sampaio (1926–1968).

The grand station, the most remarkable building in the complex, is a vaulted nave, asymmetrically juxtaposed with the office block, creating a grand welcoming space for the station. The expansive area of the station is conceived as an architectural promenade with a sequence of events that guide us from the atrium entrance

◀ South view of the grand station and office block.

▲ The grand station is characterised by a balanced integration of architecture and art, visible both in the finishes and the equipment.

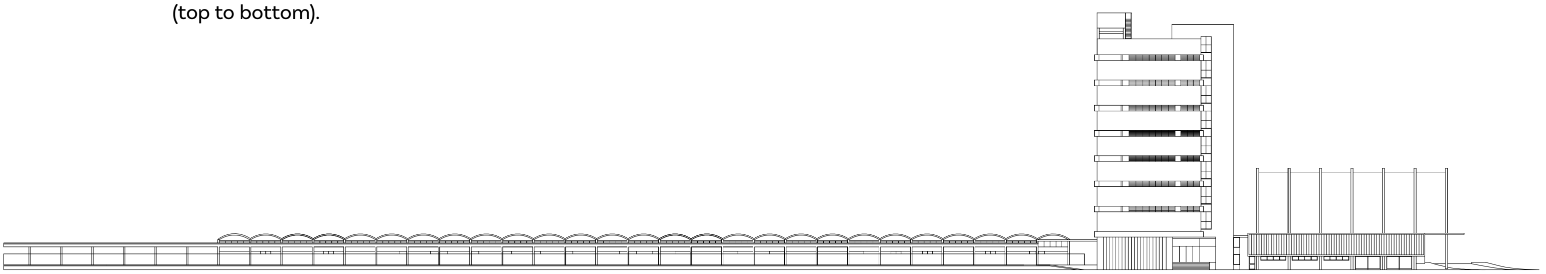
▼ The connection between atrium and train platforms outside.

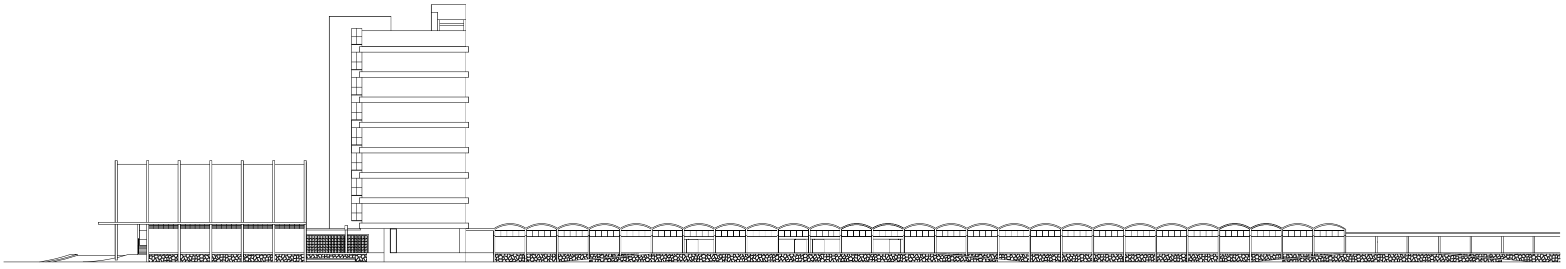
to the terminals. The office block is a large, seven-storey rectangular volume, partially raised on pilotis and characterised by an exposed structure made up of overlapping "boxes" that create long openings between the floors. On the southwest façade, which is more exposed to the sun, these "boxes" are enclosed by fibrocement sunshades that effectively respond to the intensity of the tropical climate. Despite the different authors and the volumetric variation among the three buildings, the work maintains a sense of coherence and unity. Compositional balance is achieved through the distinct expression of form and scale of each part and the clarity of the articulation of the spatial and functional sequence.

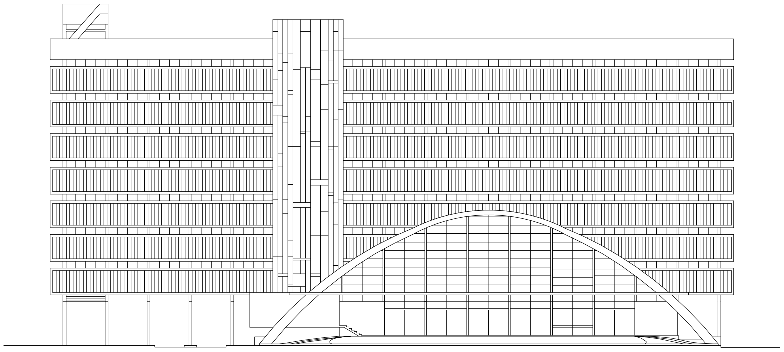
The project for the Beira Railway Station exemplifies the principles of the international architectural language of the post-war period. In addition to the fundamentals of

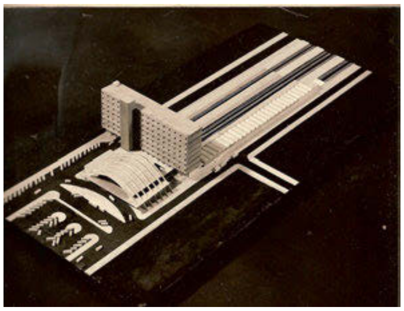
▲ Windows on both façades allow for ample illumination of the great hall.

▼ East, west and south elevation, 1:1200 (top to bottom).









◀ Southwest façade detail with glazed mosaic by Jorge Garizo do Carmo.

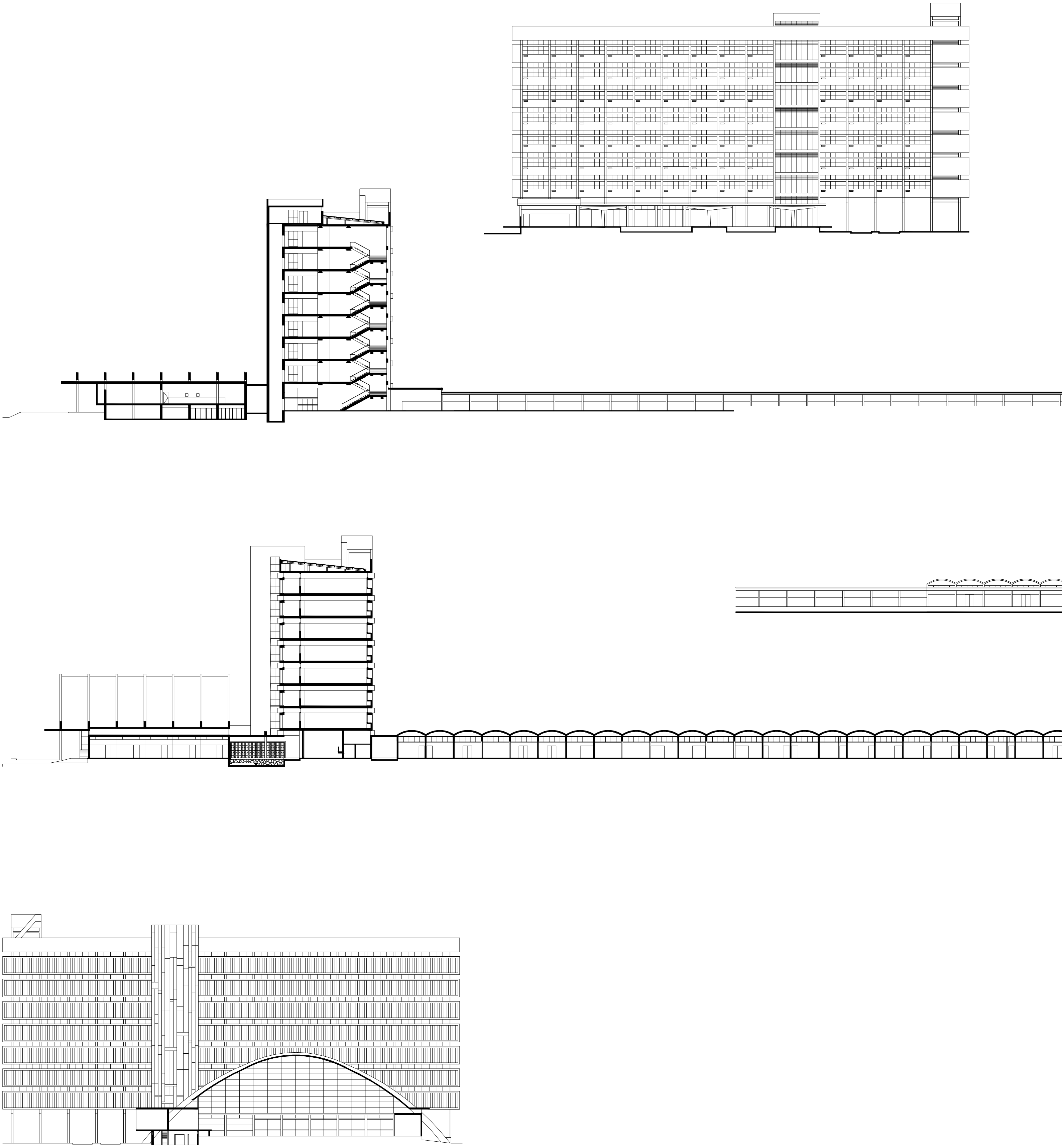
▲ 3D model of the train station with office block.

▶ The train platforms.

▼ View of train platform with the office block in the background, seen from the northeast.

Corbusian grammar, expressed through the adherence to the "five points" or the functional organisation of spaces, the extensive formal lexicon of Brazilian modern architecture, a common characteristic in the language of its authors, is abundantly applied here. This includes the plasticity of curved forms evident in the large vault or the sequence of Catalan vaults, grids and brise-soleils, material textures, polychromy and the integration of artworks. In the design of the station, references to various works of Brazilian modern architecture, widely publicised in the late 1950s, are evident.

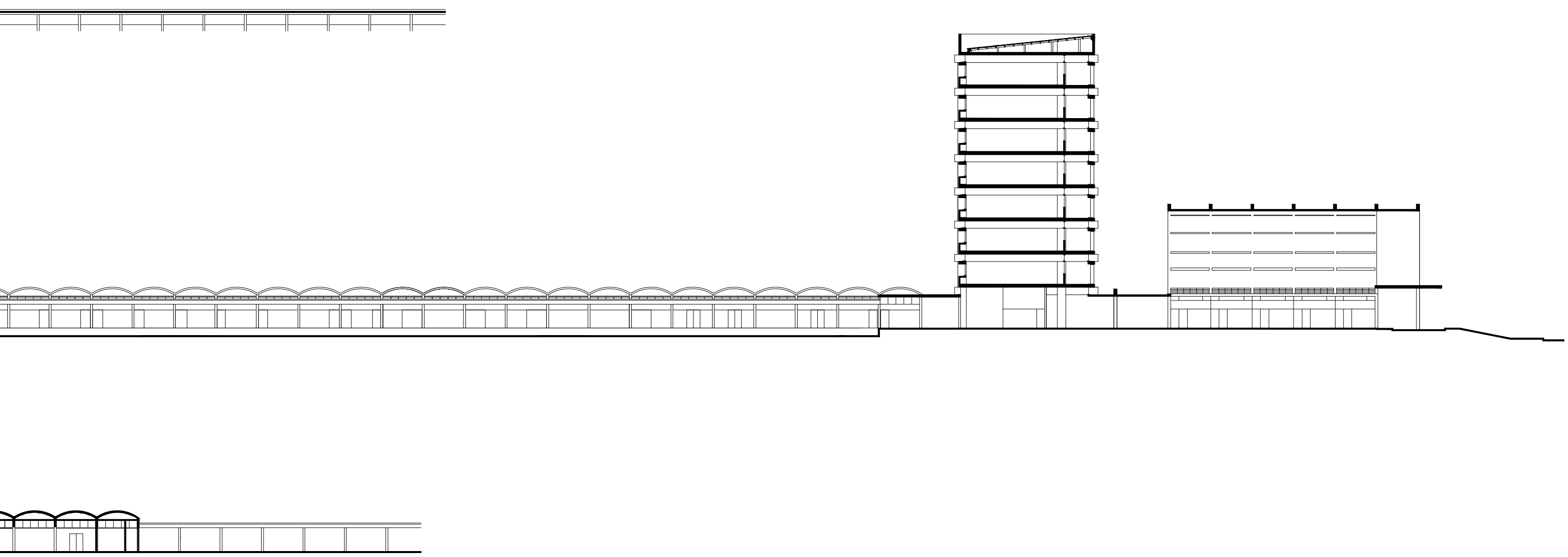
The Beira Railway Station is a mature work in the application of this modern lexicon with international standards, and demonstrates the consolidation of the authors' trajectory. It can be regarded as an exemplary building in the heritage of the Modern Movement, within the context of a new concept of monumentality: "as human landmarks which men have created as symbols for their ideals, for their aims, and for their actions ... intended to outline the period which originated them, and constitute a heritage for future generations" (Ockman, 1993, p. 29).

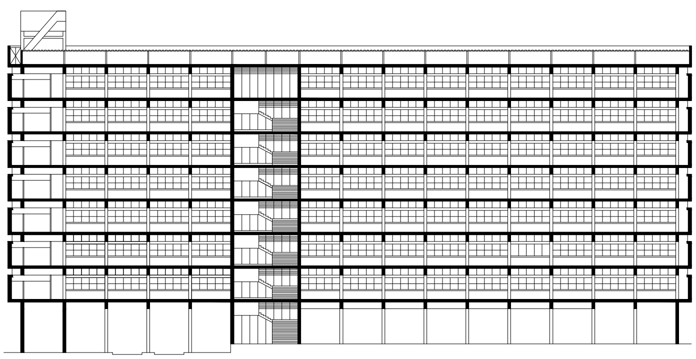


▲ South elevation, section D-D, 1:1200.

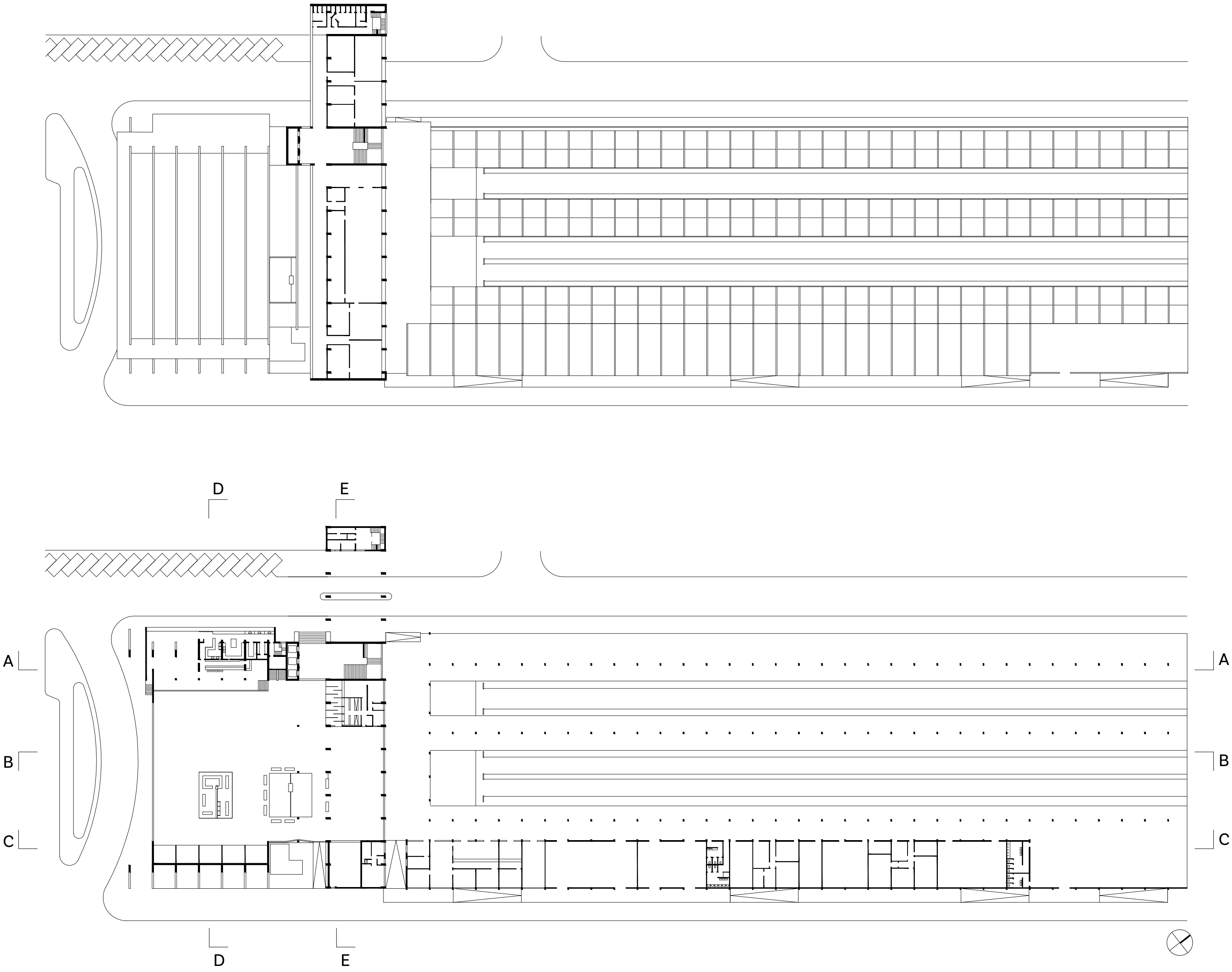
◀ North elevation, 1:1200.

▼ Section A–A, B–B and C–C, 1:1200 (top to bottom).





▲ Section E–E, 1:1200.



▲ Ground and typical floor plan, 1:1200 (bottom to top).

PROJECT TEAM

Engineer: Marcelo Moreno Ferreira
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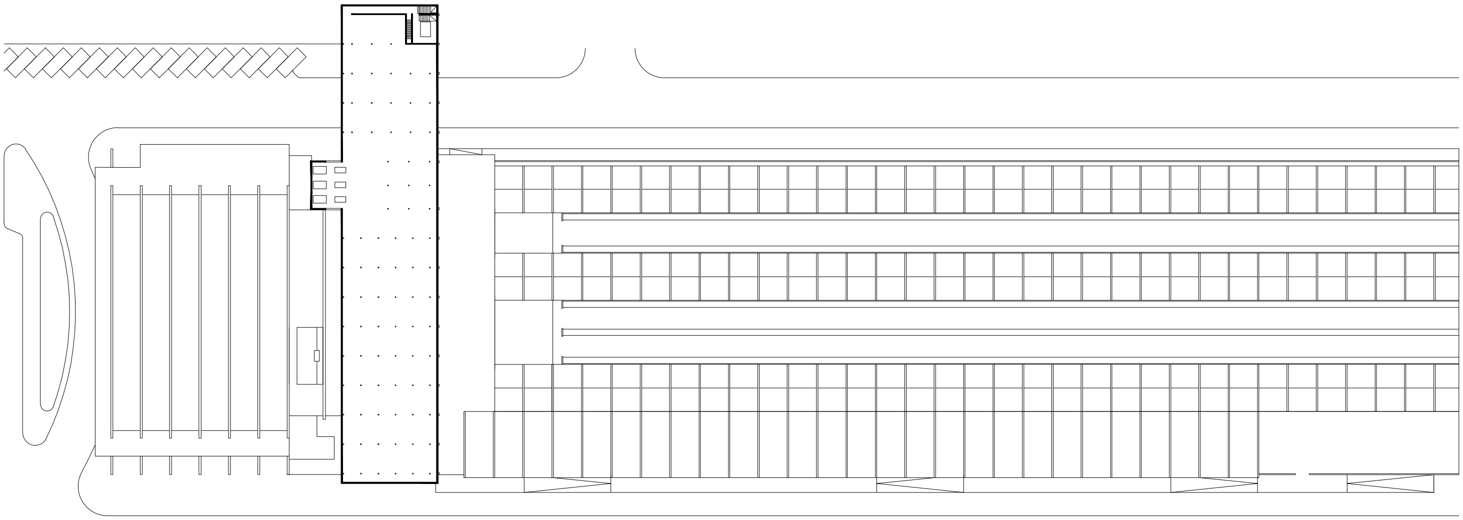

▲ Roof level plan, 1:1200.

Beira Station, in addition to being an exemplary case of modern architectural heritage built in Africa, maintains an iconic and popular dimension in the city. The Government of Mozambique is currently seeking to enhance the value of its ports and railway infrastructure. In the context of new strategies for economic and tourist revitalisation of the city of Beira, this building will undoubtedly play a key role in responding to its urban and architectural redevelopment.

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ZARA FERREIRA

PYRAMIDAL KINDERGARTEN

Maputo, 1958
ARCHITECT Pancho Guedes

▲ The set of spaces destined for storage shape the playground.

▼ Figure-ground plan, 1:10,000, 25° 57' 46" S 32° 35' 47" E

The Pyramidal Kindergarten, currently known as Nyoxani – Educação, Arte e Recreação – and formerly called Verney College, is located in the Sommershield neighbourhood, a wealthy suburb of former Lourenço Marques (Maputo) defined by houses for the local middle and upper classes, with mostly spacious lots, garden areas and pools.

Designed in 1958 by Pancho Guedes (1925–2015) and inaugurated in 1961, the Pyramidal Kindergarten was the first project in the so-called "Americo-Egyptian style" (Donat, 1964). Miguel Santiago argued that this style relates "two very distant worlds, Egyptian architecture, and the architecture of Louis Kahn. Egypt is represented by the pyramids or pyramidal sections; Kahn is represented by order and unity" (Santiago, 2007, p. 132, translation by the author). Admiration for Kahn's work is visible in the evident analogy between the kindergarten and the Trenton Bath House (1959), whose "archaicness has a lot to do with what Pancho Guedes perceived as his naiveté.

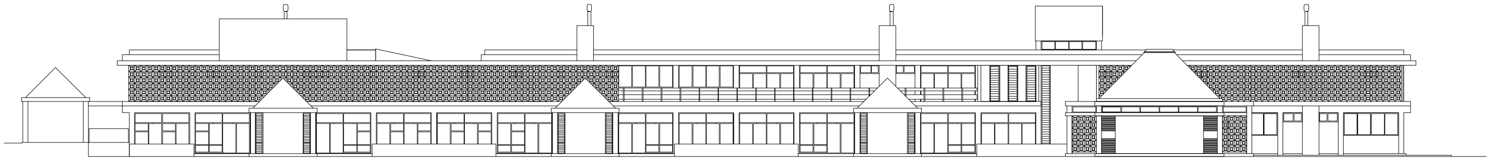
◀ Main entrance of the school.

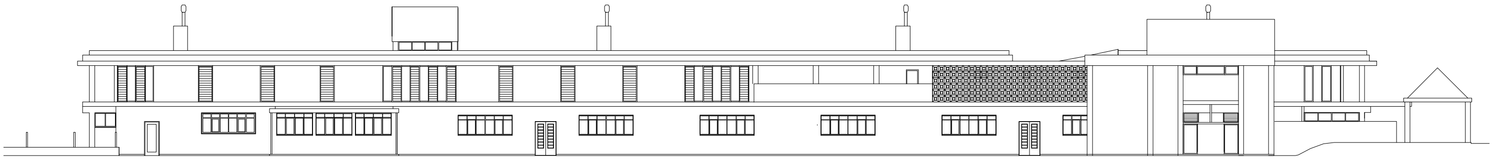
▼ The former chapel, now used as a gymnasium, is topped by a pyramidal roof with an opening at its apex.

▼ Corner window in the northwest façade of the classroom volume.

Like Romanesque architecture, Kahn's more monumental buildings strive to create deceptively simple spaces which are nonetheless impregnated with a profound gravity, similar to the child-like solemnity of Rousseau's paintings." (Ostler, 2007, p. 29). On the other hand, the reference to Egypt establishes the continuity of pure pyramid shapes with modernity, celebrated in Kahn's work and echoed in Guedes' jokes: "We can't afford just to have pyramids these days, so we make them on the roof – we are not as lucky as the Egyptians" (Guedes, 2007, p. 25).

With a scale that is sympathetic to its users, the kindergarten relates to the surroundings, the site and the street in a serene, integrated and diversified way. Forming an enclosure defined by the walls and surrounding vegetation, the building is revealed through the intermittent views between the trees and in spaces that invite people to enter. These moments correspond to the two entrances to the kindergarten, strategically placed at each end of the rectangular lot, following the hierarchy present throughout the project. The main entrance is defined by the space between the two main volumes of the building: the former chapel (nowadays used as a gymnasium), topped by the most striking, Kahnian pyramidal section in the whole project, and the long two-storey building that intersects it, housing the rest of the programme. Besides providing an arrival space, it is also an articulation space and, as such, a passage; however, it is covered and open, serving as an area for lingering. Since it is a kindergarten, the stay quickly turns

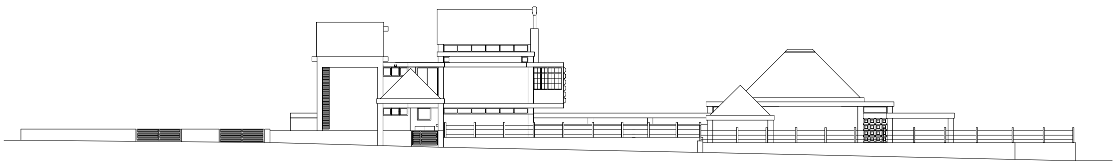


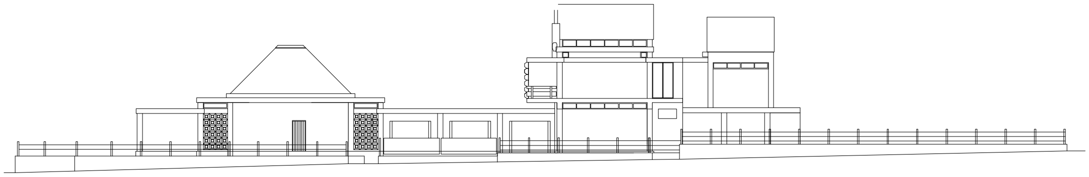


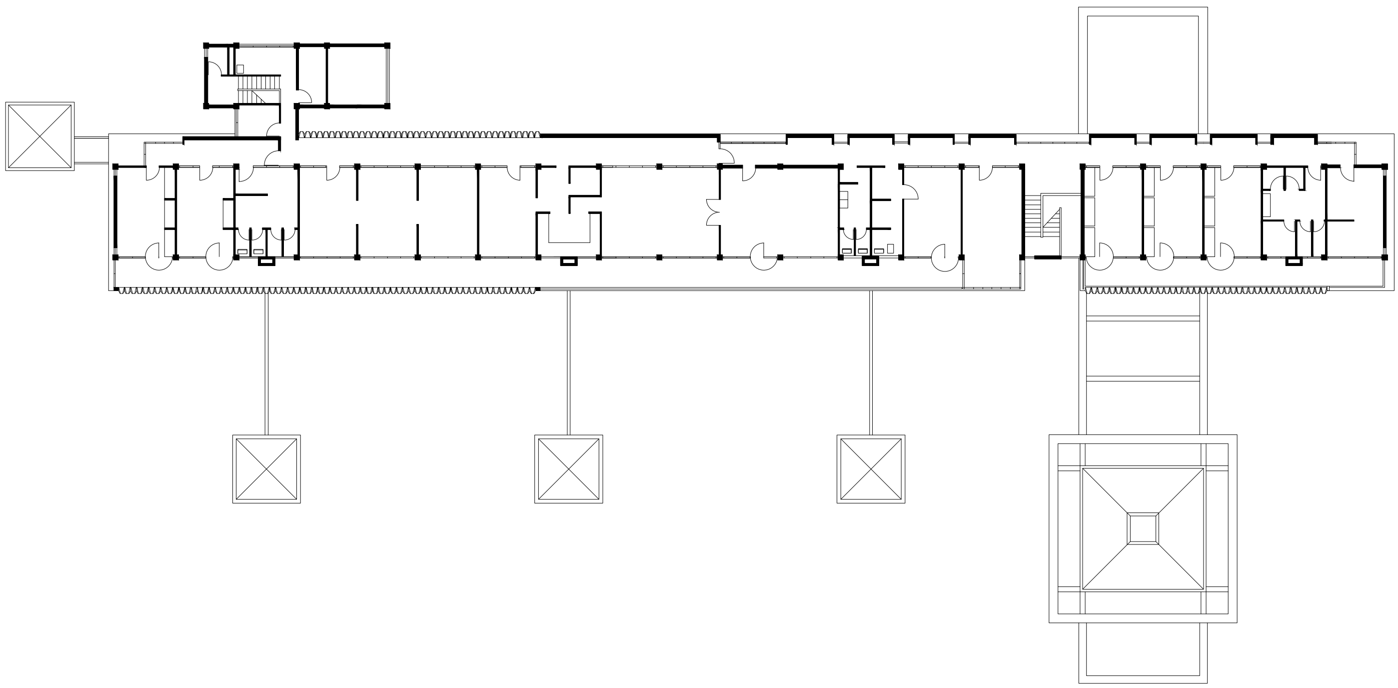
▲ Front (top) and rear (bottom) elevation, 1:500.

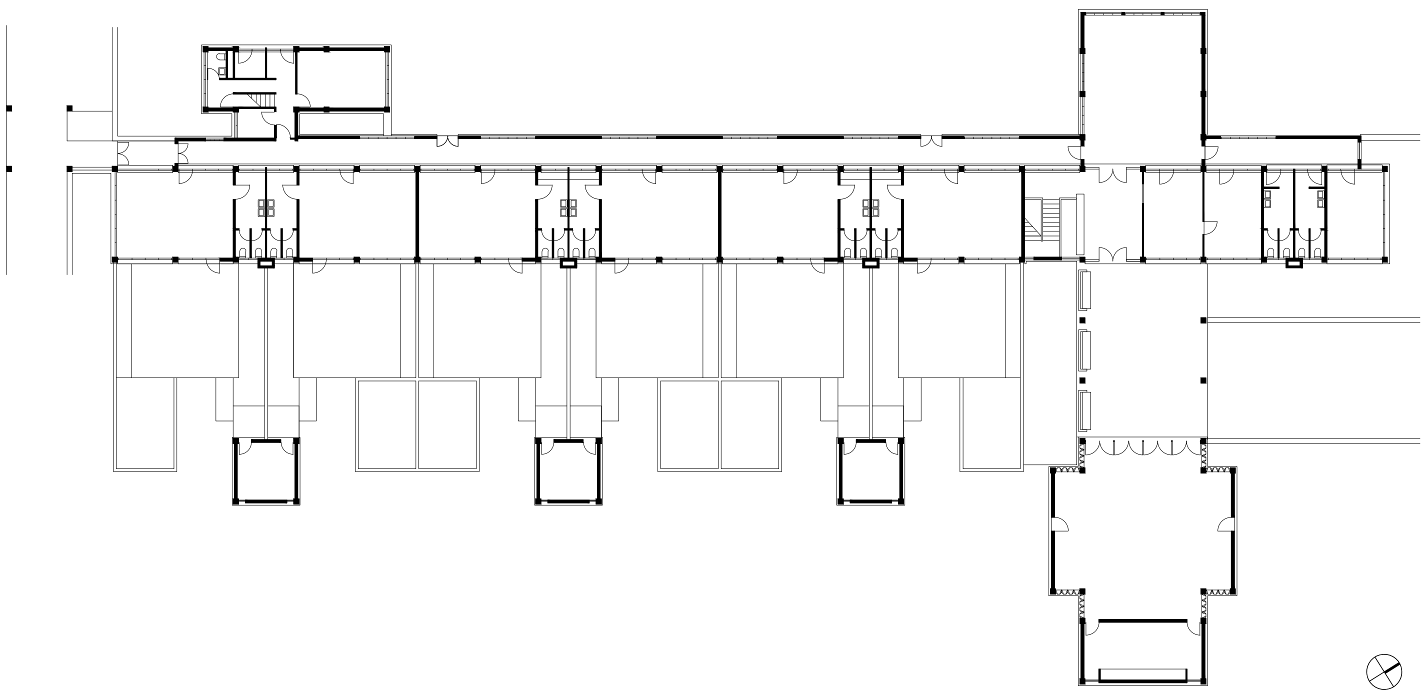
▼ The outdoor space consists of vegetation, play equipment and shaded areas featuring the most basic elements of geometry: the cube, the parallelepiped and the pyramid.

▼ Side elevations, 1:500.









▲ Ground (bottom) and first floor (top) plan, 1:500.

▲ The project is characterised by a succession of spaces, from the classroom and small play areas to the large public space, achieved through pathways and different levels.

into play, and we immediately realise that this is the only moment in the project where served space and serving space come together in the same place. The secondary entrance leaves no room for uncertainty: marked by a pyramidal roof supported by four "slender legs", it is located along the main interior circulation gallery.

On the ground floor, the functional programme is distributed along the northwest-facing gallery, ensuring immediate access to the classrooms, interrupted only by sets of sanitary facilities. On the upper floor, the served spaces are surrounded two full-length galleries, giving rise to the volumetric projection visible on the southeast façade. In the initial design, this floor was primarily intended for dormitory spaces, with some complementary services such as social areas, laundry, kitchen and a dining room. However, due to the incomplete execution of the overall project, these spaces were gradually occupied by the users according to their needs.

Externally, the dialectic between the private and collective play areas is notable: the private play area, functioning as an extension of the classroom, gives way to another space that connects with the open and public

▲ The classroom corridor has a grille that lets diffuse light in.

playground. This succession of spaces from the classroom, through the small play areas, to the large public space is accomplished through a hierarchy of outdoor spaces defined by low walls, creating increasing spatial diversity.

The border defined by this set of spaces is further marked by three volumes distinguished by their form. With a 4 × 4 metre footprint, they assert themselves as square prisms topped by the pyramidal roofs. As storage spaces, they delineate the outdoor space, encouraging children to become aware of the most elementary forms in playful terms.

From the outside, the building appears as a volume enclosed by filters or walls with varying tectonic intensity. On the inside, spaces are shaped by intentionally directed light – whether it is the long corridor that provides access to the classrooms, featuring a grille carved into the sections of the small pyramids that filters diffused light, or the directed and concentrated light source that moves with the sun throughout the day in the old chapel space. This project recalls architecture's early archetypes: in the first case, the Palazzo dei Diamanti in Ferrara dating to the Renaissance; in the second, the oculus opening to the zenith in the Pantheon in Rome. The exterior, on the other hand, allows us to understand that the timelessness of these references results from a plasticity composed of the most basic elements of geometry – the cube, the parallelepiped and the pyramid – and for that reason, the most eternal ones.

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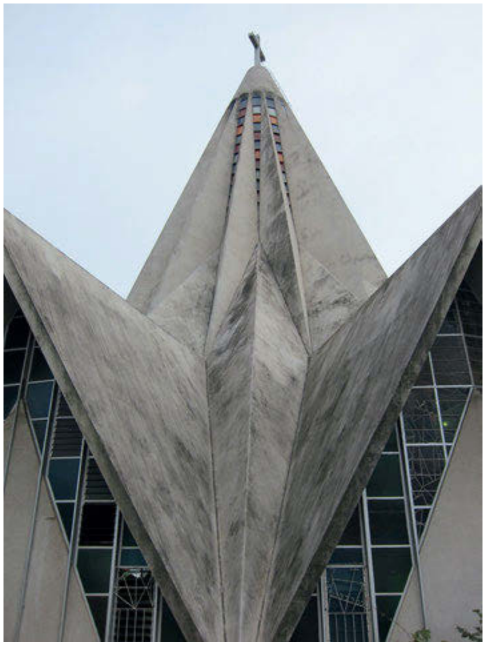
ANA TOSTÕES, ZARA FERREIRA

POLANA CHURCH

Maputo, 1959–1962
ARCHITECT Nuno Craveiro Lopes



▲ The upward movement of the pyramidal volume culminates on the exterior in a cross.

▼ Figure-ground plan, 1:10,000, 25° 57' 57" S 32° 35' 48" E

In Mozambique, the transition from the 1950s to the 1960s marks a clear break between remote architectural production, originating from Portugal, and local production. This moment unmistakably coincides with a phenomenon of asserting modernity, which starkly contrasts with the revivalist or historicist approach promoted by architectural production during the period of Estado Novo, the dictatorial Portuguese regime installed in 1933.

The dual project for the Santo António da Polana Church in Maputo exemplifies these transformation processes. Initially, the Franciscan Order requested a project from the Office of Overseas Urbanisation, which was being designed in Lisbon by architect Luís Possolo (1924–1999). Developed between 1958 and 1959 at the Directorate of Urbanism and Housing Services, the project followed the models executed by the office: it consisted of a rectangular central nave characterised by a sequence of ogival porticos, topped by the high choir and the high altar, and flanked by two lower side naves. Due to centralised decisions in the metropolis, without communication with the province, and delays in the process, the Franciscan Order terminated the contract with the Office of Overseas Urbanisation, choosing a local architect, Nuno Craveiro Lopes (1921–1972), in 1959 to carry out the project. This second commission was the one that would be built between 1960 and 1962.

The difference between the two projects highlights the disparity between the two types of commissions and the paradigm shift that occurred at that time in Mozambique and Angola regarding the religious architectural programme. The new projects, with the Polana Church being one of the most iconic, are characterised by extensive plastic and constructive exploration, with a clear affiliation to the Brazilian experience widely publicised at the time, such as the Church of São Francisco (Pampulha, 1943) by Oscar Niemeyer, which inspired the Church of

Manga (Beira, 1957) by João Garizo do Carmo (1917–1974). In the case of the Polana Church, there are direct references to the Cathedral of Brasília (1958–1967) by Oscar Niemeyer, also consisting of sixteen reinforced-concrete ribs but with a hyperbolic configuration, as well as to the Basilica of the Shrine of Our Lady of Tears (Syracuse, 1957) by Michel Andrault and Pierre Parat, and later to the Santa Monica Church (Mexico City, 1960–1966) by Félix Candela. Monumental in scale and with expressive design, all of them serve as reference points and landmarks in their respective cities, exploring the volumetric essence created by structural elements with a sense of total balance symbolically converging towards a unified liturgical ideal.

Located in the Sommerchield neighbourhood, the Polana Church is perched on the ground, supported at only sixteen points, forming a pyramidal structure with reinforced-concrete folds, which the architect likens to an inverted levitating flower, but it is better known among the population as the "orange squeezer".

The volumetrics, pyramidal and ribbed, result from a structural system of autonomous walls composed of the sequential superimposition of sixteen polygonal membranes arranged radially and interspersed with buttresses.

◀ The structural system of autonomous walls comprises the sequential superimposition of sixteen polygonal membranes arranged radially and interspersed with buttresses.

▲ The voids between the membranes are large triangular openings featuring coloured stained glass.

▼ The church is surrounded by vegetation, with a sculpture that reproduces the building in miniature, living up to the church's popular nickname, "orange squeezer".

▲ The circular footprint of the church represents a communal concept of liturgical celebration.

▼ The coloured stained glass is combined with Beta windows to ensure interior ventilation.

The resulting voids are filled with large triangular openings featuring coloured stained glass that allows for the entry of polychromatic light, creating an ethereal and unusual space. Beta-style windows are also used to ensure interior ventilation. The upward movement culminates in the central space, which is crowned on the exterior by the symbol of the cross.

With a circular plan, it presents a communal concept of liturgical celebration, with a capacity for 600 seated people or 900 standing. According to the programme, the high altar was initially located in the centre of the church, directly under the dome, to be illuminated by the stained glass and for the assembly to gather around it in a circle. However, the Franciscan Order modified the location of the altar to be near one of the walls, in line with the entrance, with stained glass representing the Sermon of Saint Anthony to the Fish. Laterally, at constant intervals near the light entry points, six chapels are dedicated to different religious motifs, Saint Anthony, Saint Salvador, the Holy Family (where the baptismal font and confessional are located), Our Lady of Fátima, Saint Francis

◀ The high altar was initially located in the centre of the church, directly under the apex, lit by the stained glass and for the assembly to gather around it in a circle.

▲ The coloured stained glass allows for the entry of polychromatic light, creating an ethereal and unusual space.

Xavier and the Nativity (where the choir and access to the parochial house are located), all with related representations in the stained glass.

The conceptual unity of this work goes beyond its architectural dimension and extends to the furniture design and the figurative elements of the stained glass, fulfilling the modernist ideal of integration of arts. Next to the church, there is the Parochial Residence of Santo António da Polana, interconnected by an underground tunnel.

The Polana Church is an iconic landmark in Mozambique, visible even from the air when arriving by plane, with the colours of its stained glass illuminating the night sky. It frequently appears in tourist programmes as a must-visit monument, representing a symbol of assertive modernity, audacity and innovation achieved in the city of Maputo. The church was restored in 1992, but in the last five years the parish has been trying to raise funds for restoration work on the concrete structure, as it is in an increasing state of deterioration and experiencing leaks.

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ZARA FERREIRA

QUELIMANE PRIMARY SCHOOL

Quelimane, 1960
ARCHITECTS Fernando Mesquita, Rute Bota

▲ The administrative services are situated above the main circulation gallery.

▼ Figure-ground plan, 1:10,000, 17° 52' 29" S 36° 53' 38" E

Quelimane Primary School (1960) is one of the many built examples of the "Eight-Classroom School", which is the largest prototype of the primary-school typologies designed by Fernando Mesquita and Rute Bota in Mozambique between 1955 and 1975.

Due to the urgent demand to rapidly construct cost-effective school buildings to accommodate various educational needs across the country, Fernando Mesquita (1916–c. 1990) developed an adaptable architectural programme within the Public Works Services of Mozambique. The main goals were rapid construction, cost-effectiveness, adaptability for expansion due to uncertain programme and population changes, and addressing local climate challenges. The programme centred around the classroom as the basic unit of organisation, featuring square designs with at least two external façades, to one of which a covered circulation gallery was attached. Over time, it transitioned from primary schools (one-/four-/eight-classroom schools), where classrooms were added side by side for scalability, to professional and secondary institutions (technical, preparatory, commercial, industrial and high schools), in which pavilions, formed by grouping classrooms together, were the new spatial organisation units.

Resulting from the duplicated combination of the two "Four-Classroom Schools" into a single building, the "Eight-Classroom School" is best suited for mixed-gender education. The separation of genders leads to a typology consisting of two independent pavilions, each with four classrooms, symmetrically positioned in relation to the covered main circulation gallery, connected perpendicularly by access galleries to the classrooms, which decrease in profile as they move away from that axis. This detail, which may appear as a formal whim, is justified by the fact that the covered playground, intended for social interaction and physical education, is located in the space

enclosed by the intersection of the three galleries. With a more complex programme than Mesquita's models with fewer classrooms, the complementary functions to education are still mainly located along the main circulation gallery.

In no other Mesquita and Bote school does the playground read as the lively heart of the complex to same extent as at Quelimane. The educational unit is accessed from it, divided into two volumes of four classrooms. Near it are the sanitary facilities, the medical office, the administrative services and the dining hall. The guardian's residence, including two rooms and a small service patio with sanitary facilities and a washbasin, is also part of the functional programme of this school model.

Construction-wise, this school stands apart from the others through its exploration of the plastic potential of reinforced concrete, expressed in the clarity of the frame structure defining the entirety of the sloping roofs and inclined walls, and a system of flat roofs supported on pilotis. The brise-soleil is aligned with the structural columns themselves, which, through a façade setback, are manipulated so that the large windows are adequately protected when facing south, which is the case at Quelimane School. As buttresses, their width increases where they are close to the base, varying between 80 and 100 centimetres. The single-pitched roof solution is a

◀ The separation of genders led to a typology consisting of two independent pavilions, each with four classrooms, symmetrically positioned and connected by the covered main circulation gallery.

▲ The access galleries to the classrooms become narrower as they move away from the axis.

▼ The circulation galleries parallel to the north-facing façades function as shading devices, preventing classrooms from overheating.

▲ The covered playground is located in the space formed by the intersection of the three galleries.

▼ The Beta windows bring natural light and airflow to the classrooms.

modern approach that, departing from the common standard, directs water drainage to the opposite side from user circulation. The broad air gap between the inclined roof and the classroom horizontal ceiling allows efficient sound insulation in the classrooms during rainy periods, much better than if the ceiling and the roof were the same element.

Unlike the other prototype projects designed with possible expansions in mind, the "Eight-Classroom School" was conceived as a closed work: it was structured in accordance with the classroom-dimension module, and both the structural system of the sloping roof and the floor-plan organisation – especially the design of the narrowing gallery – do not allow for future expansions. It followed the principle of the Charter of School Buildings (1959) that schools should reflect the scale of their users, so in the case of primary schools, they should not have more than one floor, and eight classrooms were considered the maximum.

The climatic principles of this prototype are very similar to the rest of Fernando Mesquita's programme:

▲ Larger window openings are oriented to allow cross-ventilation inside the classrooms, taking advantage of prevailing winds.

longitudinal orientation, with the longer façades facing east–west to protect the largest walls from the sun, equipped with vertical shading devices (brise-soleils, in continuity with the structure, or covered circulation galleries). Larger window openings are oriented so that the prevailing winds ensure cross-ventilation inside the classrooms. The covered circulation galleries on the windward side ensure protected passage on rainy days. The Beta windows allow the orientation of natural light and airflow to the user level and work surface – ensuring permanent natural ventilation of the classroom, even during rainfall.

Whether by visiting the area and historical archives or using Google Earth, it is easy to see that this was one of the projects with the most impact on the educational infrastructure in urban Mozambique. From smaller locations like Chimoio to the capital, Maputo, this model can be found. Undoubtedly characterised by pronounced rationality, efficiency and functional effectiveness, its large-scale implementation assumes an undeniable role across the entire Mozambican territory.

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ANA TOSTÕES, ZARA FERREIRA

QUELIMANE CATHEDRAL

Quelimane, 1962–1974
ARCHITECT Megre Pires

▲ The cathedral features only one lateral nave, near the northwest façade.

▼ Figure-ground plan, 1:5000, 17° 52' 30" S 36° 53' 14" E

The Cathedral of Quelimane, officially named Catedral de Nossa Senhora do Livramento (and previously called Catedral Nova de Quelimane), is a Catholic church that was built after Quelimane's establishment as a diocese in 1954. At the time, a parish church dating back to the 18th century already existed in the city and was locally known as the Cathedral. When in the following year, a new cathedral was to replace the old one that was considered too small for the new functions, the two buildings became known, respectively, as the Old Cathedral and the New Cathedral.

The Old Cathedral was built between 1776 and 1786, making it one of the few expressions of the 18th century in Mozambique. Classified as a building of public interest in 1943, it is considered an important monument of Mozambican architectural heritage and one of the most significant built testimonies of the Portuguese presence in the Zambezi Valley over the centuries, having been renovated in 2022.

The New Cathedral is located 700 metres from the Old Cathedral and was built between 1962 and 1974. The preliminary project was initiated in 1955 by the architect Megre Pires (1962–1974), but it did not correspond to the building that was eventually constructed between 1962 and 1977. While some researchers suggest that the final design was authored by the architect João Garizo do Carmo (1917–1974) (Silva, 2013), others claim it to be the work of Megre Pires (Ferreira, 2008).

Megre Pires' preliminary project, promoted by the Diocese of Quelimane and the Directorate of Public Works and Transportation of Lourenço Marques (Maputo), featured a cruciform floor plan with regular shapes and a volume of four inclined triangular prisms converging to a point above the centre of the cross, with the longer façades flanked by rows of tall triangular openings along their entire length. However, the constructed project only

▲ The main façade is composed of geometric bodies ascending towards the sky, culminating in the church tower that provides a dramatic counterpoint.

▶ Tiny square and rectangular openings are randomly placed across the walls, adding pops of blue, yellow, and red light to the inside.

▼ The southeast façade accommodates four giant panels adorned with religious motifs, such as doves and chalices, filling the interior of the cathedral with colourful light.

shares the location with this first design, i.e. a plot bordered by 7 de Outubro Avenue to the north, which serves as the entrance to the site, Paulo Kanhomba and Samuel Magaia Avenues on the sides, and the football field of the Sporting Club of Quelimane to the south – as well as its southwest-northeast orientation, parallel to the surrounding urban grid.

The floor plan and volumetric distribution of the New Cathedral are organically conceived. Archetypical cathedral-design features are formally subverted here, for instance by a large longitudinal nave, culminating in an apse that is not semi-circular but rounded; in the identification of the place of the altar, even though it is nearly at the same level as the assembly; in the coupling of a kind of apsidiole, one on each side; and in the addition of a lateral nave. Because of its asymmetric character, however, the cathedral features only this one lateral nave near the northwest façade. The building's mass follows this asymmetry: the southeast façade, entirely open, is the tallest, and it houses four giant panels of small stained-glass windows with geometric, abstract forms

▲ Horizontal openings near the roof and on the ground floor run the length of the façade and bring light and air into the interior.

▼ The apse is covered with textured wall panels that resemble fish scales.

and religious motifs such as doves and chalices, filling the interior of the cathedral with colourful light. Near the northwest façade, there is volumetric deconstruction to accommodate the lateral nave, gradually reducing in size as it approaches the exterior. Both façades are inclined towards the interior space, emphasising the sense of welcome and reinforcing the perception of the space. The asymmetric roof is composed of several sloping surfaces arranged at different heights, allowing varying zenithal light entries. The lighting is further enhanced by horizontal openings running the length of the building between columns, near the roofs and on the ground floor, which are essential for ventilating the space. Small square and rectangular openings in horizontal and vertical positions are also scattered seemingly at random on the enclosed walls, acting as geometric accents of blue, yellow and red light, reminiscent of those in Le Corbusier's Ronchamp Chapel (1955).

On the one hand, the exterior of the building has the robust and closed appearance of a Romanesque cathedral and is also reminiscent of the Old Cathedral, but, on the other hand, the envelope has been given a texture. This is achieved through the perforation of the small openings, the filigree of the stained glass and the cladding of the apse with wall cladding resembling fish scales. On the profile of the main façade, one can discern a composition of ascending geometric bodies towards the sky, culminating in the church tower, pyramid-shaped with a square section, framing the composition dramatically.

The Cathedral of Quelimane, through its monumentality, reveals an ambition for grand symbolic representation and urban centrality, akin to the ancient European Gothic cathedrals. At the same time, it explores the deconstruction of formal codes that the Modern Movement also achieved in religious architecture, particularly after the Second Vatican Council in 1962.

▲ Both façades are inclined towards the interior, emphasising a sense of welcome and shelter.

▼ The numerous openings in the walls and near the ceiling, along with the colourful stained-glass windows, brightly illuminate the interior of the cathedral.

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ANA TOSTÕES

ENTREPOSTO GROUP HEADQUARTERS

Maputo, 1969
ARCHITECTS João José Tinoco, António Matos Veloso

▲ The loading and unloading platform located at the rear of the warehouse, on the north façade.

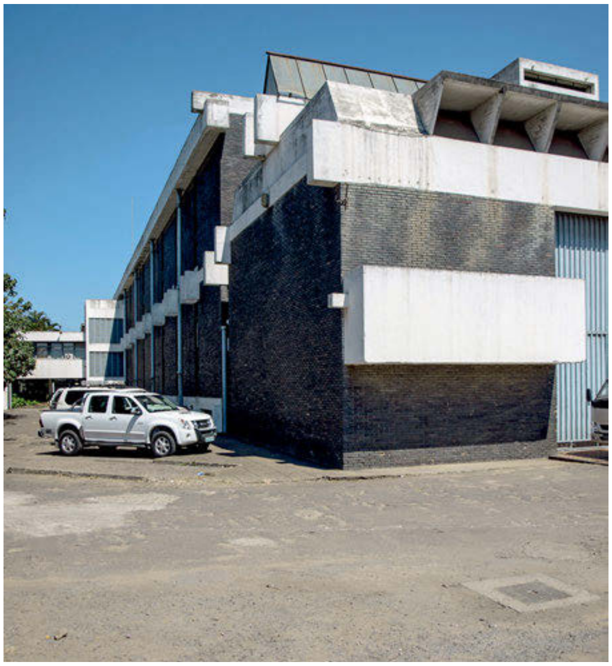
▼ Figure-ground plan, 1:10,000, 25° 56' 47" S 32° 32' 50" E

The Entreposto Group Headquarters in Mozambique is a project by the architect João José Tinoco (1924–1983) and António Matos Veloso (1923–2014), completed in the first half of the 1970s, resulting from a private commission of one of the largest economic groups operating in Mozambique at the time (previously called the Mozambique Company).

Comprising three buildings arranged in a U-shape, its construction took place in two phases: the first building, erected in 1969, is located along an axis perpendicular to Trabalho Avenue and includes a small showroom, a warehouse, and the loading and unloading dock area to the rear. Subsequently, in 1972, the main building housing the administration and offices was added, extending along the avenue and marking, chiefly because of its size, the company's modern image. The large, transparent car showroom is located on the ground floor, appearing to suspend the tall concrete structure by means of the showroom's glass façade. Finally, the headquarters building provides access to the large warehouse at the rear, forming the U-shape.

The main showroom dominates Trabalho Avenue with its transparency, creating a space with a double-height ceiling flanked by administrative services on the ground floor and the mezzanine-like first floor. Two interior courtyards located near the rear illuminate the circulation spaces on both floors and emphasise the building's transparency. At each end of the showroom façade, two massive concrete heads in exposed concrete, resting on voids, project outwards, reinforcing the Brutalist expression of the ensemble.

The double-height configuration creates a space with contained dimensions, which gives access to the showroom and service counters. The rear side of the counter row connects to the ground floor of the warehouse, which extends perpendicularly to the main showroom building



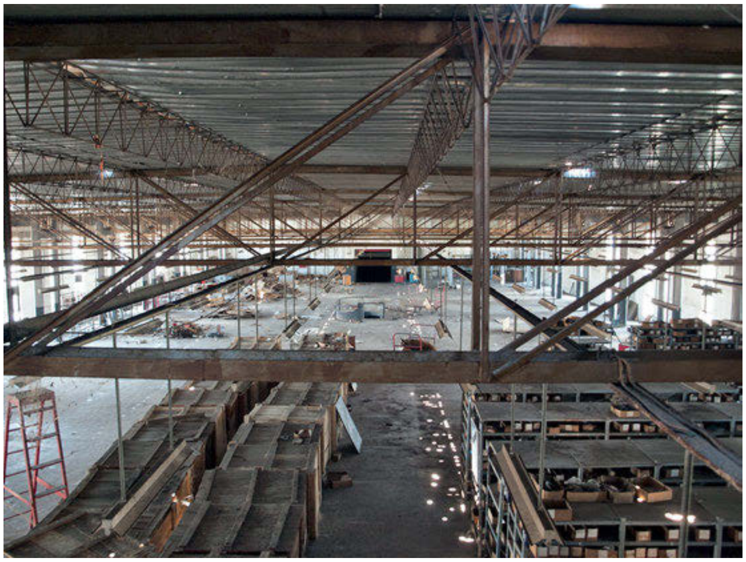
◀ The headquarters building provides access to the large warehouse at the rear, forming a U-shape.

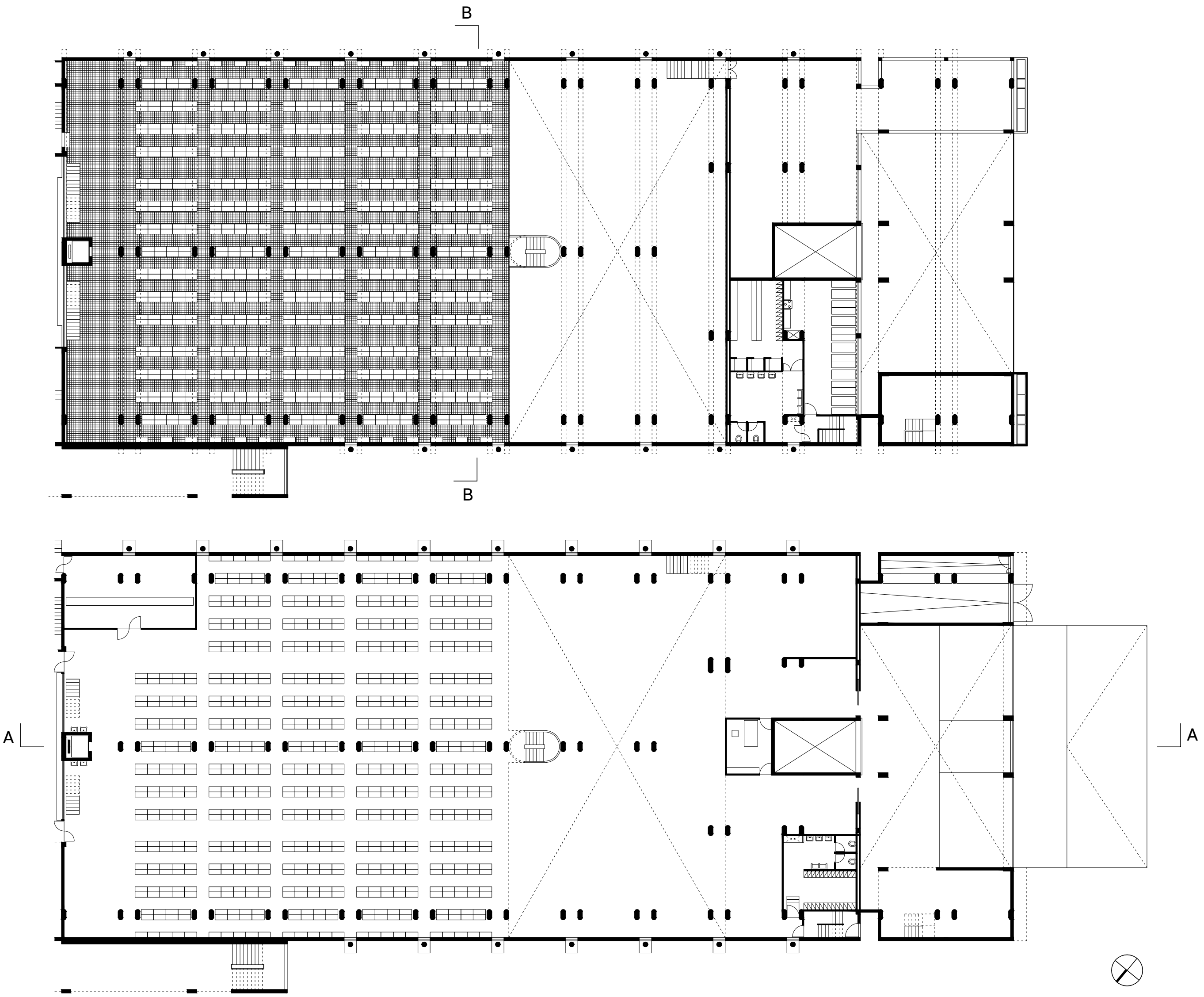
▲ The warehouse is a very enclosed building, receiving light and air only through narrow openings near the roof.

▼ Inside, the warehouse's load-bearing structure features expressive beams supported by a grid of double pillars with chamfered edges.

and comprises three above-ground floors and one underground level. A significant portion of the ground floor consists of a dense shelving system supported by a metal structure, accessible via a rough concrete staircase connecting the basement, the ground floor, the first floor metal structure and the second floor. At the rear of the warehouse is the loading-and-unloading dock area, which is more compact than the warehouse but similar in formal appearance. On the opposite side of the courtyard, the office building also has storeys – that is, the ground and first floors (both of which are directly connected to the main showroom building) as well as a second floor.

The Entreposto Group Headquarters thus represents the convergence of three major programmes – vehicle-and-parts warehouse, car showroom and offices – each with distinct spatial implications and requirements for safety, comfort and accessibility. João José Tinoco strives for a common formal language for the entire complex while responding structurally to the needs for ventilation and light control, inherent to the climate of Maputo. The rhythm resulting from the vertical, red brise-soleil devices installed on the office building's façade contrasts with the restrained tectonics of the warehouse body.



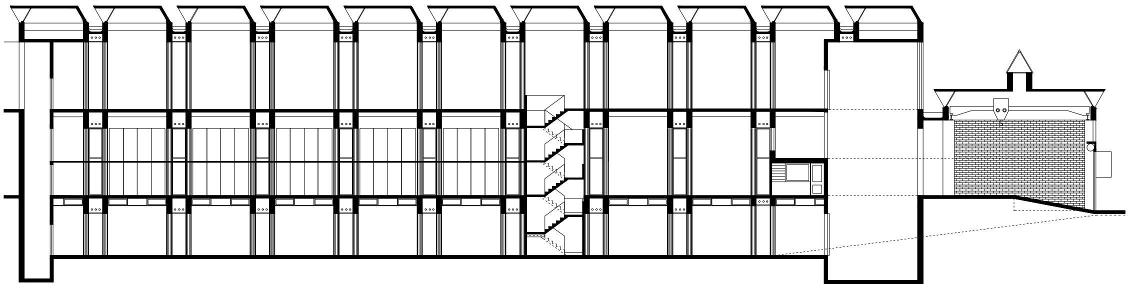


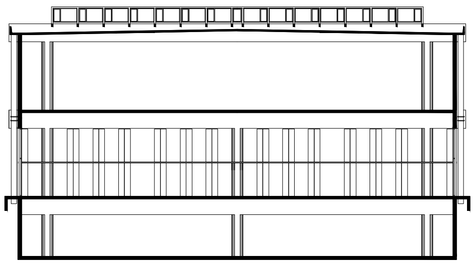
▲ Ground and first floor plan of warehouse, 1:500 (bottom to top).

▼ Administration waiting room featuring an oil painting by the Mozambican painter Malangatana Ngwenya.

The warehouse seeks to maintain a sense of privacy, closing itself off and only allowing narrow openings in its thick walls clad with dark brick. In the original design, the warehouse received light and air through the roof, designed in a logic similar to that used in the Reguladora Watch Factory by the same architect and built during the same time. Inside, the structure stands out with expressive beams supported by a grid of double pillars with chamfered edges, creating a space with a spectacular impact. The staircase details are reminiscent of the early developments of raw-concrete aesthetics in Modern Movement architecture and clearly engage with the warehouse's austere interior.

Unapologetically embracing Brutalism in this work, João José Tinoco does not neglect detail, intensively detailing the interior spaces of the administrative rooms with an approach rarely seen in the context of private





▲ Longitudinal section A–A through loading platform and warehouse, 1:500.

◀ Meeting room featuring chairs and tables in red, the corporate-identity colour of the business group.

▶ Cross-section B–B through warehouse, 1:500.

▼ The main car showroom, lit through a glass façade, and the administrative services on the mezzanine.

commissions for industrial and service programmes in Mozambique. The doors of these offices are upholstered in red leather, which is also the colour and material of the sofas, chairs and the tabletop in the meeting room, as well as the human profiles in the oil painting by Malangatana Ngwenya, marking the room's central axis. This choice conveys the unmistakable corporate identity of the business group, whose colour is red. The atmosphere is further defined by dark woods; a subtly patterned carpet; and the appearance of various elements – including the HVAC system, signage and storage spaces – extending throughout the upper floor of the office building.

The scale of Entreposto Group Headquarters, combined with the heterogeneous programme and the level of detailing tailored to different spaces and functions, results in a built ensemble that quickly became a landmark in Mozambique's capital.

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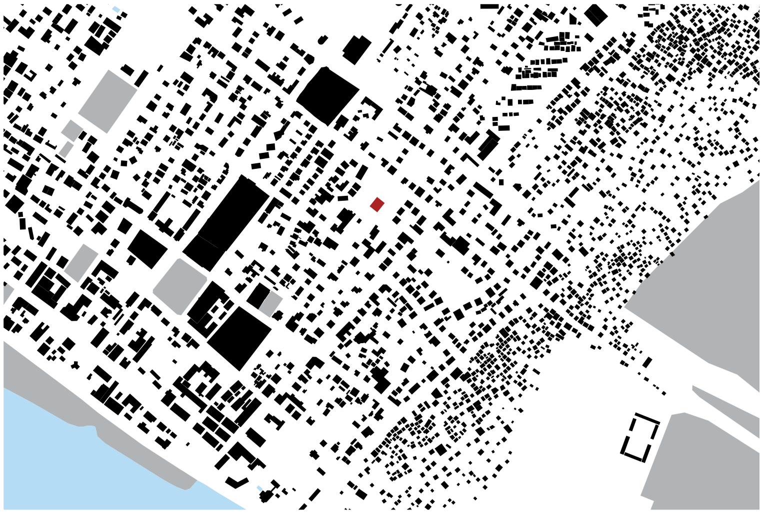
ANA TOSTÕES

QUELIMANE LIBRARY

Quelimane, 1969
ARCHITECTS José Bernardino Ramalhete, Eduardo Naya Marques

▲ The library is square in plan with an exterior, lattice-like concrete layer for protection from sun and heat.

▼ Figure-ground plan, 1:5000, 17° 52' 42" S 36° 53' 30" E



The library project, carried out in 1969 in response to a comission from the Quelimane Municipal Council, brings together two prominent Mozambican architects, José Bernardino Ramalhete (1921–2018) and Eduardo Naya Marques (1935–). In this work, they engage in a straightforward revision of the canonical internationalism of the Modern Movement and integrate Brutalist elements, tempered by Critical Regionalism. The project was developed within the framework of GAUD (Office of Architecture, Urbanism and Decoration), the largest architecture and urban-planning office in Mozambique at the time. Marques became a partner of the firm after the death of Paulo de Melo Sampaio in 1968, and this project bears witness to the level of constructive and spatial sophistication achieved by this group of architects in the meantime.

While references to the Macúti Church in Beira, which José Bernardino Ramalhete designed in 1961, are inevitable, the truth is that the attention to the individual elements evident in the library's magnificent construction details reveals the active presence of Marques. This focus is evident in the level of detail that this architect had explored in numerous small-scale works built in Beira, including his own house, the Pastelaria Mexicana, the Kanimanbo Restaurant and the Mini-Golf Lions Club complex.

From a centralised floor plan, the library takes shape as a perfect square resulting from the triplication of the 6.40-metre base module, reaching a width of 19.20 metres. The cube formed by this geometry is worked on two levels: internally by a *béton brut* skin consisting of cells created by squares protruding from the recessed plane, used as bookshelves; externally by a second, lattice-like concrete skin positioned approximately 2 metres away from the openings, creating an outer air chamber and a grid that shields the interior from the sun's

▲ The entrance is open on the southern side of the cube, with a concrete canopy extending the roof slab.

◀ ▶ This area is protected by three concrete panels, detached from the canopy, ensuring solar protection and air ventilation.

light and heat. The library's magnificent space is a result of light manipulation, with lateral illumination emerging in a filtered manner, complemented by a clever zenithal lighting system designed by re-imagining traditional industrial sheds. In fact, the concrete roof slab is rhythmically interrupted by a series of six raised parallelepiped, coffer-like structures, positioned about 1.50 metres high, oriented from east to west, extending across the full width of the cube. The coffer-like structures are open on one side, allowing cross-light to penetrate and be reflected on the concrete surface, contributing to an atmosphere of serenity suitable for the library's function.

▶ The atmosphere of the reading room is defined by laterally filtered light in combination with a zenithal lighting system.

▼ Detail of the lattice-like concrete skin that envelops the building, forming a grid that shields it from the sun.

At the centre of the cube rises a tower with a height of 4.50 metres, also with a square plan, using the 6.40-metre base module designed with protruding cells, between which very fine light slits open. This space, accessed by a spiral staircase, houses a reserved study and work area. The entrance is open on the southern side of the cube, with a concrete canopy extending the roof slab with a 6.40-metre overhang. This slab is protected by three concrete membranes, replicating the design of the interior cells, detached from the canopy, creating a transitional space between the interior and exterior that leads the access path to the library laterally.

The library presents itself with a Brutalist exterior and its precise geometry is derived from a spatial composition of erudite reference, rigorously modulated in all dimensions. It reveals the clarity, maturity and construction excellence of architectural production in the 1960s. With references to a cultured modernity, combining influences from Louis Kahn to Frank Lloyd Wright, from questioning the schematicism of the International Style to discussions within the late CIAM and the proposals of Team 10, this work holds a qualified position within the Mozambican architectural landscape.

The composition and the plan design are intensely articulated with a tectonic conception of construction.

▲ At the centre of the library, there is a square tower, accessed by a spiral staircase, that houses a reserved study and work area.

The relationship between the plan and the resulting three-dimensional design is a clear response to the location, climate and the public cultural-space function required of a library. Demonstrating that designing with the climate does not necessarily require the use of Corbusian brise-soleil, the Quelimane Library is a work full of precise and restrained invention, avoiding purely formalistic expression. The principles of articulation between served and serving spaces are interpreted and adapted to the context and circumstances, taking both the interior and the exterior into account. The fragmentation of volumes according to a precise order, the multiplication of elements without losing unity and the care given to the structuring of interior spaces are complemented by the excellence of construction features that respect and emphasise the nature of wood or raw concrete. The result is a magnificent expression of materials enhanced by the skilful and wise manipulation of light.

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ZARA FERREIRA

POLANA HIGH SCHOOL

Maputo, 1970
ARCHITECTS João José Tinoco, José Forjaz

▲ Main entrance of the school and administrative pavilion, north façade.

▼ Figure-ground plan, 1:10,000, 25° 57' 52" S 32° 35' 48" E

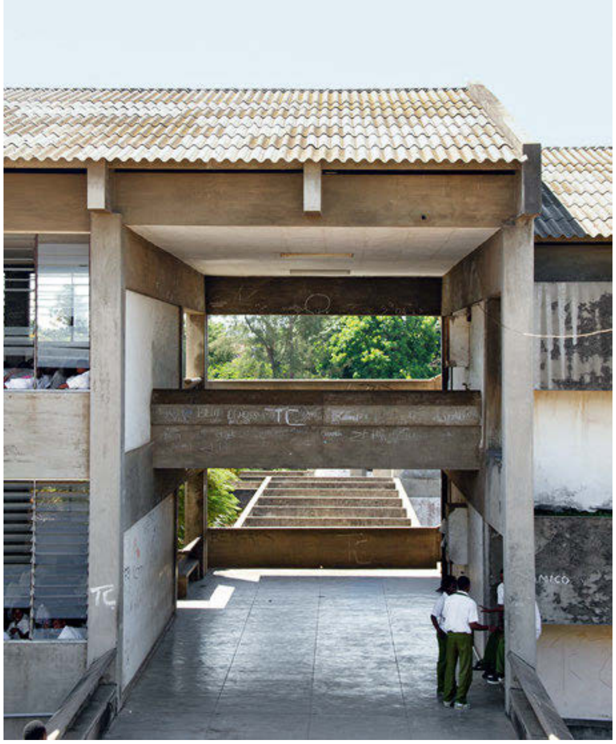
The Polana High School (previously known as the Liceu D. Ana da Costa Portugal) is a building designed in 1970 by João José Tinoco (1924–1983) and José Forjaz (1937–2024) for the Polana district in Maputo.

Based on the typological models for educational buildings developed by Fernando Mesquita between the 1950s and 1970s, the programme is organised across several pavilions connected perpendicularly to a long, covered circulation gallery oriented along a north–south axis.

The two northern pavilions are intended for administrative and educational-support services, located near the entrance to the campus. The four central pavilions serve as classroom blocks. At the southern end of the gallery, the main gallery takes a 45-degree turn, configuring the school in an L-shaped layout. Along this secondary arm, the remaining educational-sector services are grouped into four separate buildings: canteen; auditorium; laboratories, medical post and library; and gymnasium.

Each pair of the three-storey classroom pavilions is parted in the middle by the main access gallery. Since it is possible to traverse on the upper level as well, the archetype of school gallery developed by Mesquita has been transformed in this school: providing chiefly a shaded circulation route at ground level, this backbone of Polana High School can also be used as a sunny path (on the upper level), creating a dual-faced route that allows greater flexibility in mobility and quick access to various places. Vertical circulation is concentrated near the beginning of each of these pavilions and, along with the gallery, plays a significant role in the overall building complex, standing out visually and given aesthetic prominence.

The site is not entirely flat, allowing for a clever adaptation to the surroundings: the sloping spaces between pavilions form open-air amphitheatres in the



courtyards. These various leisure and gathering spaces are enhanced through the integration of fixed furniture. From the benches that consistently line all the shaded pathways between the buildings to the detail of the handrail, which often doubles as a backrest, these two elements assign to these spaces of transition the simultaneous function of both circulation and repose.

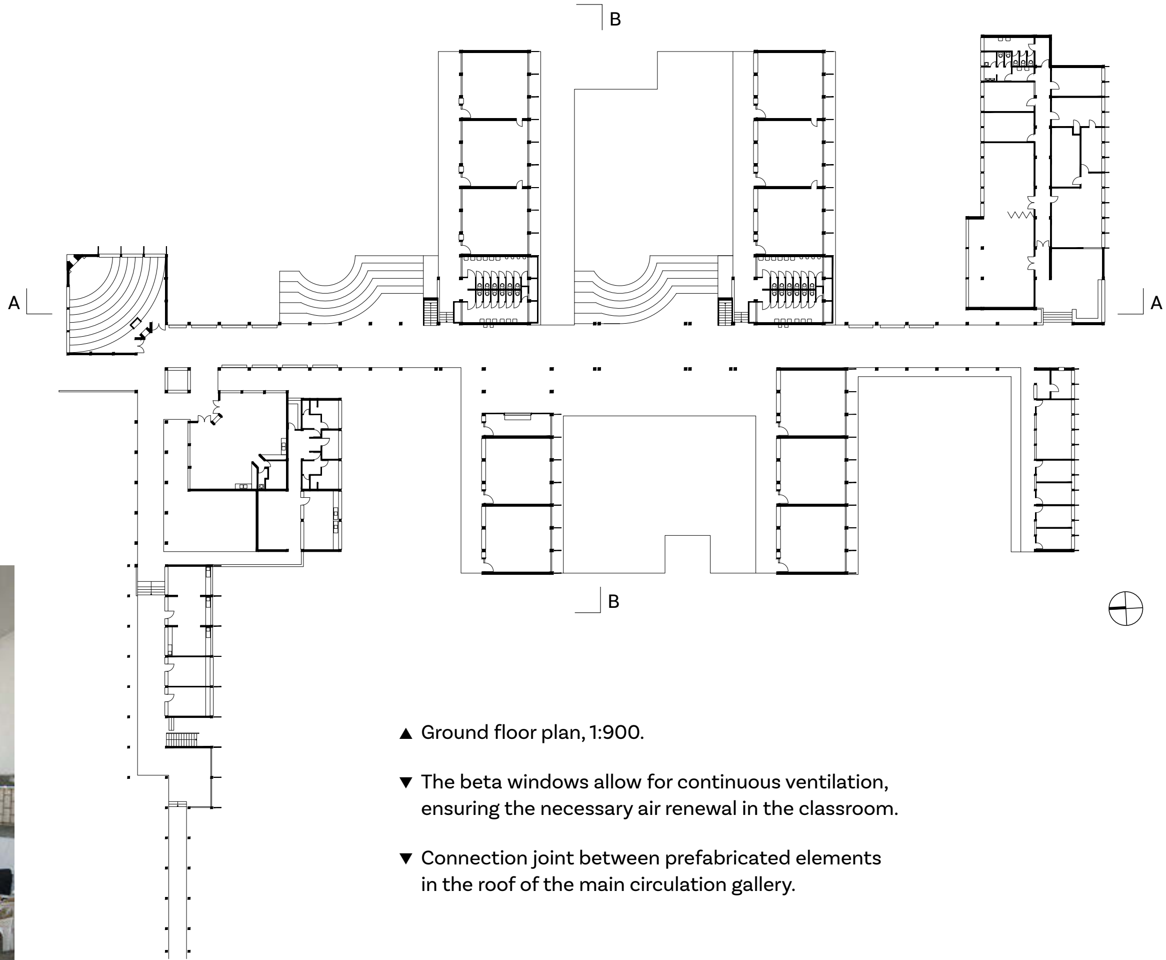
Regarding the climatic concept of the building, Polana High School follows the lexicon developed by Fernando Mesquita: the school consists of longitudinal volumes with their long façades maintaining an east–west orientation. Classrooms are distributed in compartments between opposite façades, allowing for cross-ventilation and natural lighting; solar protection is provided by the covered circulation galleries giving access to the classrooms along the entire north façade and by vertical brise-soleils near the larger glass windows on the south façades. The brise-soleils are prefabricated-concrete elements attached to the structure by metal components fixed to the column reinforcement. Energy performance is further enhanced by the Beta windows and the considered presence of native vegetation and evergreen trees.

However, there are other particularities in architectural articulation that distinguish this school's response to the climate. The most significant one is the design of the roofs (made of corrugated asbestos-cement sheets), comprising a wide variety of solutions. The classroom pavilions are covered by a single slope, with the largest opening in the direction of the cool winds; this type of roofing efficiently increases the amount and speed of air that passes through, thanks to the difference in the heights in the ventilated space. It also has the advantage of directing rainwater runoff to the side opposite to the walkways. In the small pavilions housing the canteen and the gymnasium, the roofs slope towards a central gutter that drains the rainwater. Known as a butterfly-wing roof, this

◀ South façade of a classroom pavilion. The main circulation gallery is accessible from above.

▲ The circulation gallery is inserted on the first floor of the classrooms pavilion.

▼ North façade of a classroom pavilion with main circulation gallery.



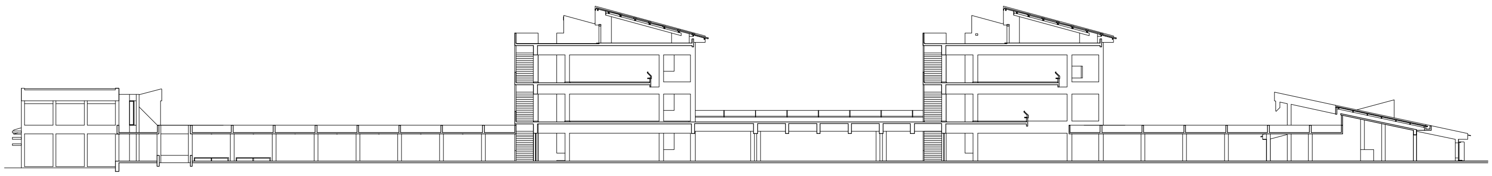
▲ Ground floor plan, 1:900.

▼ The beta windows allow for continuous ventilation, ensuring the necessary air renewal in the classroom.

▼ Connection joint between prefabricated elements in the roof of the main circulation gallery.

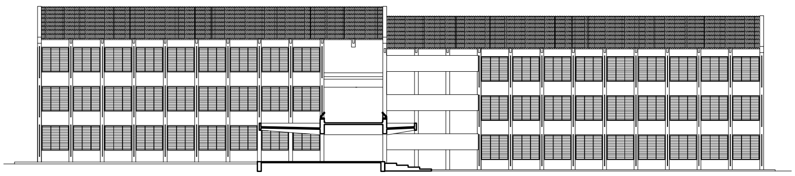
▲ The auditorium with its butterfly roof.

▼ The auditorium is lit by multiple skylights.



▲ Longitudinal section A–A, 1:900.

▼ Cross-section B–B, 1:900.



solution employs a modern vocabulary that was widely used in Brazilian architecture. In the administrative pavilion, the roof crosses the two traditional slopes at different levels, an advantageous solution allowing for the admission of light into the two wings of compartments inside. In terms of construction, the project makes use of prefabricated and modular concrete components, with concrete being the primary finishing material, giving it a distinct Brutalist aesthetic.

As André Ferreira explained, this project fits into the late phase of Tinoco's career, when he was interested in articulating the "tropical" references of the Modern Movement with later grammars, particularly those influenced by Brutalism and Organicism. Forjaz's involvement was also crucial, as a representative of a younger generation that was more attuned to the importance of local conditions than the reproduction of universal formulas (Ferreira, 2008, p. 182).

Polana High School is currently in operation, although there are evident signs of deterioration – in particular, corrosion of metal elements and concrete fractures. In 2012, some interventions were carried out with the aim of keeping the building in use, but they were done without an overall long-term strategy.

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JEAN MOLITOR

NIGERIA

▼ Mechanical Engineering Workshop, Faculty of Engineering, University of Lagos (UNILAG), Lagos, c. 1962.

▼ International School University of Lagos (ISL), University of Lagos, (UNILAG), Lagos, c. 1980.

▼ Àjose Lecture Theatre, Faculty of Agriculture, Obafemi Awolowo University (OAU), Ile-Ife.

▼ Fry, Drew and Atkinson, African Studies Building, Obafemi Awolowo University (OAU), Ile-Ife, 1972–1975.

▼ A. & E. Sharon Architects and Town Planners, Hezekiah Oluwasanmi Library, Obafemi Awolowo University (OAU), Ile-Ife, 1967–1970, library extensions 1971–1972 and 1976–1977.

▼ Western House, Broad Street, Lagos Island, Lagos, 1958 by Nickson, Borys & Partners

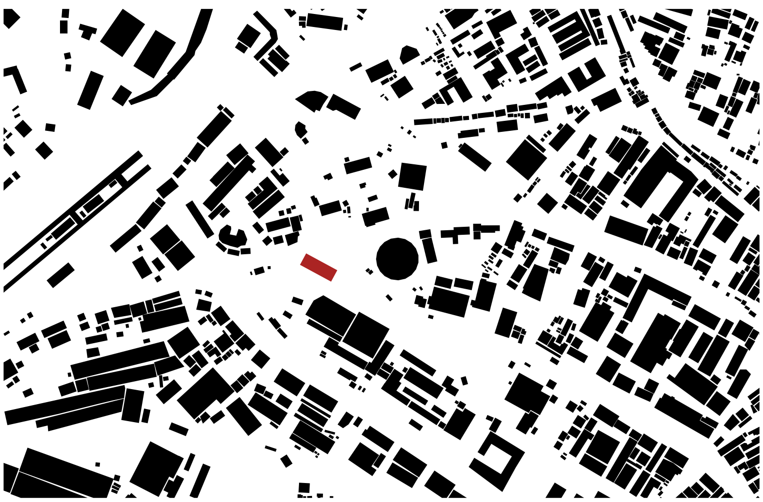
TUBI OTITOOLUWA

COCOA HOUSE

Ibadan, 1959-1964
ARCHITECTS The Plan Group (West Africa) – Nickson, Borys & Partners

▲ Urban panorama in 2017 with Cocoa House as landmark.

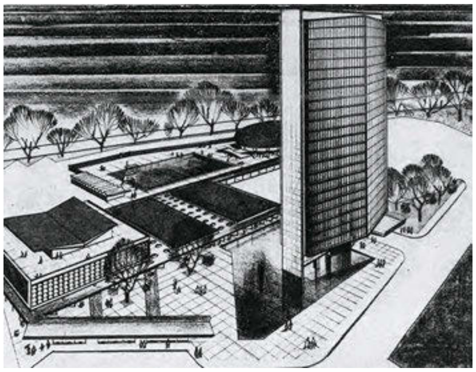
▼ Figure-ground plan, 1:2500, 07° 23' 16" N 03° 52' 45" E



Since the independence of Nigeria in 1960, the country has been practising a federal system of government. At the time, regional governments had autonomy for socio-economic development. Ibadan became the seat of the Western Region Government, one of three regional governments created at independence – namely, the Western, Northern and Eastern regions – each roughly corresponding with an ethnic group predominant in that area (Midwest was carved out of Western Region in 1963 to stave off conflict). As the first Premier of the Western Region, Obafemi Awolowo was focused on state-led education and infrastructure development in the region, financing free education and health care, creating the first TV station in Africa (WNTV, 1959) and Cocoa House amongst many other developmental initiatives.

Cocoa House, also known as "Ile awon Agbe" (Yoruba for "House of Farmers"), is a 26-storey, 105-metre high-rise building that forms the focal point of a 3-hectare development including a mall, strip shopping, a recreation club and underground parking. The client was the National Investment and Property Company (NIPC) and the contractors were Cappa and D'Alberto, a construction firm established in 1932 by two Italians, Pietro Carlo Cappa and Vigino D'Alberto. At completion, the building was the tallest high-rise in Sub-Saharan Africa. Based on an initiative by Chief Obafemi Awolowo meant to diversify the economic structure of the mainly agro-centred region, the project was funded by proceedings from cocoa, timber, rubber and other agricultural products of western states.

The building layout is a double isosceles trapezoid connected on the longest side, with the core in the middle giving, on each floor, onto a lobby running across the floor plan. On both sides of the lobby are drywall enclosures for office spaces in the tower. The overall building is framed by the solid mass of concrete shear walls on the shortest



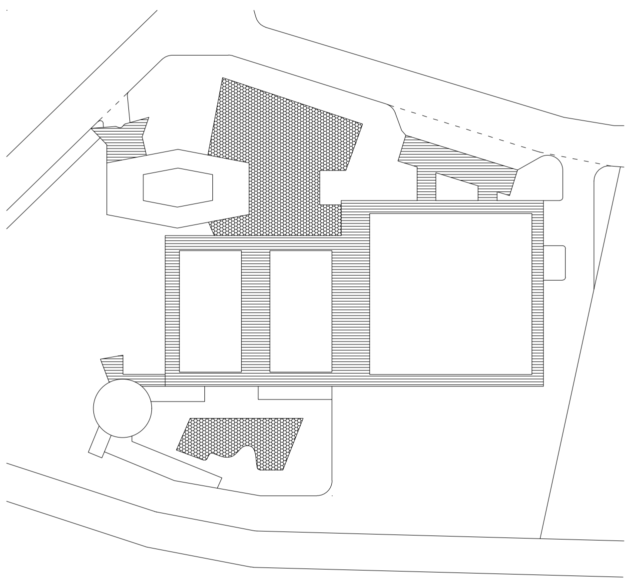
▲ Perspective of the Cocoa House complex.

▶ The building became a landmark and a motif for postcards.

▼ Cocoa dome, entertainment hub of the complex.

▶ Wall murals at the clubhouse building.

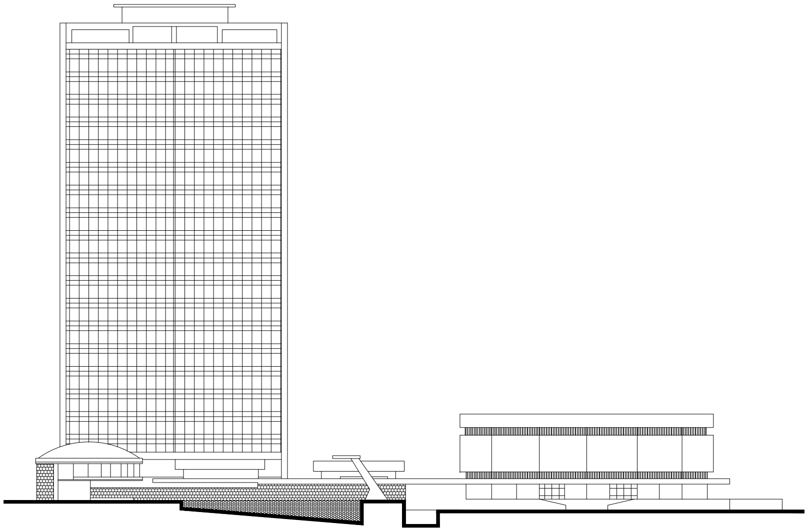
▼ Block plan, 1:2500.



sides and just below the observatory at the roof level. The Cocoa House roof garden as well as the dome of the recreation club have special mosaic works preserved until today. Due to its height, the seven hills surrounding Ibadan can be seen from the building as well as most of the city itself.

On January 9, 1985, a fire suspected to have originated from electrical equipment on the 13th floor of the tower engulfed the high-rise. The fire lasted several hours and destroyed most of the building, presumably also because

▶ Cocoa House in Ibadan was the region's tallest skyscraper when built in 1964.

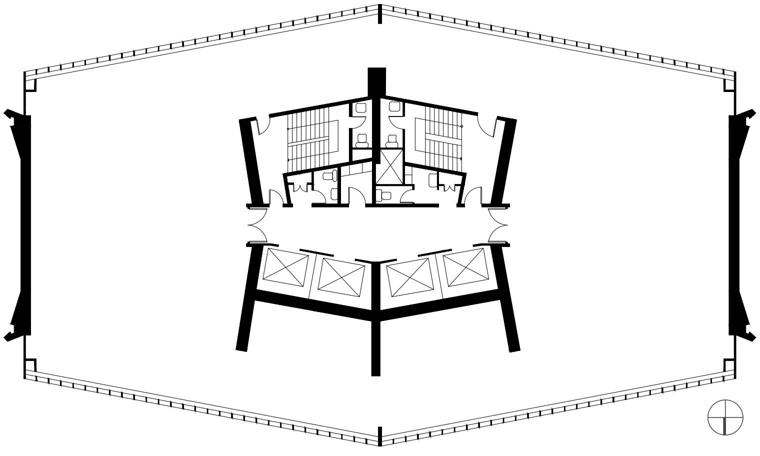


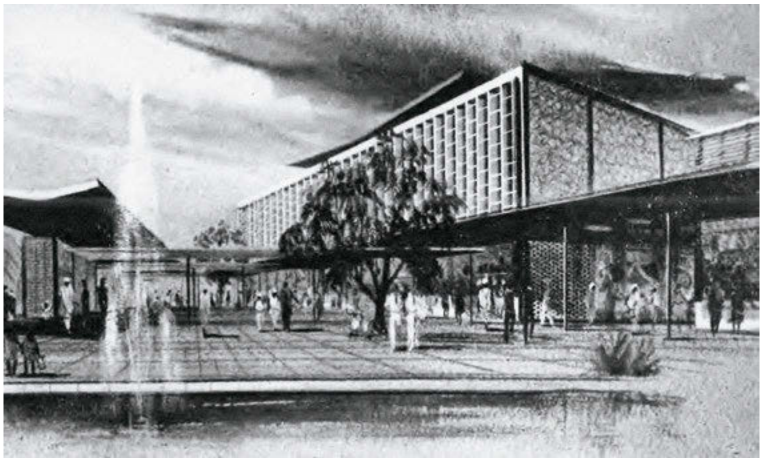
▲ Façade view around 2017. The 26-storey office building dominated Ibadan's skyline at the time and still does.

▼ Detailed façade view.

▲ Elevation/section through pool, 1:500.

▼ Ground floor plan, 1:500.





▲ Outdoor staircase with mosaic surfaces.

◀ Perspective of shopping mall within the complex.

it was reported that firefighters in the city were unable to extinguish it due to lack of equipment for high-rises. The tower was thereafter closed to the public; later on, a restoration of the building was carried out by Odua Investment Company (successors of NIPC and new owners of the property). The building was re-opened in August 1992, over seven years later.

The rehabilitated building featured an addition to the west and east wings (against the shear walls): a 100-square-metre semi-circular structure that increases the floor plate from 600 square metres to 800 square metres gross and presumably provided more structural strength to the building. As of 2023, the building was sparsely occupied, with some empty floors and demolished partition walls on some floors. However, there is a museum (Odua Museum and Hall of Fame) on the roof level which houses artefacts on the history and traditions of the Yoruba people of southwestern Nigeria. There is an 360-degree observatory on the terrace of the museum which also attracts visitors to the building. The larger development is bustling with commercial activities due to the nearby mall and "Kokodome", a famous nightclub in town.

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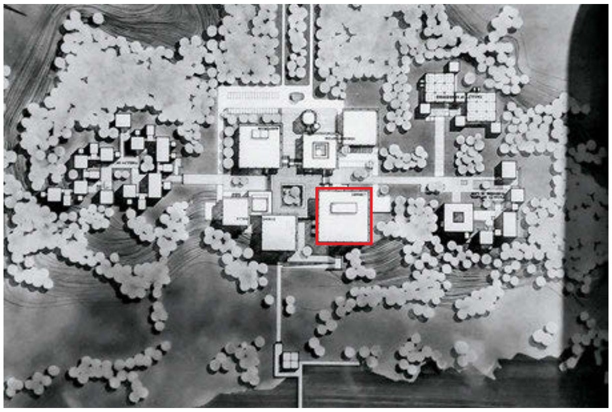
BOLA OGUNTADE

MAIN LIBRARY

University of Lagos (UNILAG), Lagos, 1964
ARCHITECT Robert S. McMillan



▲ University of Lagos Central Court model, with the library marked in red.

▼ Figure-ground plan, 1:10,000, 06° 31' 12" S 03° 23' 60" E

The development of libraries in Nigeria can be first traced to the establishment of the British Council Library in 1944 at No. 227, Herbert Macaulay Street, Yaba, Lagos, built with the aim of promoting and sharing British culture and ideas. When Yaba was selected as the location of the new federal institution, the University of Lagos, its Main Library (formerly also called Central Library or UNILAG Library) was in good company. Located in the centre of Nigeria's most populous state, Lagos, the library is situated at the northeast end of the university's central court. Defined by Usman Dan-Fodio Boulevard (the main access road) and the Lagos Lagoon, the central court provides a visual as well as functional focus for the entire university.

As a temple of scholarship, the library as a place assumes an almost sanctified role reflected both in its architecture and in its siting (Freeman, et al., 2005). The library is strategically positioned, serving as a visual anchor for the surrounding buildings. It works well with the landscape and generates a cohesive whole as the central hub of an academic environment. As a student-oriented space on the university campus, its terraces lend themselves to social interactions and circulation in and out of the space. A generous, rising stair terrace, 7.6 metres above the Lagos Lagoon, both gives access to the library and creates a space for encounters. The use of terraces also eases the massiveness that can be associated with Brutalist architecture and facilitates communal gatherings.

The library facility was designed by American architect Robert S. McMillan (1916–2001) to cater for 800 readers and store 200,000 volumes. The library was planned for expansion within the first ten years of its use, and, true to this intention, Nickson, Borys & Partners designed an extension to the existing library in 1977, which was not executed. Today, with a student population of over

◀ Fair-faced concrete combined with glass were the principal façade materials.

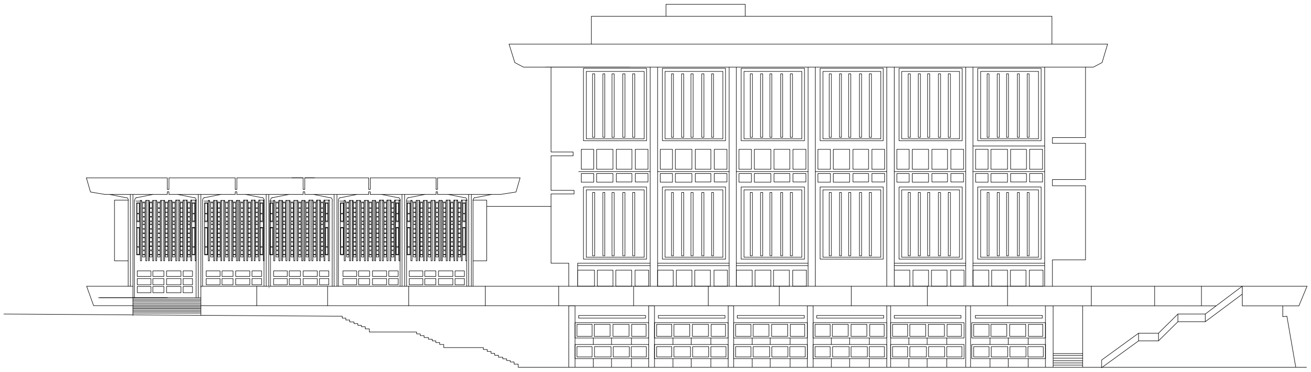
▲ Proposed unbuilt library extension by Nickson, Borys & Partners, 1977.

▼ The terrace provides circulation between buildings at two levels; the lower part is covered, giving protection from the sun, while the roof serves as the concourse.

60,000, the library facility is grossly inadequate for the needs of the university. The closest attempt to an expansion of the library was the seven-storey complex sponsored by the Tertiary Education Trust Fund (TETFUND), which collapsed in 2019.

The library consists of four main levels: the entrance level is accessed from the concourse level of the central court, the basement level and two upper floor levels are dedicated to reading. The entrance/concourse level consists of the issue desk, reference library, administrative offices and workspaces. The Research and Bibliographic Department in the basement is also known as the Gandhi Library as it was established due to a donation from India in 1968. It provides additional reading rooms and open-access stacks, while the two upper floors consist of main reading rooms with open stacks located throughout the reading area. The square-shaped floor plans are approximately 30 by 30 metres in extent, divided by cruciform columns at 6-metre intervals. The floors are accessed via a circular stairwell and lift service core zoned along a bay in the centre of the building; reading and library office spaces are located around the perimeter of the building.

The design of the Main Library reflects the use of concrete as the principal building material, marked by an austere aesthetic and the dominance of raw concrete combined with glass. The structural system is exploited as a design feature celebrating the form and materiality of the building. The surface of the concrete is fair-faced. It is often smoother and lighter than traditional concrete mixes. The use of repetitive forms, bold geometry and fair-faced-concrete surfaces produces a visual outcome that is striking and arresting.



▲ Southeast elevation of existing building (right) and proposed building (unrealised), 1:650.

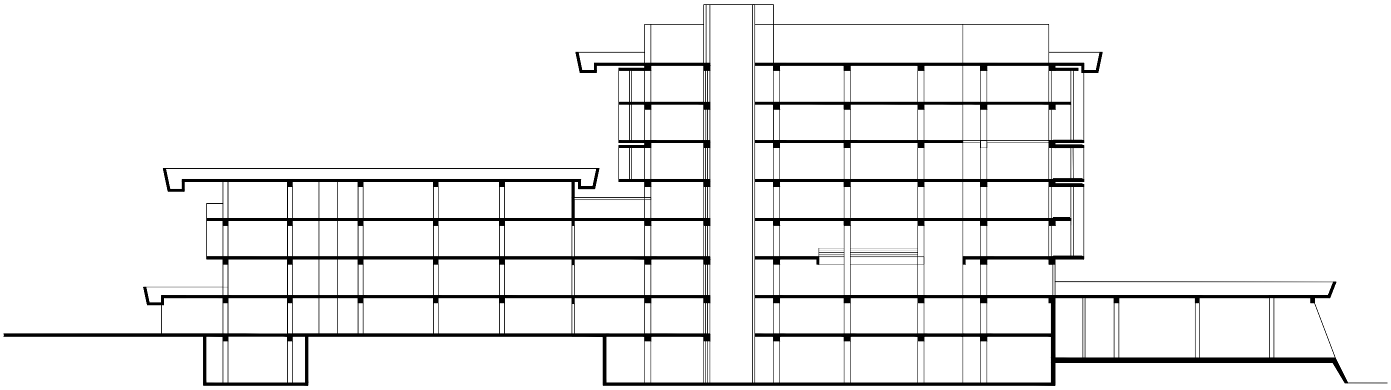
▶ The Gandhi Library in the basement has an abundance of natural light.

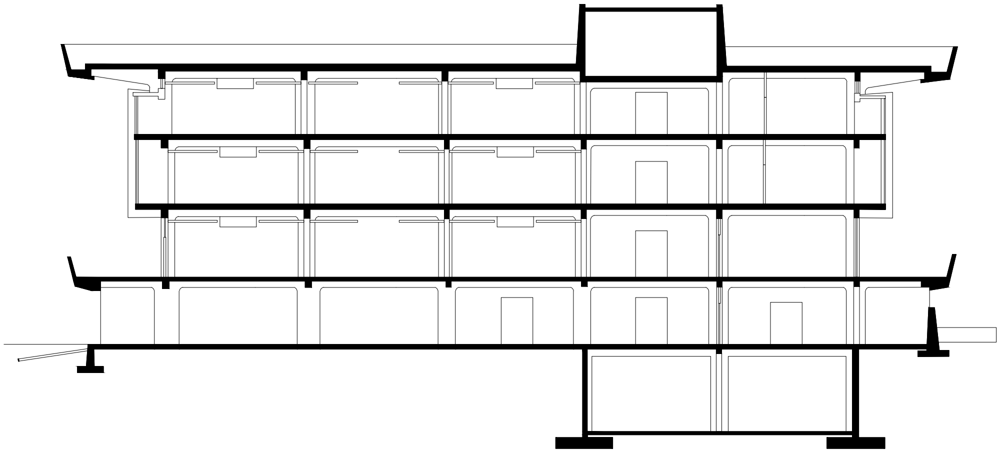
▼ Circular terrazzo staircase, with wooden handrail and panelling.

▼ Circular stairs with central staircase eye.

This functional simplicity and remarkable use of materials make the Main Library blend into the surrounding context of other concrete and glass buildings; nevertheless, it stands out uniquely based on its composition. The grid of cruciform columns elevates the reinforced-concrete slab above the volume of the building; expressing a strong sense of authority, permanence and monumentality.

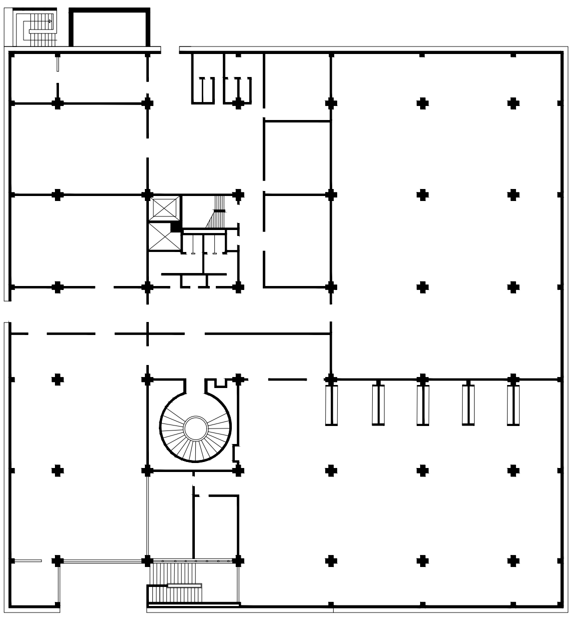
One of the characteristics of the UNILAG Main Library are walls of glass from floor to ceiling interspersed with precast-concrete sun-breakers enabled by the "free façade" without load-bearing walls. Ordinarily, this should allow for a generous supply of diffused light, but here artificial lighting is also necessary and needs servicing with a power supply owing to the arrangement of open stacks of various heights and space partitioning, which

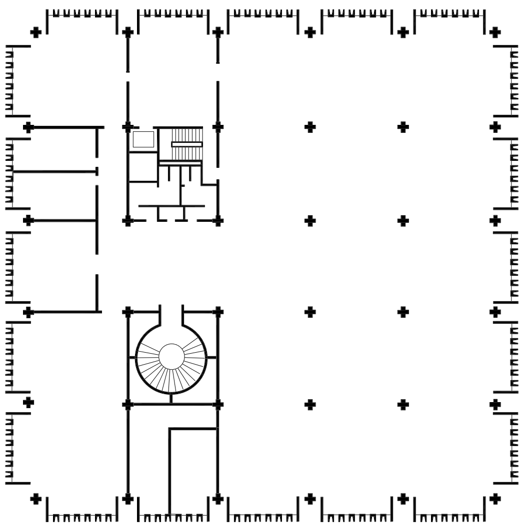




▲ Section A–A (top) 1:650 and B–B (bottom) 1:300 of existing and proposed building.

▼ Ground (left) and first floor plan (right) of existing building, 1:650.





▲ View of interior reading space.

▶ The Makerspace was renovated in 2022. Visible are the framework of the floor to be raised and the new suspended ceiling

blocks daylight. In addition to this, a central air-conditioning (AC) system was installed for the indoor comfort of users and control of relative humidity to preserve the books in good condition. This cooling system has since been replaced with individual AC units because of maintenance issues.

While the university has invested in technology in recent years to bring about more efficient library operations, the library as a spatial entity must be judged against a higher-quality user experience. After almost six decades of existence and success, a re-evaluation is required in light of urban-development tensions following increased student enrolment, changing and digital technologies and climate change. There is an urgent need for spatial re-evaluation and reconfiguration to meet contemporary space requirements or the facility risks drifting into redundancy or oblivion. As of 2023, some parts of the first floor – namely, the lobby and the "Makerspace", a place meant for students coming to interact with high-tech tools – have experienced a remodelling, primarily to give the floor a new ambience.

In the interior, a remarkable feature are the circular stairs with terrazzo and a wooden handrail. The wooden panelling, reminiscent of the work of Slovenian architect Jože Plečnik, creates a deliberate contrast with the concrete exterior. The effect is both warm and charming, and the result is a welcoming environment.

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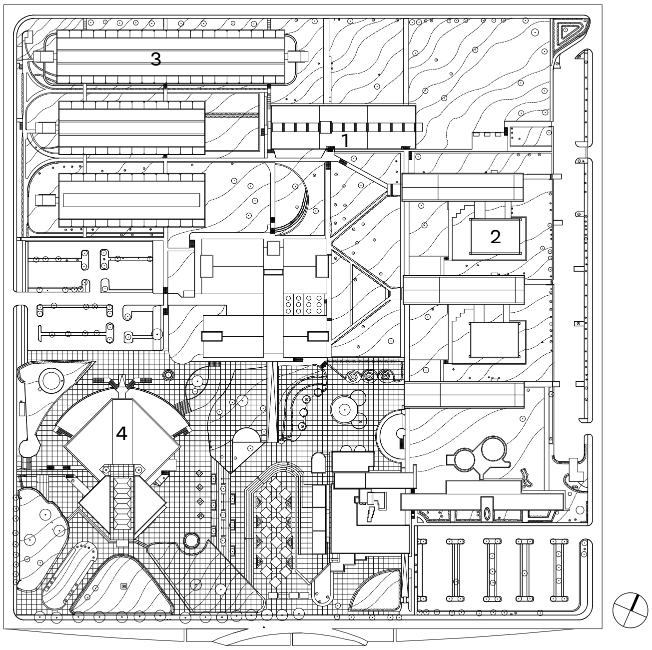
BAYO AMOLE, BABATUNDE JAIYEOBA

FACULTY OF AGRICULTURE

Obafemi Awolowo University, Ile-Ife, 1965
ARCHITECT Arieh Sharon



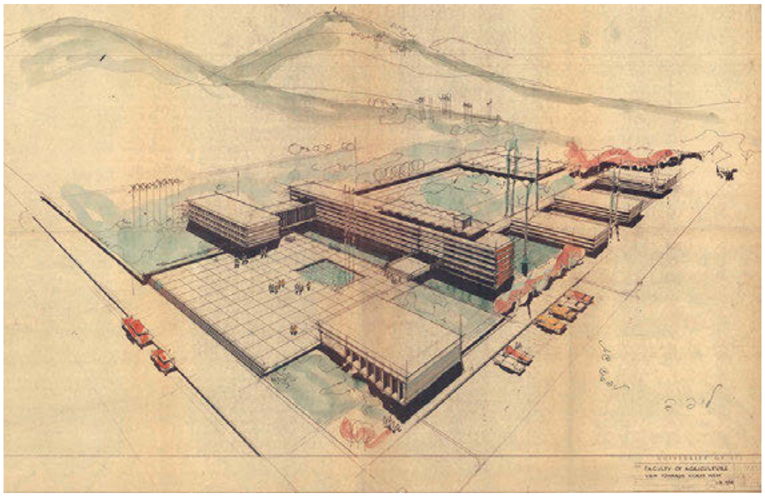
▲ Site plan campus core, 1:2350. 1 Faculty of Agriculture, 2 Faculty of Humanities, 3 Faculty of Social Sciences, 4 Assembly Hall.

▼ Figure-ground plan, 1:10,000, 07° 31" 19' N 04° 31" 34' E

Between 1960 and 1985, the Israeli architect Arieh Sharon (1900–1984) produced the master plan for the campus of the University of Ife (now Obafemi Awolowo University) and the buildings in the core area of the campus (in cooperation with local architect A. A. Egbor, 1924–2011) as well as a few other buildings outside of it. The Faculty of Agriculture complex located northeast of the university core, the Faculty of Humanities at the east corner and the Faculty of Social Sciences at the northwest corner, within the core area, were built respectively in 1965, 1966 and 1983.

All three buildings were designed and built in the modernist tradition, with strong linear forms associated with climatic responses that provided large areas of fenestration to the north and south using louvred glass, characteristic of Tropical Modernist approaches and the use of materials and elements of modern architecture, including reinforced concrete and flat roofs. The progression from the earliest Faculty of Agriculture to the Faculty of Social Sciences played on the transition of shading devices. It ranges from the use of an "external skin", added as shading devices at the Faculty of Agriculture, to the use of the building form, the inverted pyramid at the Faculty of Humanities, and a double inverted pyramid for the Faculty of Social Sciences. This building system, together with the passive solar approach to design gives the campus buildings their distinctive character.

The Faculty of Agriculture is a complex with a main building 97.5 metres long by 7.8 metres deep and six storeys high. This building is an authentic piece of modern architecture, creating a free façade with long bands of concrete terraces that shade the louvre windows, enabled



▲ An earlier concept for the Faculty of Agriculture Building, which was reinterpreted during execution.

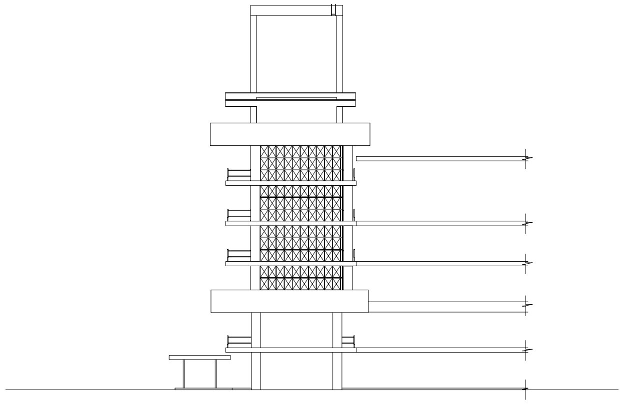
◀ Machine-like long-span ramps connect the Faculty of Agriculture Building to the support buildings in the group.

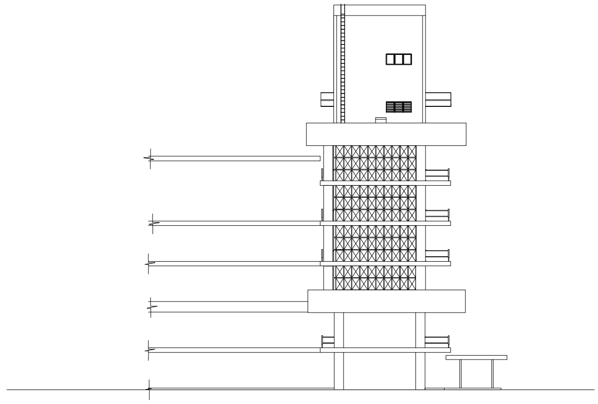
◀ View of the unequal, double, horizontal-and-vertical "egg crate" shading framework on the southern façade.

▼ The wrapped concrete roof parapet painted in white is replicated to enclose the first-floor terrace on the southern façade.

by concrete cantilevers on the northern façade and projecting floor slabs, complementing the vertical members that constitute the shading devices for the louvre windows on the southern façade. The main entrance to the building is on the second floor with vertical circulation enabled by two open, concrete staircases with straight flights. A large space on the first floor, comprising twelve bays of the column spacing, is open and suggests that the remaining floors are raised on pilotis, a feature which would become more prominent in later buildings, including the Social Science Building, in the core area of the campus.

The offices, meeting rooms and laboratories are organised linearly along large access corridors on each floor of the northern elevation. The building bears a flat concrete roof with folded, parabolic, reinforced-concrete elements above the roof garden reminiscent of Le Corbusier's roof gardens. It is organised structurally as a framed, reinforced-concrete building with columns and beams. The roof is wrapped in a concrete band forming a





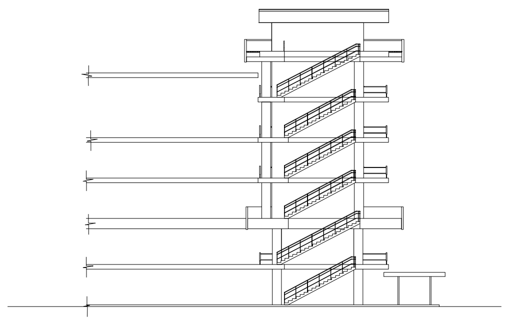
▲ Free façade achieved by long-span concrete floor and roof cantilevers on the northern façade to ensure protection from the elements.

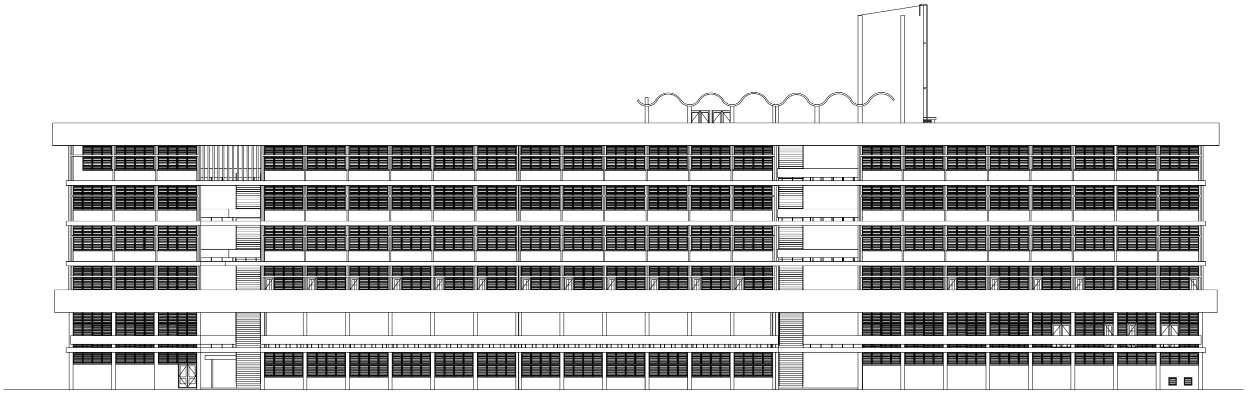
▶ West (top) and east (centre) elevation, 1:650.

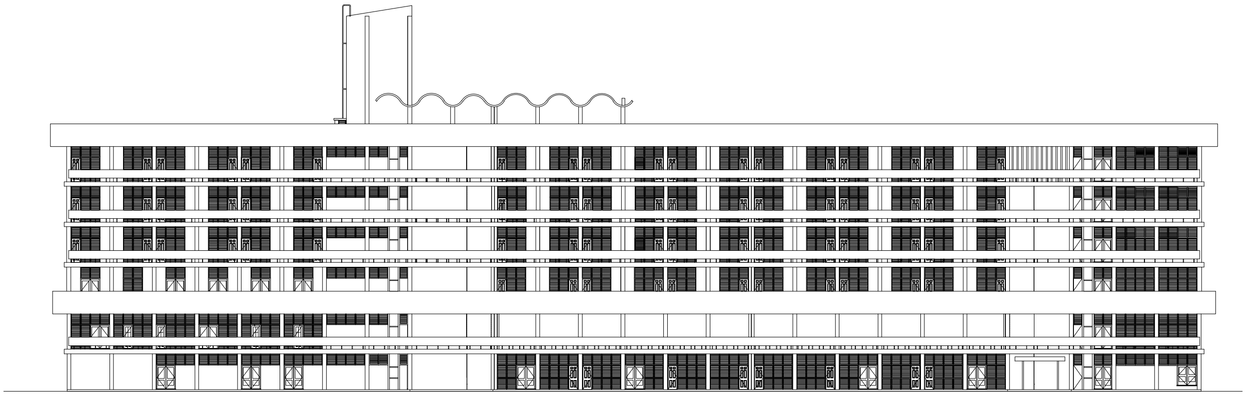
▼ Sections A-A (top) and B-B (bottom right), 1:650.

parapet painted in white and, as if to replicate this parapet, a concrete band is created to enclose the terrace on the southern façade at the first floor level.

The connecting bridge between this main faculty building and the Faculty Laboratory Building is so elaborately treated that it smacks of the machine-like use of ramps in some of Le Corbusier's buildings. This feature later becomes the main approach to connecting an ensemble of the three buildings for social sciences, law and adminis-

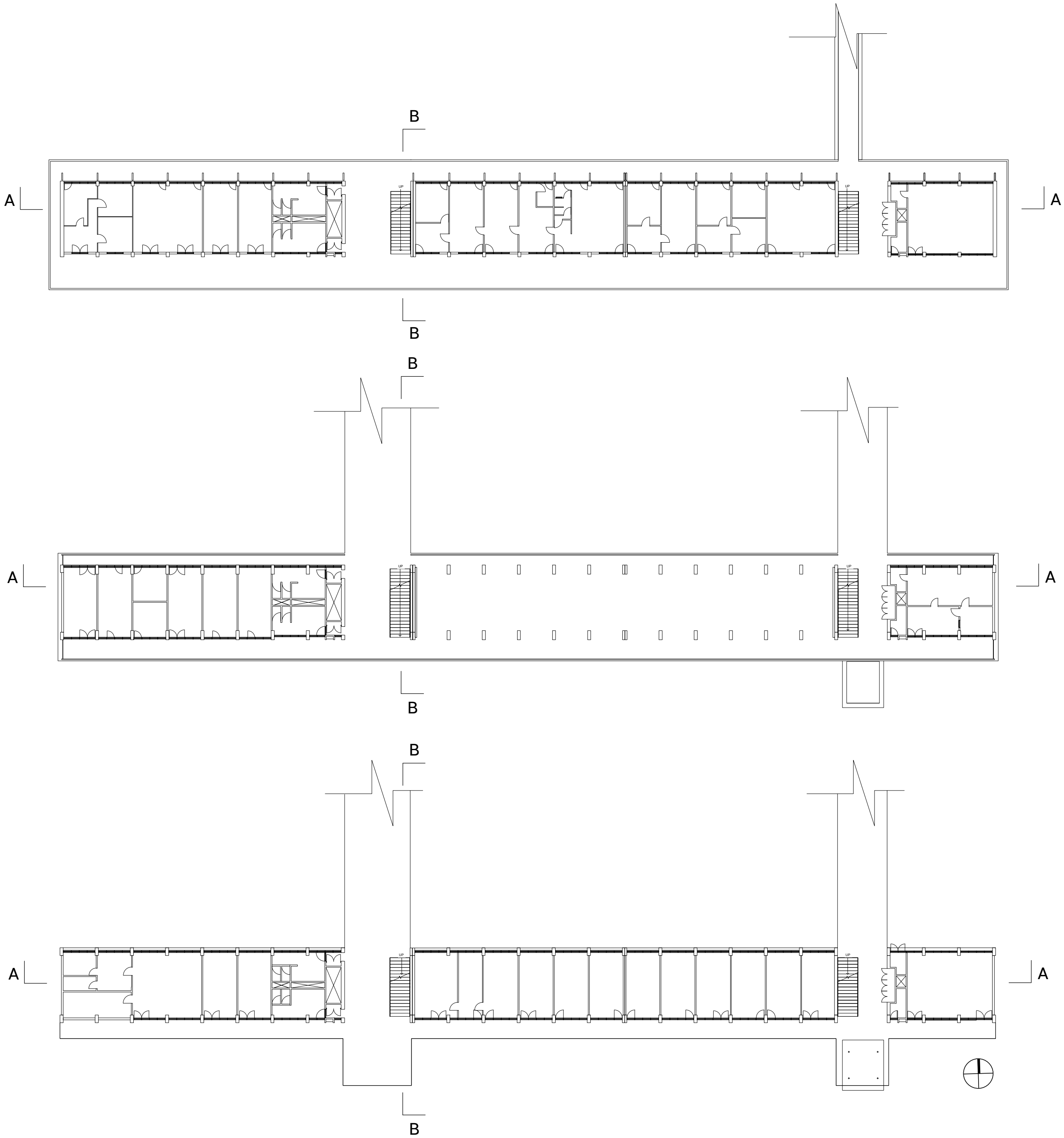






▲ North (top) and south (bottom) elevation, 1:650.

▼ View of the Faculty Laboratory Building.



▲ Ground, first and second floor plan, 1:650 (bottom to top).

◀ Roof detail with parapet of the Faculty of Agriculture.

BAYO AMOLE, BABATUNDE JAIYEOBA

FACULTY OF HUMANITIES

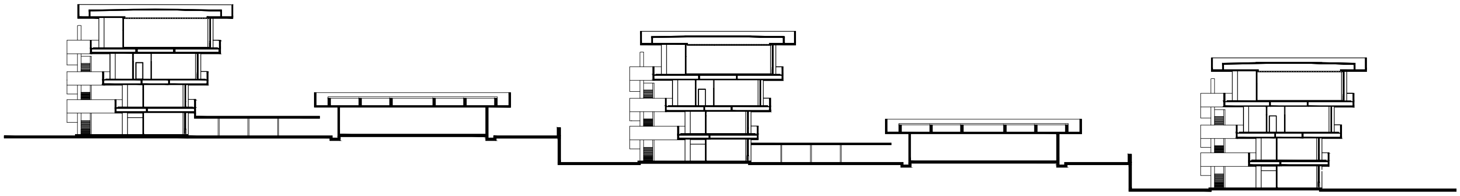
Obafemi Awolowo University, Ile-Ife, 1966

ARCHITECT Arieh Sharon

▼ The eastern elevation of the reverse-pyramid form of the Humanities block comprising four levels.

tration at the northwest corner of the campus core.

An ensemble of three building blocks and two auditoria organised linearly at the eastern end of the campus core were designed and built to house the humanities. They were designed as “reverse pyramids” with each upper floor shading the lower one, a theme which continued in a modified form as a “double reverse pyramid” for the social sciences. The three buildings stand at four floors each, connected by a gangway running south to north, rising gently from one building to the next. There is evidence



▲ Longitudinal section, 1.850, showing the three blocks with the linked two auditoria.

◀ The external staircase accentuates both building and landscape.

▼ These exterior views from the west (top) and the east (bottom) show the gradual increase in the width of the building from the ground to the fourth floor.

that a fourth block was planned for but was never built. Indeed, the space at the northeast corner of the core area seems to have been reserved for this purpose.

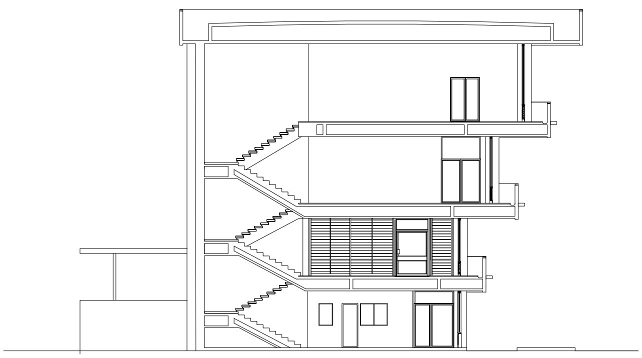
Functionally, the reverse pyramid allows for a gradual increase in the width of the building from the ground to the fourth floor, thus the classrooms are placed on the last floor while the other floors house the offices and smaller seminar rooms. The buildings are linear in organisation with a single-loaded corridor to the north of the building for access to the offices and classrooms, and a smaller passageway to the back of the offices. A concrete balustrade wraps around the building on each floor and visually provides alternating white and dark horizontal bands on the elevation, typical of most buildings in the core of the campus. On the west elevation just like on the east elevation, this resulted in alternating white and dark bands visually with no openings. The orientation of the building is north-south with blank walls to the east and west. This creates the free façade so typical of the modernist tradition, while allowing the shading of the extensive fenestration to the north and south façades and so ventilating the linearly organised spaces.

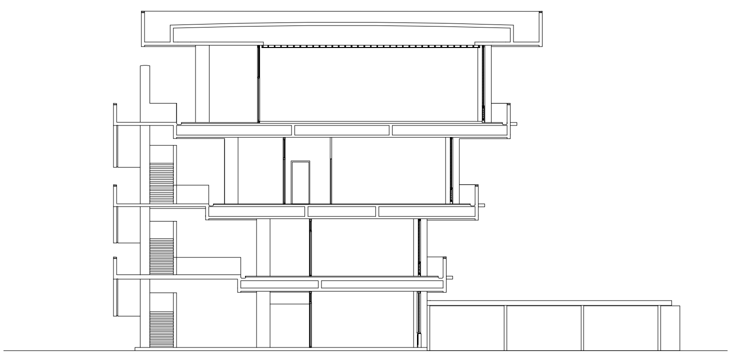
The building is a reinforced-concrete structure framed

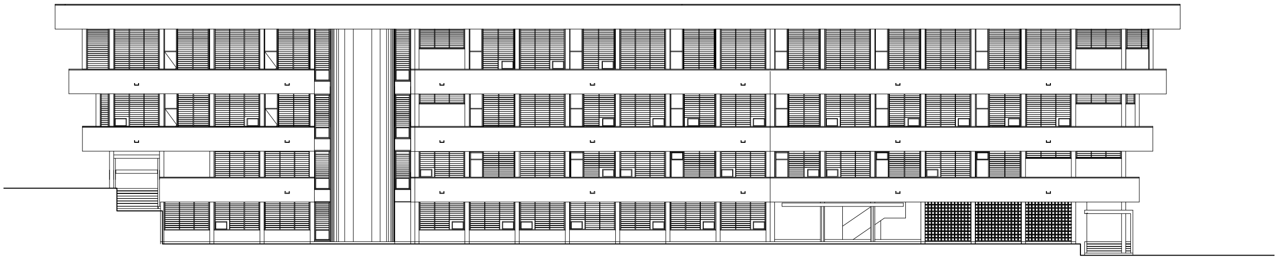
▲ A single loaded, widely cantilevered gallery on the north elevation of the building provides access to the offices and classrooms.

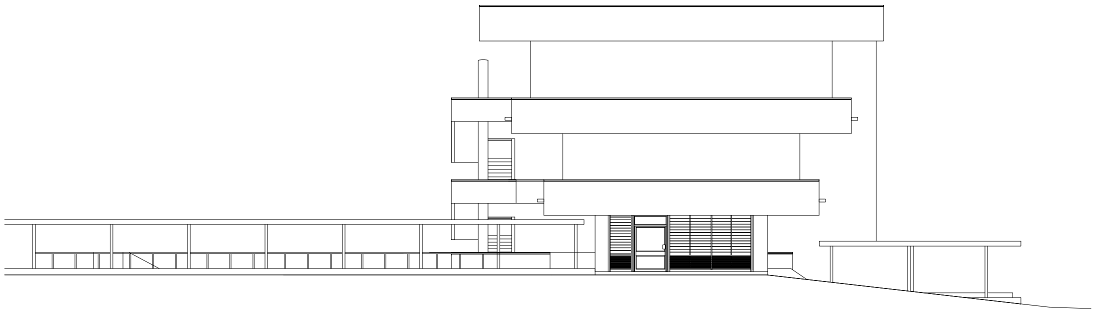
▶ Central free-standing staircase with concrete balustrades.

▼ Section A-A (left) and B-B (right), 1:350.





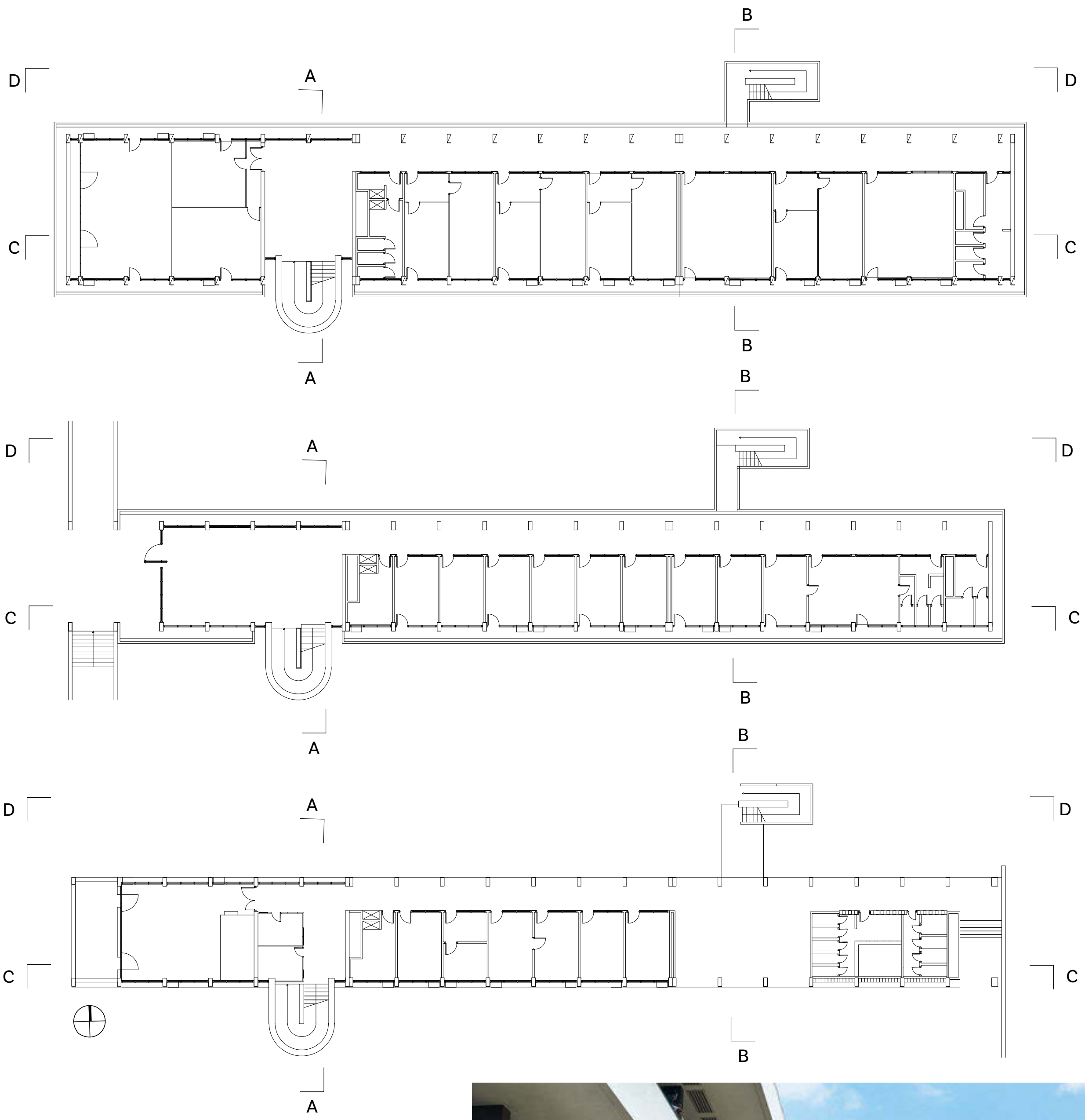




with columns and beams. The roof is flat and made of concrete and has since been covered with aluminium roofing sheets. The vertical circulation is provided through two staircases to the south and north of the building. While the southern staircase is internal to the structure, the northern stands like an installation in the landscape and is provided just off the external pathway running along the northern front of the site of each building.

▲ South (top) and west (bottom) elevation, 1:650.

▼ Section C-C (top) and D-D (bottom), 1:650.



▲ Ground, first and second floor plan, 1:650 (bottom to top).

▶ The Faculty of Humanities is located next to the Faculty of Education.

BAYO AMOLE, BABATUNDE JAIYEOBA

FACULTY OF SOCIAL SCIENCES

Obafemi Awolowo University, Ile-Ife, 1965
ARCHITECT Arieh Sharon

▲ The prominence of the inverted pyramid shape of the building is particularly apparent on the east elevation, with a vertical opening only into the lobby of the toilet corridor.

▼ The train-like rectilinear elongation from the northwest of the campus core.

Before the most recent extension of the Administration/ University Hall Building, the Faculty of Social Sciences Building was the last of the designs by Arieh Sharon to be executed in the university's administrative core, and the one that was the longest. Therefore, it exemplifies the machine-age look of the Modern Movement at the turn of the 20th century in its nineteen train-like bays of about 8 metres each. It is seven bays longer than the nearby Faculty of Law Building, with which it is linked by an interconnected pedestrian gangway. Its axis begins from the Faculty of Administration Building and terminates at the Faculty of Social Sciences Building in a building group triad. The interconnected gangway suspended on a series of upstanding and inverted, triangular, reinforced-concrete structural frames links the three buildings (Administration, Law and Social Sciences) in the group triad physically and visually as they step sequentially along the slope.

The gangway echoes the inverted-pyramid forms of the buildings themselves. The Faculty of Social Sciences Building is placed at the northwestern corner of the original campus-core quadrangle in Arieh Sharon's master plan, which drew on his education at the Bauhaus and emphasised the International Style of the academic ensemble.

The Faculty of Social Sciences Building, like other faculty buildings in the group triad, is raised on reinforced-concrete pilotis to provide social space and sustainable, tropical, climate-responsive stack ventilation through the predominantly open courtyard space. The roof above this three-storey courtyard is higher than those of the functional spaces on the north and south sides of this open space, thus facilitating cross-ventilation. The inverted-pyramid form of the buildings is emphasised by the seemingly unending, slanted, reinforced-concrete columns on the ground level that support the beams of the upper slabs and the widely cantilevered

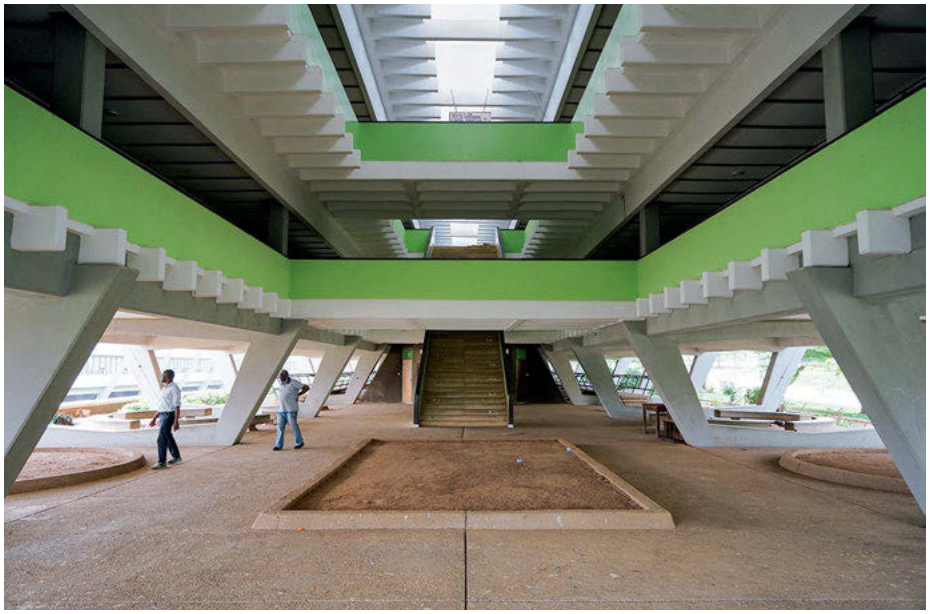
▲ East (left) and west (right) elevation, 1:1000.

▲ North (top) and south (bottom) elevation, 1:1000.

▼ The slanting, reinforced-concrete columns that taper upwards to support the heavily cantilevered roof provide elegance and rhythm to the elevation.

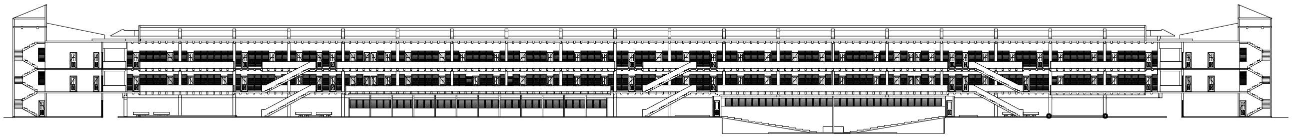
roof slab in the north and south directions. The vertical rhythm of the slanting columns, which taper to receive the loads of the widely cantilevered roof that exhibits the unique properties of concrete as a modern material, breaks the horizontality of the "white" beams and visually diminishes the buildings' real length.

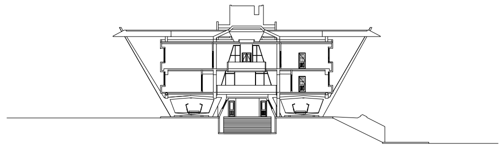
The courtyard, with a higher concrete flat roof, has spaces in the north and south directions that open into and cross-ventilate by stack ventilation through it. The courtyard is open to the roof from the ground level except in five of the structural bays for a lecture theatre and another four bays for offices, with two bays open between them for escalator-like stairs with middle landings. The lecture theatre and offices have inward-sloping walls that channel air from the open ground floor raised on pilotis to the open court above their roof to enhance stack ventilation. The concrete flat roof over the lecture hall and the offices is visually enhanced within the courtyard by a picturesque hard landscape now augmented by indoor potted plants. The west and east ends of the building are further elongated by boxed-in services/toilets with hidden



▲ The Faculty of Social Sciences is raised on reinforced-concrete pilotis and thus provides a shaded space underneath. Views of the courtyard.

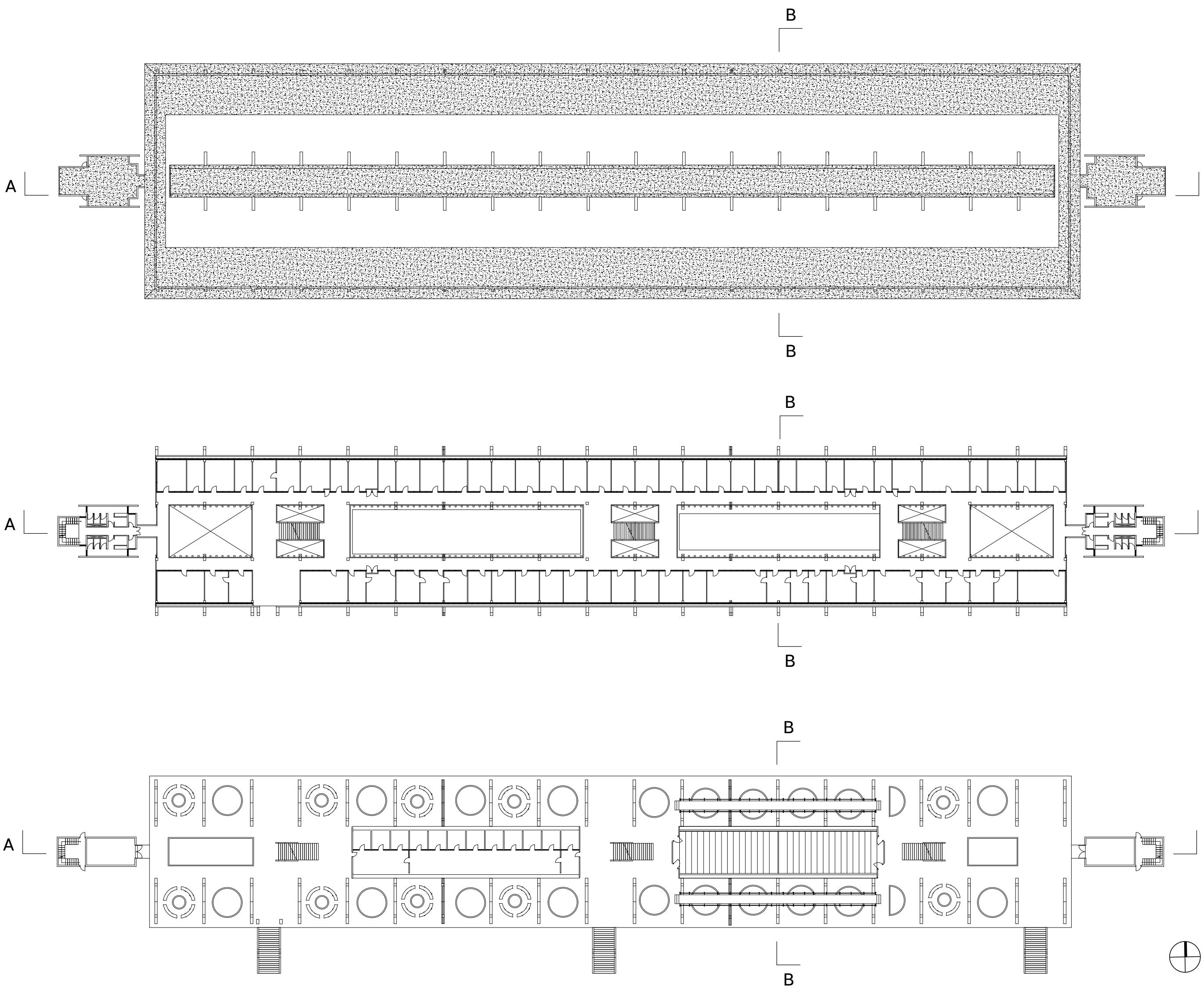
▶ The inverted structural support of the interconnecting bridge between the Faculty of Social Sciences and Law Buildings complements the inverted pyramid of the building.

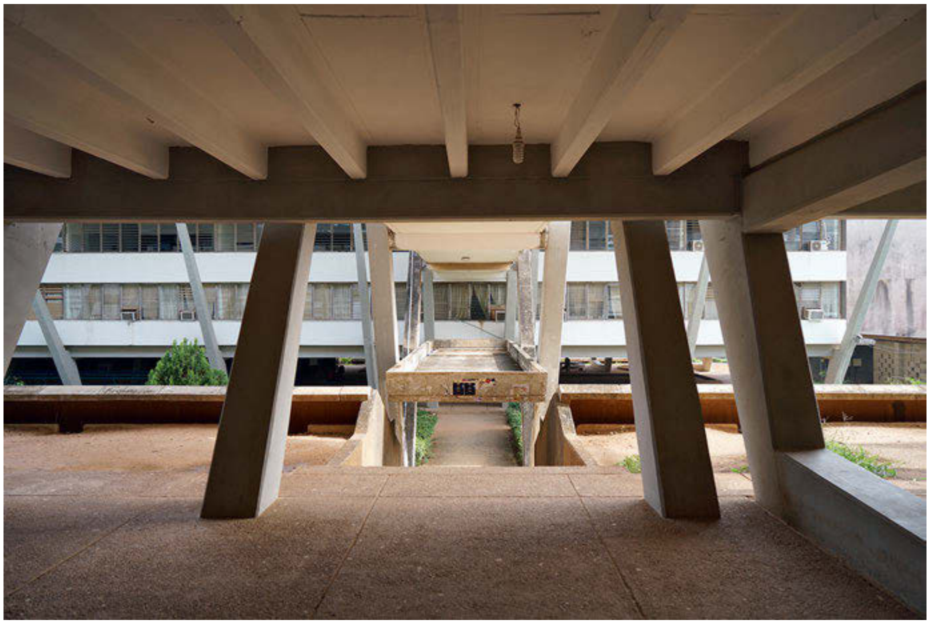




▲ Section A–A (top) and B–B (right), 1:1000.

▼ Ground floor, first floor and roof plan, 1:1000 (bottom to top).





▲ The interior courtyard over the lecture theatre and offices has a pleasant temperature due to stack ventilation.

▼ Roofed connecting bridge to Faculty of Law.

vertical fenestration without any other openings, to deter heat gain from solar radiation. The inverted-pyramid form finished in vertically ribbed, splattered concrete on the east and west elevations is striking in this Bauhaus-style tropicalised modern architecture.

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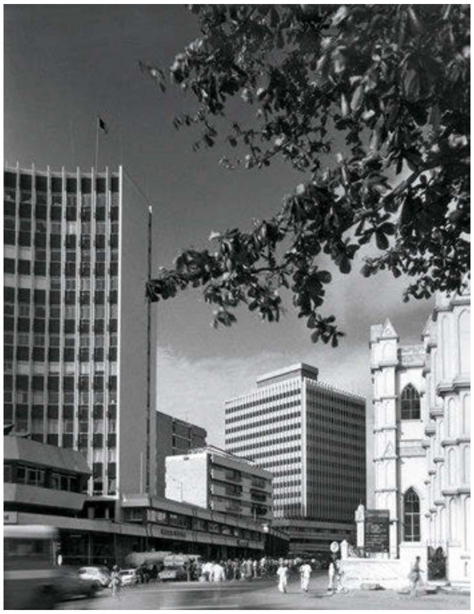
BOLA OGUNTADE

BOOKSHOP HOUSE

Lagos, 1973
ARCHITECTS Godwin and Hopwood Architects



▲ Bookshop House in urban setting in the mid-1970s.

▼ Figure-ground plan, 1:10,000, 06° 27' 08" N 03° 23' 27" E

In 2008, when the financial crisis that started on Wall Street in New York City was crippling economies around the world, Nigeria's equivalent of the Big Apple's financial district was not spared. It is located on Broad Street in the Marina of Lagos, and is home to the Central Bank and Stock Exchange of Nigeria, United Africa Company House, the defunct British Petroleum Headquarters in Nigeria, Bank of British West Africa House and the prime property of the Bookshop House. Like other buildings, the last-named suffered the consequences of the cash crunch that preceded the global financial crises, as firms, mostly stockbroking, occupying the building either closed shop or defaulted in payment of rent etc.

The formerly Church Mission Society (CMS) Missionaries Bookshop, known since 1969 as the Church and Schools Supplies (CSS) Bookshop Limited, began 100 years earlier when the CMS Missionaries settled in Marina, Lagos, and opened a small corner store selling Bibles and other Christian articles in 1869. The CMS missionaries became very active in the nationalist movement in Nigeria, using education as a platform. Samuel Ajayi Crowther, a former slave who was educated by the CMS later became the first African bishop, while his grandson Herbert Macaulay, whose statue adorns the frontage of the present Bookshop House, became founder of the Nigerian National Democratic Party (NNDP), the first political party in Nigeria.

Bookshop House sits at the corner of Broad and Odunlami Streets and serves a variety of functions from propagating the growth and development of the Christian Church in Nigeria through Christian literature and promoting education by extension. The couple's practice of John Godwin (1928–2023) and Gillian Hopwood (1927–) was commissioned in 1973 to build what was one of the largest and most modern buildings in Lagos at that time. It also represents a response to the post-independence

aspirations of the former British colony, experiencing urbanisation and a show of commitment by the Anglican Communion, owners of the CSS Bookshop Limited in Nigeria.

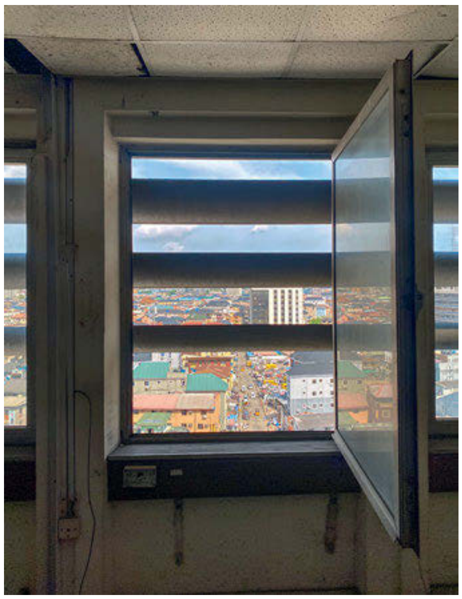
It is a fourteen-storey-high building constructed by G. Cappa Ltd, an eleven-storey tower on a three-storey podium. The podium was clad with aluminium panels; a cavity between panels and concrete structure ensures that solar heat is not transferred to the building. Vertical fins and horizontal louvres on all façades also provide solar protection. As one of the earliest high-rise buildings in Lagos, its upper eight floors served as offices for Mobil while the ground floor and part of the mezzanine accommodated the bookshop with a reading room open to the public. In the basement and the first floor there is a car park. From the ground level to the open-plan second floor the plan shape is trapezoidal, whilst the third floor up to the fourteenth floor comprise rectangular-shaped offices of 950 square metres.

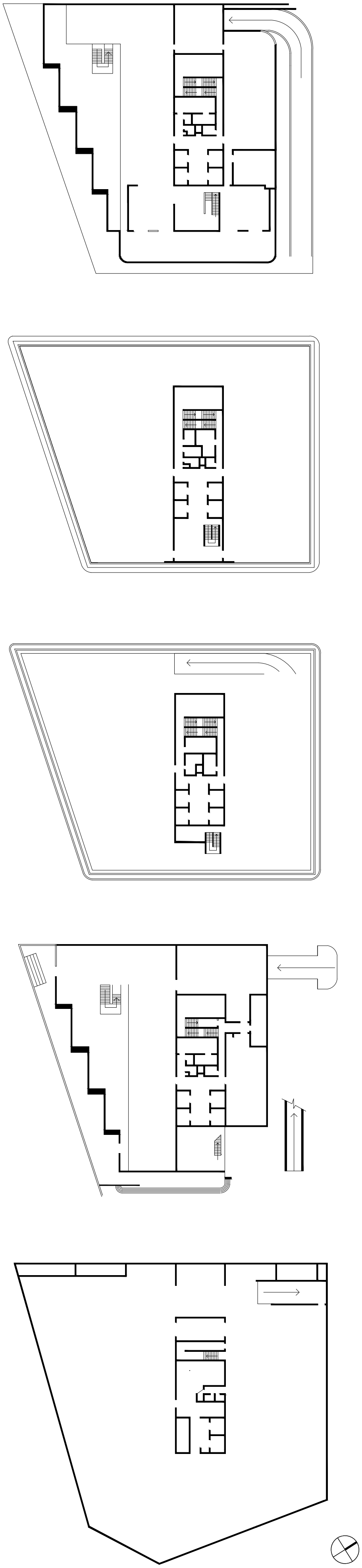
Bookshop House has a simple, geometric form and identical façades on all sides with the characteristic vertical, aluminium, sun-shading devices. This gives the building a clean and uncluttered appearance. It is mainly made of concrete and glass, which are common materials in modern architecture. Attached to the building envelope are both vertical and horizontal sun-breakers at angles that catch the breeze and exclude sunlight and sky

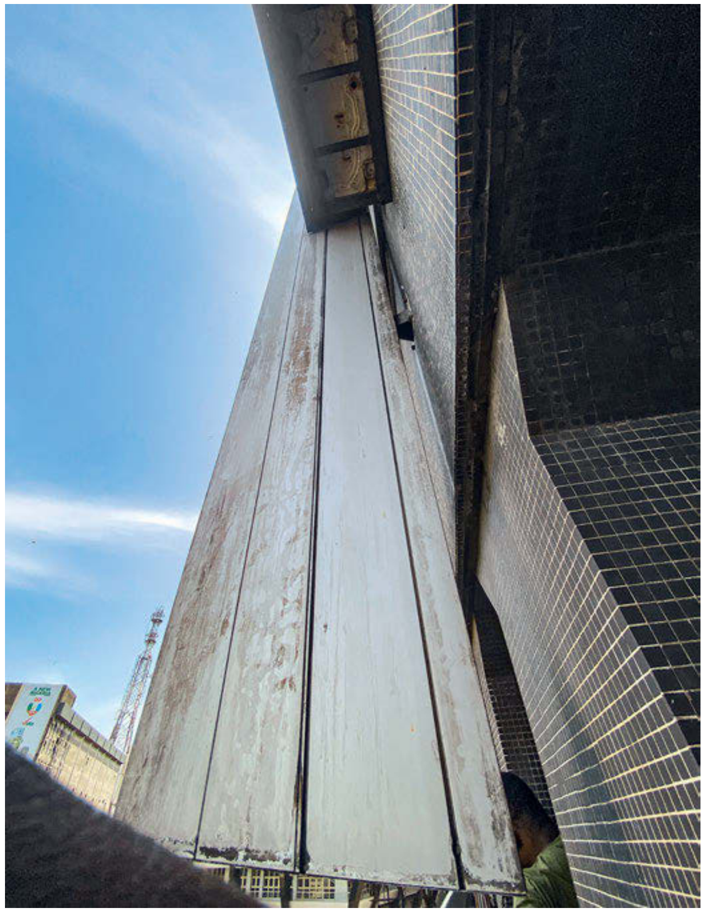
◀ Main façade: the podium is clad by aluminium panels, the tower is characterised by vertical fins.

▲ Vertical and horizontal sun-breakers on the façade.

▼ Window and sun-breakers from the inside.







◀ Basement, ground floor, first floor, second and third floor plan, 1:500 (bottom to top).

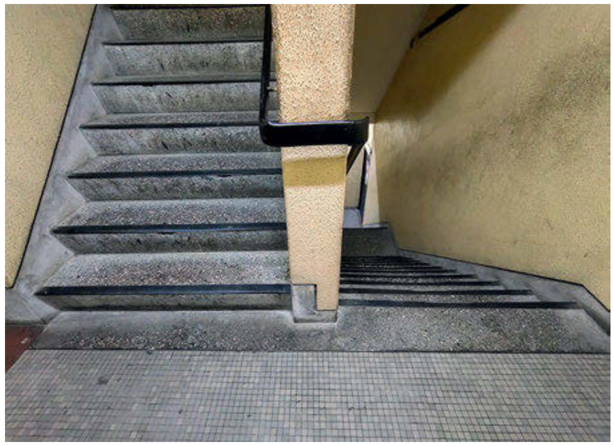
▲ Façade detail with sun-breakers.

▼ Water tank and lift installations on the roof.

◀ View of central lifts providing the main circulation.

▲ Interior office space.

▼ View of egress staircase.



radiation. The use of effective sunscreens combined with induced air movement and thermal storage helps to bring temperatures down to comfortable levels; the careful design ensures both protection from the sun and ventilation. The concrete gives the building a strong and durable appearance, while the glass windows (1.15-by-1.52-metre panels) allow plenty of natural light to enter the interior. The roof is also made of concrete slabs and asphalt felt for waterproofing. The main circulation is through lifts, which serve the entire building, with double egress stairways opening to both wings of the building; from a generous fire door of 1.1 by 2.3 metres, the distance to the entrance to the office spaces is about 6 metres.

The building, which had been the choice space for businesses like British Caledonian, Mobil Producing Nigeria Plc, British Airways and several financial institutions, is now being challenged by a number of issues from a low tenancy rate and declining service facilities to rising costs of energy. Some of these issues can be linked to shifts in the urban fabric, with places like Victoria Island or Lekki becoming better developed with more contemporary high-rise facilities and good infrastructure. Also the invasion of Lagos Island by informal actors (traders, forex traders, yellow buses and tricycles, hawkers etc.) as well as heavy commercial traffic in and around the Marina has proved a negative factor. Clearly, revitalisation efforts will be needed to keep the building economically viable.

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TUBI OTITOOLUWA

FEDERAL SECRETARIAT COMPLEX

Lagos, 1976

ARCHITECTS Federal Ministry of Works and Housing (FMW&H)

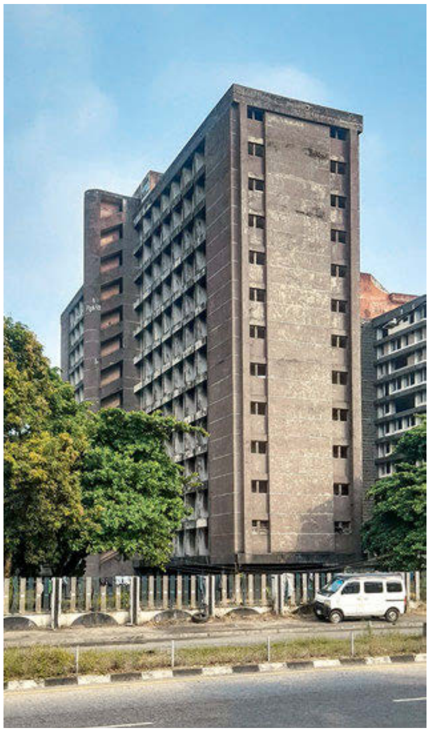
▲ Exterior view showing the west and east wings, connected by a core.

▼ Figure-ground plan, 1:5000, 06° 27' 13" N 03° 25' 13" E

Built between 1973 and 1976, the Federal Secretariat (FSI) is one of the civic buildings designed and engineered by the civil service Federal Ministry of Works and Housing Authority (FMW&H) formerly known as the Public Works Department (PWD) of the Federal Government of Nigeria, which also acted as client. John Godwin reported about the exploits of the department under colonial rule: "Between the wars, the Public Works Departments, 'PWD' as they were known, became 'design/build' organizations and their architects and engineers developed standards for construction in styles of design which were influenced by Europe. Hence, the colonial classical style of the 1900s consisting of brick, pre-cast concrete and pitch pine gave way to the more solid detailing found in public buildings in the 1930s, where cement was the dominant material" (Godwin, 2003).

However, at the advent of independence and increased rate of development across the nation, the department could not cope with designing and constructing infrastructure; therefore, construction and sometimes design was commissioned to private companies like Costain (British contractor), Cappa and D'Alberto, G. Cappa Ltd. (both Italian contractors) and many more. FMW&H would, however, continue to take responsibility for the creation of guidelines and standards for design and construction, supervision of infrastructure projects, and also design where possible through its well-trained staff.

The Federal Secretariat is one of the products of such a process within the civil service. The architect responsible for the design and supervision of the building was Chief Isaac Fola-Alade (1933–1921), one of the pioneering four architecture graduates produced in West Africa at the then Nigerian College of Arts, Science & Technology (now Ahmadu Bello University) Zaria, where he studied between 1957 and 1961. He completed his architectural education at the Architectural Association (AA) in London between



▲ West wing.

◀ Frontal view: two wings with greenery in between.

1964 and 1965, when Professor Otto Koenigsberger was the Head of the Department of Development and Tropical Studies (1953–1971) (Wakely, 1999). Also, at the time of Alade's attendance at the AA, tropical architecture was well researched and had developed into a style documented in a number of books (Godwin, 2003). His interaction with the subject of Tropical Architecture from Zaira and the AA would later be seen in his works as architect at the FMW&H and in private practice. One of the most significant in impact and size was the Federal Secretariat, on the island of Ikoyi in the Lagos lagoon, which he designed while he was the Chief Project Architect.

Sitting on approximately 84,000 square metres of land, the two towers with fifteen floors, each with nine wings connected by five cores, have a typical gross floor area of about 3,500 square metres, making a total of 105,000 square metres for the project. It was commissioned in 1976 and developed to accommodate the federal civil service when Lagos was the administrative capital.

The glory days of the building were short lived when, in 1990, the federal seat of government was relocated from Lagos to Abuja (the new capital). By 1991, the federal civil service emptied out of the building, leaving it unoccupied. Between 2003 and 2006, the Federal Government through the Bureau of Public Enterprise listed FSI as one of the federal assets to be sold in its privatisation rally at the beginning of the Fourth Republic ending 33 years of military rule. Through a bidding process, the property was sold in 2007 to a private developer with the intent to convert it into a 480-family residential development, and CCP Partnership was appointed as the architect for this reuse and renovation. Unfortunately, a land-ownership dispute within the Federal Government stalled the reuse plan, after a tribunal and court rulings up to the Supreme Court. As of 2023, the property remains empty.

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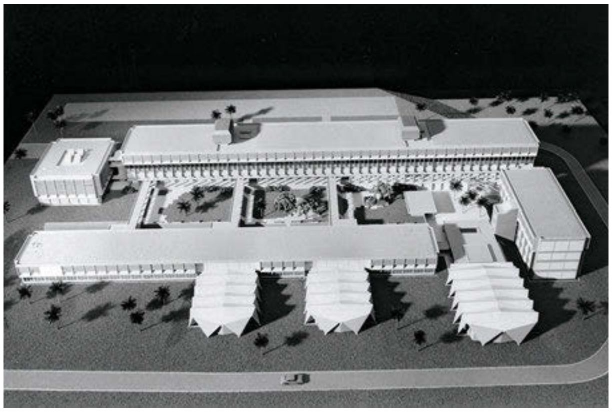
TUBI OTITOOLUWA

FACULTY OF SCIENCES

University of Lagos (UNILAG), Lagos, 1979
ARCHITECTS Godwin and Hopwood Architects



▲ Model of the Faculty of Sciences of University of Lagos (UNILAG).

▼ Figure-ground plan, 1:10,000, 06° 30' 55" N 03° 23' 58" E

John Godwin and Gillian Hopwood set up their practice in 1955, following Godwin's time at the Architect's Co-Partnership, where he had completed a tour in Nigeria. Hopwood had been working for Alistar Macdonald on projects in Cyprus, a critical part to her formative years as a newly qualified architect. In his article "Architecture and Construction Technology in West Africa in the 1950s and 1960s", John Godwin detailed the evolution of tropical architecture in West Africa between the late 1940s and 1960s as the foundation for knowledge which improved comfort conditions and the development of materials appropriate to the functional requirements of building types otherwise unknown in the territory (Godwin, 2003). Therefore, in 1971, when the University of Lagos started the development of its phase-two infrastructure, and Godwin and Hopwood were appointed as architects for the Faculty of Science complex, it was the perfect canvas to showcase the development in material, technology and skills acquired over the years.

In the initial design brief for the building, there was a consensus of opinion amongst the university staff who in briefing the architects called for a low-rise building with reliance on mechanical ventilation such as air conditioning to be reduced to the minimum. The new faculty building was to provide lecture rooms, laboratories, offices and administration spaces for both new and already existing departments in the faculty. Outdoor public spaces were to be included as well.

The site is a narrow ridge running east to west that is only 4 metres above sea level at its lowest point. This slightly elevated position provides the perfect premise for the zoning of functions in the complex. A long block of four floors was situated at the north of the site where the site level is highest, providing unobstructed access to the prevalent southwest trade wind, which cools the laboratories and classrooms in the south of the block. In

addition, the mechanical ventilation runs through the circulation spine from west to east and divides the laboratories from the administrative offices. Two covered walkways connect the north block to the two-level south block, which is 3.2 metres below the north block. The south block consists of laboratories, classrooms and three lecture theatres grafted into the block from the south. All the spaces contain at least two external-facing walls with fenestration that naturally cools the spaces. On the ground level of the building complex, there is a network of undercrofts or covered walkways and staircases that connect pedestrians to every level within the complex without exposure to the elements. Finishing off the enclosure is the four-level computer sciences block to the east, similar to the north block but only a quarter of its length and the Marine Biology Department Building to the west.

One of the many successful features of the building are the interaction spaces at intersections on the ground level within the complex. With concrete benches and other outdoor furniture, these spaces foster interaction between students, and provide pause and breakout spaces in between classes. Also, due to large openings in the building and the exposure the building has along the south, it was important to create a shading system that prevents incident sun and allows the maximum air into the building. Aluminium brise-soleils were deployed horizontally at intervals that shade the building during the active hours of the day when the angle of the sun is high and closer to the south, while the vertical fins shade the internal spaces from the early morning and evening sun when the angle of the sun is low and oriented towards the east and west respectively.

◄ Exterior view of one of the three lecture theatres during construction: a folded-plate “origami” roof provides shading on all sides.

▲ Horizontal aluminium brise-soleils contribute to solar protection. Detail of brise-soleil with vertical and horizontal elements.

▼ Connection between north and south blocks at the time of construction.

▶ Ground level with interaction spaces at the intersections.

◀ Louvred façades between concrete fins.

◀ Connection between the faculty building and the staircase tower. Staircase tower in exposed concrete.

The solar-control method for the lecture theatres relied on a very different approach: with a floor-to-ceiling array of window strips, the three lecture theatres require shading on all three sides to provide indoor comfort. To achieve this, the folded-plate "origami" roof with bi-directional pitch wraps around the boundary walls of the auditorium. It is creating a spine along the length of the auditorium and a sloped gutter and ridge on both sides of the spine. Thus, a vertex between two gutters ensues and a ridge on the ground which is offset from the theatre wall. This results in a solid canopy from the roof that inverts to an opening as it approaches the ground. The concrete casting for the form and other concrete works for the building was shuttered using 75-millimetre sawn wooden strips, producing a wood-patterned, fair-faced-concrete relief that gives the building a unique character.

In hindsight, Godwin and Hopwood viewed the educational sector as their most important area of work. Their work certainly influenced Nigeria's modernisation through their contribution to buildings for school and university education (Tosland, 2024, p. 198).

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TUBI OTITOOLUWA

SENATE HOUSE

University of Lagos (UNILAG), Lagos, 1985
ARCHITECTS James Cubitt & Partners Nigeria, Zbyszek Plocki

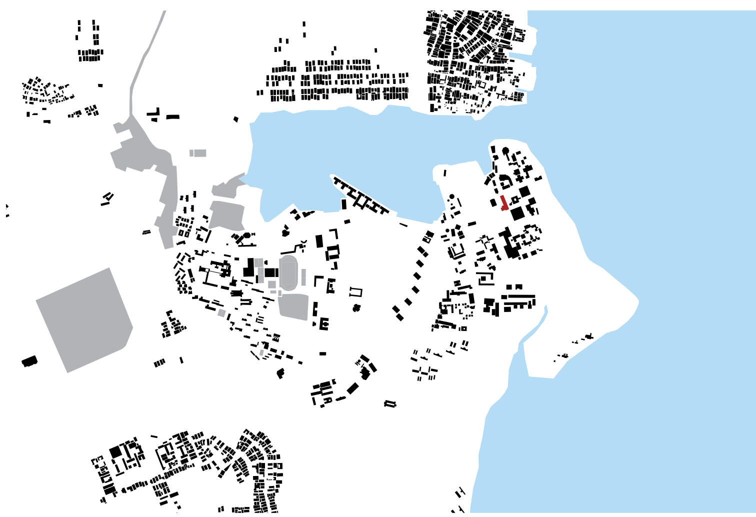
The University of Lagos (UNILAG) was founded in 1962 and different faculty buildings were constructed between the 1960s and 1970s. With the faculties, the administrative functions of the university also grew, and the central concourse with the administrative centre (bursary, council chamber, administration offices) needed to be moved to a new location that could accommodate the growing needs and additional functions. It was also to include a new senate chamber and the office of the Vice Chancellor. Therefore, during the second phase of infrastructure development on the Akoka Campus, James Cubitt & Partners Nigeria (JC&PN) was appointed as architects in 1980. The construction started in 1982.

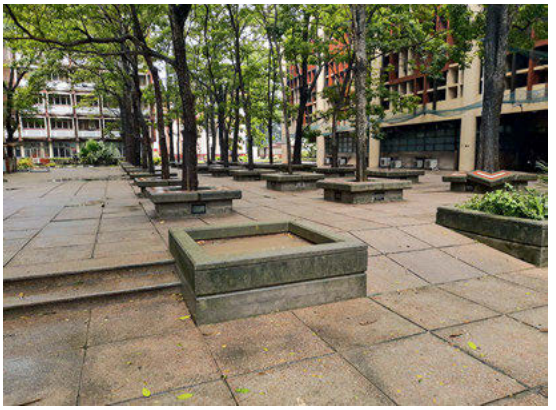
The brief was for a multi-storey building with little to no mechanical air-conditioning systems, as it had been for many of the earlier campus buildings. The site for the redevelopment was a flat piece of land in the centre of the administrative zone, therefore the proposed building had to integrate with surrounding functions. The proposal developed by JC&PN involved a three-tier, fourteen-floor building, the first tier being an 18-by-72-metre, three-floor podium elevated 6 metres above ground to produce minimum obstruction for the existing connection between facilities around the site. The second and third tiers located at the south end of the podium are seven and fourteen floors respectively, creating an L-shaped footprint with the longest side running slightly off the north–south axis towards the west.

The building structure was designed into a 9-by-9-metre grid spacing with waffle slabs on a 75-centimetre grid. Four stairs were located along the length of the podium from one end to the other, which provide two stairs in the second tier and another stair in the third tier. The accommodation layout within the building provides for main access from the third stairs and two sets of lifts, which form the building core located towards the south. On the

▲ The Senate House consists of two volumes. The drum-like structure accommodates the senate chamber.

▼ Figure-ground plan, 1:10,000, 06° 31' 11" N 03° 23' 56" E

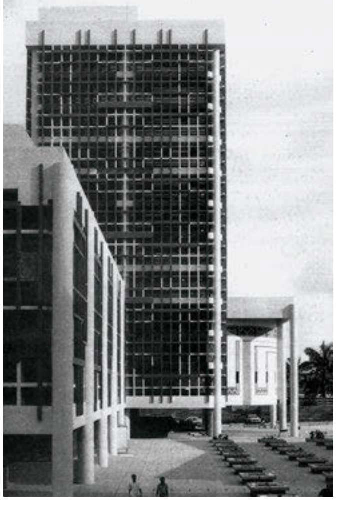


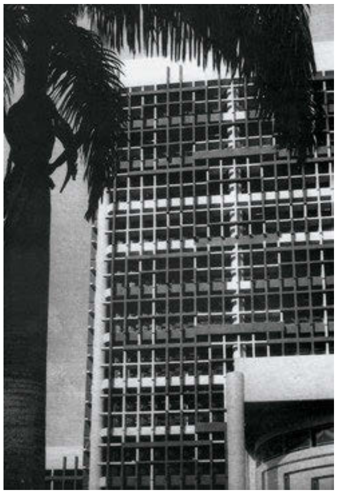


▶ View of courtyard.

▲ Main entrance (under lounge and senate chamber).

▼ Exterior views around the time of completion showing the façade patterns and reliefs.

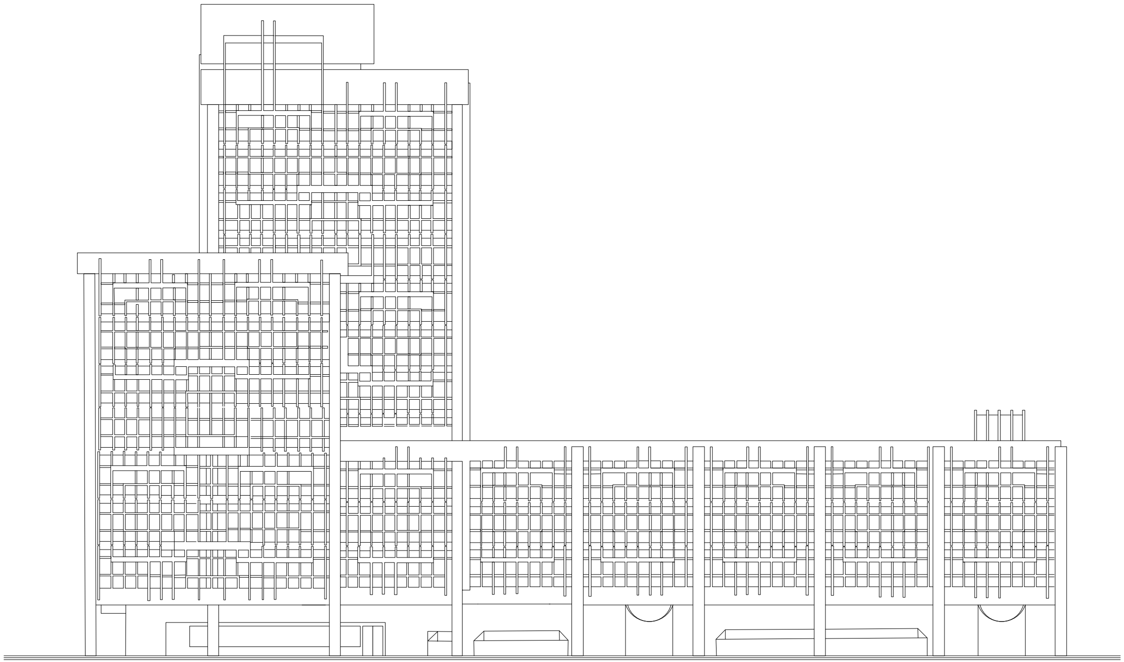




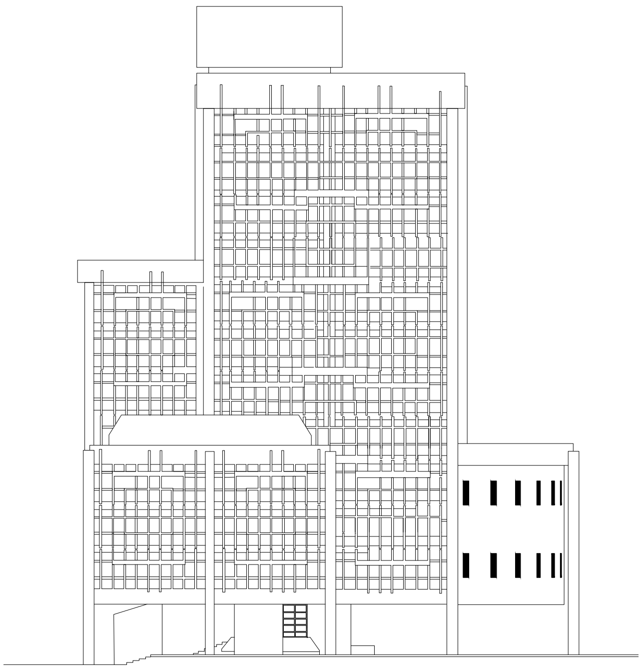
podium level, the core opens on each floor into a lobby flanked on both sides by offices. At the level of the two towers, the core opens at the centre of the floor, where a central lobby connects the offices to the core. At the south end of the building, the senate chamber of the university is located, set in a theatre-like room that requires a large space without obstruction. To achieve this, the double-volume on a 18-by-18-metre space was suspended from two intersecting transfer beams.

Naturally achieved indoor comfort level was a key component of the client's request in the brief, and the architects created a double-skin façade in response to this. Using the inspiration of deep balconies and screen-wall façades explored in many low-rise tropical buildings, the building is covered with large, deep shading made from a mosaic-clad egg-crate screen of precast concrete in three-storey-high panels. These panels were constructed with in-situ sprayed render on steel mesh on reinforced bars. Behind the outer façade is a 75-centimetre corridor making the total outer skin 1.5 metres wide. These corridors function as climate control and alternative escape routes due to the connection they provide by linking to the stairs (especially on the tower levels). The internal skin is made from anodised-aluminium frames and panels with louvred clerestory and windows. At the podium level, the clerestory opens to the corridor on both sides, allowing daylight into the interior.

An electrical fire occurred in the building service duct fifteen years after it was completed. Due to the fire stop installed in the shaft between floors, the fire was contained in the shaft within the floor, preventing loss of life and property. African-inspired prints, patterns and reliefs can be seen all around the building. Features of this type were often adopted by foreign modernist architects at the time, in an effort to link the buildings to the identity of users and locals alike.



◀ East (top) and north elevation (bottom), 1:650.



PROJECT TEAM

Project architect: Michael Amos
Draughtsman: Rufus Akinkugbe, Structural Engineering: Morgan & Omonitan (now MOA)
Quantity surveillance: Tillyard
Contractor: Solel Boneh Ltd (now RCC)

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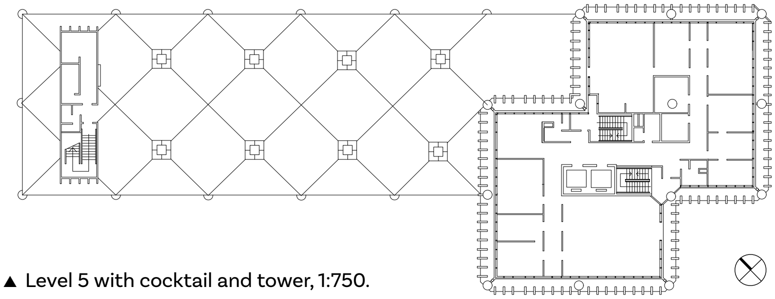
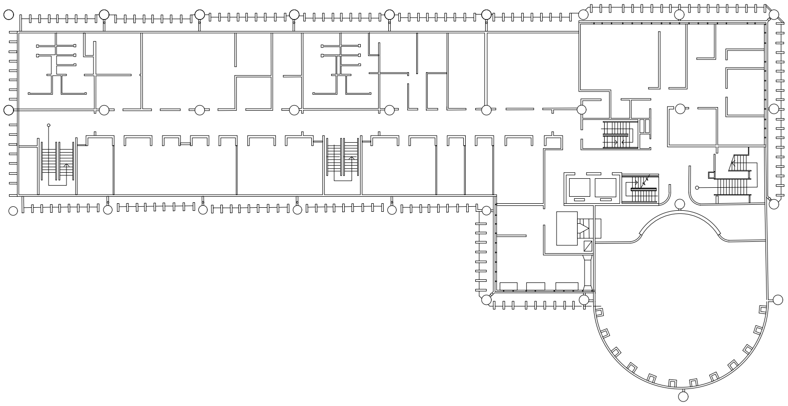
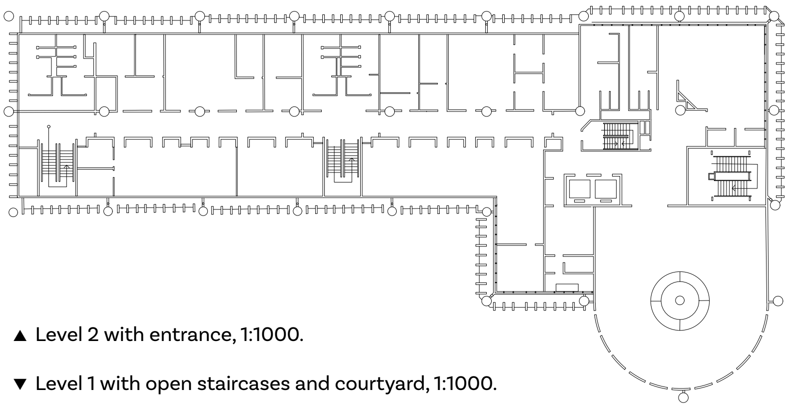


▲ Level 5 with cocktail and tower, 1:750.

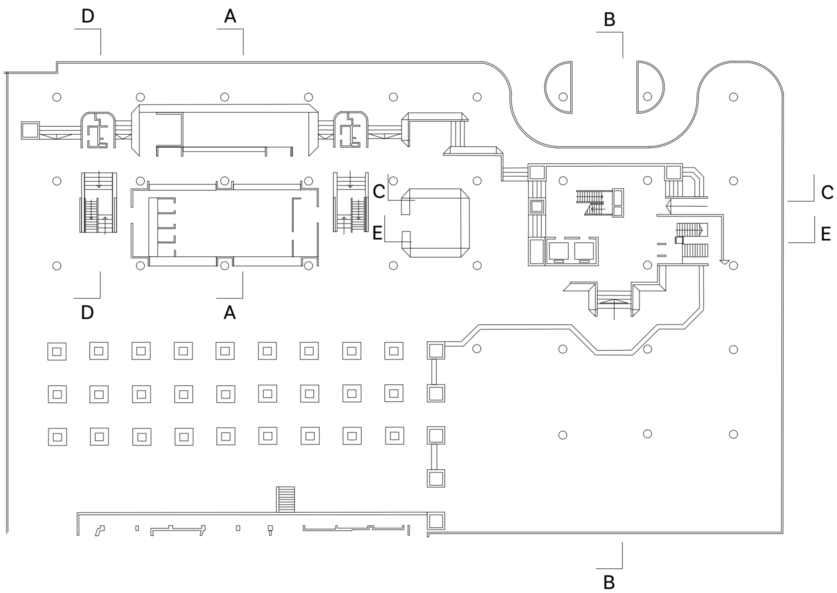
▼ Level 4 with gallery senate hall, 1:1000.



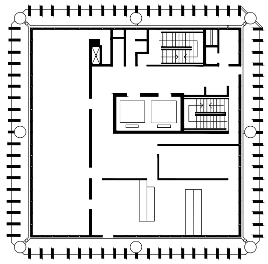


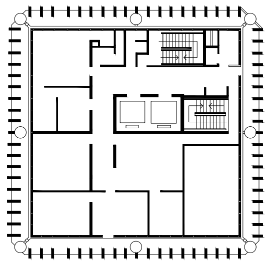
▲ Level 2 with entrance, 1:1000.

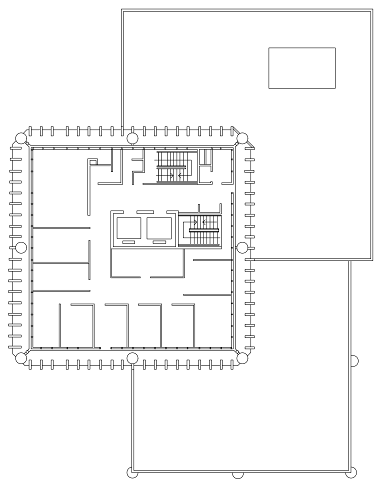
▼ Level 1 with open staircases and courtyard, 1:1000.

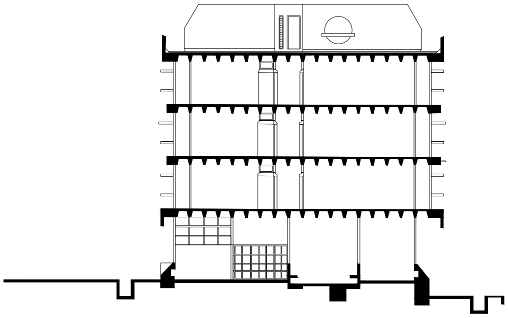


▼ Levels 9, 10, 11, 12 of the tower, 1:750.

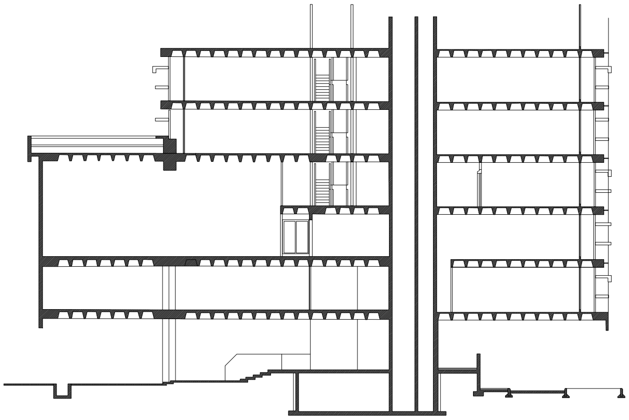






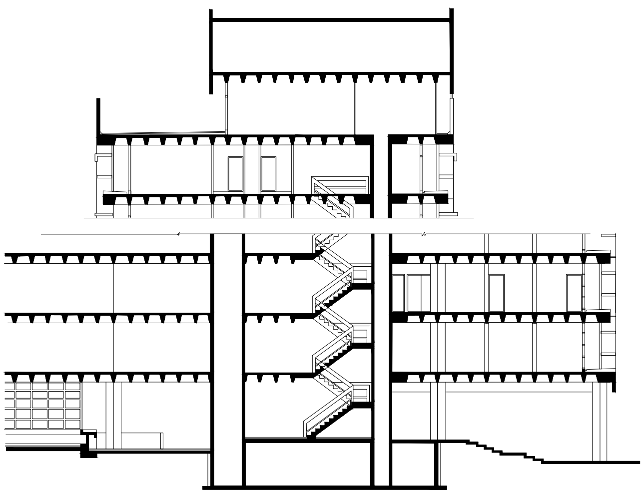


◀ Section A-A, 1:400.

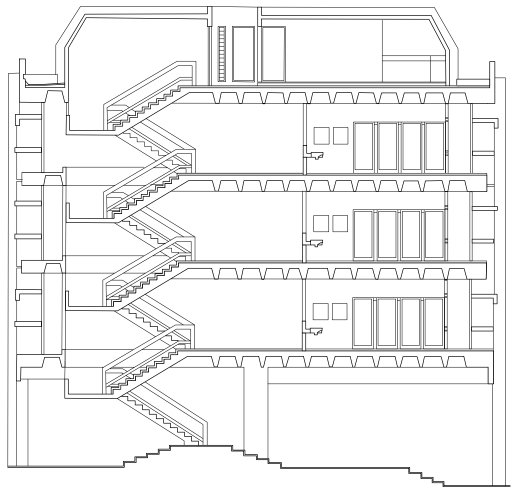


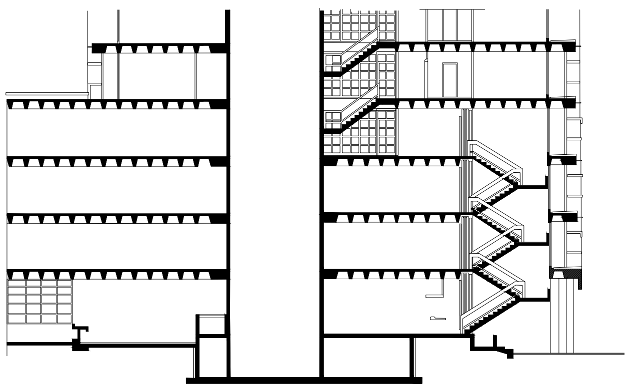
▲ Section B-B through senate hall, 1:400.

▼ Section C-C, 1:400



▼ Section D-D through staircase and toilets (top) and E-E (bottom), 1:400.





JEAN MOLITOR

RWANDA

▼ Maternity Ward, Kigali.

▼ Sainte Famille Church, Kigali, 1913.

▼ Couvent des Soeurs Bernadine, Kigali.

▼ Classroom block, University of Kigali.

JUSTICIA C.T. KICONCO

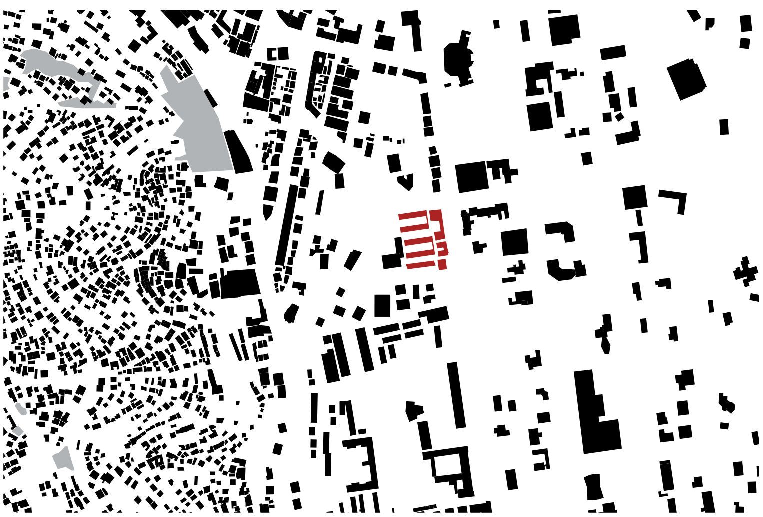
ÉCOLE BELGE

Nyarugenge, Kigali, 1965

ARCHITECTS Built by Belgians (original design); MASS Design Group (refurbishment)

▲ Deep verandas of classrooms at the former school.

▼ Figure-ground plan, 1:5000, 01° 57' 03" S 30° 03' 36" E



In 1965, the Belgian authorities founded École Belge in Kigali to cater to the educational needs of the Belgian community's children. Originally established as an elite educational institution, the school underwent refurbishment and serves a somewhat different role now. The strategic location of École Belge played a crucial role in its evolution, and, after relocation of the school, MASS Design Group converted the premises into an innovative, entrepreneurial, start-up campus called Norrsken Kigali House. The relocation of École Belge prompted MASS Design Group to refurbish its prime site into an entrepreneurial hub, departing from traditional school-design principles. This transformation, completed in 2022 for the Norrsken Foundation, not only changed the school's function but also contributed to the evolving urban fabric of Kigali.

École Belge, as a comprehensive educational institution offering kindergarten, elementary and secondary schooling, and played a pivotal role in Rwanda's educational system. Located in Kigali, the newly established administrative city for Belgians, the school became a cornerstone in the country's educational landscape. Despite primarily serving Belgian children and maintaining an elite status, its impact was significant, with Rwandan students housed in Kigali, living among colonialists and being in proximity to office buildings, residences and iconic structures such as the German Governor's Residence (Richard Kandt, 1907), Sainte Famille Church (1913), Nyarugenge Prison (1930) and the later Hôtel des Mille Collines (1973, pp. 282–283). The location of the school made it suitable for the transformation into an entrepreneurial start-up campus, emphasising easy access compared with the old school design. Following the school's relocation, the site retained its historical significance as one of the few mid-century properties in Kigali's central business district.

The original master plan for École Belge was carefully crafted, emphasising key areas such as administration blocks, seven classroom buildings and a playground. Rooted in principles of tropical environmental design prevalent in standardised primary schools across the continent, the school employed careful landscaping, focusing on tree and plant placement in relation to building orientation. Classroom blocks were strategically positioned east to west to harness breezes for optimal ventilation. In response to the tropical climate, the school's layout aimed at enhancing natural ventilation. Stairs facilitated the navigation of terrain changes, and vegetation was carefully selected and placed to reduce glare and overheating. These considerations were integral to traditional school policies guiding architects and planners. The standardised module of the classroom buildings ensured consistency, emphasising their orientation to prevailing winds for efficient airflow. Generously sized windows and spacious verandas facilitated the admittance of ample natural light, reducing reliance on artificial lighting. The verandas also provided shading for the classroom walls, contributing to an environmentally conscious educational space.

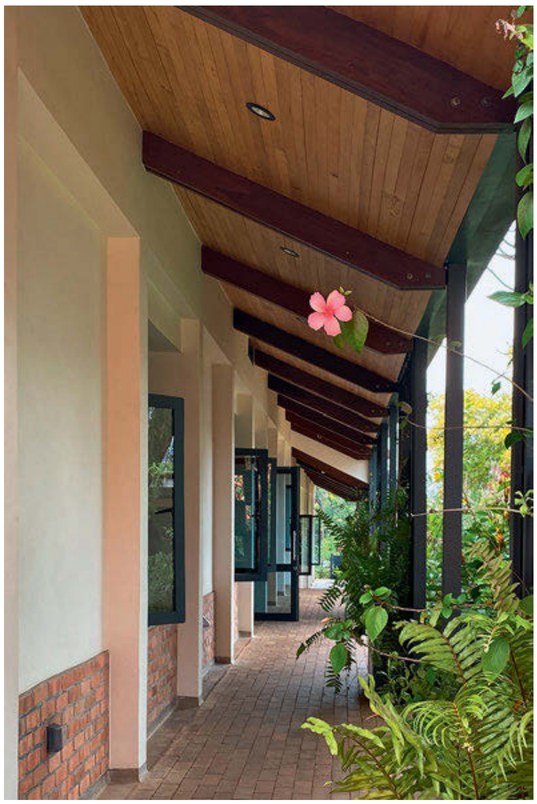
École Belge's narrative weaves together a number of themes – from educational legacy and elite exclusivity to urban evolution and architectural adaptation. It intertwines education, culture, history and urban development, creating a design that echoes with the past while embracing the future.

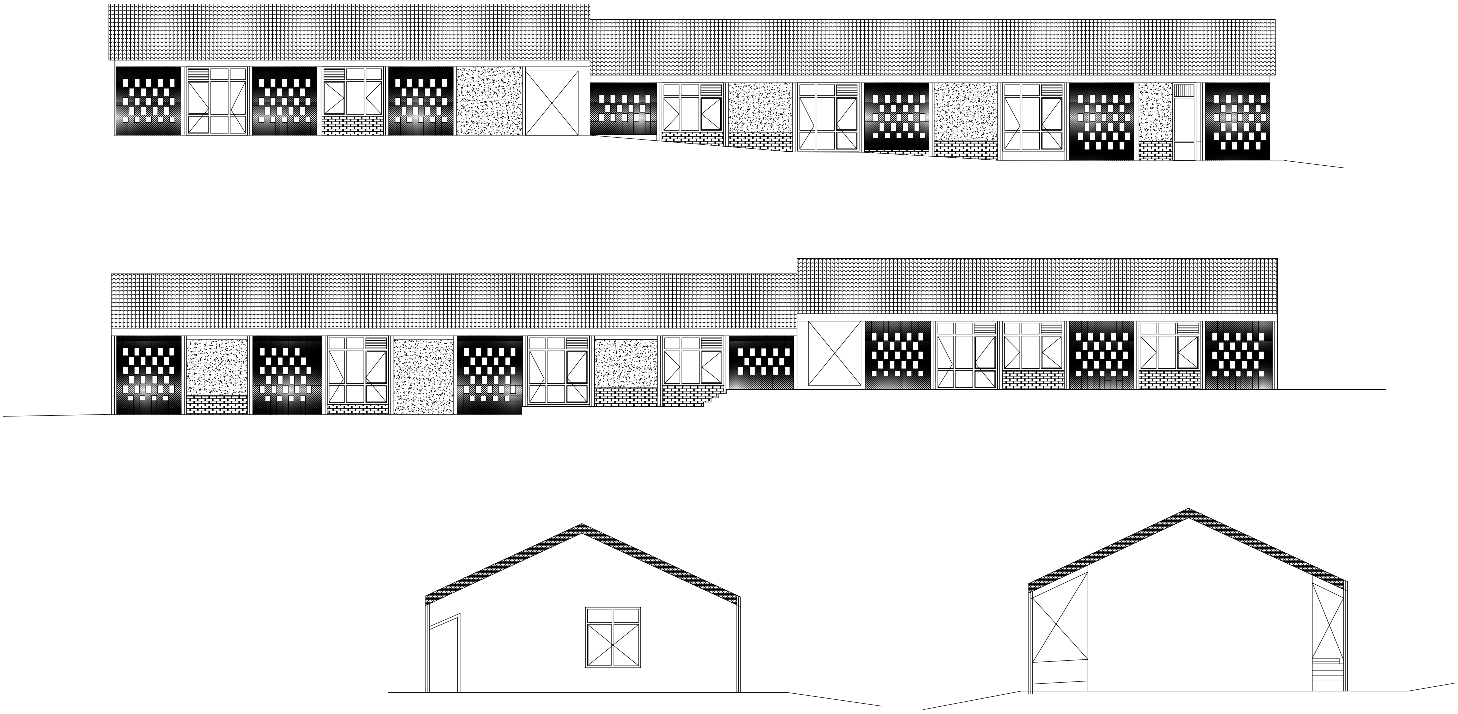
The approach of MASS Design Group highlighted the potential of adaptive reuse within the neighbourhood, preserving the historical structure while introducing green and public spaces. This adaptive reuse set a precedent for harmonious restoration and mixed-use development in the central business district, influencing future redevelopment endeavours (MASS Design Group, n.d.).

◀ The stepped landscape follows the topography.

▲ View of historic veranda before refurbishment.

▼ Deep verandas refurbished for Norrsken Kigali House.



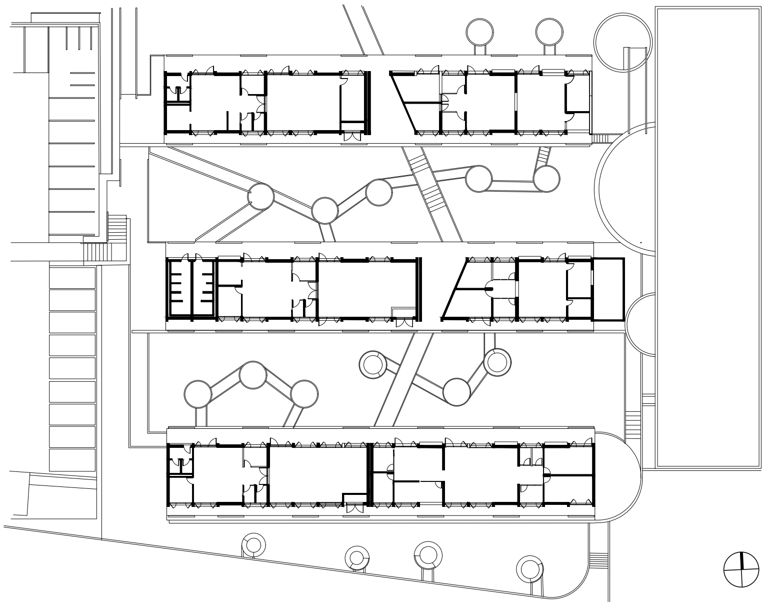


▲ North (top) and south elevation (middle), 1:650, east elevation (bottom left) and west elevation (bottom right), 1:500.

◀ Verandas with clay screens at Norrsken Kigali House.

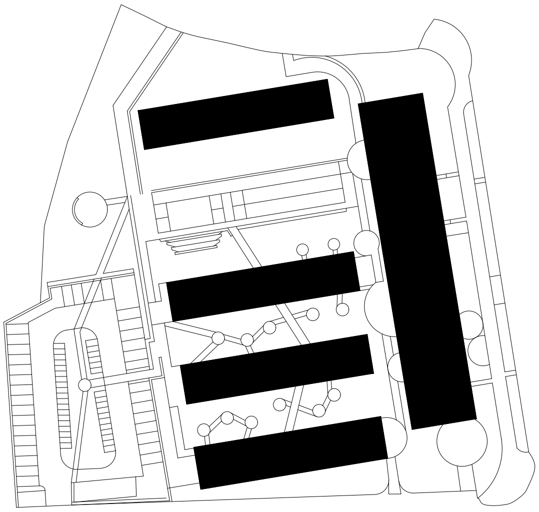
▼ Norrsken Kigali House's buildings open out to breakout spaces.

▼ One of the refurbished classrooms maintained for Norrsken Kigali House.



▶ Ground floor of refurbished classrooms, 1:300.

▼ Site plan of Norrsken Kigali House, 1:650.



▶ Lush landscape around the campus maintained from École Belge, with original plants and vegetation.

▼ View from veranda to connecting path.

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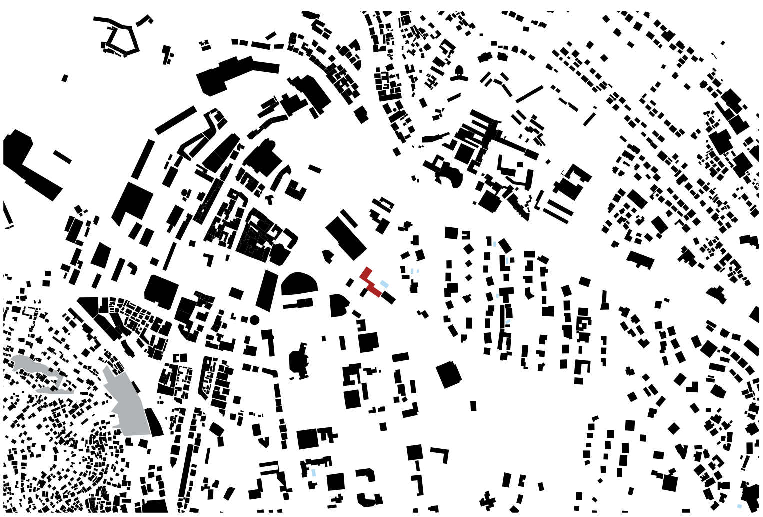
JUSTICIA C.T. KICONCO

HÔTEL DES MILLE COLLINES

Nyarugenge, Kigali, 1973
ARCHITECTS Commissioned by Sabena

▲ Pool area, 2005.

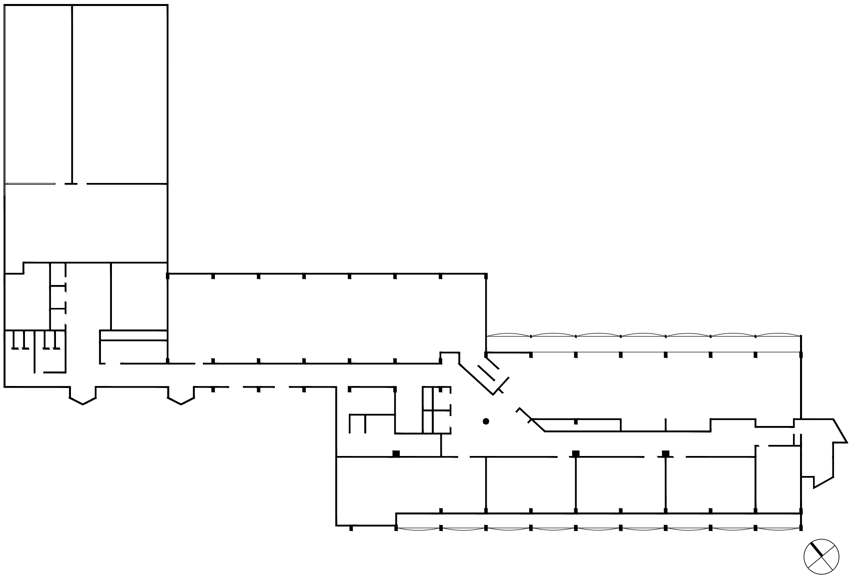
▼ Figure-ground plan, 1:5000, 01° 56' 48" S 30° 03' 43" E



Situated atop a hill in the central hub of Kigali, the Hôtel des Mille Collines overlooks the city, owing its name "hotel of a thousand hills" to Rwanda's hilly landscape. Designed as an example of the Modern Movement in the early 1970s, the hotel stands as a remarkable architectural creation, among the first modern buildings in the country. Commissioned by the Belgian airline Sabena, its construction embodies a commitment to climate responsiveness, evident in features like deep balconies and large windows, optimising natural ventilation.

The hotel is located within downtown Kigali, close to the prominent structure of Sainte Famille Church (1913), one of the oldest Catholic missions in the country, and École Belge (pp. 278–281). Its proximity to key landmarks, including the convention centre and Kigali Genocide Memorial, underscores its central role in the city's landscape. The architectural concept centres around a simple L-shaped cube, embracing modern principles with clear horizontal and vertical lines. The design features repetitive elements, large openings and deep verandas, creating a harmonious blend of indoor and outdoor spaces. The hotel's orientation was meticulously planned to capture panoramic views of the city.

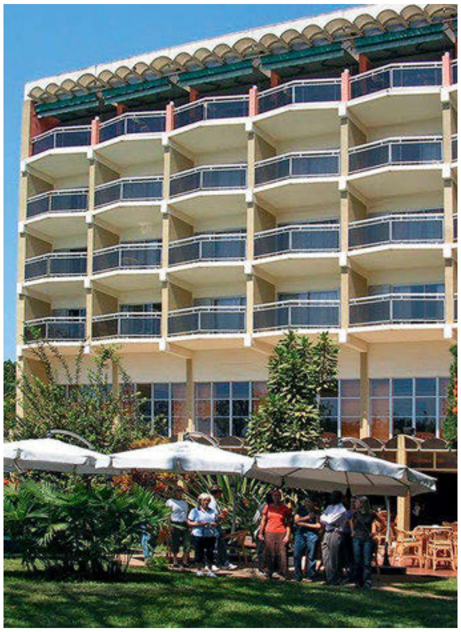
Comprising 112 rooms and suites, along with extensive meeting and conference facilities, the hotel offers amenities such as an outdoor swimming pool, tennis courts and boutiques. Constructed with a reinforced-concrete skeleton and prefabricated-concrete elements, the building's curtain-wall façade incorporates glass elements supported by aluminium profiles. The modular design principles and emphasis on solar shading showcase a commitment to both aesthetics and functionality. The master plan seamlessly integrates paths, supporting walls, planted areas and built spaces. This holistic approach ensures the hotel's alignment with modernist architectural excellence while blending with the lush landscape.



◀ Front façade with staircase tower.

▶ Garden view. The façade features prefabricated-concrete elements.

▼ Typical floor plan, 1:1000.



Post-genocide, the hotel underwent significant renovations and changes in ownership. In 2014, as part of the Kempinski group, the façade and room balconies were refurbished. Thatched structures were added to the pool area, and interior renovations revitalised the hotel's overall ambiance. Renovations over the years have retained the original design, preserving the iconic deep verandas and modular-design principles.

The Hôtel des Mille Collines is not merely a structure; it is a symbol of strength for Kigali. While its architectural features align with modern design principles, it gained international attention due to its role during the Rwandan Genocide, when it became a refuge for about 700 Rwandans. The events of 1994 transformed the hotel into a sanctuary, a narrative immortalised in the book and film *Hotel Rwanda*. The building's historical significance makes it a vital part of Rwanda's history, symbolising endurance and hope. The evolution from a modern creation to a symbol of resilience highlights the hotel's adaptability and its profound impact on the city's narrative. Today, it continues to stand as a prominent establishment in Kigali, embodying both architectural and historical significance.

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Hotel Rwanda (2004), director Terry George. United Artists and Lions Gate Films.

JUSTICIA C.T. KICONCO

IWACU COMMUNITY CENTRE

Kabusunzu Hill, Kigali, 1984
ARCHITECT unknown

▲ View from the basketball court.

▼ Figure-ground plan, 1:7000, 01° 57' 51" S 30° 03' 06" E

The inauguration of the IWACU Centre in 1984 was the result of a collaborative effort between the Rwandan and the Swiss Governments. Its core mission was to enhance the lives of Rwandans through cooperative-oriented endeavours, with a particular emphasis on training, consultancy and research. The term “Iwacu” translates to “our home” in Kinyarwanda, encapsulating the essence of the facility. The centre has relied on support from various donors, such as the Inter-Churches Organization for Cooperation to Development (ICCO), the Ministry of Agriculture and the ProJet de Promotion des Petites et Micro Enterprises Rurales (PPPMER UNDP). The IWACU Centre’s architectural design embodies a novel approach to living and learning within the functionalism of modernity. Distinguished by separate structures interconnected by well-defined outdoor spaces and a covered walkway, the master plan was conceived to foster a sense of community and create a home-away-from-home atmosphere, bringing trainees closer together.

In the meantime, the institution has evolved into the Rwanda Institute of Entrepreneurship Studies, serving as a school dedicated to imparting knowledge on entrepreneurship and business development. While renovations were undertaken in 2020, the IWACU Centre remained intact with little or no change to its building structure, from the master plan to the clean, repetitive design of the façades, breakout spaces and outdoor pockets well defined by paths from space to space. The Centre has successfully trained over 1,500 individuals, including participants from more than 28 cooperatives. The facility comprises various spaces, including training studios, a multi-purpose hall, and lodging and restaurant facilities, all of which enjoy a commendable reputation both within Rwanda and internationally. The Restaurant and Lodging Units were initially designed to be self-sustainable, generating income to maintain the IWACU Centre and

▲ The landscape was designed to follow the terrain.

▶ The units are repeated to create a coherent appearance.

▼ New technologies like solar panels were added to the original roof design.

ensuring the continued functionality of all its facilities from its inception. This self-sustainability has been effectively upheld. The architectural context of this historic institution is rooted in the 1980s, showcasing a blend of modern principles and functional design. The facility's design has stood the test of time, making it one of the few historic buildings and campus still standing in Kigali.

Situated on Kabusunzu Hill, the IWACU Centre exemplifies a design that intricately utilises the natural contours of its surroundings. The layout strategically positions campus entrances to seamlessly integrate with the landscape, creating a harmonious relationship between the built environment and the open spaces. The master plan, with its varied elevations and well-woven pathways, fosters a sense of community and offers breathtaking views, presenting an inviting setting for communal gatherings.

▲ View of several bays with barrel vault roofs.

◀ The complex is interspersed by outdoor spaces.

▼ Covered walkway on the campus.

The architectural vision of the IWACU Centre embodies a modern ethos reminiscent of tropical educational institutions of its era. The buildings are defined by distinct horizontal and vertical lines juxtaposed with curvatures, repetitive design elements and expansive openings seamlessly connecting indoor and outdoor spaces. Utilising concrete and staggered brick blocks with curved roofs, along with incorporating glass elements for natural light, contributes to a modern aesthetic that rhythmically enhances the façade, emphasising entry points and openings. These repetitive blocks on the site create a rhythmic pattern, forming a pleasing environment that gracefully stands out against the landscape, characterised by strategically placed vegetation and clearly defined outdoor pockets outlining the constructed blocks. Internally, the design features breakout open spaces where trainees can interact with the surroundings, complemented by well-defined paths facilitating movement between rooms in both vertical and horizontal directions. The intermittent green courtyards between buildings, stemming from the central quad (for dropoff/parking), serve as primary circulation routes guiding pedestrians from the campus periphery to various core spaces. Vertical movement is facilitated by elegant, simple stairs with unobtrusive handrails, maintaining

▶ These views of the interior staircase show simplicity in material use.

visual continuity from one floor to another as well as both inside and outside on different levels of the building.

The coherent architectural language comprises modular blocks designed in a repetitive manner, and elements like curved roofs and expansive glass openings challenge traditional expectations of tropical architecture. Purposeful building orientation to harness natural breezes and sunlight reinforces the connection between indoor and outdoor spaces. The integration of clearly defined paths, green areas and open breakout zones for trainees enhances the overall functionality and aesthetics of the campus.

The IWACU Centre serves as a testament to effective long-term planning, a well-defined vision and strategic adaptability. Anchored in modernist principles, its architectural design continues to foster an environment conducive to learning and community engagement today. The transformation from a cooperative-focused centre to an entrepreneurship school illustrates its ability to respond to evolving needs and priorities, ensuring its sustained relevance within Rwanda's educational framework. The institution has articulated a vision and a cohesive set of strategies, and staged projects that guide investments and target outcomes, aligning with the values of the training centre. The overarching goal is to create a nurturing and interconnected culture that supports students. Reflecting this vision, the design of the IWACU Centre addresses functional considerations and caters to the evolving needs of its users, emphasising a responsive and adaptable approach.

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JEAN MOLITOR

SOUTH AFRICA

▼ Warehouse, Cape Town.

▼ Max Policansky, Judge Clothing Factory – Rex Trueform, Cape Town, 1937.

▼ Shops and Flats Clark Road and Bulwer Road, Glenwood, Durban, c. 1960.

▼ Calvert McDonald, Point Yacht Club, Victoria Embankment, Durban, 1934.

▼ Payne & Payne, Cheviot Court Apartment Block, Musgrave, Durban, 1934.

▼ Raymond Clement Fridjhon, Kentridge House, Glenwood, Durban, 1940.

BRENDAN HART, YASMIN MAYAT

JOHN MOFFAT BUILDING

University of the Witwatersrand, Johannesburg, 1953
ARCHITECTS John Fassler, Duncan Howie, Gilbert Herbert, Jacques Morgenstern, John Shunn, Ugo Tomaselli

▲ Main façade of the southern administrative wing (left), northern studio wing (right) and reflecting pond.

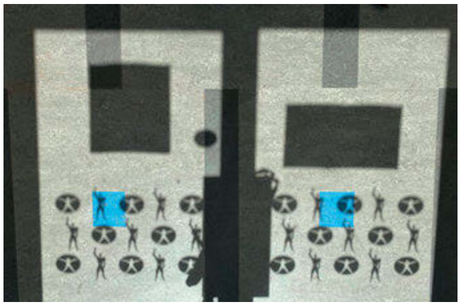
▼ Figure-ground plan, 1:10,000, 26° 11' 24" S 28° 01' 46" E

The School of Architecture and Planning at the University of the Witwatersrand in Johannesburg was established in 1921. Initially, the teaching in the school was in the Beaux Arts tradition "based on classical concerns and how they could be interpreted eclectically" (Keeling, 2014, p. 5). This, however, changed in the 1930s through direct contact and interaction between lecturers at the school, chiefly Rex Martienssen, and leading Modernist architects such as Le Corbusier. Martienssen became friends with Le Corbusier in 1934 and visited him in the south of France in 1938 (Benton, 2023, p. 53).

The lecturers in the school established a workspace called "Studio Seven" that allowed staff to have limited professional practice while teaching at the university. Studio Seven along with other architects predominantly from Johannesburg led to the formation of the Transvaal Group, a "loosely constituted alliance of progressive practitioners, teachers and students of the School of Architecture, a coterie of kindred spirits which Le Corbusier dubbed Le Groupe Transvaal" (Herbert and Donchin, 2013, p. 198).

The lecturers at the school had a tradition of designing buildings on the university campus, including early modernist icons such as the 1939 Hillman Building. This continued in 1954 with the growth of the Faculty of Architecture to include the Department of Quantity Surveying, a diploma in Town Planning and classes in Fine Art, when the university commissioned a customised building to be named after John Moffat, a prominent architect and benefactor. The staff members of Studio Seven were asked to undertake the project with the head of school, John Fassler (1910–1971), leading it.

The resulting building was a departure from the typical International Style Modernism that had come to characterise much of the work of the school. The building was laid out with a T-shaped plan. The four-storey north-facing



wing of the building contained well-lit studio spaces while the three-storey southern wing (the leg of the T-shaped plan) accommodated lecture theatres on the ground floor, a dedicated architecture library on the first floor and offices on the second floor above. Internally, the building's focal point is an open, spiral terrazzo staircase that connects all of the levels. Externally, the school, which is located on the terraced and landscaped main axis of the campus, focuses around a large reflecting pond.

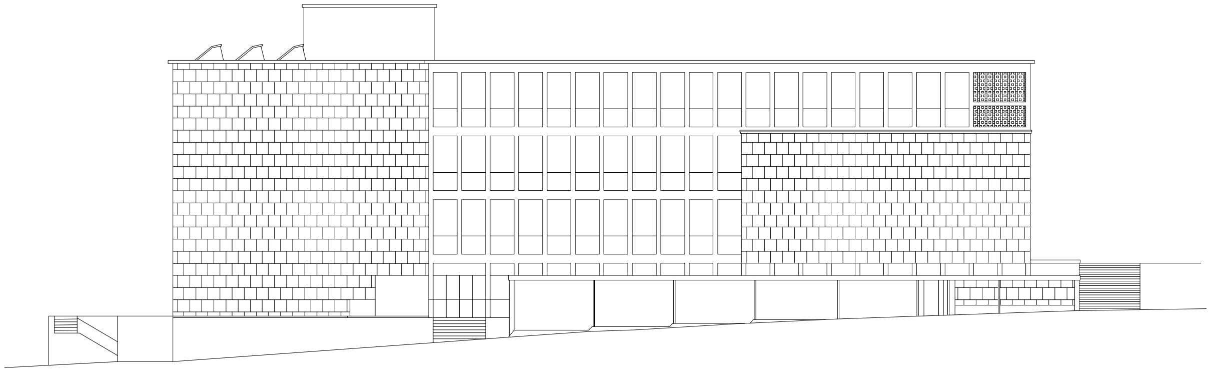
The concrete frame of the building is modularly segmented using classical proportioning systems and a regular, gridded structure with repeated and uniform windows and a colonnaded entrance. This design concept is paired with a restrained material palette of cast terrazzo facing, steel-framed windows and decorative mosaic panels.

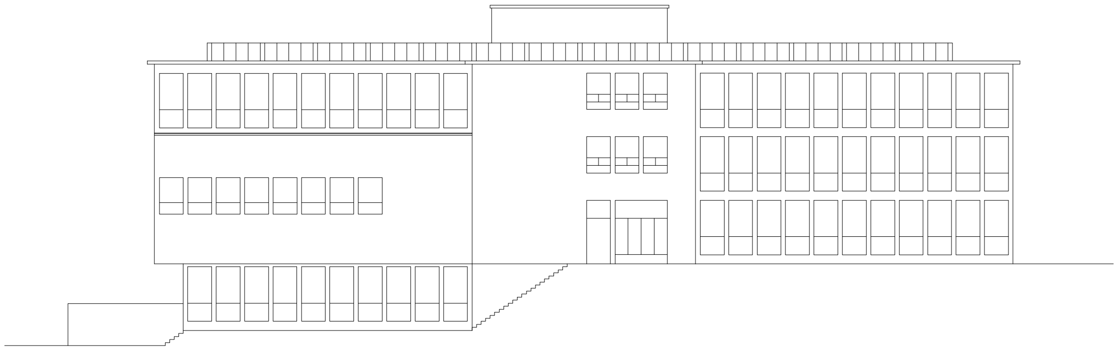
Internally, the school was more expressively designed. The building was fitted out with brightly coloured linoleum floors (geometrically patterned in the main foyer spaces), walls painted in a carefully considered, customised mixed colour palette to enhance the spatial experience of the building and bespoke furniture largely designed by Tomaselli (1915–2004).

◀ The classically proportioned, colonnaded main entrance leading into the main foyer with the library above.

▲ The geometrically patterned linoleum floor of the main foyer, with shadows of Le Corbusier's Modulor and Da Vinci's Vitruvian Man.

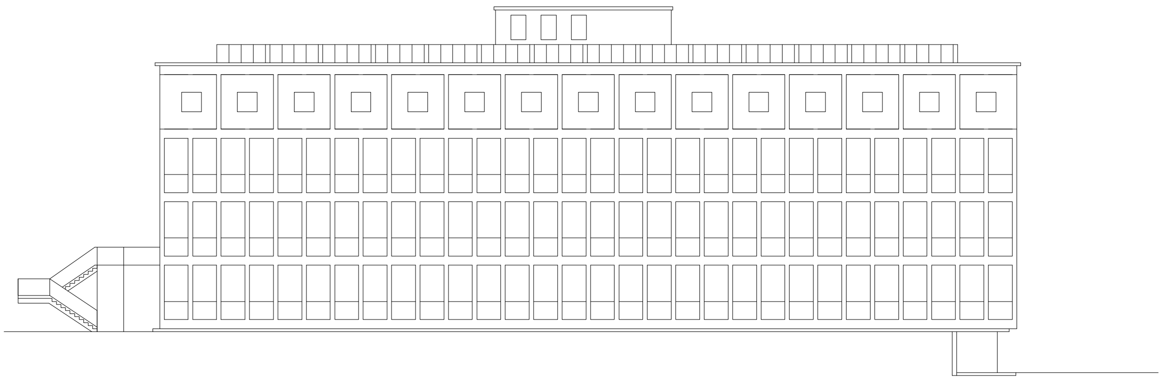
▼ View out from the main foyer to the pond. Note the cast-terrazzo finish of the external façade.

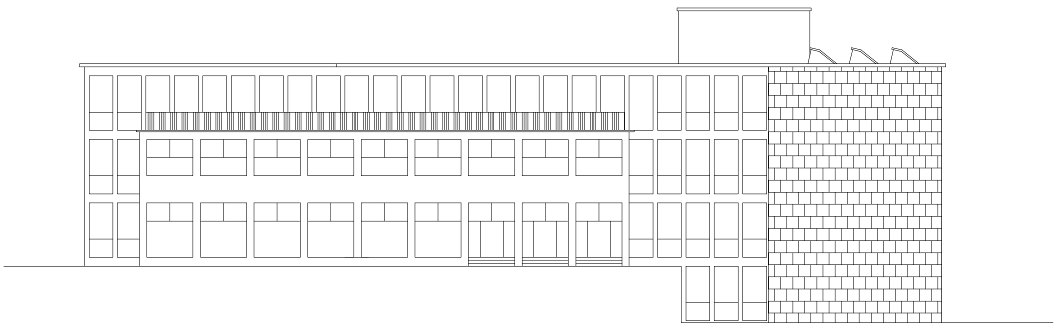


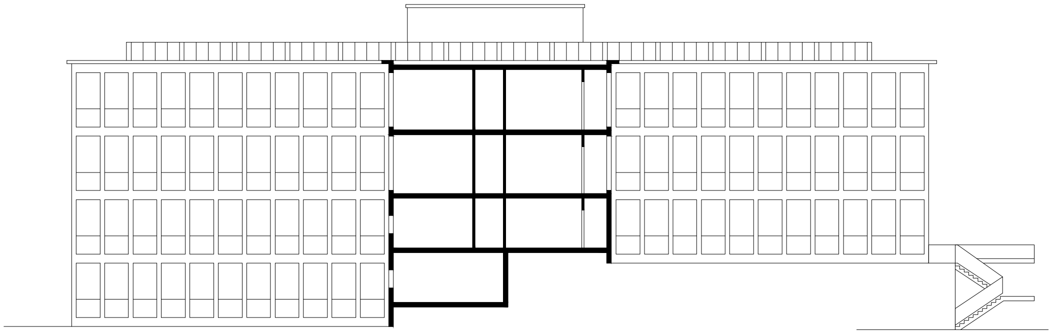


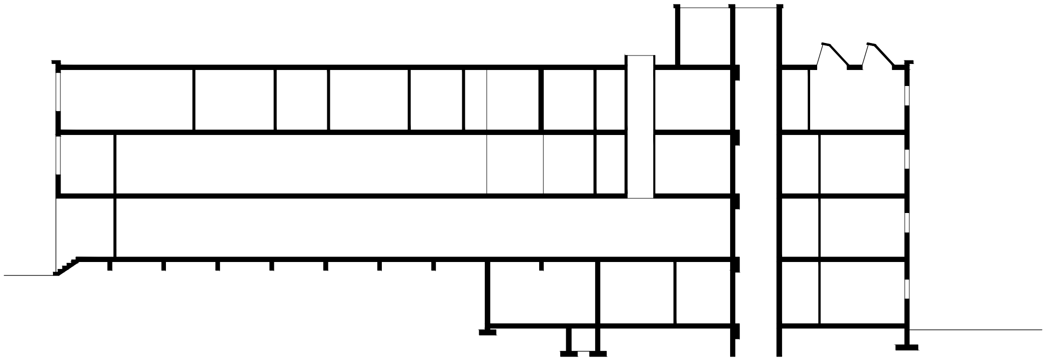
▲ West (top) and south (bottom) elevation, 1:500.

▼ North (top) and east (bottom) elevation, 1:500.







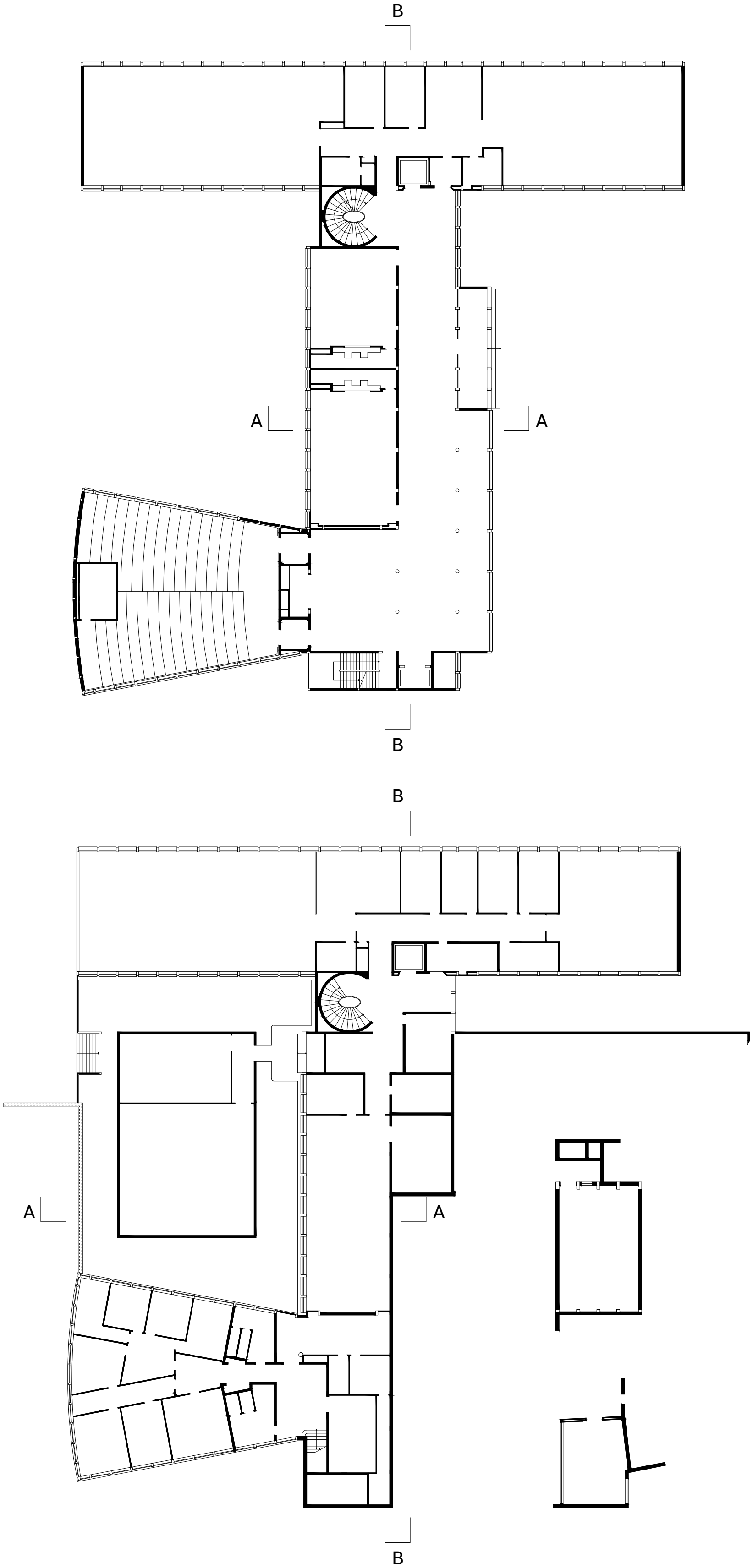


▲ Section A–A (top) and B–B (bottom), 1:500.

▼ Looking down the terrazzo-finished, spiral main staircase to an original Cecily Sash mosaic on the lower ground floor.

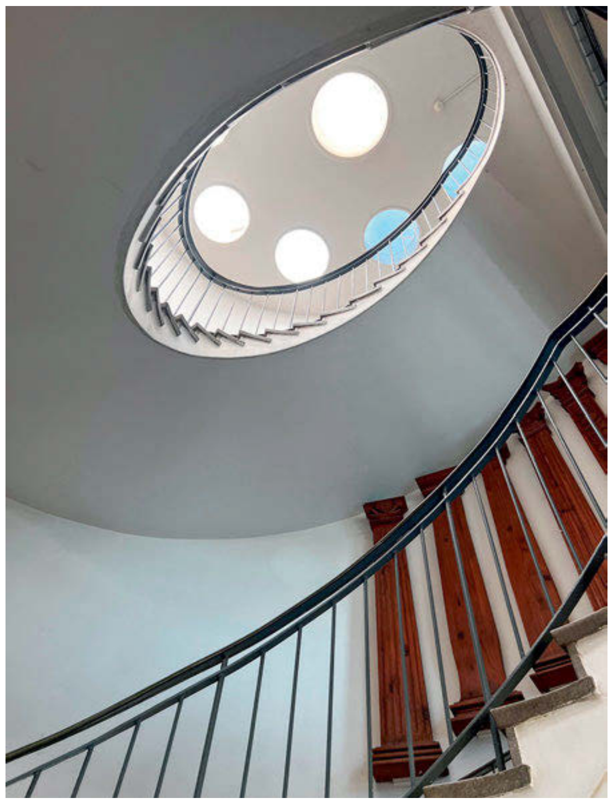
The building that resulted "is almost a style of its own" (Keeling, 2014, pp. 6–7), combining the individual styles and interactions of the six members of the design team who were also the clients and end users of the premises. The John Moffat Building is a hybrid combination of the modernist teachings of Le Corbusier and classical architectural principles (graphically shown in the emblematic use of Le Corbusier's Modulor and Da Vinci's Vitruvian Man as part of the visual language of the building). The end result is possibly best described by Gilbert Herbert in his biography of early modernism in Johannesburg as "a unique synthesis of many individuals each contributing to the whole" (Herbert and Donchin, 2013, p. 198). The well-loved building was seen by many as a rejection of the uncompromising requirements of International Style Modernism and an attempt to create a more tempered modernist architecture that could respond to both context and the layered history of architecture taught within it.

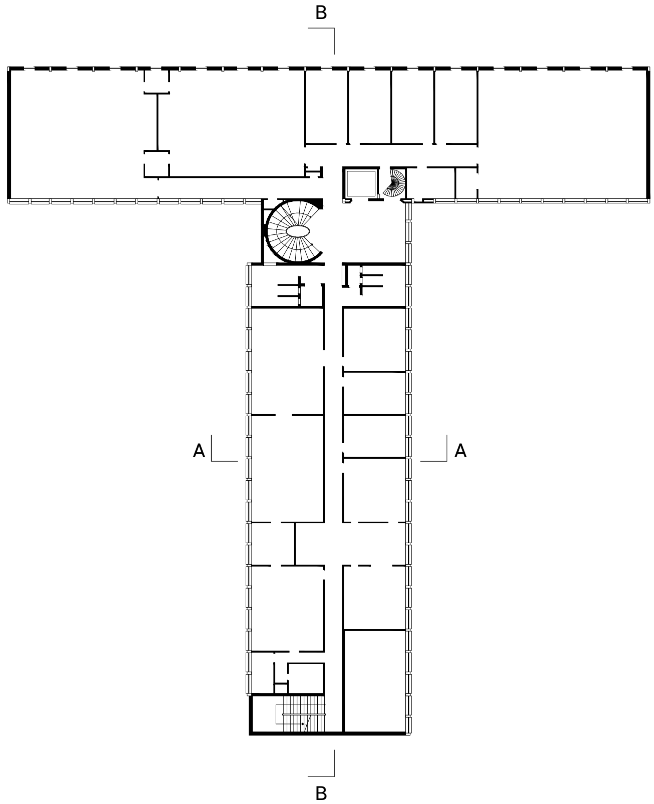
The building has served as the home of the School of Architecture and Planning for more than six decades now, with new annexes added to house the growing student body, workshops, computer labs and studios.

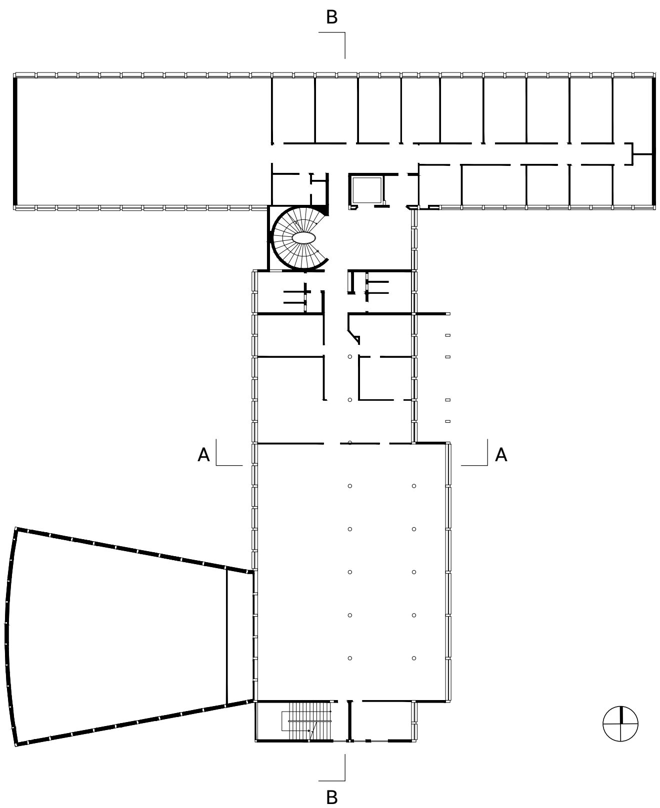


◀ Basement and ground floor plan, 1:650 (bottom to top).

▼ View up the main spiral staircase to the circular roof lights.







▼ First and second floor plan, 1:650 (bottom to top).

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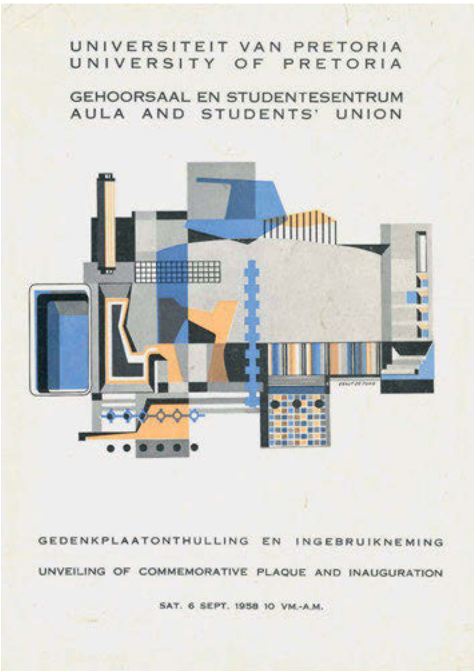
KARLIEN THOMASHOFF, LAURA NIN THOMASHOFF

AULA AND RAUTENBACH HALL

Pretoria, University of Pretoria, 1958
ARCHITECTS Phillip Nel and Partners



▲ Front page of the programme for the “Unveiling of Commemorative Plaque and Inauguration” of the Aula, 1958.

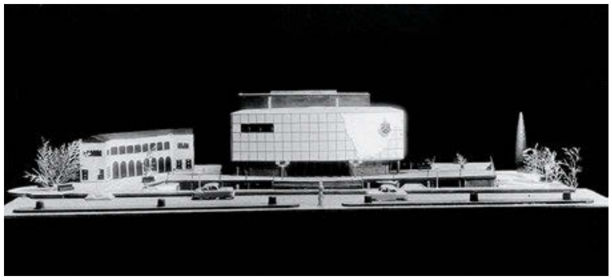
▼ Figure-ground plan, 1:10,000, 25° 45' 14" S 28° 13' 44" E

The prestigious cultural centre at the heart of the University of Pretoria's Hatfield Campus opened its doors on September 6, 1958. This building marks a significant milestone for both the cultural development of the campus and the considerable evolution of modernist architecture in the capital city. The Aula is considered one of the seminal examples of the late Modern Movement in South Africa, contributing to Pretoria's unique architectural identity.

Planning commenced in 1951. Students from the University of Pretoria initially collected funds for a student centre and hall during 1952. However, the hall’s scope and intent gradually evolved into something more prestigious than just a student centre and, eventually, the Aula became a showcase of groundbreaking developments in building technology and a cultural asset for the city. Funding for construction was further expanded to include public subscription. Subsequently, the Aula has been recognised as a public asset, with protection by the National Heritage Resources Act.

The architects of the Aula, Phillip Nel and Partners, are known for their influence on modernism in South Africa. The Aula is considered one of the country’s first late International Style auditorium buildings and a unique local variant of South African modernism. This second wave of the Modern Movement, originating in the former province of Transvaal, is defined as a regionalist development of the Modern Movement inspired by concurrent developments in other new-world countries such as Brazil, America, Australia and the nations of Africa. This regionalism proved particularly fruitful in a South African milieu searching for its own identity. Aside from the idealistic intent, the opportunity to showcase innovative engineering, local materiality and pragmatic adaptations to the climate influenced the design in this period.

The Aula is located on the southern edge of the primary



◄ Main entrance.

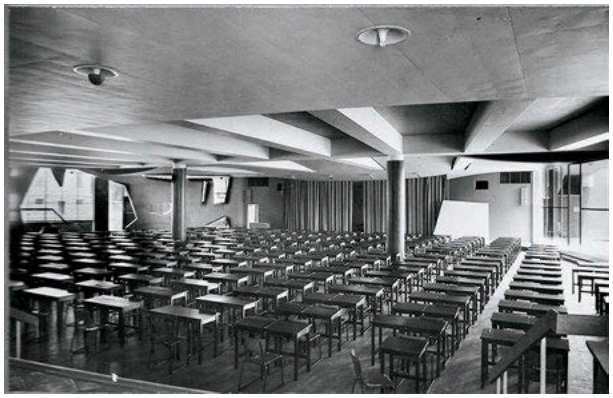
▲ Model of the Aula.

▼ Interior of main auditorium.

open space on the university campus, known as the Aula Lawn. The enclosure of this space is completed by other significant buildings such as the Old Arts Building, the Old Clubhouse and Old College House. The Aula complex includes an auditorium, a recreation hall (Rautenbach Hall), exhibition spaces, student offices and a cafeteria. While the auditorium on the upper level hosts formal functions, informal activities take place in the Rautenbach Hall and cafeteria below.

To the north, the grand foyer boasts a 30-metre glass façade with teak frames, opening onto a generous external terrace, an open-air lobby to the building and a podium to the lawn. The 26-metre-wide grand stair invites visitors and passers-by to the Aula Lawn. The internal side walls of the auditorium are covered with teak strips with free-form projecting panels concealing the sound-control rooms. Auditorium seats were initially covered with dark-red velvet fabric, contrasting with the dark-blue velvet stage curtains and white sculptural acoustic ceilings.

The Rautenbach Hall, located on the level below the auditorium, features a sprung floor of Japanese maple that opens onto courtyards to the east and west through



▲ Interior of Rautenbach Hall.

▶ Interior of Rautenbach Hall with free-form concrete screen wall.

▼ Interior of cafeteria with free-form courtyard.

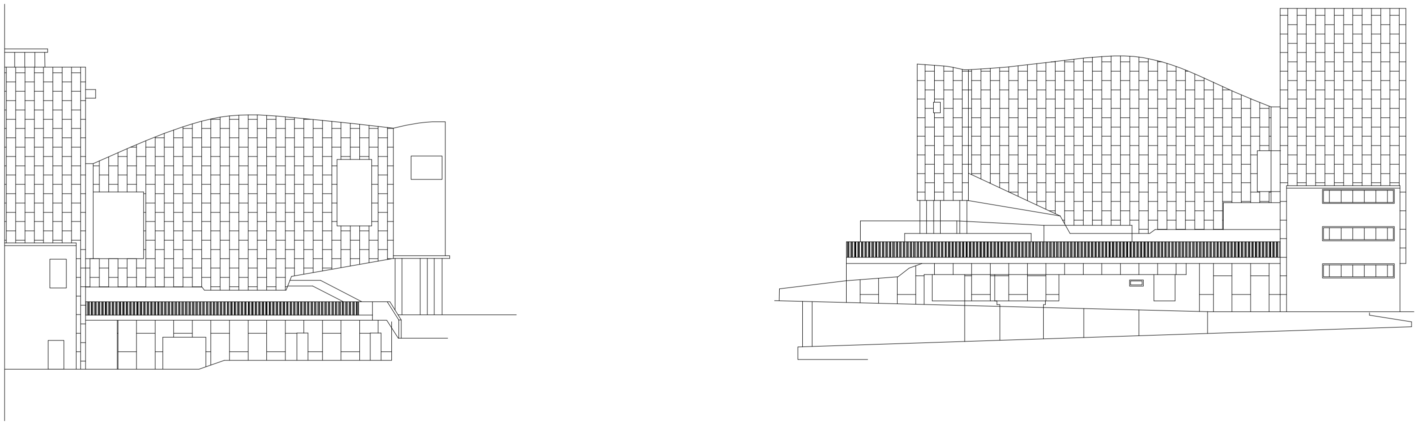
▼ Concrete spiral stair south of cafeteria.

generously proportioned glass doors, screened by free-form painted concrete walls, repeated in a scaled-down detail in a breeze-block wall to the north.

In the original design, external spaces connected the hall and cafeteria to the west through a courtyard. The cafeteria had a free-form internal courtyard with a sculptural concrete-ribbon spiral stair to the south, connecting the lower spaces with the upper terrace. The free-standing staircase was inspired by a daring design at the Rio de Janeiro Santos Dumont Airport (1938, architects MMM Roberto) but has since been demolished during subsequent, insensitive alterations and additions.

The concrete structure of the auditorium and stage tower is covered with meticulously detailed precast-terrazzo panels. The concrete stairs between the foyer and the auditorium are cut free from the supporting floors and finished with in-situ terrazzo and mosaic inlays, complemented by the columns on the northern façade covered with the same mosaic tiles.

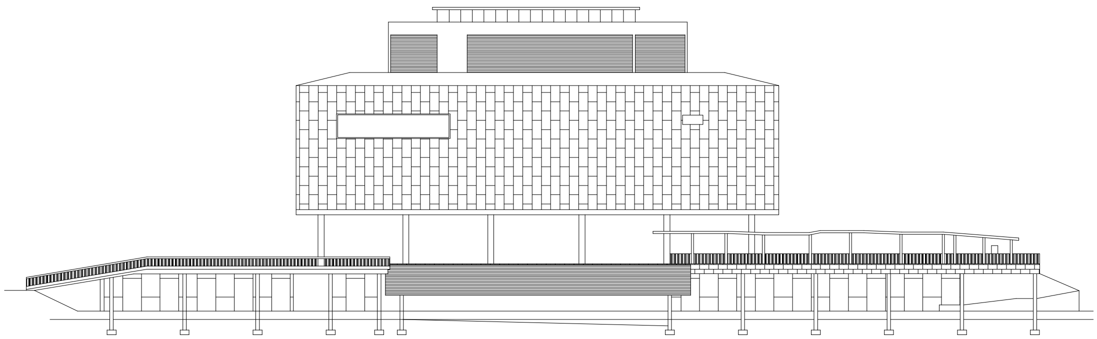
In 2004, a pipe organ originally installed in 1904 in the Dutch Reformed Church on Bosman Street in Pretoria was relocated to the Aula. Subsequent modifications were made in 2012.

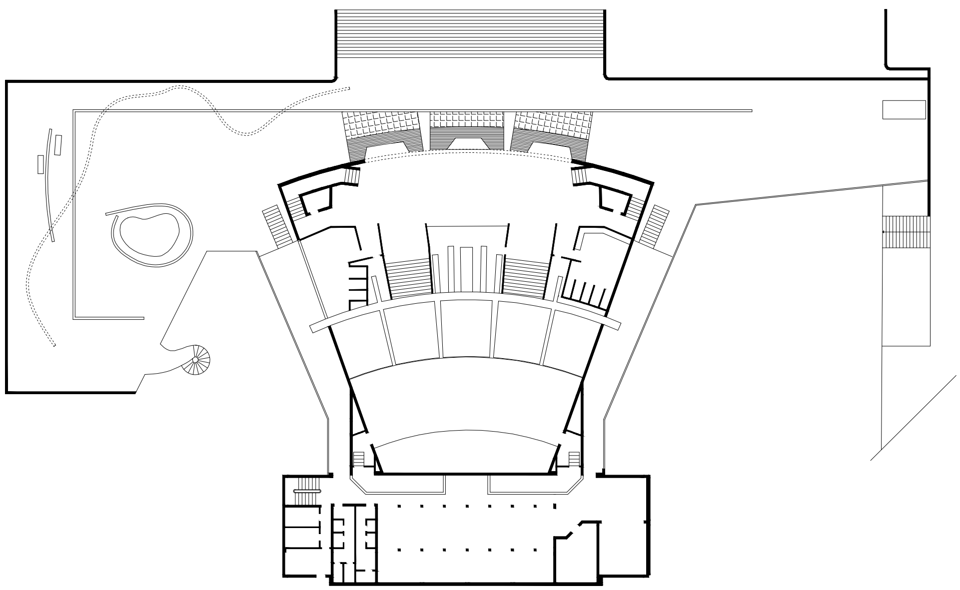


▲ East (left) and west (right) elevation, 1:650.

▶ North elevation, 1:650.

▼ Ground floor plan, 1:650.





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MICHELE JACOBS, KIRK WHITE

JOHN BEWS HALL OF RESIDENCE, SCULLY DINING HALL AND MABEL PALMER HALL

University of KwaZulu-Natal, Durban, 1964, 1965 and 1966
ARCHITECTS Hallen, Dibb & Partners

▲ John Bews Hall, north entrance bridge.

▼ Figure-ground plan, 1:10,000, 29° 52' 10" S 30° 58' 50" E

Built in sequence in 1964, 1965 and 1966 on the Howard College Campus by architects Hallen, Dibb & Partners (architect of record: Hans Hallen), these student halls of residence and dining were designed in a unified, stylistic idiom of "romantic" Brutalism (Greig, 1971, p. 113). They display strong geometric forms; a palette of austere, off-shutter concrete and facebrick; and timber screens and railings, with lightweight-aluminium adjustable-louvre glazing. Perhaps surprising, the apartheid state in South Africa embraced the Modern Movement, and Brutalism in particular, with its raw, muscular display of concrete and the textural earthiness of clay tiling and facebrick. Using this idiom, Hans Hallen achieved a landscaped ensemble with structurally bold and highly adventurous interiors for the delight of the students.

Programmatically, the halls reflected an English "Oxbridge" influence, where privileged White students could study and live sociably, and eat together, wearing formal academic gowns. Sixty years on, the student population is racially diverse, the dining hall has become a gymnasium and the raw-concrete surfaces are brightly painted.

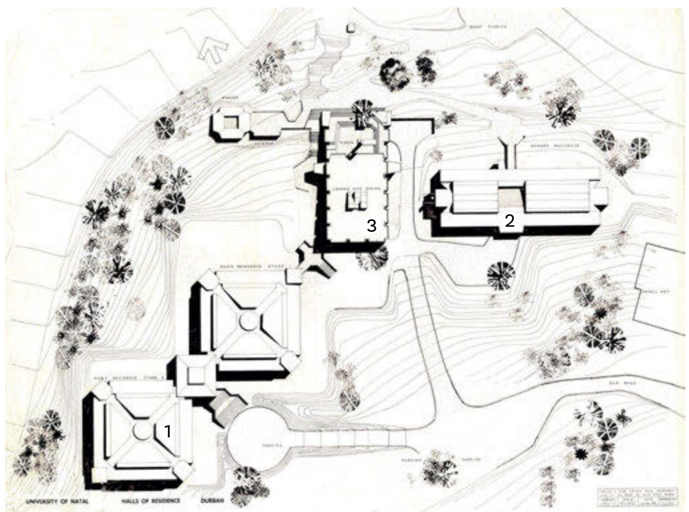
In concept, each hall is centred around its own atrium. Geometrically, however, the spatial planning and cross-sections of each building could not be more diverse. Stylistically – in their monumentality and interior manipulation of light – the inspiration of Louis Kahn is evident. But the style here is more playful and less solemn, with circulation bridges, skylights and multi-tiered levels activating movement and views throughout. Functionally, the multi-storeyed atrium, as a typological form, aids cross-ventilation, reduces humidity and modifies heat gain.

▲ Aerial view of Howard College campus with hall of residences in the foreground.

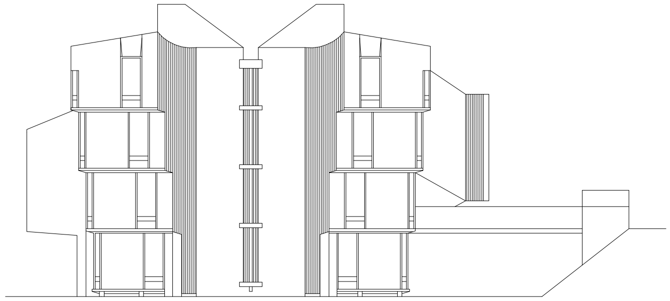
▼ Pencil perspective of the three halls, 1965.

▼ Contoured site plan of the three halls, 1965. 1 Mabel Palmer Hall, 2 John Bews Hall of Residence, 3 Scully Dining Hall.

The halls were intended to be appreciated three-dimensionally, as a set of "monumental sculptures" in a densely vegetated, coastal, sub-tropical landscape. Hillside terrain and coastal bushland dominate the campus setting. The



daily circulation, when students return on foot from the hill-top lectures and libraries to the halls of residence, is downhill, with a sequence of partial views of façades and roofscapes, cloaked in vegetation. Walking along a network of ramped footpaths, seated forecourts and terraced stairways, the impact of gravity is lessened by manipulation of steep contours around and views between structures, and by directional shifts in movement routes up and down the slope. Hallen's campus grouping has been likened to "spotting rhinoceroses ... glimpsed amongst the foliage" (Fisher and Clarke, 2014, p. 64).



▶ John Bews Hall, east elevation, 1:500.

▲ John Bews Hall: the exposed concrete façade was painted over and received replacement glazing in 2017.

▼ John Bews Hall: atrium and central stairway with cross-bridges.

▼ View of painted, off-shutter concrete façade with entrance bridge.

JOHN BEWS HALL OF RESIDENCE

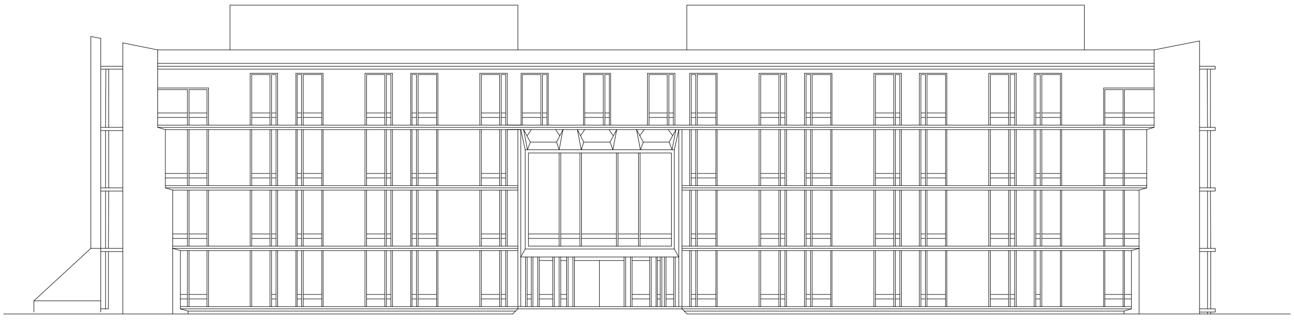
The first of the ensemble to be built, John Bews (1964) is a four-storey linear block, cantilevered outwards and cast in ribbed concrete. Fenestration stretches from floor to ceiling. Mid-level entry to the hall, across a suspended concrete bridge, brings one into the dominant central atrium, split in half by common rooms for each floor, and banks of student rooms to either side.

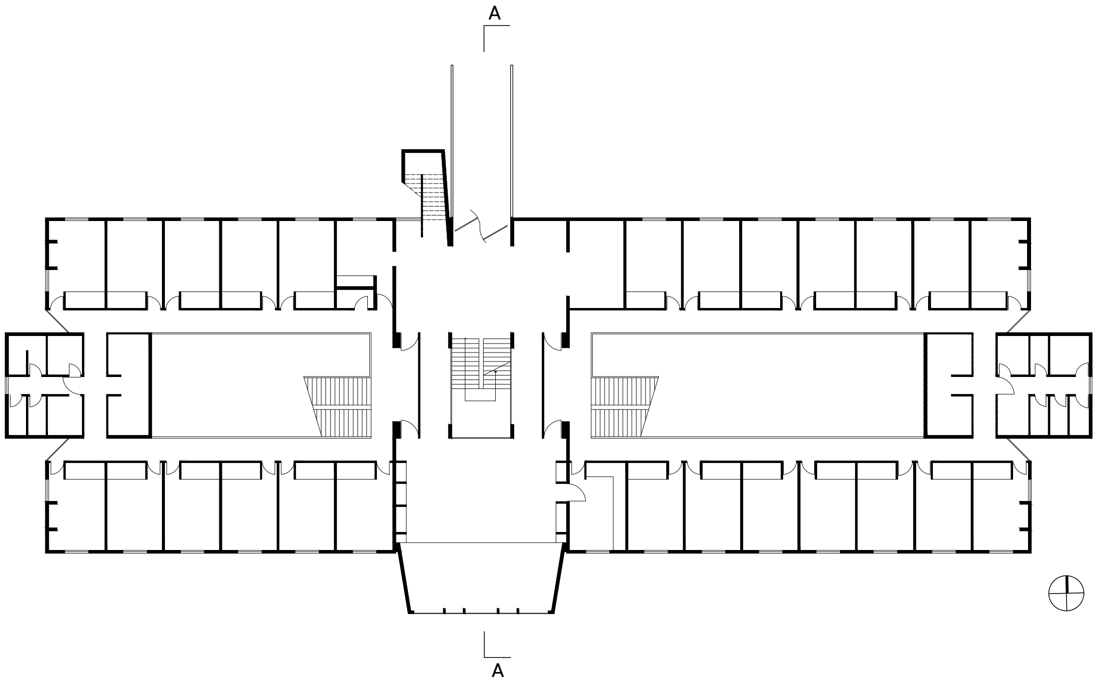
Skylights above fill the interior with daylight. Slender, transverse concrete beams tie back the cantilevers. Circulation is provided by concrete stairs hanging centrally in the atria. The ribbed, off-shutter concrete exterior (i.e. in-situ concrete bearing marks from the formwork) was painted in 2019 and new aluminium windows replaced the original adjustable louvres.

SCULLY DINING HALL

Scully Dining Hall (1965), is centrally located between the halls of residence. Entry to the dining hall is down a single, steeply sloping, sculptural stairway, terminating in a concrete-seated and landscaped forecourt. Underneath the forecourt slab is the kitchen and canteen with a series of giant, concrete light scoops – excavated into the hill-side. The stairway splits either side of the dining hall and its subterranean kitchen, flanking downwards to John Bews Hall via a stepped ramp to the east and to Mabel Palmer Hall to the west.

The axis of entry leads onto the suspended first-floor gallery with central atrium. Both gallery and principal dining floor below are top-lit naturally from a single, central sky-light. Unlike the central staircases of the two residences, circulation between floors is via a pair of angular stairwells located in the cross-axis, attached beyond the footprint of the hall. A clear floor space for dining, with no internal supports, is achieved for both levels by suspending the





entire first floor with concrete-encased steel rods from the concrete roof beams above.

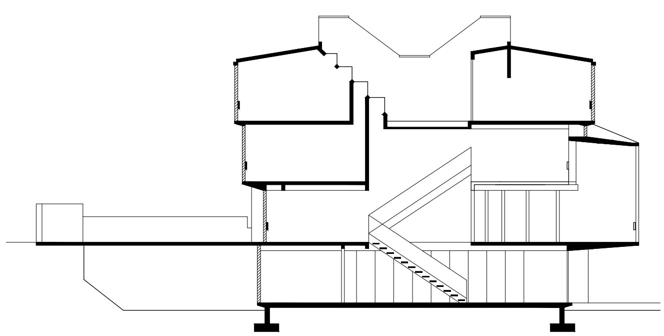
The axis – down the stairway, across the entrance forecourt, into the first floor gallery and across the central atrium – is visually extended outwards through the south elevation. Here, full-height projecting bays of glazed and louvred windows add a sculptural quality to the façade that is protected all year from direct sun. East and west elevations, which absorb the full force of the sun, have facebrick infill panels to the fair-faced concrete framing. The panels are articulated with sparse, irregularly spaced, vertical strips of glass.

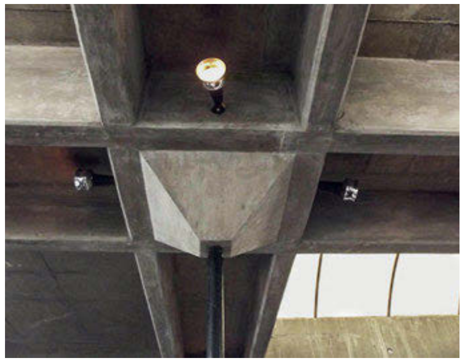
Of the three buildings, Scully Hall has been altered the most. The obsolete dining hall was initially turned into a music school, then into a staff club and now into a student gymnasium. However, the thick aluminium fenestration and the painting over fair-faced concrete compromised the building's Brutalist origins.

▲ John Bews Hall, south elevation, 1:500.

▲ John Bews Hall, ground floor plan, 1:500.

▼ John Bews Hall, section A-A, 1:500.

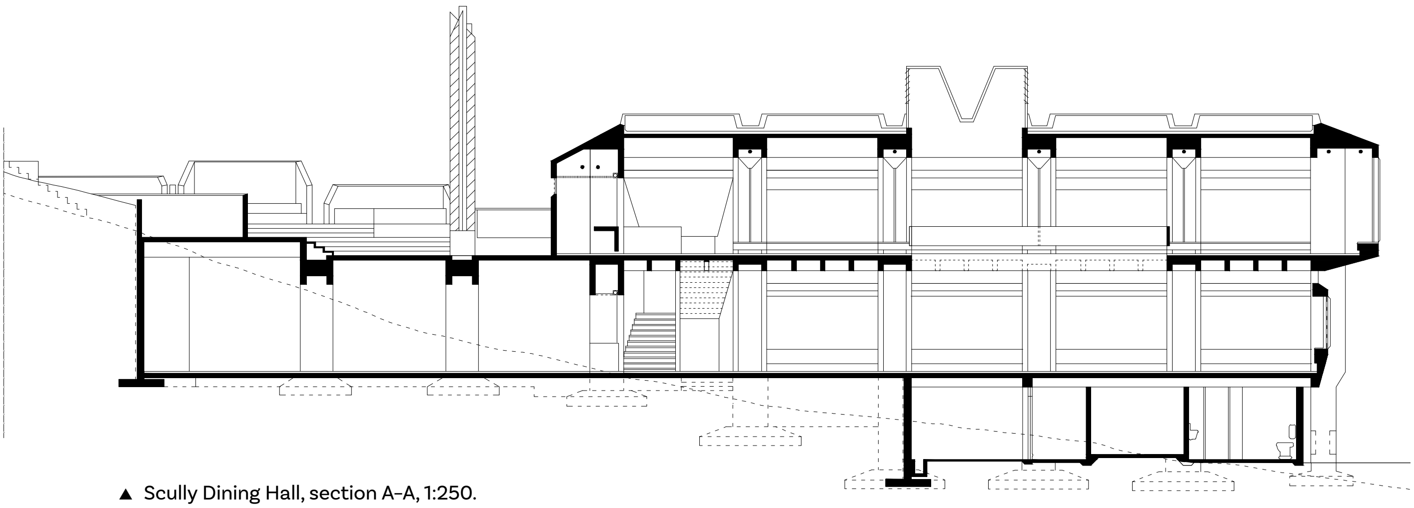




▲ Scully Dining Hall: projecting glazed bays to south façade.

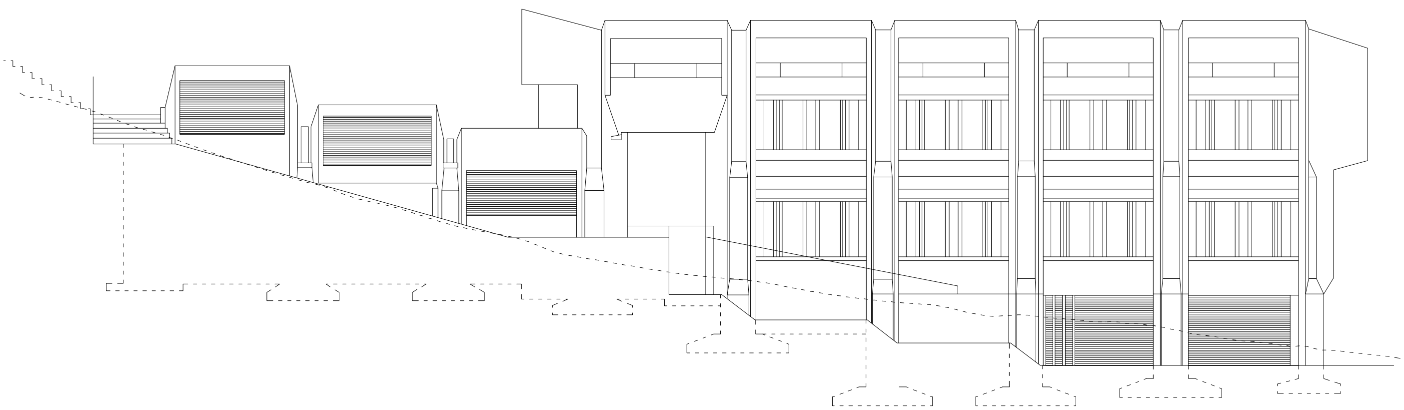
▶ Scully Hall: steel suspension rod in the concrete casing of the ceiling.

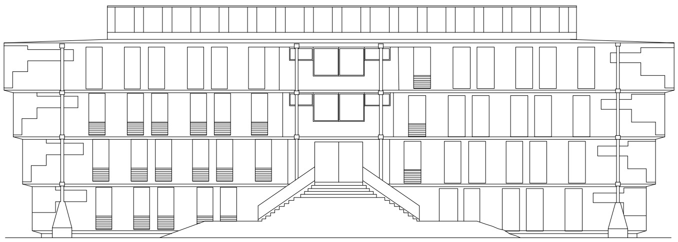
▶ Scully Hall: interior of old dining hall, c. 1970.



▲ Scully Dining Hall, section A–A, 1:250.

▼ Scully Dining Hall, west elevation, 1:250.



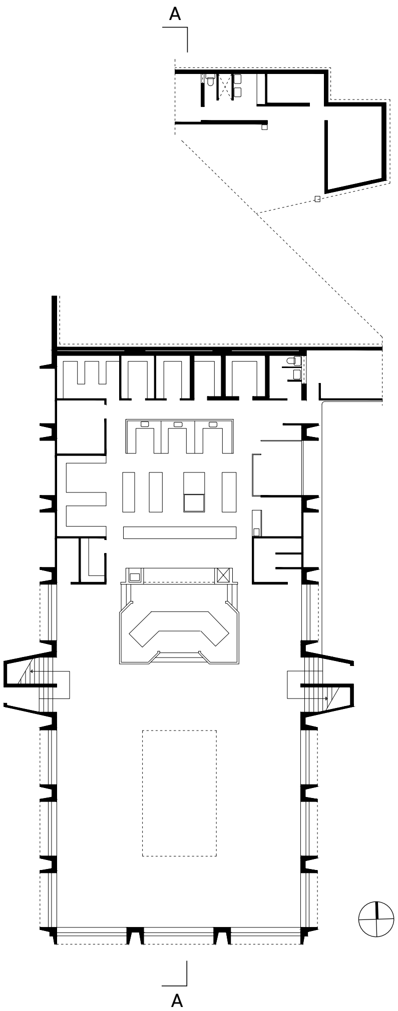


▲ Mabel Palmer Hall: north elevation with the exposed concrete façade.

◀ Mabel Palmer Hall, east elevation, 1:500.

◀ Sully Dining Hall, ground floor plan, 1:250.

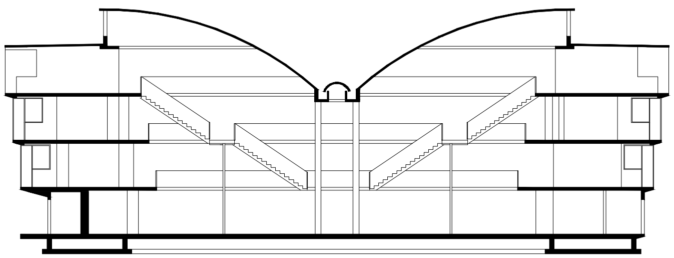
▼ Mabel Palmer Hall: corner articulation.

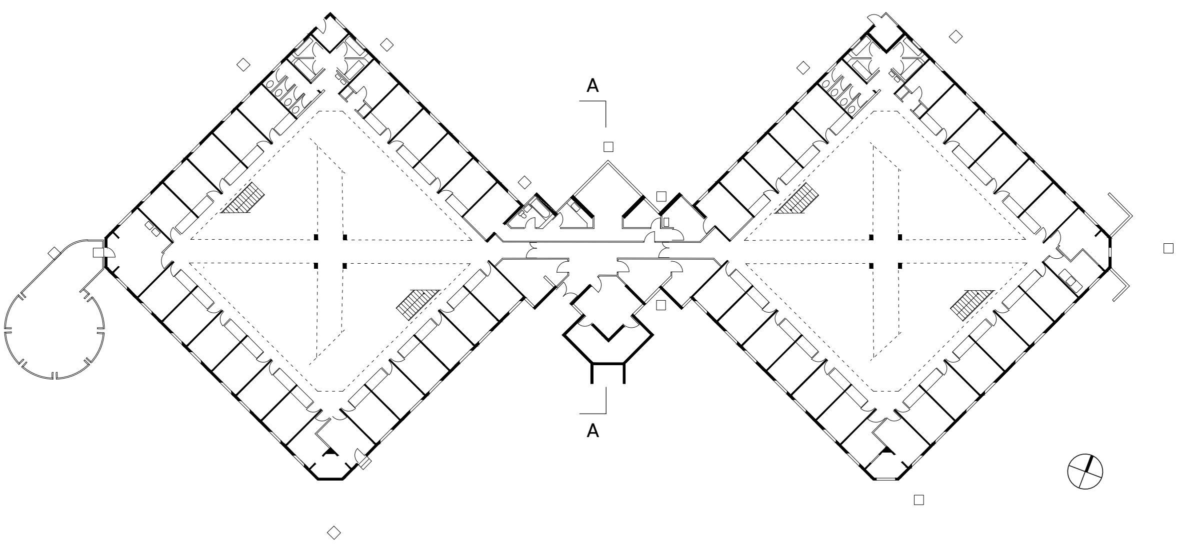


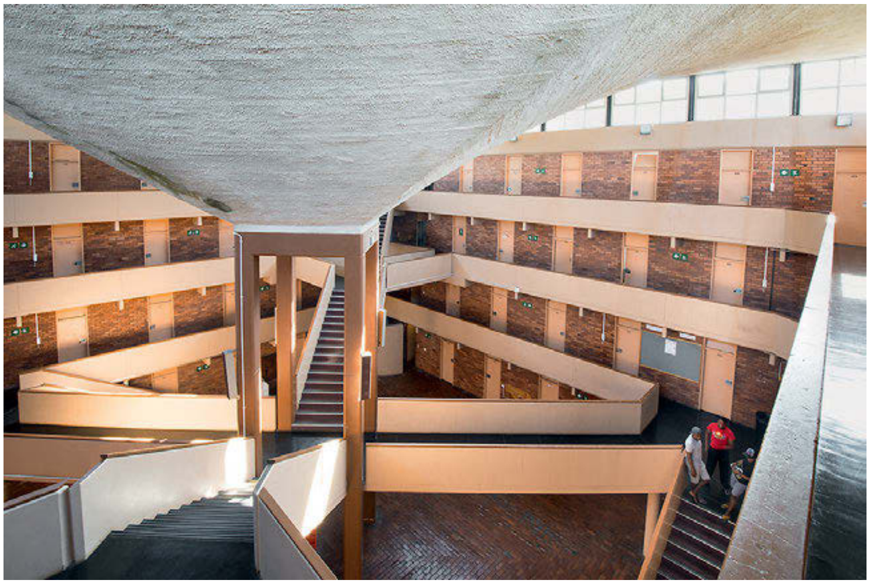
▲ Mabel Palmer Hall: paired, hyperbolic-paraboloid shell roofs viewed from above.

▼ Mabel Palmer Hall, section A–A, 1:500.

▼ Mabel Palmer Hall, first floor plan, 1:500.







▲ Mabel Palmer Hall: interior “quadrangle” to concrete shell roof with clerestory glazing.

▶ Mabel Palmer Hall: view of atrium.

MABEL PALMER HALL

The twin halls of Mabel Palmer (1966) were the last of the trio to be built. The plan of the women’s hall of residence resembles a quadrangular layout, but is entirely roofed over with a hyperbolic-paraboloid shell plunging down to central supporting columns in a triumph of concrete construction. Positioned amongst the sub-tropical vegetation, below the campus spine of King George V Avenue, it presents a unique, fifth-elevation roofscape, and gives the building its dramatic, internal views.

The central supporting columns, containing structural rainwater downpipes, form the fulcrum around which multi-level circulation bridges and staircases branch out in four directions to the perimeter bedroom corridors. These provide further interest to the triple-volume atrium, with the eye drawn naturally upwards to the unique, oversailing roof and adjustable ventilating clerestory louvres.

Externally, the elevations are repetitively articulated by full-length, adjustable glazed louvres to the bedrooms. The ribbed, off-shutter concrete façade provides a low-maintenance solution of high quality and strong tactile materiality. Exterior surfaces were recently painted and the slender louvre windows replaced, and the corner common rooms have been converted to kitchens and laundries. The atrium has maintained its vibrant presence.

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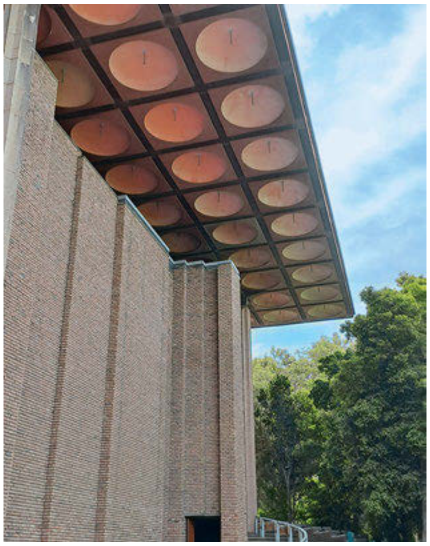
SANDRA VAN DER MERWE, KATE FOSS

BAXTER THEATRE

University of Cape Town (UCT), Cape Town, 1977
ARCHITECTS Jack Barnett, Leslie Broer

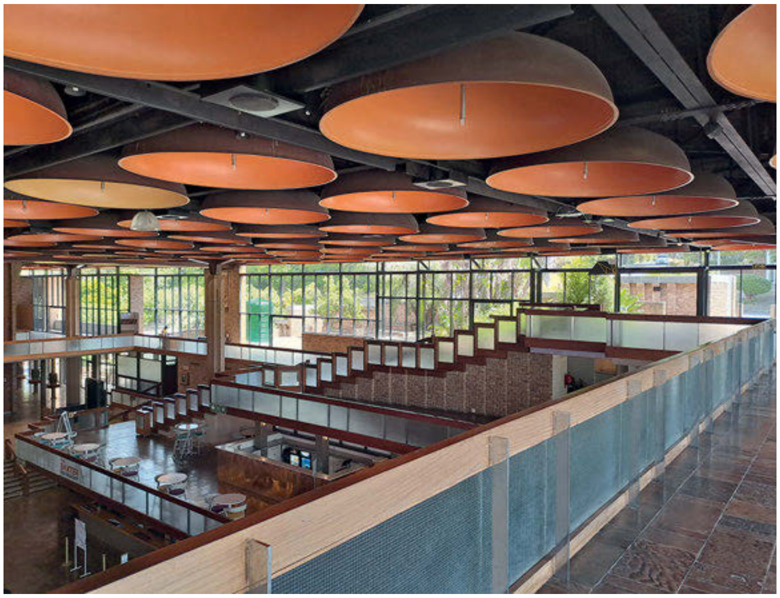


▲ Exterior view of the theatre with its iconic oversailing roof.

▼ Figure-ground plan, 1:10,000, 33° 57' 26" S 18° 28' 15" E

The University of Cape Town (UCT) main campus in Rondebosch occupies a swathe of land below Devil's Peak down to Rondebosch Main Road. It is dominated by the formal, neo-classically inspired upper campus, set slightly apart and above the urban context below it. The middle and lower campuses developed incrementally and more loosely, assimilating pockets of historical fabric and landscape patterns. In this context, the Baxter Theatre on the lower campus stands out as an exceptional late Modern Movement building. The theatre was made possible by a bequest of W. Duncan Baxter to UCT to establish a performing arts venue "for all the people of Cape Town" (to quote from the memorial plaque in the foyer), a sentiment that challenged the prevailing apartheid context and resonated with the personal beliefs of the principal designer, Jack Barnett (Leslie Broer was his associate). While apartheid policies regulated race interactions in public venues by means of racially segregated audiences and amenities, the theatre leveraged its campus location and UCT association to challenge this status quo, hosting multi-racial productions and audiences.

Located on a steep site between UCT's College of Music and Rondebosch Main Road, the theatre is composed of two tall, monolithic structures of coarse, corbelled facebrick, which house the main performance spaces. The main theatre seating 657 people has a traditional raked auditorium and proscenium stage with generous side and rear spaces. A second concert hall, seating 630 people, is asymmetrical in plan, engaging interest between performers and audiences. A third, flexible theatre space is located above the circular concert hall. These spaces are tied together by an oversailing roof of Corten sheeting on lightweight steel rafters, with suspended custom-designed fibreglass-dome light fittings. The roof is visually separated



◀ The main foyer and the generous northeastern stairway.

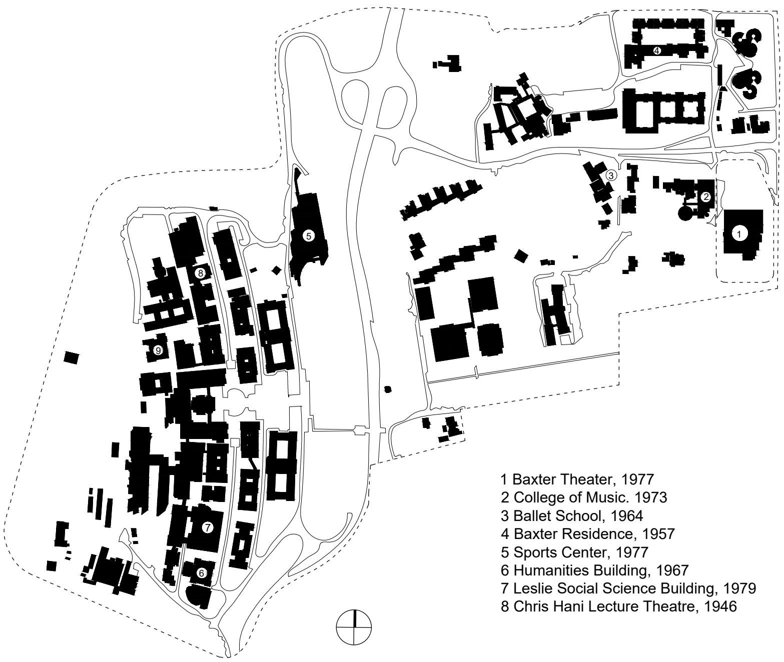
▲ The northeastern entrance off Baxter Road.

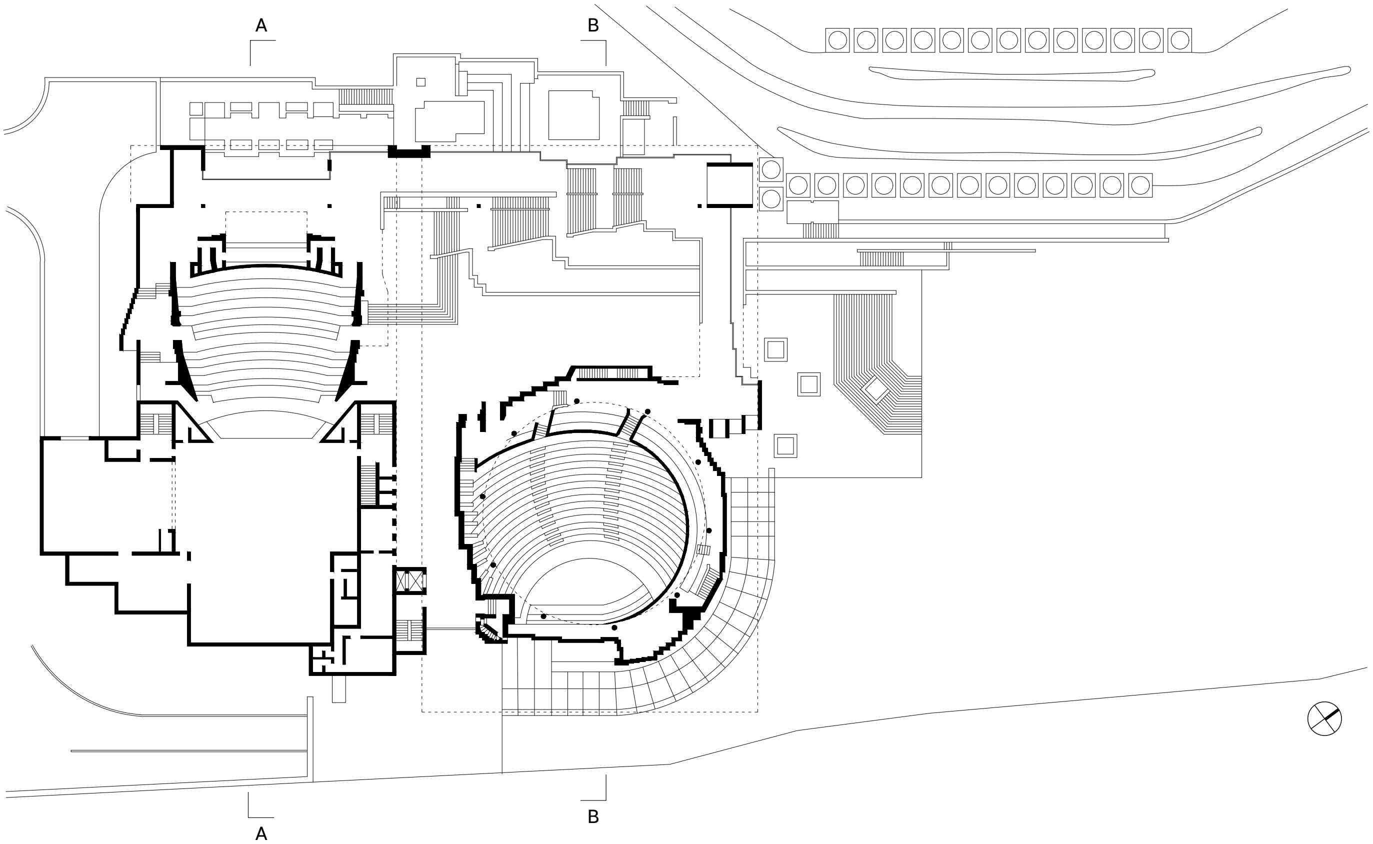
▼ Site plan University of Capetown campus, 1:6000.

from the walls of the foyer by a tall band of clerestory curtain-walling, giving the effect of a floating roof canopy. The result is a voluminous and brightly lit, terraced central foyer that connects the main performance spaces in plan and section.

The slope of the site dictated the incline of the seating, the level of the foyer and the placement of the stages and back-of-house functions towards the Main Road, the assumed main entrance of the venue. Through the skilful design of the architects, this apparent flaw in site selection was circumvented to become one of the design's greatest strengths: the building does not have a single, intimidating axial entrance; instead there are multiple entrances to the upper-level foyer, all of them approaching the central space obliquely, as one would move through a city and come across a public square, or, in nature, coming across a cave under a sheltered overhang. The theatre therefore acts as a public space – a place to pause or to move through freely – instead of an institutional building.

From the campus side on Baxter Road, access is gained through a domed porte-cochère, mimicking the domes of the canopy roof. The entrance is low and unintimidating, revealing a generous staircase leading down to the central foyer. The same materials are used externally and internally, an earthy palette of brown and grey slate for the floors and rough-faced brickwork for the walls, with a uniform domed ceiling, so that the transition between inside and outside dissolves. From Main Road, visitors are





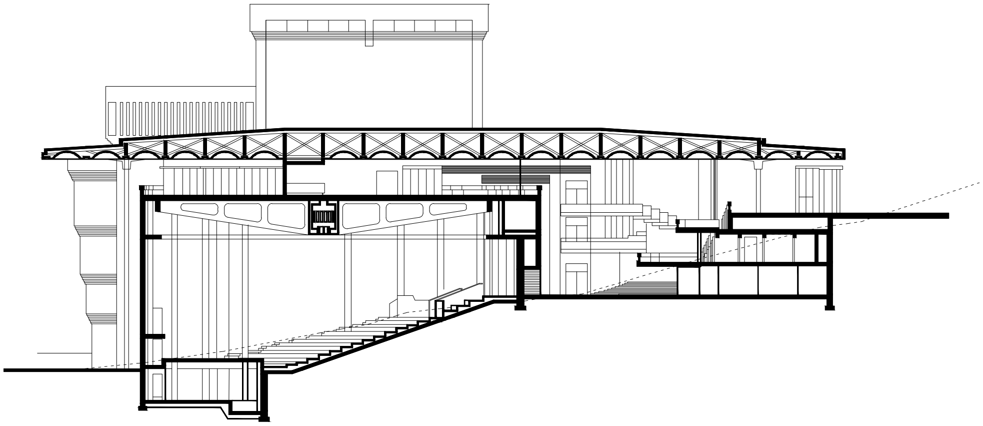
▲ Ground floor plan, 1:900.

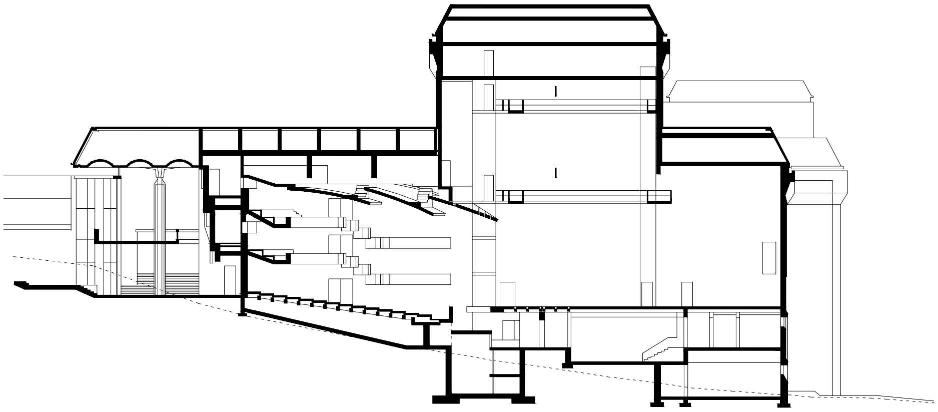
▼ The northeastern stairway leading down to the main foyer at first floor level.

▼ View of the foyer ceiling and clerestory, as seen from a balcony overlooking the central foyer.

confronted with an articulated, solid, brick façade, the oversailing roof (lit up at night) hinting at the activity inside. Arriving by car would take visitors through the southern parking court and terraced steps to the Baxter Road entrance, while for pedestrians a generous ramp wrapping around the curved external wall of the concert hall gives access to the main foyer via the building's north-facing flank. This intentionally protracted procession allows for a ceremonious entry, making good use of the communal space of the northern garden with its magnificent ficus trees.

The building is skilfully detailed. Internally and externally, the walls' rugged textured brickwork with deep-set jointing laid in an unassuming stretcher bond appears modest at first, while up close the finesse and consideration become apparent. Each brick had its facing sides removed to hide joints and imperfections, which emphasise the monolithic, civic impact of the façades but also presents a malleable decorative quality, invoking the cliffs and crevasses of the nearby mountainside. The building is well-used and in excellent condition, and has remained true to its original intention of serving the community – a testament to its architectural distinction and its designer, Jack Barnett, who believed that "architects are the custodians of a vital tradition and although they may build for a specific client, in the cultural sense, they build for all" (cited in Barnett, 1994).



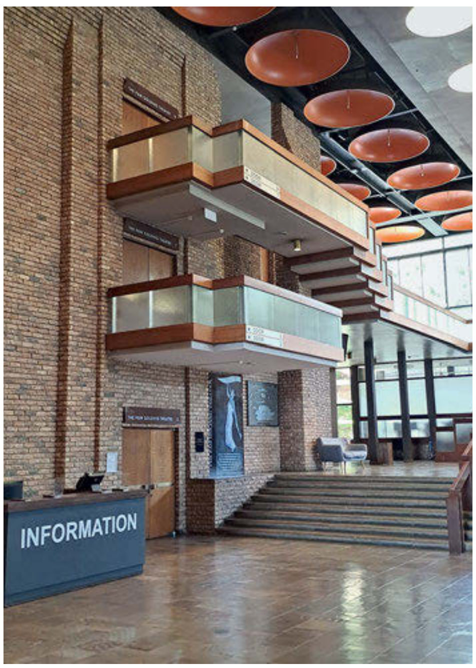


▲ Section B–B, through Concert Hall, 1:900.

▶ Section A–A, through the Main Theatre, 1:900.

◀ Interior detailing, showing the articulated facebrick walls, slate floor tiles and hard-wearing, generous, profiled timber balustrades.

▶ Corbelled brick details in the theatre interior.



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FRÉDÉRIQUE CIFUENTES

SUDAN

▼ Halfaia Cinema, Khartoum, 1950s.

▼ Mohamed Mahmoud Hamdy, Safia Cinema, Bahri.

▼ C. N. Stefanides, Acropole Hotel, Khartoum, 1952.

▼ Industrial Development Bank, Khartoum.

MAI ABUSALIH

SUDAN NATIONAL MUSEUM

Khartoum, 1957–1971
ARCHITECTS Alexandre O. Petermuller, Hans Asplund, Friedrich Hinkel, Elamin Muddathir

▲ The museum is entered through an entrance pavilion with three portals.

▼ Figure-ground plan, 1:10,000, 15° 36′ 22″ N 32° 30′ 30″ E

The museum (also simply known as the Sudan Museum or the Sudanese Archaeological Museum) traces its origins to the establishment of the Anglo-Egyptian Condominium of Sudan in 1898, where the overseeing of antiquities was part of the duties of the Governor General. Therefore, the "General Museum" was founded, occupying two rooms in the buildings of the Gordon Memorial College (now University of Khartoum) in 1904. Space was restricted and hopes for a permanent museum could not be realised due to lack of funds, and in 1932 a temporary solution was found whereby the Khartoum Museum was opened in an existing two-storey house overlooking the Nile (the house is now the office of the Vice-Chancellor of the University of Khartoum). This also became insufficient, and plans to construct a permanent museum on the site of a former hospital were dashed by the Second World War.

In 1954, Egypt announced the construction of the Aswan High Dam, which would flood much of Lower Nubia, part of which lay within the borders of Sudan. Thus, UNESCO launched the International Campaign to Save the Monuments of Nubia. In 1956, the year of Sudan's independence, the Sudan Antiquities Service designated a plot of land on the former Mogran Quays Station on the banks of the Nile west of the city centre for the construction of a new archaeological museum. This would bring together the collections of the old museums as well as the new findings from the UNESCO campaign.

The museum was to be designed to international standards for the safekeeping of sensitive artefacts. Whole temples would be painstakingly disassembled and transported to Khartoum, and space was needed for them also in the museum grounds. The decision to transport them to Khartoum was made by the government to enable easy access for school and university students and to promote tourism.

◀ View of main hall.

▲ Ram-headed sphinx statue from Kawa in front of Sudan National Museum main hall.

▼ Garden view of main museum building.

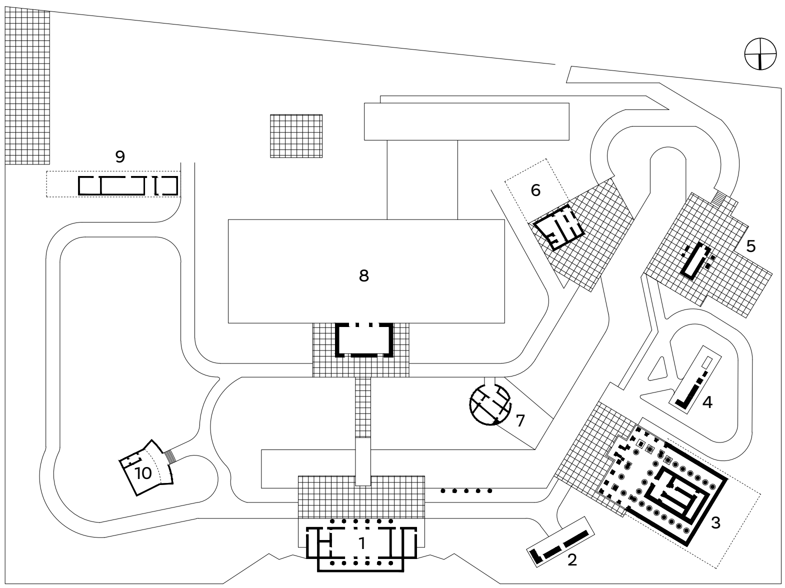
▼ Site plan, 1:900.

The Museum Board commissioned the office of Alexandre O. Petermuller, based in Khartoum, in January 1957 to create the initial plans for the museum. It was suggested by the Head of the Museums and Monuments Department at UNESCO that a consultant architect with experience in museography be appointed, and this role was filled by Hans Asplund. The two architects met in Paris in October 1957, and by 1959 Asplund submitted his "Final Report on Planning Official Buildings in Khartoum, Sudan". The foundation stone was laid in November of that year by the Minister of Education, Sayed Ziada Arbab.

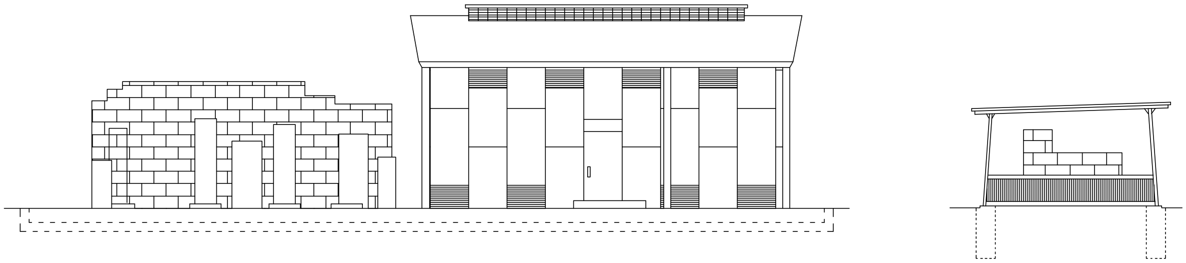
The Sudan National Museum is best described as a complex of buildings in a landscape; its location overlooks the Blue Nile and is surrounded by major civic, commercial and governmental buildings as well as hotels. The landscaped garden, designed by Friedrich Hinkel and the Garden Section of Khartoum Province, accommodates the historic Aksha, Buhen and Semna Temples (rebuilt here), cemeteries, cathedral columns and other artefacts. Its central focal point is a linear pool that symbolises the River Nile, as the archaeological structures were excavated from its banks.

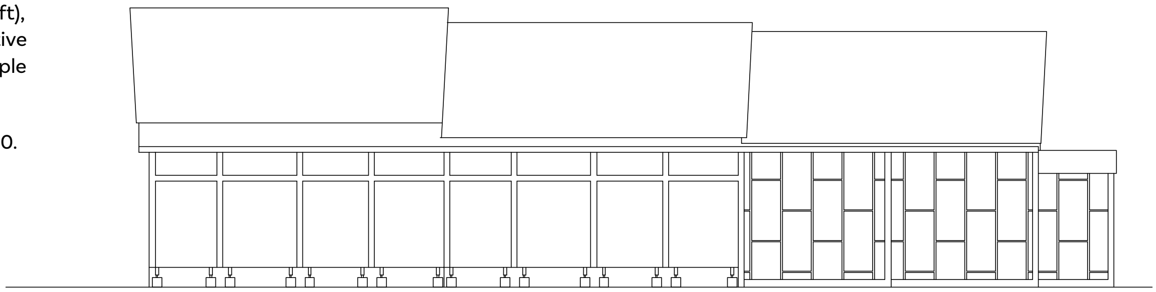
Friedrich Hinkel was the architect contracted to dismantle, transport and re-erect monuments and other objects from Nubia to Khartoum. As well as the archaeological garden, he also designed three steel-and-glass structures that housed the temples. As the climate in Khartoum was wetter than in Nubia, with a short rainy season in the summer months, the shelters were seen as necessary, and their roofs were designed to be movable so that the enclosures can be left in the open in the dryer months.

The main museum buildings include the exhibition hall, the administrative building and the laboratory building. The exhibition hall, designed by Petermuller, is a rectangular-plan two-storey building that sits axially opposite the



1 Entrance
2 Wall from Asksha Temple
3 Buhen Temple
4 Rock inscriptions
5 Semna West Temple
6 Semna East Temple
7 Rock tomb of Djehutyhotep
8 Main building Sudan National Museum
9 Workshops
10 Refreshment pavilion

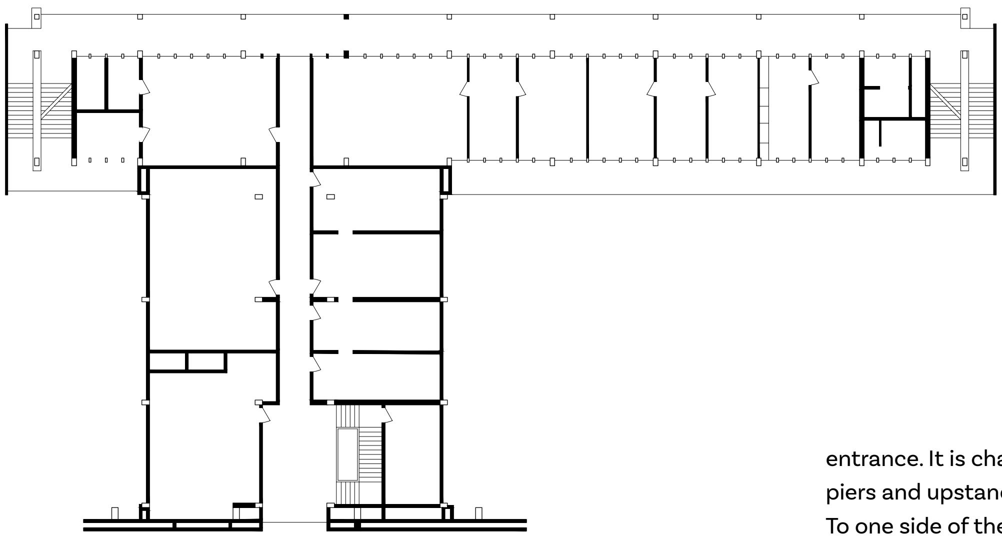




▲ Elevation Semna East Temple (top left), elevation Aksha Temple with protective roof (top right), elevation Buhen Temple with protective roof (right), 1:250.

▼ Ground floor plan main building, 1:500.

▼ View of the museum's main building from above.



entrance. It is characterised by its exposed structural piers and upstand roof beams that break up the volume. To one side of the entrance is a large area of north-facing curtain-walling, revealing the second-level access ramp behind. The exhibition hall has been likened to Mies van der Rohe's S. R. Crown Hall at the Illinois Institute of Technology.

Behind the exhibition hall to the south lie the two-storey laboratory building immediately adjoining the exhibition hall, and the four-storey administrative block adjoining the laboratory building. Also designed by Petermuller, the administrative building is characterised by its horizontality and its strong bands of open access decks, which provide solar shading to the south while allowing for cross-ventilation in the interior.

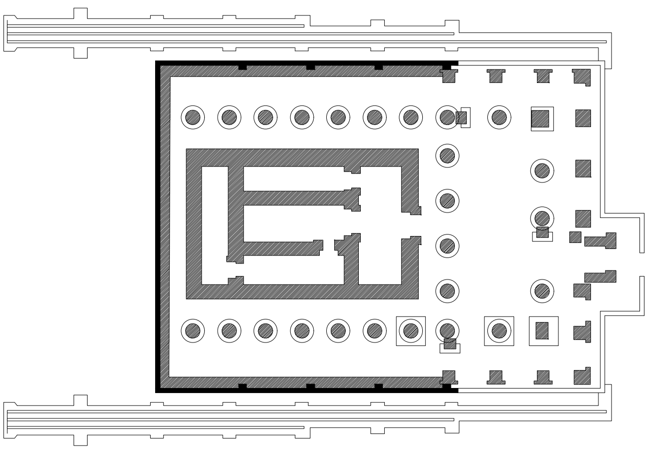
The museum is accessed via an entrance pavilion designed by Elamin Muddathir, with three portals and an interior embellished with murals by the acclaimed artist Kamala Ishag. The museum was inaugurated in May 1971.

▲ Retractable steel and glass shelters above archaeological fields and temples.

▶ Façades of the archaeological shelters.

▼ Entrance to a shelter.

▼ Ground floor plan Buhen Temple in its shelter, 1:500.



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RENAD ABDELHAKAM, MOHIELDIN GAMAL

EXAMINATION HALL

University of Khartoum, Khartoum, 1958
ARCHITECTS Alick Potter, Ezra Levin

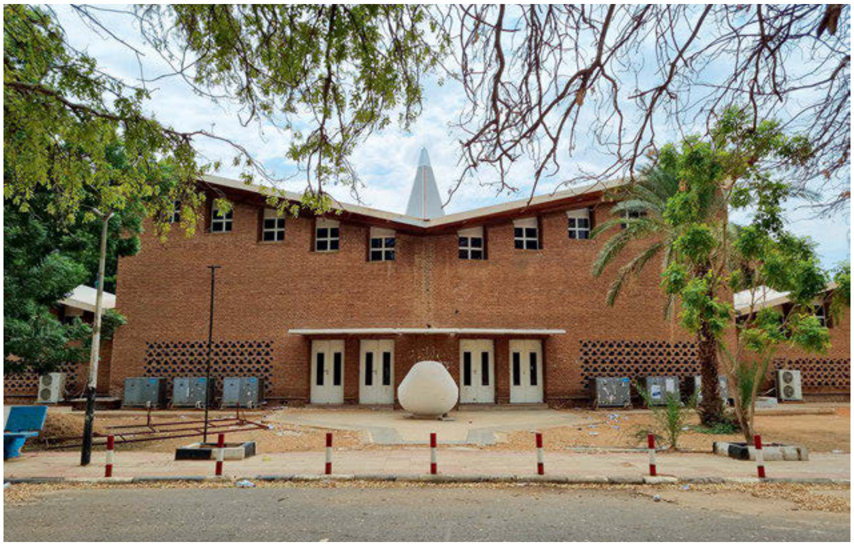
▲ View of side façade and the timber shell roof.

▼ Figure-ground plan, 1:10,000, 15° 36' 40" N 32° 32' 33" E

The University of Khartoum traces its history to the founding of the Gordon Memorial College, established as a technical school in 1899 by the then governor of the Anglo-Egyptian Sudan, Lord Kitchener. It was situated in the current Central Campus and its first building was what is today known as the Library Building, overlooking the Blue Nile to one side and forming a three-sided courtyard garden on the other, with its brick-arched colonnades. The college expanded over the years, teaching a variety of undergraduate courses affiliated with the University of London, and established several other campuses in the city.

After independence in 1956, the parliament passed a law granting university status to the college and it was renamed the University of Khartoum. Engineering was already a taught subject but not architecture. The Minister of Public Works and the university's Vice-Chancellor worked to establish its first department of architecture under the Faculty of Engineering, appointing Alick Potter from England to become its founding professor. Potter arrived in Khartoum in 1957 and much is known about his time there from his published memoirs written with his wife, who accompanied him, the accomplished illustrator Margaret Potter. Soon after their arrival, Alick Potter was given the additional task of designing a new examination hall for the growing university.

The design brief for the hall was simple. It had to be large enough to accommodate 500 students on widely spread tables, and it had to be column-free to afford visibility from a single vantage point. Additionally, it would be used for public events, and could be subdivided to allow several lectures to take place at the same time. The new Government of Sudan at the time placed restrictions on imported building materials, adding a constraint that would lead to the hall's most important design gestures. Creating such large, single-span spaces had normally



relied on the use of steel girders which had to be imported, while local building methods would have created hypostyle-type halls which were not suitable.

To solve this problem, the architect, Potter, sought the help of a friend and colleague. Ezra Levin was the chief architect of the Timber Research and Development Association in Britain, and he suggested the use of a new technology – the hyperbolic-paraboloid timber-shell roof. This would utilise an underused resource from the south of the country, mahogany wood, to form a shell structure that could provide the necessary span.

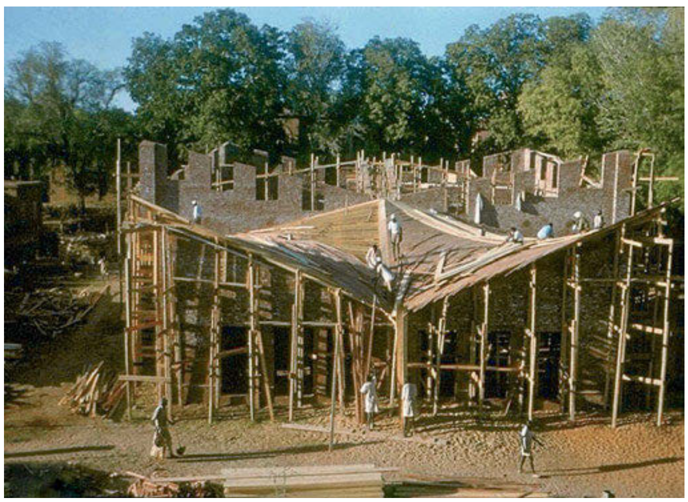
At completion, the examination hall was a roughly rectangular, single-storey building. It consisted of a large hall and secondary halls to the north and south, separated by folding doors that can partition or combine the spaces. The main entrance was on the west, while secondary entrances existed on the north and south. A service block ran parallel on the eastern side and housed ancillary activities that included toilets, staff offices and a bookshop in the north.

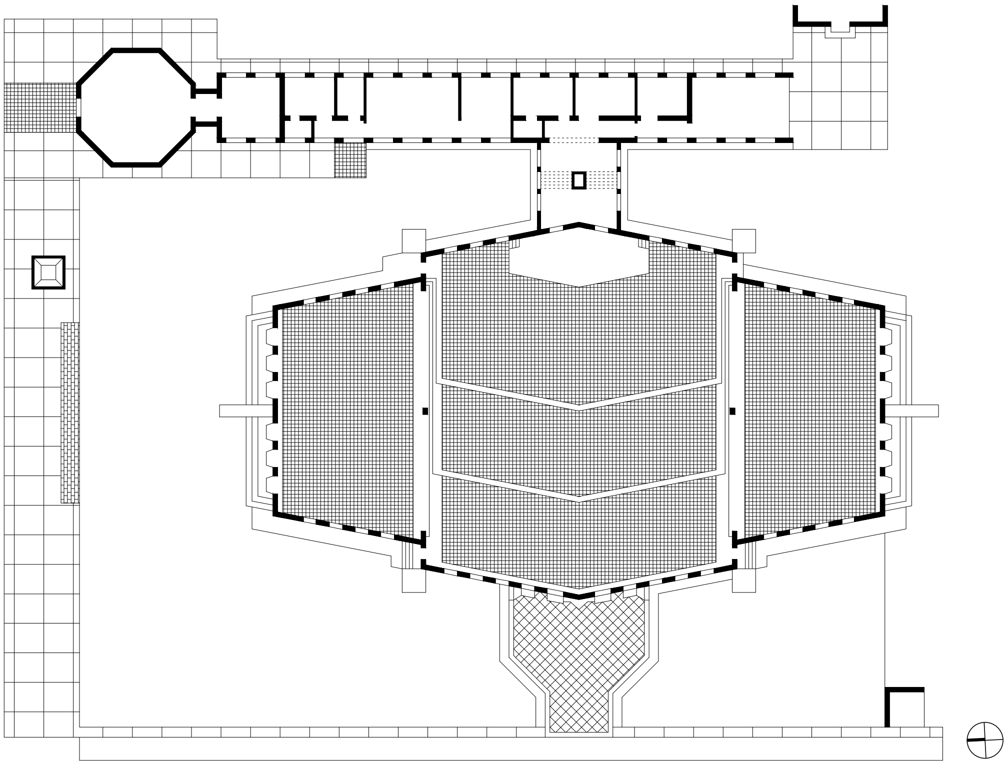
The hall was constructed of load-bearing local brickwork, left exposed externally, with the interior plastered and painted white, ready to take its calligraphic word paintings. Panels of hit-and-miss brickwork provided ventilation at low level, while high-level windows allowed warm air to escape. The walls supported the curved, timber-shell roof made of rich, brown mahogany slats that served as both the roof and the interior finish. The top

◄ The load-bearing local brickwork was left exposed externally.

▲ Interior view.

▼ Construction works with scaffolding.





▲ Ground floor plan, 1:650.

▼ Construction works.

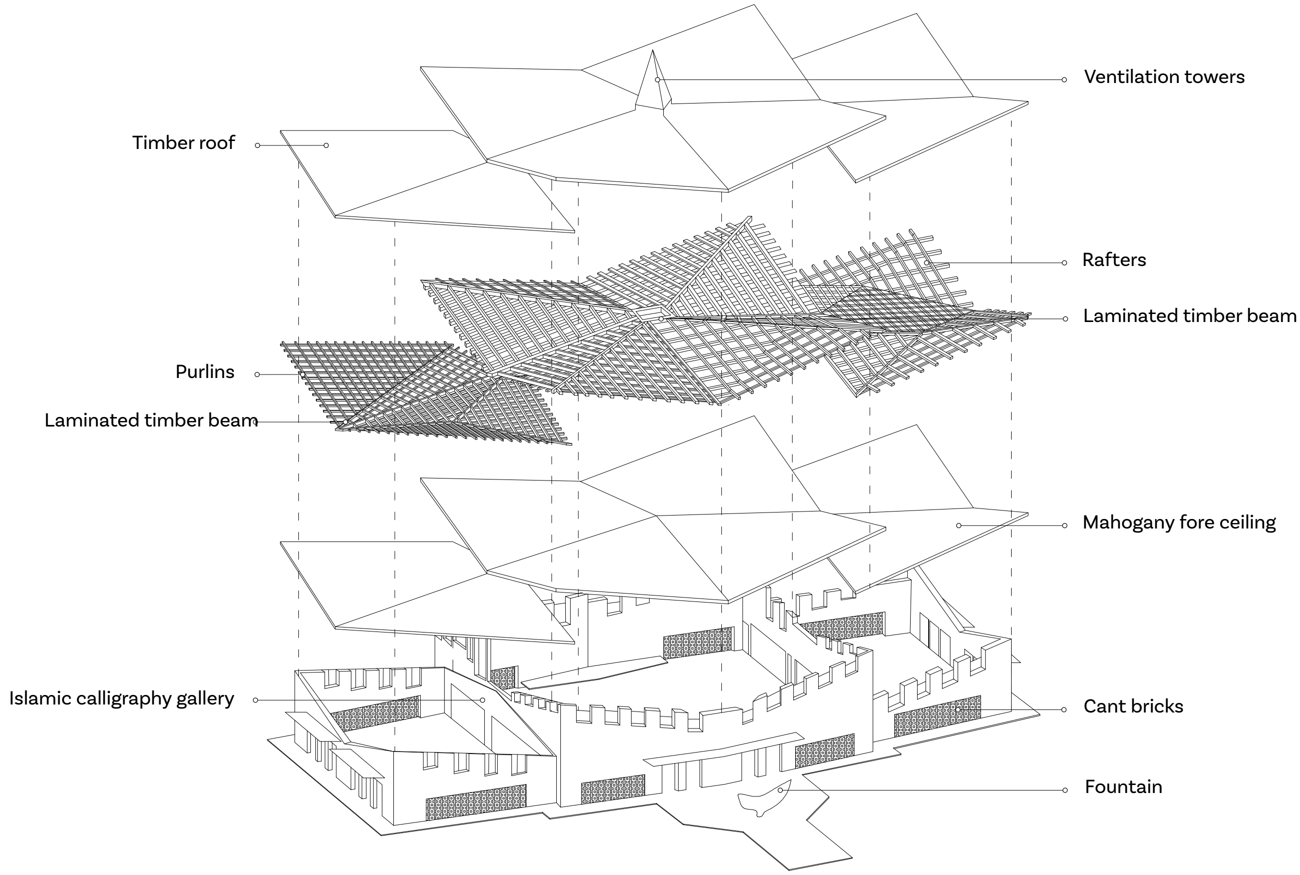
▼ Construction of the hyperbolic timber roof.

ventilation lantern served as a lightning-protection mast. The metal damp-proof course projects externally from the base of the external wall and helped in preventing termites from reaching the timber roof.

Potter designed a lighting chandelier, which was put in the main hall, and also developed the chairs, which were locally made. A large, curved concrete cistern at the entrance collected rainwater from the roof via a large spout, a common feature in Modern Movement buildings.

The hall is of technical importance as it is an early example of the use of hyperbolic-paraboloid timber shells. It has been described as the archetypal modern building as it derives its design directly from its needs and constraints, and is, in fact, the first of many Modern Movement buildings to grace the growing university campus and future universities of the country. It is also of cultural importance, being associated with the founder of the first school of architecture. Its interior is embellished with the calligraphic murals of one of Sudan's foremost artists of the 20th century, Osman Waqiallah.

Sadly, the original timber-shell roof did not survive several years of neglect, and in the early 2010s it had to be replaced with a steel grid clad internally with mahogany to match the original. However, the fact the building was heavily restored instead of being demolished and redeveloped is a testament to its historical value.



▲ Axonometric showing the hyperbolic timber roof.

▶ Building after completion in 1958.

▼ Model view.

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MURAM SHAHEEN

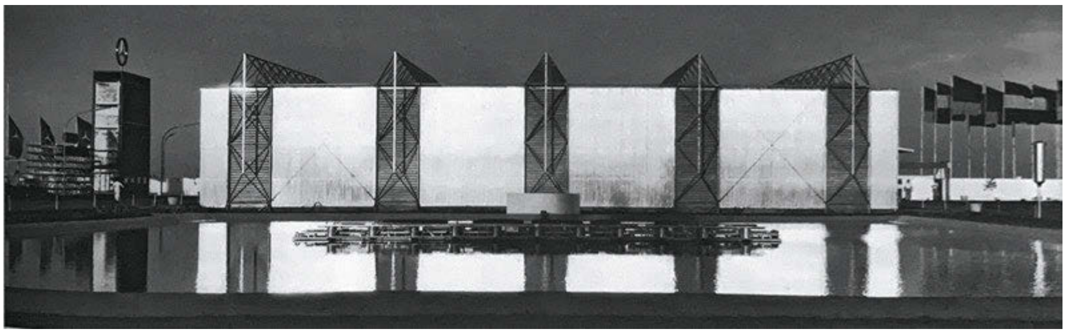
GERMAN PAVILION

Khartoum, 1961
ARCHITECTS Georg Lippsmeier, Franz Reiser

The German Pavilion (also known as The German Industrial Exhibition Hall and today the Khartoum 2 Vocational Training Centre) is one of many buildings in Khartoum that came about as a result of Sudan's international relations and the polarised world order of the mid-20th century. After the Second World War and the partitioning of Germany, the two states began pursuing separate foreign policies from around 1953. After Sudan gained independence in 1956, it was a fresh ground for rival German diplomatic relations. Industry exhibitions were a method used to build diplomatic relations with countries, and both German states organised such events within Germany and abroad, such as the Leipzig Trade Fair in 1957 and two industrial exhibitions in neighbouring Egypt, which Sudanese officials had attended.

An early offer from the German Democratic Republic (GDR) to hold an industrial exhibition in Sudan was refused partly due to internal politics. In 1961, after the construction of the Berlin Wall, it was agreed that an industrial exhibition by the Federal Republic of Germany (FRG) would be held in Khartoum.

The design brief was for the exhibition pavilions to be lightweight, be modular and able to be assembled quickly,



▲ Main Exhibition Hall facing the artificial pool and fountain.

▼ Figure-ground plan, 1:10,000, 15° 35' 12" N 32° 32' 45" E

◀ Entrance view with fountain in 2024.

▶ Perspective.

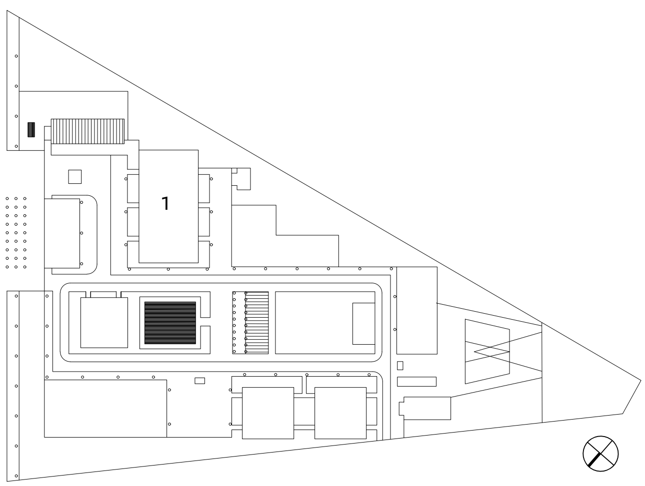
▲ Exterior of one of the symmetrical halls, now carpentry workshop, in its dilapidated state in 2022.

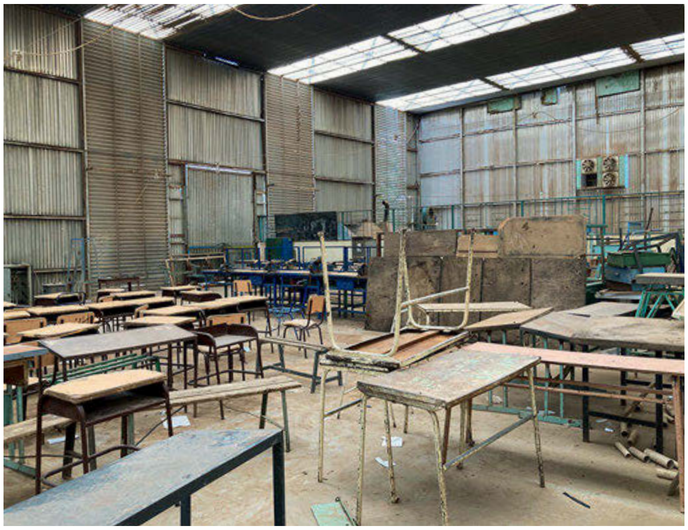
◀ Rear view in 2024.

▼ Site plan of the entire cluster with main exhibition hall (1), 1:1000.

and be cost-efficient. A budget was set for the construction and operation of the exhibition, but this was exceeded due to site conditions, weather, and a low take-up of exhibition stands. The German President, Heinrich Lübke, and Sudan's President Ibrahim Abboud assumed the role of patrons of the exhibition. The architects for the pavilion were Georg Lippsmeier (1923–1991), known for his specific approach to tropical architecture, and Franz Reiser.

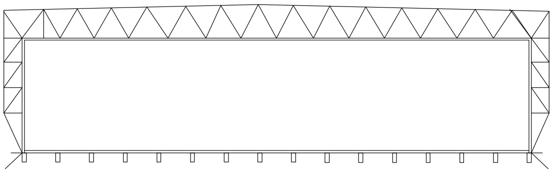
The site chosen for the exhibition was a vast, triangular shaped plot of 64,000 square metres at the edge of Khartoum 2 on Africa Road and between Prof. Nazir Dafa'allah Street and Street no.1 of Amarat. It contained





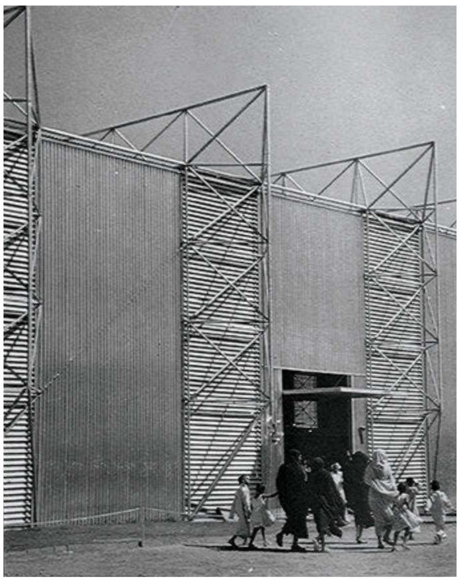
▶ Abandoned classroom in main exhibition hall.

◀ Interior view of main exhibition hall with translucent plastic panels in the roof.



▲ Cross-section, 1:300.

▼ Façade of main exhibition hall with open entrance gate, c. 1961.

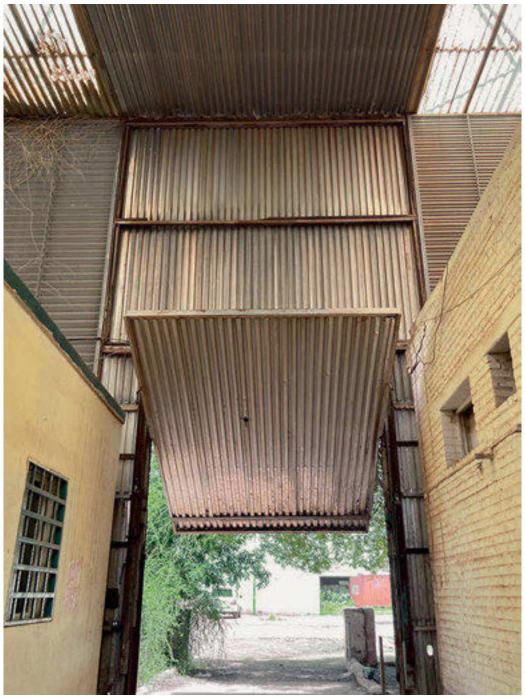


six prefabricated steel-framed, aluminium-clad structures: the main exhibition hall, two smaller exhibition halls, services for administration, the restaurant, sanitary areas and public-safety facilities included for the civil-defence service. There were also outdoor exhibition grounds, an open-air theatre, a fountain and garden.

The pavilions' modular design had distinctive exposed space-frame structures developed by the German firm Mero forming external columns that extended as protruding upstand beams supporting the roof. The cladding was a combination of corrugated aluminium sheet and corrugated plastic sheet for natural light, as well as large openable panels to aid cross-ventilation. The interiors were open plan, offering the necessary flexibility for an exhibition space.

Photographs by the acclaimed industrial photographer Hilla Becher, who would also photograph the completed exhibition buildings, were on display. A major art exhibition was shown in the hall, including works by the artists Max Ernst and Max Beckmann. The exhibition was a success and was visited by over 250,000 Sudanese.

Since they had a temporary function, the exhibition buildings were later designated for other uses. It was agreed in 1962 between the governments of Sudan and the FRG that the main building would serve as a vocational training centre, and equipment was later added for this purpose. This has been its role until today. Between 1962 and 1964, the other buildings were dismantled and



◀ Open entrance to main exhibition hall.

▶ Entrance gate from below.

◀ Plate of the German producer of the machines that were installed for teaching welding, turnery and woodworking in 1964.

removed. The rest of the site was fragmented into various other uses, such as the Khartoum Club, the Veterinary Medical Association, the German Club (affiliated with the German Embassy), as well as other training centres.

The industrial aesthetic of the pavilion was well suited for its function as an exhibition space. However, it could be criticised for not being adapted to the hot climate, with the metal structure offering no insulation from the heat. Lippsmeier would go on to design several other buildings in Africa (including the Khartoum International Fair), subsequently developing an approach to tropical architecture.

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SUHA HASAN

EMBASSY OF KUWAIT

Khartoum, 1976
ARCHITECTS Technical Studies Bureau (TEST), Abdallah Mohamed Sabbar, Maath Alousi

▲ South façade, 1991.

▼ Figure-ground plan, 1:10,000, 15° 35' 39" N 32° 32' 31" E

In the 1970s, the State of Kuwait had a growing interest in investing in Sudan and therefore needed a new, purposely built embassy building to serve its expanding diplomatic interests. At the time, the chief architect Abdallah Mohamed Sabbar was an advisor to the Government of Kuwait, and was tasked with developing a brief for the embassy by Al Duwaisan, the Undersecretary of the then Minister of Foreign Affairs, Shaikh Subah Al Ahmad Al Jaber Al Subah. A site was chosen on Africa Road, a prominent location in Khartoum between the city centre and the nearby international airport and on the main trunk road leading to southern Khartoum and beyond to Wad Medani.

The client's initial preference was for a glass tower. In his capacity as advisor, Abdallah Sabbar suggested that a low-rise development would be more suited to the surroundings, especially as the proximity to the airport meant that height restrictions were applicable. He also suggested expanding the complex to include residential units to serve the embassy.

Abdallah Sabbar's office, the Technical Studies Bureau (TEST) was appointed to design the new embassy complex in Khartoum. The office had already designed the Kuwaiti Embassy in Lebanon, and would go on to design the embassy in Bahrain. It was also commissioned to design the Sudanese Embassy in Kuwait but this was never realised after diplomatic relations soured.

The Embassy of Kuwait Complex in Khartoum, built in 1976, was the largest of the Kuwaiti embassies designed by the office, as it was a complex including the main embassy building as well as the ambassador's residence and the residential units. The site is triangular in shape, with the embassy building positioned on the prow with aspects towards Africa Road and the adjacent service road. The ambassador's residence is also on Africa Road on the opposite corner, while the seven residential units

▲ South façade with entrance, 2021.

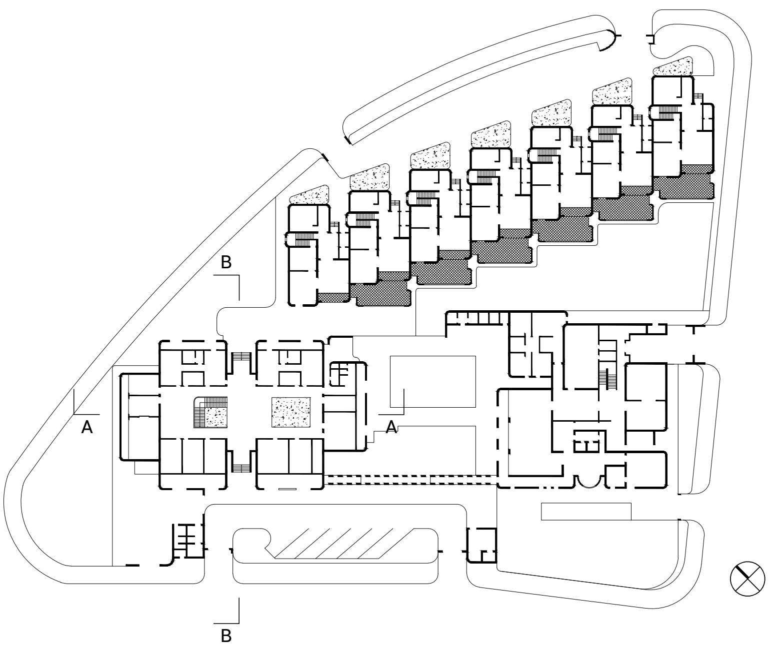
▶ North façade behind the iron fence with surrounding garden, 1991.

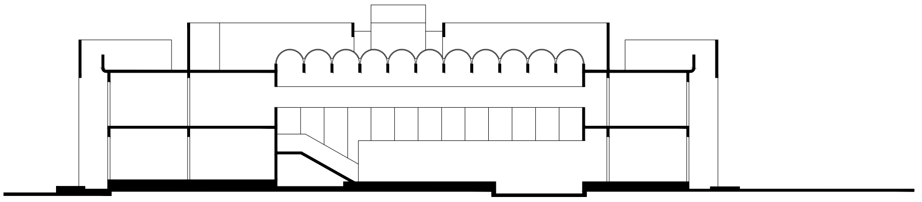
▼ Site plan, 1:1500

form a stepped line on the third flank to the northeast. In the centre is a communal court with swimming pool, an area for social gathering and a play area for children.

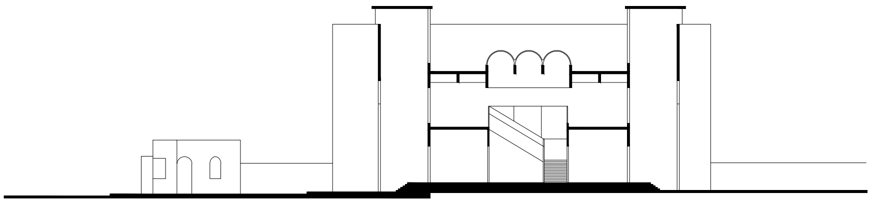
The design exhibits an early example of green building in Africa and the Middle East, long before such principles became commonly understood and implemented. Instead of the glass tower originally desired by the client, the embassy building was designed with a double skin. The outer layer was constructed of red brick and rendered with a rough textured plaster, suited to the sandy desert climate and closed against the harsh sun apart from a few large arched openings. The finish matches the colour of the desert sand and it has not needed maintenance since construction. The building's appearance, i.e. rectangular plan volumes with rounded corners and the sand-coloured finish, appears to be a direct reference to the local vernacular. The inner skin, on the other hand, was of aluminium and tinted glass, offering natural light and views in the interior. The 2-metre gap between the two layers is open at the top, allowing hot air to escape, and there are plants below, cooling the air further.

The main embassy building has two storeys and a glass-roofed atrium, with rooms arranged around it. Large tropical plants were placed in the atrium, which are regularly watered, helping to humidify the dry air of





▲ Longitudinal section A–A, 1:1000.



▼ Cross-section B–B, 1:1000.

▲ Street view with adjacent building.

◀ Street view showing area between the buildings, 1991.

▶ Inner garden with terraces of residential buildings, 1991.

Khartoum. However, some have argued that the green-building intentions are negated by the addition of a glass roof above the atrium. The building hosted the country's first centralised air-conditioning system, according to the architect, with a large plant room in the basement.

When completed, the complex was the largest Kuwaiti embassy in the world, and was symbolic of the deepening pan-Arabist ties between the two nations, which were to be strengthened through economic investments. The design team itself was led by the architects Abdallah Sabbar from Sudan and Maath Alousi from Iraq, while the contractor was Lebanese. Relations between the two nations would fracture around the time of the Gulf War, when some Arab states sided with Kuwait and others with Iraq. Sudan had adopted the stance of the latter. The complex eventually became abandoned, although it remained the property of Kuwait, and members of the former Sudanese regime intended to demolish it and redevelop the land. An appeal was raised by the Sudanese Institute of Architects and a letter was sent to the Ministry of Foreign Affairs, and the complex was saved. In 2014, Abdallah Sabbar proposed converting the embassy into a cultural complex but this did not go ahead.

▲ View of the enclosed complex.

▼ Façade detail with arched opening.

PROJECT TEAM

Interior designer: Roche Bobois, France
Contractors: Arabian Construction Company ACC, Lebanon

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GUANGHUI DING, MAI ABUSALIH

FRIENDSHIP HALL

Khartoum, 1976
ARCHITECTS Wang Dingzeng and Shanghai Institute of Civic Architecture

▲ Aerial view showing urban context.

▼ Figure-ground plan, 1:10,000, 15° 36' 21" N 32° 30' 40" E

Friendship Hall is situated in Khartoum's Al Mogran area, named after the nearby confluence of two Nile branches. Since Khartoum's early replanning at the start of the Anglo-Egyptian Condominium rule (1899–1955), Nile Avenue has traditionally been the location of government buildings. Government ministries, as well as the old and new buildings of the Republican Palace, are situated east of Friendship Hall on Nile Avenue. The Sudan National Museum is located just to the west of the site.

The Hall was built as part of a number of development projects carried out and funded by the People's Republic of China as the two nations' relations grew stronger starting in the 1970s. The building was started as a response to Sudan's request to build a much-needed multi-purpose conference hall in Khartoum after President Jaafar Nimeiri's visit to China. To reflect the developing diplomatic relations between the two countries, it was decided to name it the "Friendship Hall". This was not the only hall of this type by China, since one had been constructed in both the Republic of Guinea and Sri Lanka before Khartoum.

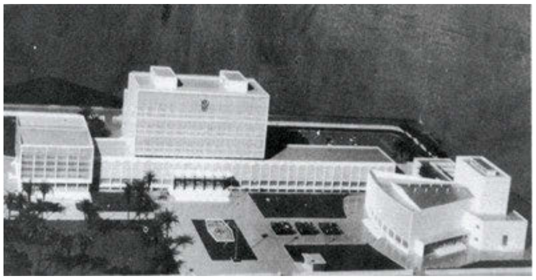
Together with 200 Chinese technicians, the Ministry of Public Works oversaw the project's implementation. With this project, the Chinese brought novel building techniques – for example, a roofing system of precast-cement blocks, which had never been utilised in Sudanese construction before. Thus, as part of the project, the ministry provided its staff with workshops so they could learn technical skills from the Chinese.

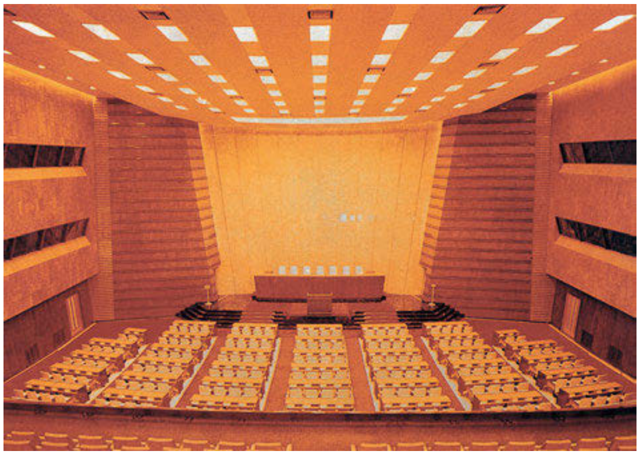
The 80,000-square-metre Friendship Hall has a Bauhaus-style design and an overall asymmetrical arrangement. It is a complex of several parts – the main conference hall, the cinema, banquet hall – arranged in a formal composition. On the exterior plaza, two axes that define the main hall and the cinema, respectively, intersect. Architect Wang would consistently emphasise

▲ Exterior view.

▼ Model view.

▼ Interior view of main conference hall.

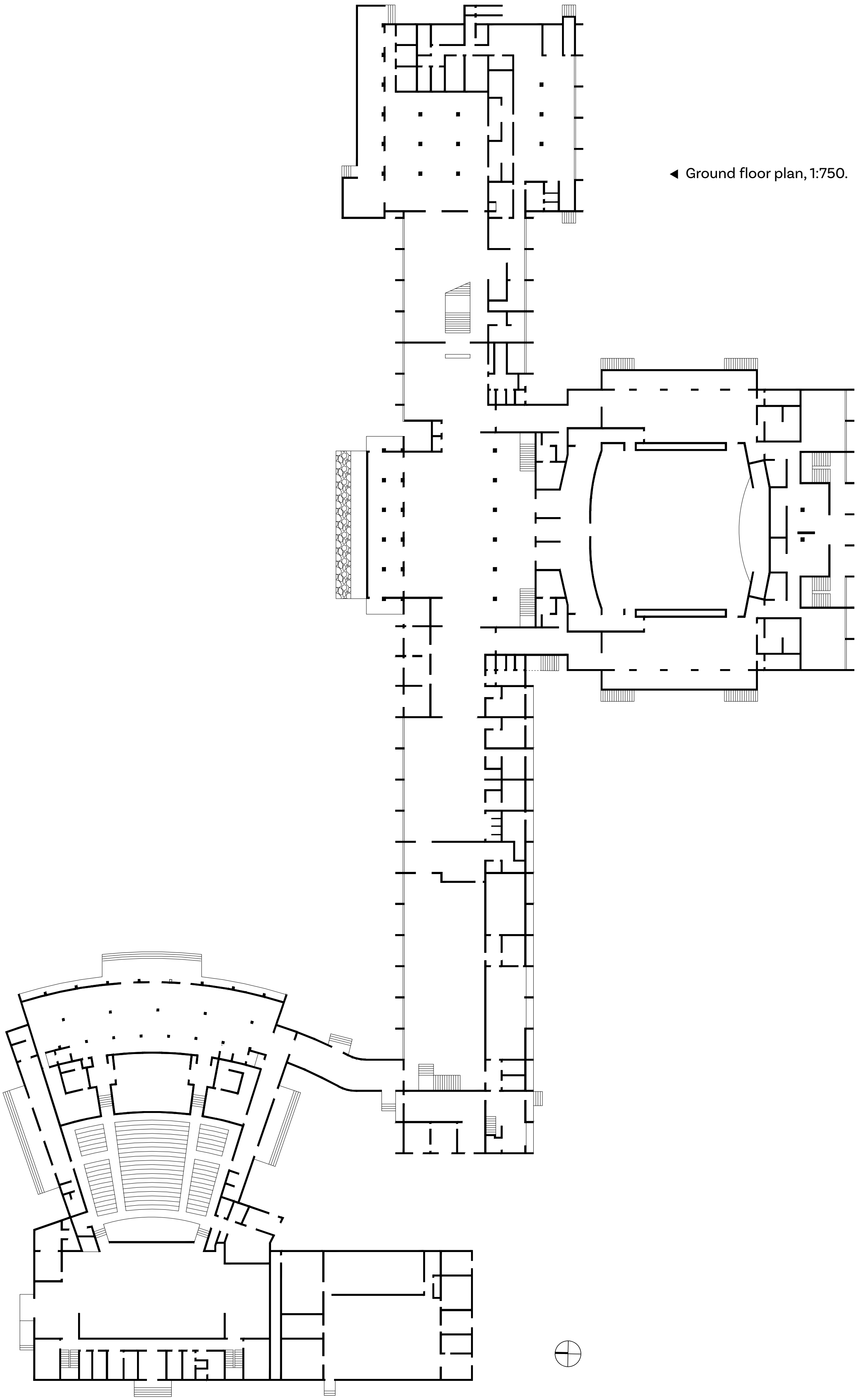




these intersecting primary and secondary axes from his initial sketches. Going one step further, the architects created an organic structure that housed a variety of uses, such as conferences, theatre, cinema, banquets, offices and exhibitions.

The architects' use of solar management was their answer to the hot, dry climate in the region. To regulate the amount of heat and light, they used two different types of sun-shading devices: a hollowed-out concrete/brick screen that covered the façade of the horizontal platform and the cinema, and vertical brise-soleils on the north façade of the conference hall. Fewer windows may be seen on the east, west and south façades of the complex because the major façade faces the Blue Nile to the north. This also helps to block out sun radiation.

The Friendship Hall is well known as a civic institution and has been the site of many an important event throughout Sudan's history since its initiation, whether political or cultural, local or international. It hosted the 15th summit conference of the Organisation of African Unity (the predecessor of the African Union) in 1978. It also witnessed the announcement of the voting results of the 2011 South Sudan secession referendum, and the 2019 signing of the Constitutional Charter that led to the transitional government following the December Revolution.



◄ Ground floor plan, 1:750.

▲ Façade with main entrance.

▶ The north façade has vertical brise-soleils.

▼ East façade of auditorium and cinema wing..

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HADEEL MOHAMED, MOHIELDIN GAMAL

ARAB BANK FOR ECONOMIC DEVELOPMENT IN AFRICA

Khartoum, 1980
ARCHITECT Abdel Moneim Mustafa

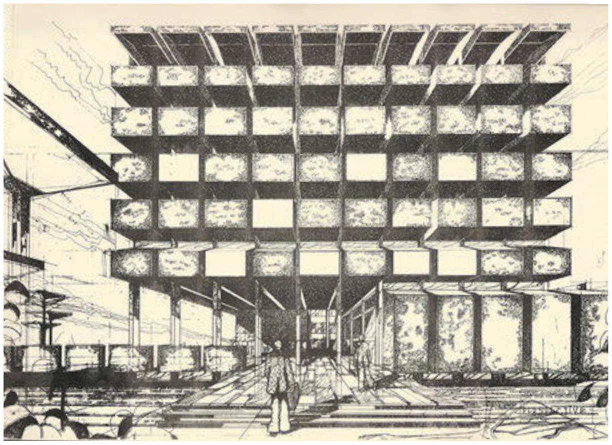
▲ South façade of BADEA before alteration.

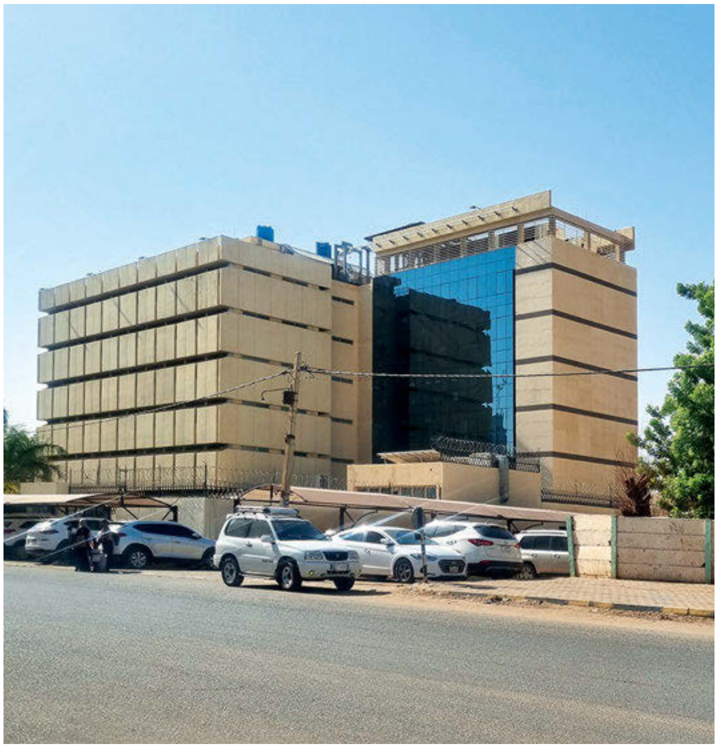
▼ Figure-ground plan, 1:7000, 15° 36' 03" N 32° 32' 17" E

The Arab Bank for Economic Development in Africa, commonly known by its acronym, BADEA, traces its origins back to the formation of the Arab League. Sudan joined the league just two weeks after its independence in January 1956. The bank was established by resolution at the 6th Arab Summit conference in Algiers in November 1973, and began operations in 1975. Khartoum was seen as an appropriate host city for the bank due to its location. It is owned by eighteen member countries of the league, and, according to the bank's website, "is an independent International Institution enjoying full international legal status and complete autonomy in administrative and financial matters. ...The Bank was created for the purpose of strengthening economic, financial and technical cooperation between the Arab and African regions and for the embodiment of Arab-African solidarity on foundations of equality and friendship."

Architect Abdel Moneim Mustafa (1930–) was entrusted by a letter dated December 21, 1976 with the planning, design and supervision of construction of the Headquarters of the Arab Bank for Economic Development in Africa. The design requirements asked for a centrally air-conditioned office block of 4,200 square metres with five departments of varying sizes and a basement, with possibilities for future expansion. The office units have different footprints that are multiples of 16 square metres. A club and residential premises of 600 square metres were also required on the plot.

The Department of Architecture at the University of Khartoum, founded in 1957, i.e. one year after independence, marked the architecture landscape in Sudan. The first generation of architects graduated in 1961, coinciding with the return of those who had gone for education abroad such as Abdel Moneim Mustafa. This favourable situation, along with a period of stability, gave birth to a





local architectural style that came to be known as the "Khartoum school" (Arbid, n.d.).

The headquarters of BADEA is a powerful representative of this school, committed to modern principles of technical performance and adaptation to the climatic conditions of the region. Today, Abdel Moneim Mustafa is considered the father of modern architecture in Sudan, and he also designed a number of other important buildings in Khartoum (Osman, Bahreldin and Osman, 2021, p. 88).

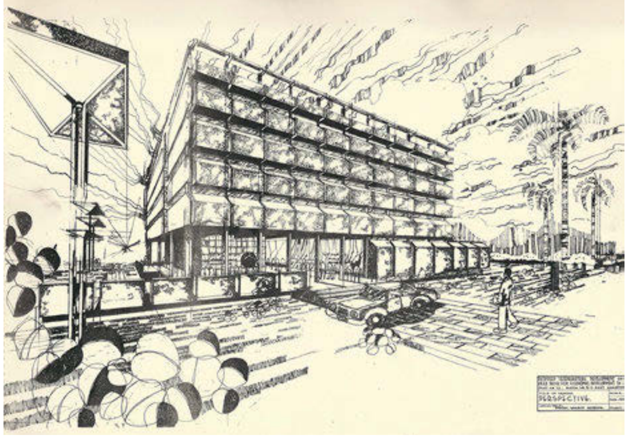
The bank building expresses its tectonics clearly. It is a reinforced-concrete structure of a regular grid of columns and slabs, with an early example of the use of pre-cast-concrete panels on its exterior. The panels are suspended outwards, giving the appearance of stacked cubes, to allow light and ventilation discreetly in through their sides. A void in the centre of the building also provides natural light and passive ventilation without admitting harsh sunlight.

The main bank building is a five-storey block almost square in plan. The height suits its location within downtown Khartoum well, and the number of storeys aligns with the departments required by the Bank. The clubhouse is a smaller, two-storey building on a diagonal grid, with a lounge on the ground floor and bedrooms above.

◄ Perspective of BADEA.

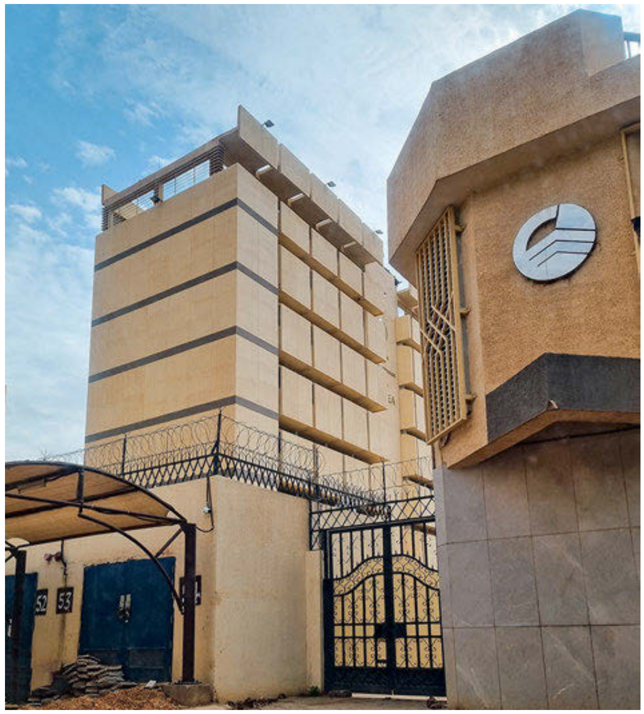
▲ Refurbished BADEA with extension on the right-hand side with curtain-walling.

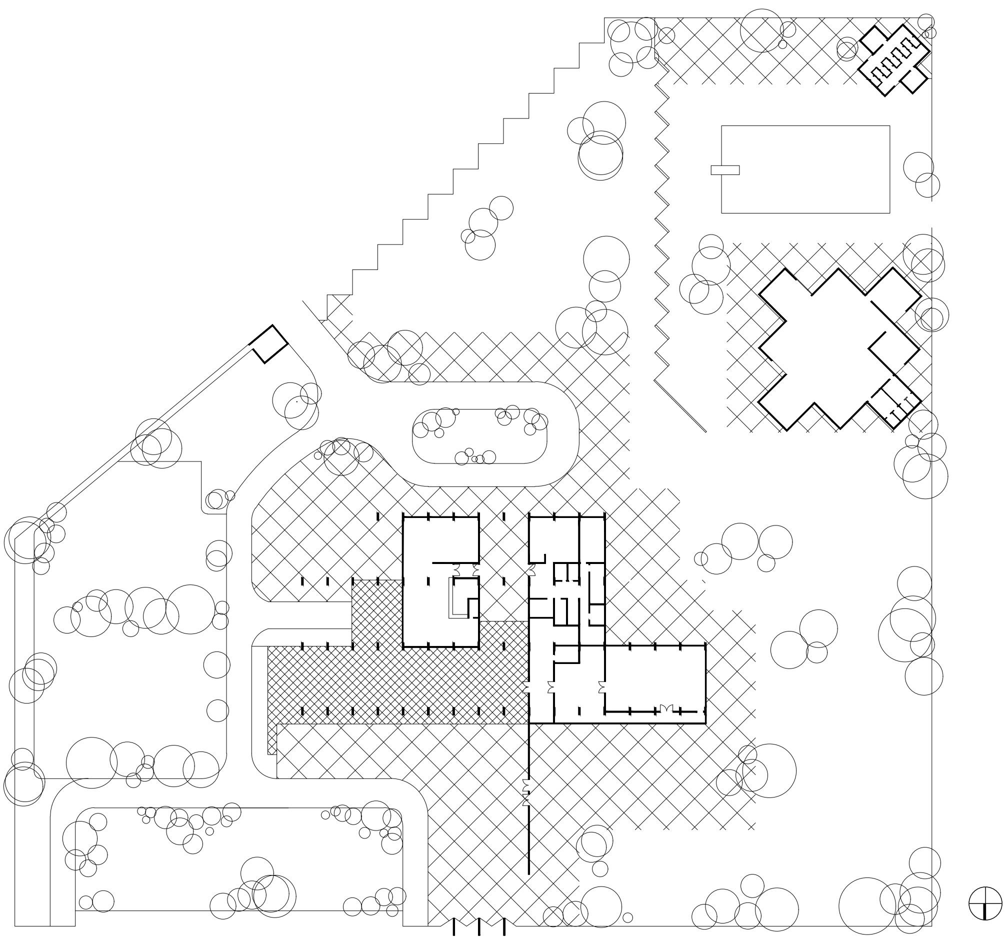
▼ Perspective of BADEA rear.



▶ BADEA extension from the rear.

▼ Ground floor plan, 1:1200.





The building today retains much of its original form and features. Both the main bank building and the clubhouse sit within the walled trapezoidal site, with their original main and ceremonial entrances retained. Both buildings have been extended, with mixed success in sensitivity to the original design.

The site and its buildings are well used and well maintained, both internally and externally. In 2015, the complex underwent a major renovation and an extension was added. The extension to the main bank building and the renovation of its façade are harmonious and well executed but, crucially, have changed the colour of the concrete panelling from its distinctive and weather-compatible rich brown to a generic and characterless cream. The extension itself has a glazed, curtain-walled north façade, which is entirely in contradiction to the principles of shading and filtered light of the original building. The clubhouse has also been extended and the outdoor swimming pool is no more.

The design of the bank utilised modern construction methods such as the reinforced-concrete structure, and was, more importantly, one of the first applications of precast-concrete panels in Sudan for its façade. The form of the building contributed heavily to the comfort levels of the interior, an example of passive climate technology. The building and the establishment of the bank signifies the level of Arab cooperation at the time, coinciding with the founding of several other institutions. Sudan was chosen as the headquarters for this bank clearly due to its geographical and cultural location, characterised by an overlapping of the Arab and the Sub-Saharan worlds.

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JEAN MOLITOR

TANZANIA

▼ British Legion Tanganyika Club, Dar es Salaam.

▼ Boys primary school, Dar es Salaam.

▼ Private residence, Dar es Salaam.

▼ High-rise, Dar es Salaam.

▼ Private apartment building, Dar es Salaam.

▼ Private apartment building, Dar es Salaam.

ANNIKA SEIFERT

KNCU CENTRE

Moshi, 1949–1956
ARCHITECT Ernst May

▲ Aerial view of KNCU building in 2012.

▼ Figure-ground plan, 1:10,000, 03° 20' 50" S 37° 20' 39" E

The Kilimanjaro Native Cooperative Union (KNCU), a collective of local coffee growers in East Africa, was established over a decade before Tanzania gained independence, making it an institution of historic and symbolic significance. It was to support and empower coffee farmers and pioneered the cooperative movement in East Africa, contributing to a broader narrative of agricultural and economic development in the region. Its headquarters also took on the role of a community centre and holds a supra-regional symbolic character, even today. The KNCU Cultural Centre is among only a few large architecture projects commissioned by an African client in (then still) colonial East Africa.

German architect Ernst May, renowned for his contributions to the "Neues Frankfurt" housing programme in the 1920s, fled Germany during the rise of National Socialism in the 1930s to embrace a new life as a coffee farmer in Kenya. Simultaneously operating his architectural office from Nairobi, he left an enduring impact on architecture production in Kenya, Uganda, and Tanganyika. After the Second World War, he returned to Germany but maintained ties with East Africa through an independent successor firm, Dr Ernst May & Partners, still active in Mombasa as of 2024.

The KNCU Centre accommodates diverse functions, stacked from bottom to top – retail space on the ground floor, the cooperative's administrative offices and hotel rooms on upper floors, and a restaurant on the top floor. This resulted in a pragmatically heterogeneous floor-plan typology. While ground and top floor of the main wing are spatially more rewarding, the need for differently sized hotel rooms led to a rather dense third floor with small chambers along a central access corridor. May responded to this formal fragmentation by introducing continuous horizontal elements in the façades, which succeed in binding the heterogeneous structure together.

The unusual urban layout of the KNCU Complex is a testament to the history of its development, with the now existing structures representing only a portion of May's initial vision. But the arrangement of the main volume, set back from the plot's main tip and flanked by two side wings, also reflects May's strategic incorporation of climatic factors. The setback from the adjacent traffic circle allowed for an east-west orientation on the pointed perimeter – thus avoiding long east and west façades, an unfavourable exposure to the low east and west sun angles. This choice, along with thoughtful use of cornices and canopies, ensures efficient shading from the equatorial sun. Accordingly, May's ventilation concept involves connecting open corridors, shaded with rear-ventilated fibre-cement panels, to hotel and office spaces through perforated brickwork, louvre doors and internal windows. Courtyard-side windows incorporate unglazed openings, enabling efficient cross-ventilation and unobstructed views of the mountain landscape. Even the hotel bathrooms, ventilated via internal shafts, become part of May's ventilation concept. The refinement extends to the restaurant on the top floor, featuring almost fully glazed, longitudinal façades with wide, folding windows offering spectacular vistas of Moshi and Mount Kilimanjaro. Above these shaded openings, all-round clerestories provide for permanent cross-ventilation.

May's influence extended beyond the structure to bespoke furniture and decorative elements – such as wrought-iron details, lamps and outdoor lights – throughout the complex. These elements, designed entirely by May, maintain a cohesive use of materials, colours and style. This coherence, even in the current state of neglect, makes the building a remarkably conclusive project. The KNCU Cultural Centre stands as a testament to May's architectural maturity, blending historical significance with climatic sensitivity and timeless functionality.

◀ Street view: the ground floor accommodates retail spaces, while offices are the first floor.

▲ Window construction and view from upper floor.

▼ Dining room with visible construction.

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TAHERA REZAIE, UTA POTTGIESSER

MAJESTIC CINEMA

Zanzibar, Stone Town, 1920s/1955
ARCHITECT John Sinclair (first building 1920s)

▲ The Majestic Cinema shortly after its re-opening in 1955.

▼ Figure-ground plan, 1:5.000, 06° 09' 56" S 39° 11' 29" E

Zanzibar is one of the two autonomously administered main islands of Tanzania and is located about 40 kilometres from the mainland. It consists of the islands of Unguja and Pemba and numerous subsidiary islands. The capital, Zanzibar is located on the west coast of Unguja. The first inhabitants of the region were Bantu people from the mainland. From the 8th century onwards, Arab, Indian and later Chinese and Portuguese traders who sailed across the sea with the monsoon shaped the culture. The city, famous for its Arabic and Indian-influenced buildings made of coral stone, is called Stone Town and was designated as a UNESCO World Heritage Site in 2000. Most of the densely packed, multi-storey coral stone homes were built by immigrants from India and Oman. Decorations and shapes of certain components, such as the door arch, indicate building traditions in the different countries of origin. The city is also influenced by many other cultural and stylistic influences such as Scottish "Saracenism" (invented by Eric Dutton) and Afro-Indian Art Deco modernism. The Majestic Cinema (successor to the Royal Theatre) is one of the buildings that followed these cultural and stylistic influences.

A colonial official, Henry Kendall, developed a ten-year plan from 1946 to 1955. He implemented a division of the urban area into Zones A (High Class), B (Middle Class), C and D (Native Huts). This was intended to protect the Stone Town and the villa quarters in which Europeans, but also wealthy Indians and Arabs, lived from unwanted structural developments – not least, developing the island for tourism. Stone Town and the Royal Theatre were assigned to Zone A on the edge of the European-inspired Vuga district. In 1953, the Royal Theatre burned down.

The owner, Zanzibar Theatre Ltd., commissioned a new building on the same site, now called the Majestic Cinema. Stylistically, the carefully proportioned cinema with decorative details is influenced by Art Deco. The building

◀ Sultana Theatre is another example of Zanzibar's modern cinemas.

▶ Later called Cine Afrique, the building is now used for other purposes.

▲ Exterior view from Vuga Road c. 2000.

▼ Façade details in the Art Deco style that was used for the replacement building in 1955.

has modern elements such as the horizontal emphasis through balconies, brise-soleils and a canopy, and the windows on the right side that are combined into a large shape. The cinema is reminiscent of buildings in Dar es Salaam such as the Diamond Jubilee Building, built in 1946, or of the buildings in Eritrea's Art Deco city of Asmara, designed by Italians such as Mario Fanan or Arturo Mezzidimi, which were also built in the late 1950s.

The Majestic Cinema has a two-storey front facing the main street with corner towers. These were connected on the ground and first floor by a veranda with three Arabic pointed arches. French balustrades bordered the balconies on the towers. The new cinema was ceremoniously opened on October 20, 1955 by Sultan Seyyid Khalifa bin Haroub in the presence of Consul Henry Steven Porter with the Indian film *Uran Khatola*. The building can be seen as a late harbinger of modernity in Zanzibar.

Cinema buildings were built in many East African cities from the 1920s onwards. They were also used for concerts, theatre performances, readings and political events until the late 1950s. In Zanzibar, the Indian silk merchant Hassanali Adamji Jariwalla had a licence for entertainment venues from 1916 to 1936. He owned several theatres and cinemas until he moved to Dar es Salaam in 1942 to expand his cinema empire there. In 1921, he commissioned the Royal Theatre. The architect was none

◀ Wallpaper details in the interior.

▶ Collection of old filmrolls.

The authors wish to acknowledge the work of Danielle Fischer. This description is based on her article “Majestic, Art-Déco-Kino in der Stone Town”.

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other than the British Consul John Sinclair (1871–1961), a Scot, who had been stationed in Zanzibar since 1896 and, as consul, was responsible for, among other things, urban planning. What was extraordinary was that he had a significant impact on the city with his buildings as an architect.

Zanzibar has experienced a turbulent history. First it was a kingdom with large lands until 1890, when it became a British colony. After a short period of constitutional monarchy from 1963 to 1964, the People’s Republic of Zanzibar was formed in January 1964 after the Zanzibar Revolution, and in the same year transformed into the United Republic of Tanganyika and Zanzibar, then the United Republic of Tanzania. In 1992, the one-party system ended, and three years later the first democratic elections were held. The political transition period from the mid-1950s to the revolution in 1964 needs to be examined from an architectural-historical perspective. It is significant because the population was preparing politically and culturally for independence. Architecture also distanced itself from the colonial style.

In Zanzibar, the professionals who advanced modern architecture were usually from Indian, Arab or European families. In contrast to the British colonial officials, they had grown up in Africa. In British-administered Zanzibar, the confrontation with the new forms of modernity also meant, to some extent, a liberation from the stylistic dictates of the colonial administration. The fact that borrowings from French-North American Art Deco could also be used for this, as well as the romantic exoticism of a Scottish colonial official (Sinclair’s successor, Consul Eric Dutton [1895–1973], combined European architecture with elements from the Arabic and Indian stylistic repertoire and called the new style “Saracenism”), shows how diverse the references were in architectural creation in a context characterised by trade, migration and colonialism.

PIETER BURSSENS

GOAN CLUB

Dar es Salaam, 1959
ARCHITECT Anthony Bosco Almeida

The Goan Club (also known as Goan Institute or Dar es Salaam Institute) had been established in Dar es Salaam in 1919. The Institute was a social, cultural and sports club for the welfare of Goans in Dar, and played a major role in the social life of the community. Back then, there were several similar social clubs in the city, mostly organised amongst ethnic communities. Goans constituted up to 10 percent of the resident Indian population in East Africa in those days, and were usually business owners or employed in the middle ranks of the British administration.

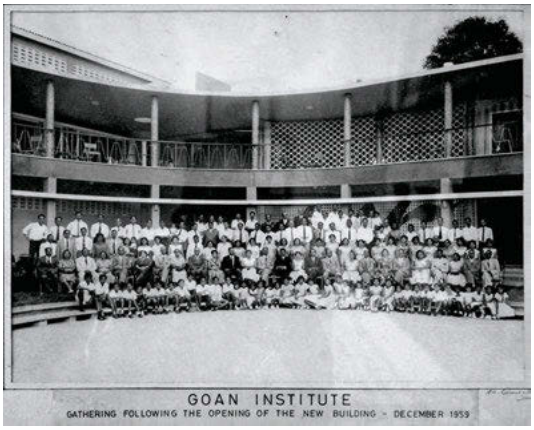
The first premises of the Goan Club were rented, but in 1924 the club obtained its own plot and built the first Goan Institute in 1925–1926: a single-storey bungalow-type structure. With the new building, an influx of Goans during the Second World War and the amalgamation of other Goan organisations, membership numbers increased and the club building became inadequate.

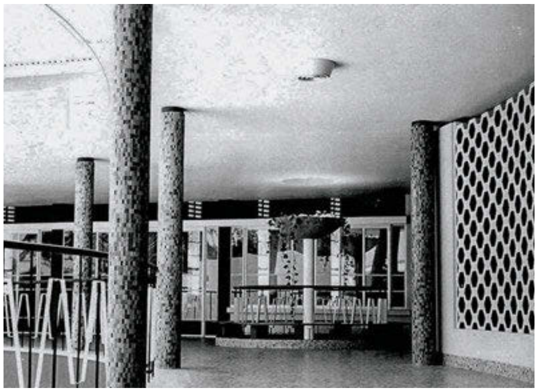
In 1959, a new building was to be built on the same location. Anthony B. Almeida (1921–2019), renowned architect of Dar es Salaam and a club member, was appointed as the architect. For the design of the new institute building, Almeida observed use by the club and studied the 1925 Goan Institute well, and he integrated the lessons learnt into the design of the new club. The Goan Institute is located very centrally in the historical city of Dar es Salaam, near the central business area, Kisutu, on the corner of Ingles Street, now Azikiwe Road, a main traffic artery, and the secondary, greener Garden Avenue.

The design is a reinforced-concrete-framed structure with infill walls of solid concrete block, louvred and perforated blocks, with steel windows and wooden doors. The two-storey building is organised around a central courtyard, which serves as an oval, sunken outdoor dance floor. The three wings, with the wide balcony, a semi-circular veranda embracing the dance floor, draw the focus of the building inwards. Simultaneously, the building turns its

▲ On the main façade, concrete sun-breakers are strategically placed at an angle to provide solar protection.

▼ Figure-ground plan, 1:10,000, 06° 48' 56" S 39° 17' 21" E





▲ Opening ceremony in the courtyard of the new Goan Institute in December 1959.

▲ Upper gallery courtyard.

▼ Arcade in front of rentable space at Goan Institute.

▼ Interior view of common hall.

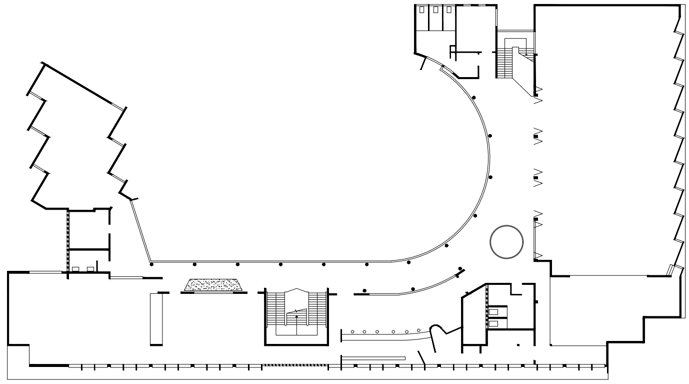
back to the outside public space; the windows along Garden Avenue are set higher to avoid the view in, and the large area on the ground floor along Azikiwe Road is not part of the club, but rentable as a shop. This provision of commercial premises along Ingles Street (Azikiwe Road) was a Town Planning Department requirement.

The entrance to the institute is central in the façade adjacent to Garden Avenue, where more parking space was also available, although the front façade and the Goan Institute sign are oriented towards Ingles Street. The entrance provides a sequence of contrasts: the half-open, spacious colonnade that vitalises the streetscape; followed by the modest door and the small entrance hall; then succeeded by the openness of the dance floor, which is the heart of the club. This sequence works well in welcoming the guests from the (now) cosmopolitan public space to the surprisingly intimate, yet open setting.

The key spaces of this building are the hall with a stage, the bar and the outdoor dance floor. Additionally, there are offices, a meeting room, a billiards room, a covered outdoor children's play area and various secondary functions. At the long side of the hall, concrete sun-breakers are strategically placed at an angle to ward off the afternoon sun, creating both functional shading and visual depth along Ingles Street. The library on the opposite side of the street (also designed by Almeida, pp. 361–363) was treated with a similar approach.

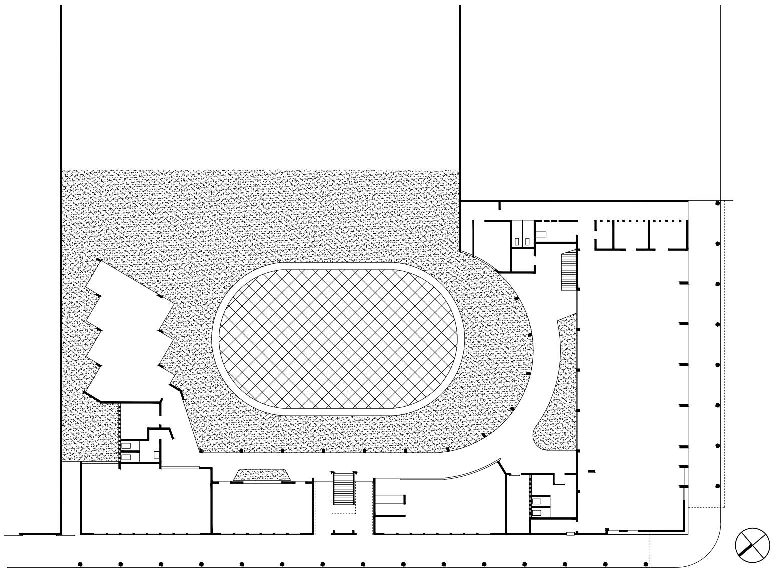
Natural ventilation is maximised, as the use of concrete perforated screens, louvred blocks, gaps between walls and ceilings, louvred doors and circular concrete vents, facilitates the free flow of air throughout the building. From every corner of the Institute, users have a clear view of the outdoor badminton and tennis court, as well as the open-air stage.

Carefully designed details add a playful touch and enhance the functionality of the club, while ensuring



▲ First floor plan, 1:1000.

▼ Ground floor plan, 1:1000.



privacy between more public and more private areas; among these details are the plants under the window of the meeting room and an opening between the window of the cards room and the veranda. Also, a corridor between the bar and the cards room makes it easy to provide drinks for the tennis players. Adjacent to the bar is an open well, offering downward views and allowing plants to ascend to the top floor, complemented by an open, circular skylight.

Colours, variations and details further enliven the building. There are variations in the columns and the mosaics – and between the shapes and treatment of the louvred and perforated blocks.

Almeida went far into the detailing of the club: he even designed the clocks in the billiards and cards rooms.

Overall, the Goan Institute stands out for its functionality; privacy and intimacy, yet openness; playfulness; use of colours, patterns and abstract murals (one of which was painted by Almeida himself); and adaptation to the hot and humid climate. The design brings light, fresh air and greenery to the club.

At Tanzania's Independence in 1961, the Goan Institute was asked to host several Independence-related functions, as the club had one of the best halls in the city. In 1963, the Goan Institute – since it was named after the ethnic group of Goans and membership was limited to that group, a stricture that was not allowed under the post-colonial government – was given an ultimatum to rename the club and open it to non-Goans. The club complied and was renamed Dar es Salaam Institute.

The current Dar es Salaam Institute has withstood time well: it is relatively unaltered and well maintained, and still in use as originally intended, even though it is more and more overwhelmed by the high-rise buildings that have sprouted up around it since the beginning of the 21st century.

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ANNIKA SEIFERT

A.B.A. HOUSE

Oysterbay, Dar es Salaam, 1962–1963
ARCHITECT Anthony Bosco Almeida

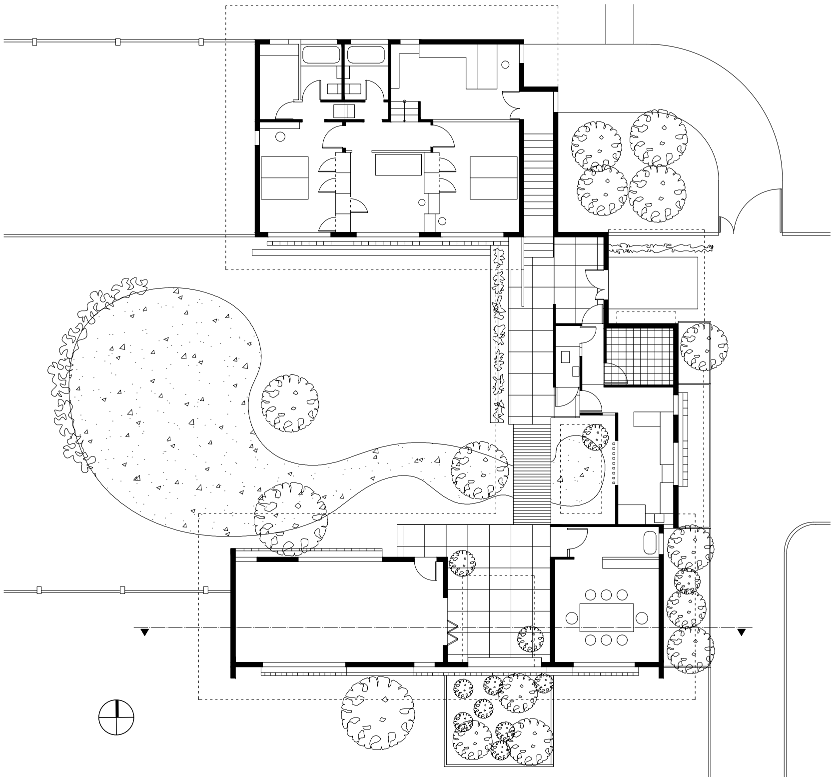
▲ Street view.

▼ Figure-ground plan, 1:10,000, 06° 45' 60" S 39° 16' 52" E

Tanzanian architect Anthony B. Almeida, born in 1922 in Dar es Salaam to Indian immigrants from Goa, stands as a stalwart in East Africa's architectural landscape. Having studied architecture in Bombay, India, he returned to his then British-ruled home country, Tanganyika, in 1948 to establish his own architectural practice in Dar es Salaam. During over sixty years of practice, Almeida amassed a remarkable oeuvre; when he passed away in 2019 at the age of 98, he is said to have completed over 400 buildings throughout East Africa, establishing him as one of the region's most accomplished and active architects.

His own residence, situated in the affluent neighbourhood of Masaki, a peninsula just north of Dar es Salaam's centre, is a testament to his commitment to adapting modern architecture to the tropical climate. In the early 1960s, when Almeida conceptualised the home for his young family, the area was predominantly agricultural, affording him full freedom in design, detached from urban constraints. The architectural idea behind the residence prioritises harmony with the tropical environment. Positioned just off the Indian Ocean and adjacent to Coco Beach, a constant, cooling breeze prevails despite the year-round heat and humidity. Three slender, single-storey volumes, varying in height, are arranged around a garden, an enclosed landscaped courtyard shielded from the street. The two structures closer to the sea adapt to the sloping terrain, while the third is elevated on stilts overlooking the former. This arrangement ensures that the cooling sea breeze permeates every corner of the house and all rooms share the panoramic ocean views.

The residence features small, partly covered courtyards strategically integrated into and between the building volumes, blurring the boundary between indoor and outdoor spaces. Paths connecting different areas of the house predominantly traverse open-air sections, creating a seamless transition between the lush exterior and the



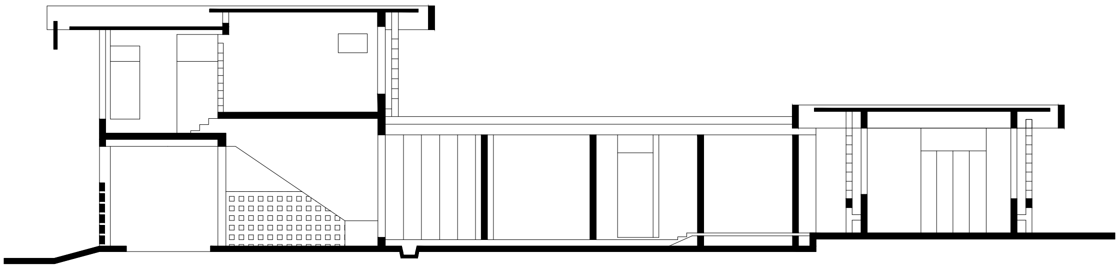
sheltered interior. A characteristic quality of Almeida's design is the meticulous consideration given to natural ventilation. All enclosed rooms, regardless of their location within the structure, incorporate air inlets on the windward side and outlets on the leeward side. Arranged diagonally, both in plan and section, these openings facilitate the uninterrupted flow of air throughout the rooms, harnessing the thermal effect for cooling. This design strategy, more easily achieved in the lower, single-layer segments of the building, is ingeniously repeated at the back by raising the rear section, where a subtle vertical offset between room layers allows fresh air to circulate efficiently throughout the family bedrooms.

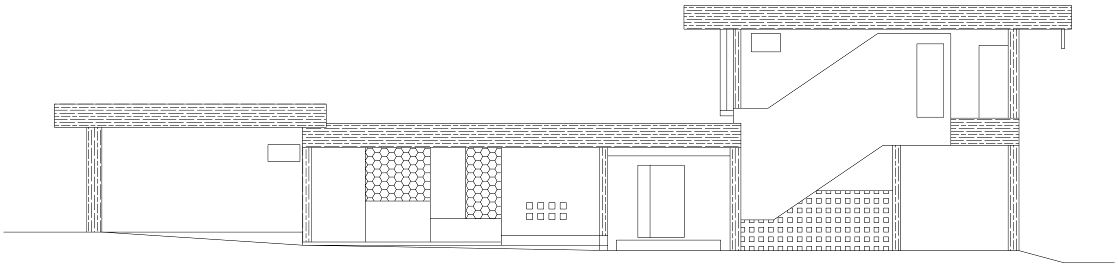
Much like the overall architectural composition, the building's façade demonstrates strategic climate-responsive design, layering different permeable elements designed to shield from the sun and manage airflow: an in-situ concrete apron extends vertically along the roof's edge, connected to the supporting structure through minimal concrete spikes at specific points. This feature not only protects the façade from the intense equatorial sun but also facilitates the upward flow of rising hot air between the strip and the building volume. A vertical brise-soleil layer, composed of cylindrical fibre-cement rings, covers all window openings. Unlike Ernst May, whose

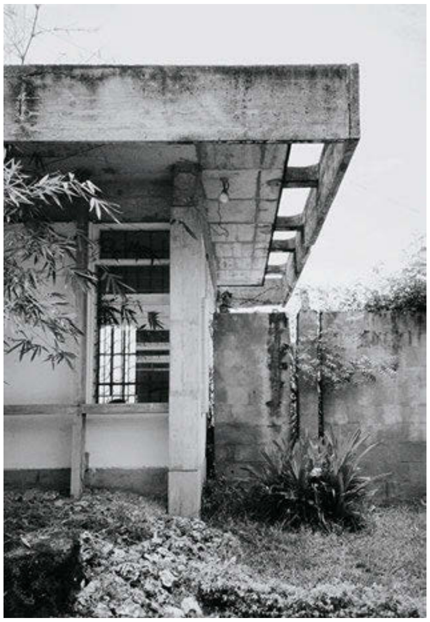
◀ Ground floor plan, 1:250.

▲ Exterior brise-soleils.

▼ Exterior courtyard.







▲ Section (top) and north elevation (bottom), 1:250.

◄ Garden view.

cultural centre in Moshi reacts differently to shading and ventilation needs in each façade, Almeida's invention of the cement rings responds to all cardinal directions; the rings effectively block both laterally incident and steep top sunlight with the same façade design, thus unifying the staggered building volumes into an architecturally distinctive constellation with recognisable visual appeal.

Also remarkable are the innovative ceilings, featuring hollow clay elements set in concrete, minimising unnecessary thermal mass and allowing for exceptionally flat construction and efficient use of materials. The consistent use of concrete in the construction of Almeida's buildings, including this one, goes beyond mere adherence to modern principles. It was a deliberate, even logical choice. Cement factories had been in operation in Dar es Salaam since British colonial times, and sand was abundant in many regions of Tanzania. This, as Almeida has wryly noted, made concrete the most local and most easily available of modern building materials.

Almeida's own residence, meticulously attuned to the tropical climate, is representative of his architectural approach. While allegedly guided by functionalist design decisions only, the architect harnesses climatic, programmatic and contextual conditions to respond to a design brief with a very specific, often highly aesthetic design.

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PIETER BURSSENS

CENTRAL LIBRARY

Dar es Salaam, 1966
ARCHITECT Anthony Bosco Almeida

The Central Library (also known as Maktaba Kuu ya Taifa, National Central Library or Tanzania National Library) is on the edge of Upanga, near the central commercial area of Dar es Salaam and near the Goan Institute (now Dar es Salaam Institute, pp. 355–357). The building is positioned on the end of Ingles Street, now Maktaba (meaning "library" in Swahili) Street. The immediate surroundings were largely unbuilt and mostly overgrown with palm trees at the time of construction in 1966.

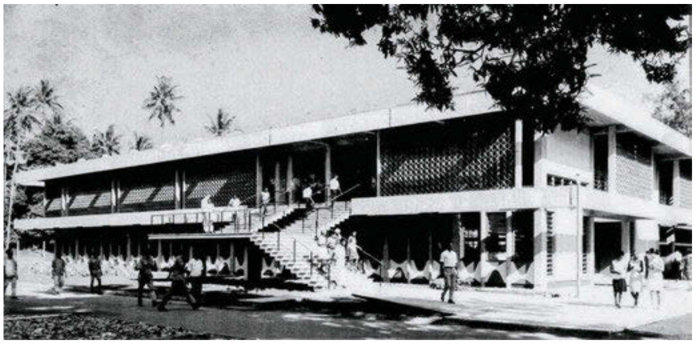
The Central Library, according to its architect Anthony B. Almeida, is one of his most successful works of contemporary tropical architecture, making use of natural light and cross-ventilation. The client, said Almeida, was deeply involved in drawing up the brief, but Almeida only submitted plans to them for discussion, no elevations, perspectives or models.

On the design, he wrote:

"This, being the first Library of its kind for Tanzania, whose people had now begun to enjoy education and its benefits, I wanted the building to appear to call the people to come in. For this reason, the main staircase that leads from the ground to the first floor adult library is an open 'grand' staircase attached to the outside of the building, and not hidden within the building, thus very visible and very inviting" (Almeida, letter, 2005).

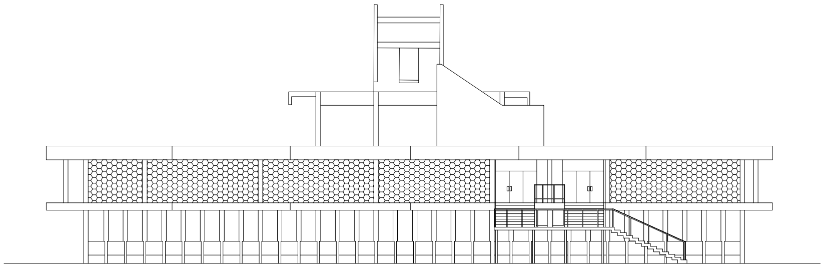
The library is a self-contained, two-storey building with a square, nearly symmetrical layout. The building takes a rectangular form, hollowed out so that the ground floor has an H-shaped plan and the first floor an eight-shaped plan. The core of the central staircase and the rectangular volume housing stairs and a lift to the rear extend, and appear as sculptural volumes above the building.

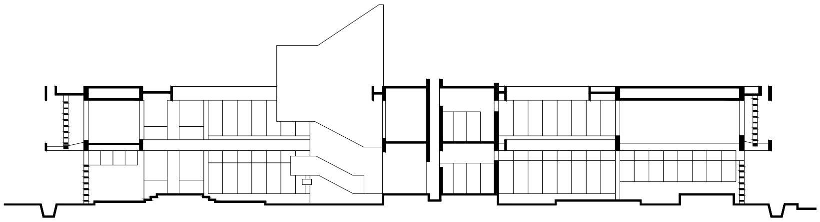
The entrance is at the front, asymmetrically positioned in the façade, with a broad staircase leading to the main entrance on the first floor. In the foyer are issue and control desks. From there, visitors can go to a lecture

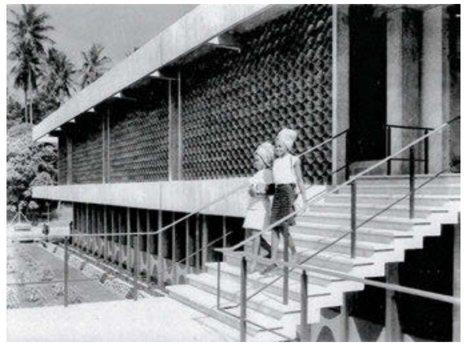


▲ Main façade.

▼ Figure-ground plan, 1:10,000, 06° 48' 42" S 39° 17' 05" E







▶ Main entrance.

▲ Southeast elevation, 1:500.

▲ Section A–A, 1:500.

▼ The library is somewhat set back from the road. During an extension, the original two-storey building was topped by another two storeys.

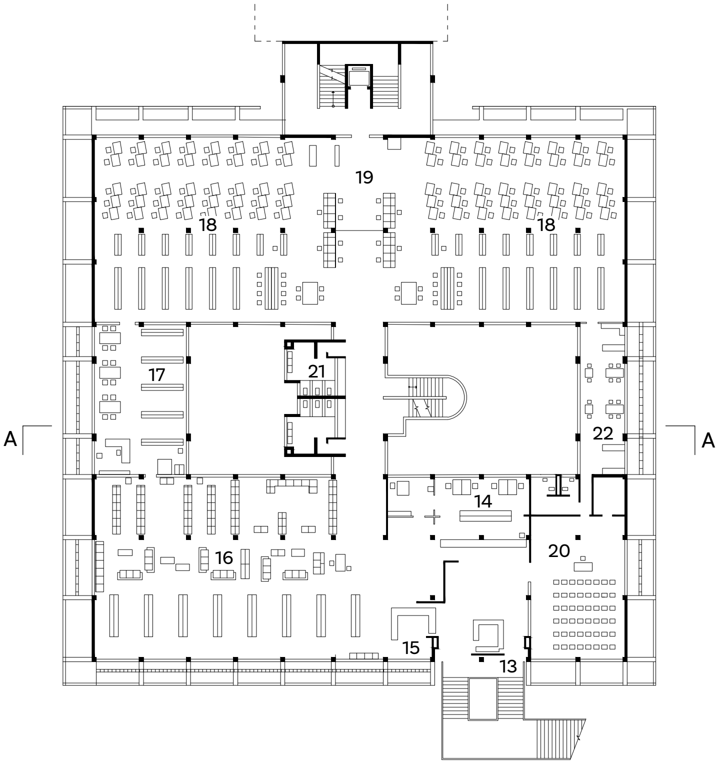
room to the right, or to the lending library to the left. The lending library has an open plan.

The front wing is connected to the back wing via a bridge with stairs and lavatories on the sides. The back wing, again, has an open plan and contains open book stacks and catalogues. The two main wings are also connected with a reading room and a staffroom.

On the ground floor is the children's library entrance, on the side of the building, which leads to the foyer with control and issue desks. The front wing is a children's and secondary-school library. A gallery, with the lavatories and stairs on the sides of it, leads to the back wing, where books are catalogued and stored. The two patios between the two wings are play and acting areas. Foldaway doors between the children's library and the patio allow the patio to be used as an open-air reading area.

The means of solar shading are similar to those used in Almeida's own house (pp. 358–360), designed a few years before: canopies projected from the roof slab, asbestos solar screens and horizontal exposed concrete bands parallel to the building. The louvred windows, foldaway doors, the open plan and the patios allow ample ventilation.

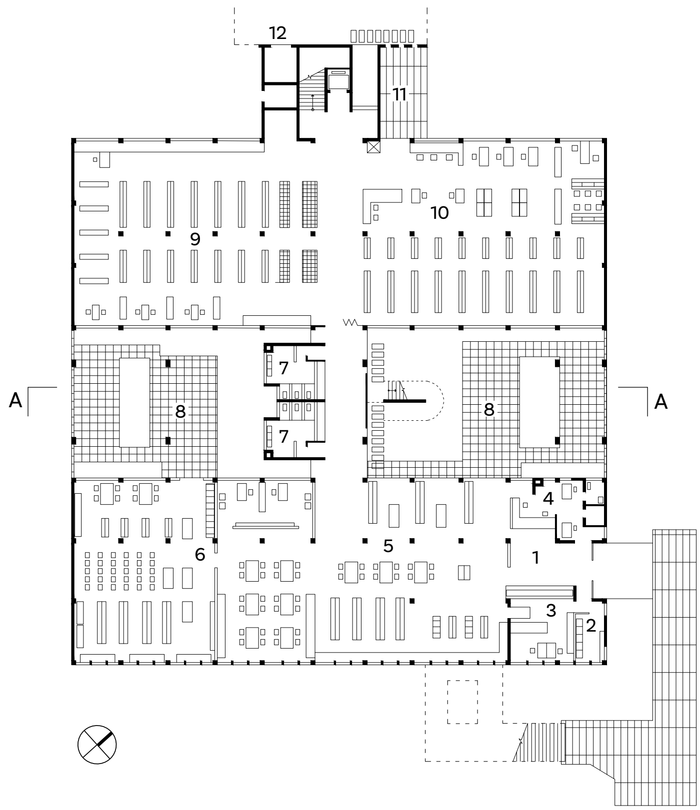
The building appears as a more or less heavy horizontal volume, supported by a series of lighter small, vertical stilts. The relative closeness of the solar shading and the horizontality on the first floor contrast with the transparency of the windows and the verticality of the columns on the ground floor. The closeness of the solar shading also emphasises the entrance. The horizontality of the volume, resulting from its proportions and the horizontal bands, is also counteracted by the asymmetry of the planes of



1 Children's library entrance
2 Washroom
3 Control desk
4 Issue desk
5 Children's Library
6 Secondary school library
7 Lavatories
8 Play acting area
9 Branch library exchange
10 Book order and cataloguing
11 Loading bay
12 Future extension
13 Bags
14 Control desk
15 Issue desk
16 Lending library
17 Special reading
18 Open book stacks
19 Catalogues
20 Lectures
21 Lavatories
22 Staff

▲ First floor plan, 1:650.

▶ Ground floor plan, 1:650.



solar shading and the sculptural volumes on top. Alternating concrete panels with a pattern of arches enliven the ground floor front façade. Originally, the possibility of adding an extension at the back of the building had been provided for, and the building was also foreseen as accommodating one more storey on top.

Today, the building has unfortunately been topped up by two storeys and been painted. The extra storeys appear vaguely as a copy of the original, but lack the intelligent coping with light and air, and the careful rhythm of the screen solar shading and walls. Additionally, a large billboard has been erected on top. In the original building, partitions were introduced and some windows were replaced. Almeida was quite unhappy with the added storeys as no one had asked for permission and he thought it destroyed the elegant proportions of his design.

The building is still very centrally located. Somewhat set back, it sits along Bibi Titi Mohamed Road, the main traffic artery through the centre of the city, and the plots adjacent to it have been developed. Maktaba Road has become a main entrance-and-exit road to and from the city.

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Letter from Anthony B. Almeida to Pieter Burssens, May 2005.

ANNIKA SEIFERT

KARIAKOO MARKET

Dar es Salaam, 1972–1974
ARCHITECT Beda J. Amuli

▲ Street view.

▼ Figure-ground plan, 1:10,000, 06° 49' 11" S 39° 16' 30" E

In 1969, Beda J. Amuli (1938–2016) achieved an historic milestone as the first Black African in East and Central Africa to establish a formally registered architectural practice. Born in 1938 in Mtwara in southwestern Tanzania, the chance discovery of his talent helped Amuli to obtain a scholarship at the Royal Technical College of East Africa in Nairobi and eventually to complete a full degree at the Technion in Haifa, a technical college in Israel. Upon completing his studies, he returned to Tanzania as a partner in the Israeli architecture firm Zevet, before setting up his own business in Dar es Salaam, a few years later.

Kariakoo Market (Soko la Kariakoo in Swahili) is Dar es Salaam's main trading point for food and household goods. Located in the central district of Kariakoo, the hall sits in a strictly orthogonal street grid that dates back to colonial urban planning and is surrounded by very densely built-up areas. As such, it creates one of the very few public open spaces in the neighbourhood. Originally designed as a three-part ensemble, only the main building could be realised according to Amuli's plans. The need for the other structures, which were never implemented, is reflected today in the countless informal stalls and hawkers that characterise the area around the hall, spilling into neighbouring streets.

When the building was designed in the 1970s, the great wave of urbanisation in East Africa was still to come. In most cases, markets were places to transfer agricultural goods and took place in a similarly rural form as in the countryside. Amuli used the traditional African village market under shading trees as the formative image for his design: a base area of around 90 by 60 metres is structured by free-standing concrete pillars, whose mushroom-shaped crowns expand into 15-by-15 metre umbrellas and join together to form a roof landscape spanning the hall. In the originally only one- to two-storey

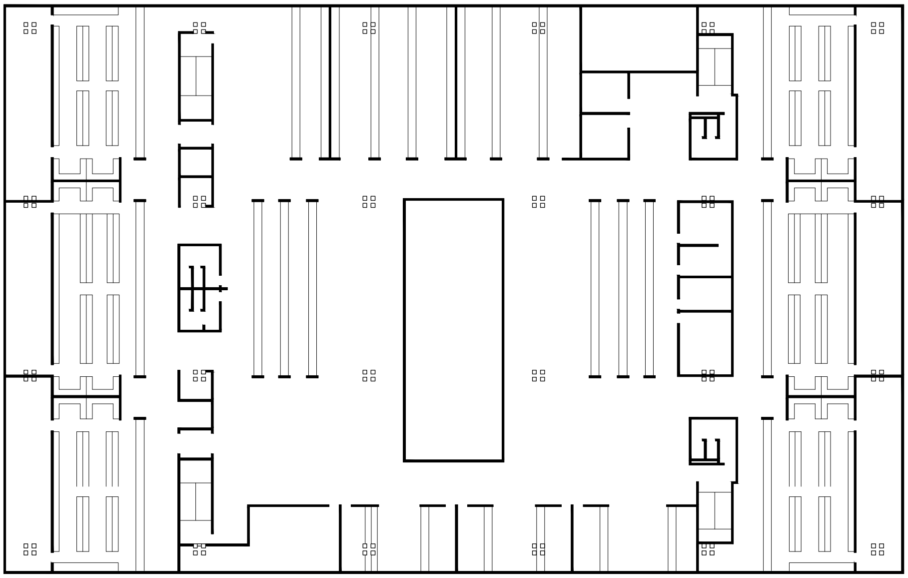
surrounding buildings, the umbrellas towered over the adjacent street space on all four sides. This strong architectural gesture lends the building a strength and uniqueness that make it a central point of orientation in Dar es Salaam, even in today's context of increasing urban density and multi-storey surroundings.

The main access to the market is from the west, so the small square in front of it is shaded by the tall, cantilevered concrete umbrellas in the mornings, when the market is at its busiest. The interior space under the umbrellas is high enough to accommodate the market functions on several levels: in the basement, which is accessed via ramps on the approaching roads, goods are delivered. Below ground level and constantly protected from the sun, the temperature remains moderate and goods can be temporarily stored at short notice. The main sales area is located on the ground floor entrance level; from here, a central staircase leads to the upper level, from where a view of the concrete crowns opens up. On this level, free-standing boxes are arranged between the pillars to accommodate administrative offices and permanently installed sales kiosks without obstructing the airflow. The central atrium in the middle of the hall connects the two levels with free-standing concrete stairs, and ensures optimum vertical ventilation. The surrounding outer ring of concrete umbrellas is offset downwards in relation to the rest of the roof, and the gap

◀ Detail of the roof structure: the crowns of the free-standing concrete pillars expand into umbrella-like shapes.

▲ The 15-by-15 metre roof elements with exterior illumination.

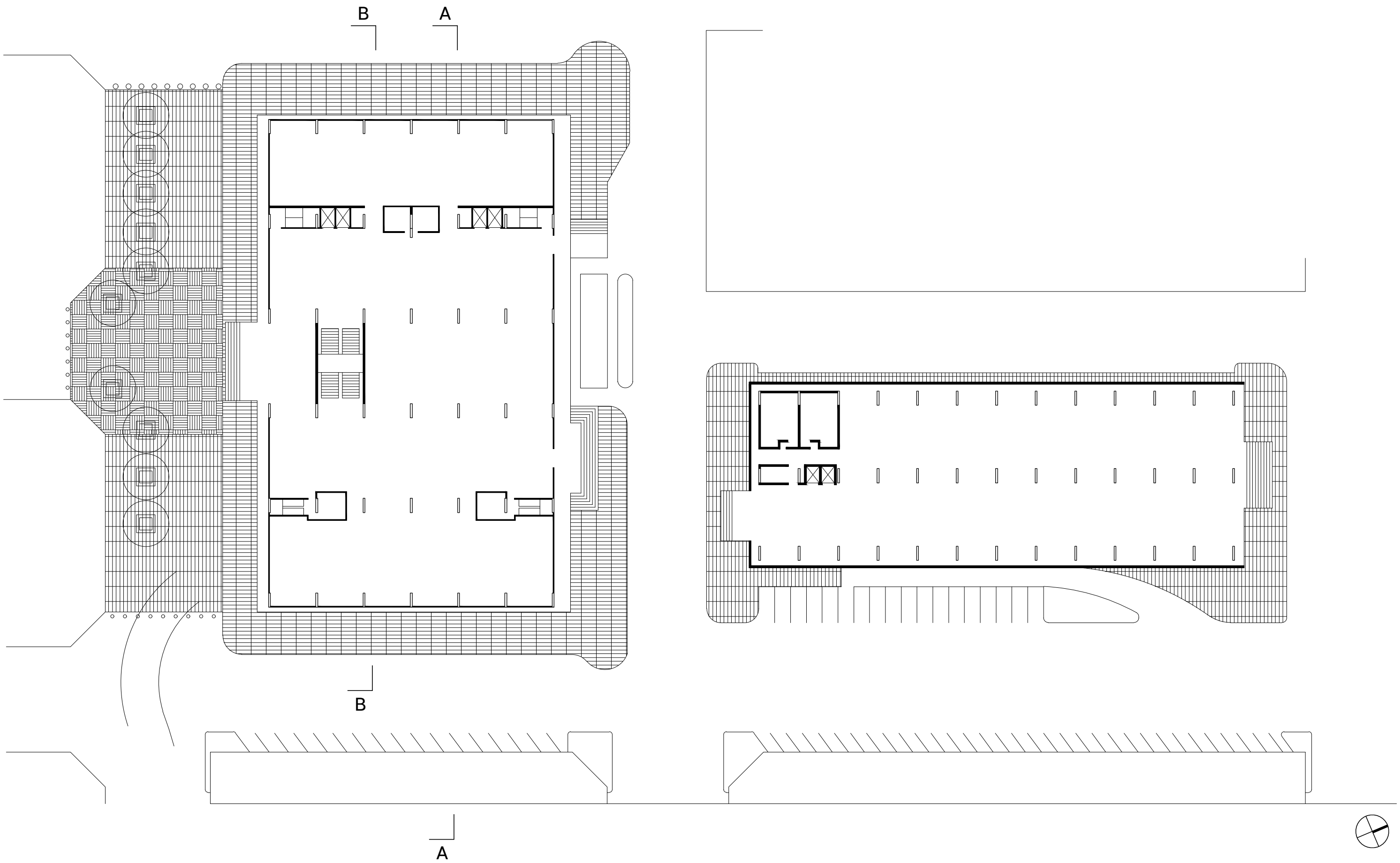
▼ The interior space is high enough to accommodate market functions on several levels.

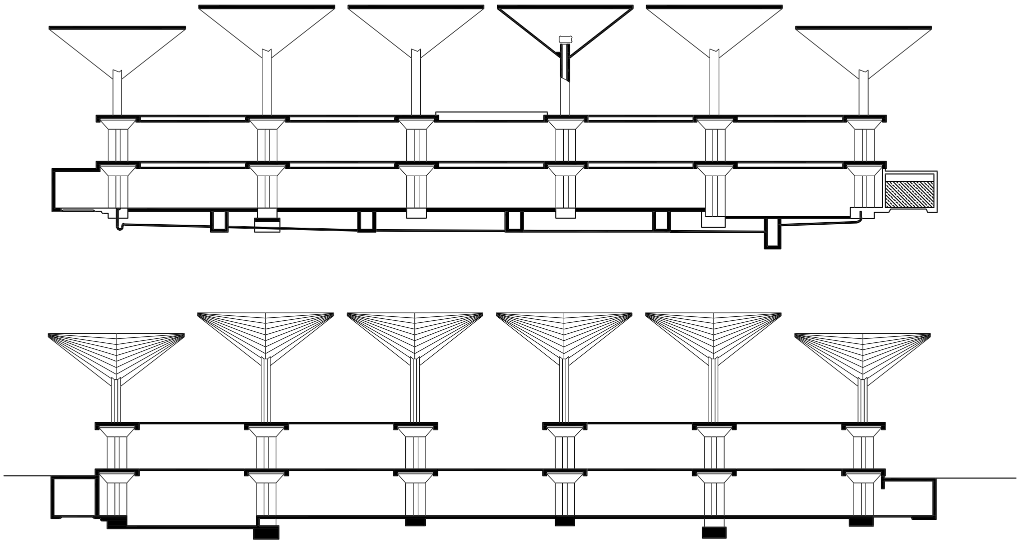


▲ First floor plan, 1:750.

▼ Ground floor plan, 1:750.

resulting from the different heights is filled with perforated, permeable masonry – hot air from inside the market hall therefore rises under the roof and can escape between the vertically offset umbrellas. The resulting suction leads to a permanent movement of air on both sales levels. The expansive roof structure also makes use

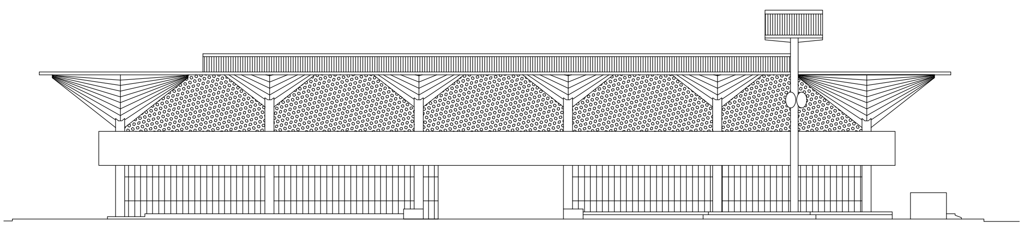




◀ Longitudinal section A–A (top) and B–B (bottom), 1:500.

▼ North elevation, 1:500.

of the frequent precipitation in the tropical, coastal climate. The large quantities of precipitation that occur during the rainy seasons collect on the upper side and are directed into the basement through downpipes in the pillars, to be stored in large cisterns to ensure water supply for the market operations.



In July 2021, a devastating fire erupted in the market hall, resulting in the destruction of more than 500 stalls. The question of whether the structural integrity had been compromised quickly triggered discussions about demolishing the hall to make way for a new and more efficient commercial mall. However, the subsequent outcry from architects, heritage activists and concerned citizens underscored the iconic significance of the building as a historical landmark. In response, repair works were promptly initiated. As the restoration efforts progressed, it became evident that local authorities had seized the opportunity to justify construction of a substantial extension building, positioned directly adjacent to Amuli's hall. Although this extension threatens to significantly alter the appearance of the original market within its urban context, it seems to have been the price to pay for the preservation of the historical structure.

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JEAN MOLITOR

UGANDA

▼ Pearl Hall of Residence, Kyambogo University, Kampala.

▼ Lumumba Men's Residential Hall, Makerere University, Kampala, 1971.

▼ Blackburne Norburn & Woodgate Architects, Chemistry Building, Makerere University, Kampala, 1954.

▼ Orient Bank Building, Kampala.

▼ Blackburne Norburn & Woodgate Architects, Chemistry Building, Makarere University, Kampala, 1954.

▼ Outpatients Block, New Mulago Hospital, Kampala, 1962.

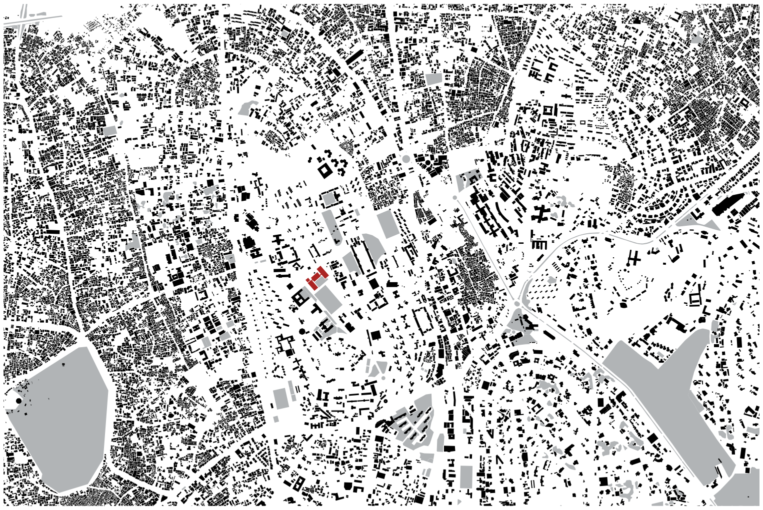
BOLA OGUNTADE, CHRISTINE MATUA, TIMOTHY LATIM

MAIN LIBRARY

Makerere University, Kampala, 1959
ARCHITECTS Graham Dawbarn and Nigel Norman (phase one), Hughes and Polkinghorne (phase two)

▲ Exterior view (original building, 1959).

▼ Figure ground plan, 1:10,000, 00° 20' 08" N 32° 34' 05" E



Dubbed the "Harvard of Africa", Makerere University is the alma mater of many post-independence African leaders, like Julius Nyerere and Milton Obote. Makerere was a new institution that was founded in 1937 as Makerere College, independent of Makerere Technical College. The latter was relocated to Kyambogo to make way for Makerere University College during the late 1930s. Makerere University College followed the path of Khartoum College in Sudan and of Nairobi College in Kenya by becoming an affiliate of the University College London (UCL) between 1949 and 1963, when it became one of the three constituent colleges of the University of East Africa (the other two being the University College Nairobi and the University College Dar-es-Salaam). In 1970, the University of East Africa was dissolved and each of the three colleges became fully independent. Being the premier university in Uganda, Makerere has the highest enrolment of students in Uganda. The student population has grown to about 35,000 whereas the university facilities were initially designed for less than 10,000.

During the university's period of affiliation with the University College London (UCL), Makerere's library was built. The original building with 4,000 square metres (1955–1959) was by architects Norman and Dawbarn and a first extension (1961–1963) was by Hughes and Polkinghorne. A third extension by local architects Technology Consult in 2006 resulted in a total of 12,000 square metres and a seating capacity of 2,800 places. The value of the first library building was £141,000, all of which was supplied from Colonial Development and Welfare Funds, making the Makerere University College one of the first beneficiaries of Britain's 1955 amended Colonial Development and Welfare Act, aimed at supporting economic and educational development in its colonies.

The massing of the library is formed by simple, solid, rectangular blocks. After the extension, the library's

▲ Main entrance (original building, 1959).

▼ Giant spiral staircase on first floor.

typology changed from a T- to an H-shape that encircles an open court between the three buildings. The roofs are gabled with a low pitch. A parapet wall disguises the roof at the shorter ends of the rectangular blocks. One would access the main entrance of the old library building from a minimalist concrete bridge off the access road (University Road), to the upper ground level of the old library building. The bridge is supported by V-shaped columns with steel balusters on either side. This bridge led to an entrance articulated by a cantilevered concrete porch flanked by steel pillars.

The walls of the lower ground floor are finished with irregular stone veneers. Furthermore, the clerestory on this floor causes it to resemble a typical retaining wall in the East African region. The columns on the lower ground level are white and contrast with the walls, much like the building's other exposed structural features such as the drop beams which adds to the building's overall aesthetic reading. The contrast of the columns against the backdrop of the natural material finishes of the wall, coupled with the fact that this lower ground level sits within an extensive green landscape, gives the illusion that the columns are merely supporting the two upper floors, like Le Corbusier's pilotis.

The building façades get their character from the brise-soleils for sun shading. Most buildings are oriented with their longer sides along the northwest-southeast direction which facilitates cross-ventilation. The longer

▲ View of reading rooms.

▼ Interior view towards the brise-soleils.

sides of the buildings have large windows behind the layer of brise-soleils that provide a lot of light and give uninterrupted views of the greenery of the landscape in which the library sits. The internal environments are kept cool with the verandas beside them, shaded by screens of fired, diamond-shaped Pompeii bricks, commonly used in Uganda. However, because of the large spans of the interior spaces, natural light alone is insufficient as the space is about 20 metres deep and the use of bookshelves and other partitions obstructs the daylight entering. Artificial light provided by fluorescent tubes is used to provide sufficient brightness in this space. Parts of the interior have a waffle slab with rectangular columns that mushroom towards the top in a pyramid.

The main repository has an elaborate spiral staircase pronounced further by the double-height spaces that it sits in. Much like the rest of the staircases within this building, it takes on a character common to many modern buildings built in the 1950s and 1960s in Uganda: concrete steps finished with terrazzo, with a mahogany handrail along the length of the open balustrade. These are supported by 30-by-30-millimetre, square, hollow, steel sections. The outstanding difference is that this central staircase has cantilevered concrete treads, with open risers, which gives the illusion that these steps are dancing around the centralised post. The effect of this feature is simply magnificent.

As the oldest academic library in Uganda, it also serves as the national reference library and the legal depository of all works published in Uganda. Despite international partnership (including an eight-month project funded by the European Union) and injection of funds in the areas of preservation awareness that could improve the long-term stability, security and accessibility of the library holdings, the maintenance and conservation of the buildings is still a major task to be tackled strategically.

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MARK OLWENY

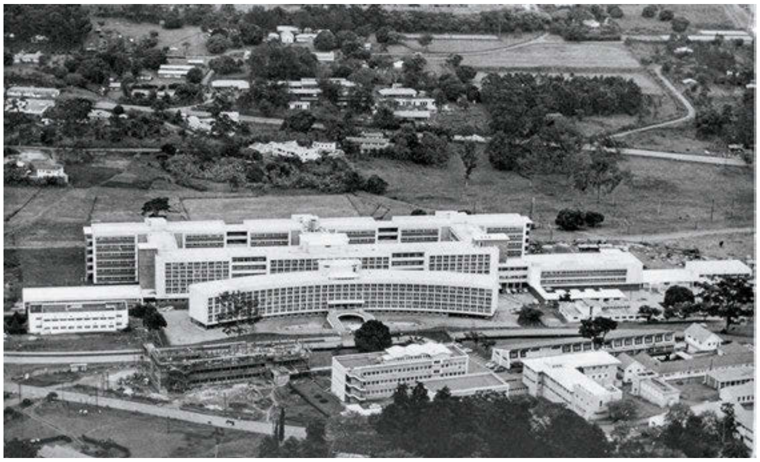
NEW MULAGO HOSPITAL

Kampala, 1962
ARCHITECTS John L. Hope and K. P. Smith (Public Works Department)

Mulago has been the location of a hospital since the 1910s. Over the ensuing years, the facility grew to become the main hospital for the indigenous population in the Uganda Protectorate and eventually exceeded its designed capacity of 650 beds. Plans were made to develop a new hospital to cater for the growing need for healthcare, with several schemes proposed. The building that was constructed was the third in a series of proposals for the site, the first having been abandoned with the onset of the Second World War. The second proposal, designed by Rees Phillips of Saxon Snell & Phillips Chartered Architects in 1947, had been approved and site clearance had started when it was aborted as well, despite having financial support from the Colonial Development and Welfare Fund.

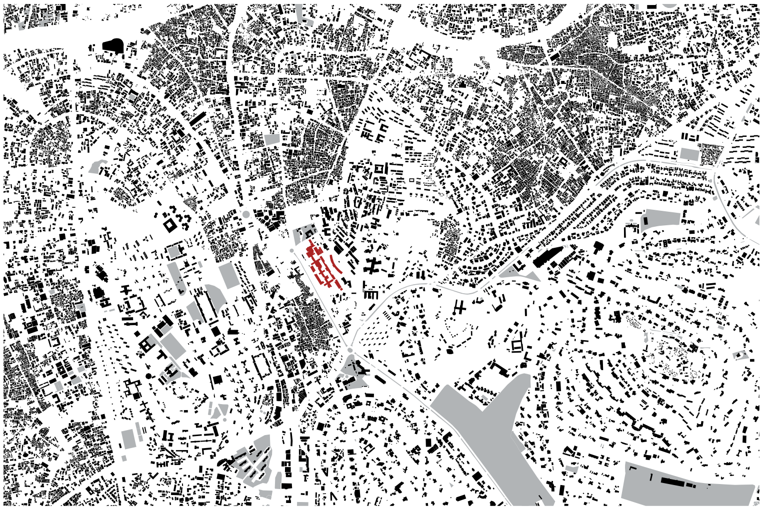
The third design for the New Mulago Hospital began in 1955, to be built on a 11.3-hectare site to the west of the Old Mulago Hospital. Unusual for the time, the appointed design architect John Hope was given an office in the Old Mulago Hospital, enabling him to meet members of the hospital planning committee on a regular basis. The New Mulago Hospital was designed to consolidate the services offered at two facilities: the Old Mulago Hospital, which served the indigenous African population, and Nakasero Hospital, which attended to the European and Asian communities. The New Mulago Hospital was to be a general hospital serving all races, as well as a teaching hospital for the newly established University College of East Africa. Construction began in September 1958.

The mammoth project of 49,244 square metres was completed within four years. It had been decided early on to use materials that could be sourced locally and built with local labour and available machinery. The result was a structure that was built with in-situ concrete, with small spans, and infills made from hollow clay blocks or concrete blocks. The project responded to the site, with



▲ Aerial view.

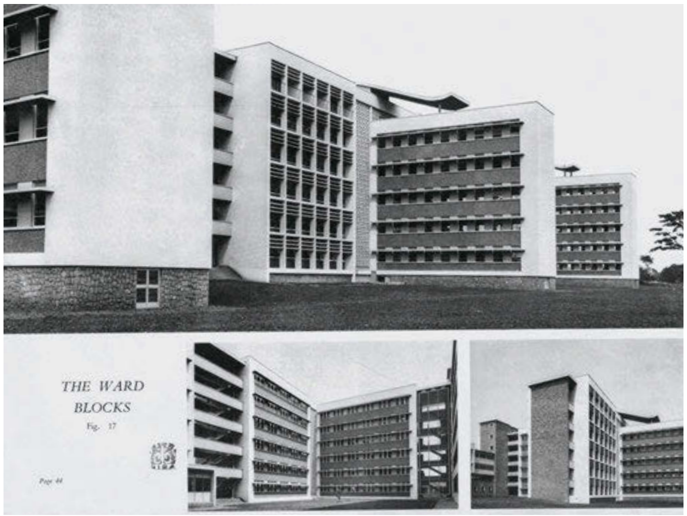
▼ Figure-ground plan, 1:10,000, 00° 20' 17" N 32° 34' 34" E

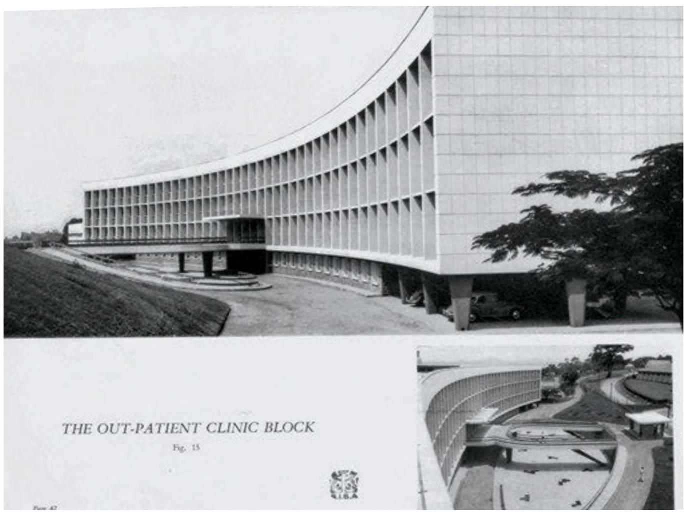


▲ West exterior view.

▼ Ward blocks.

▼ Outpatient block.



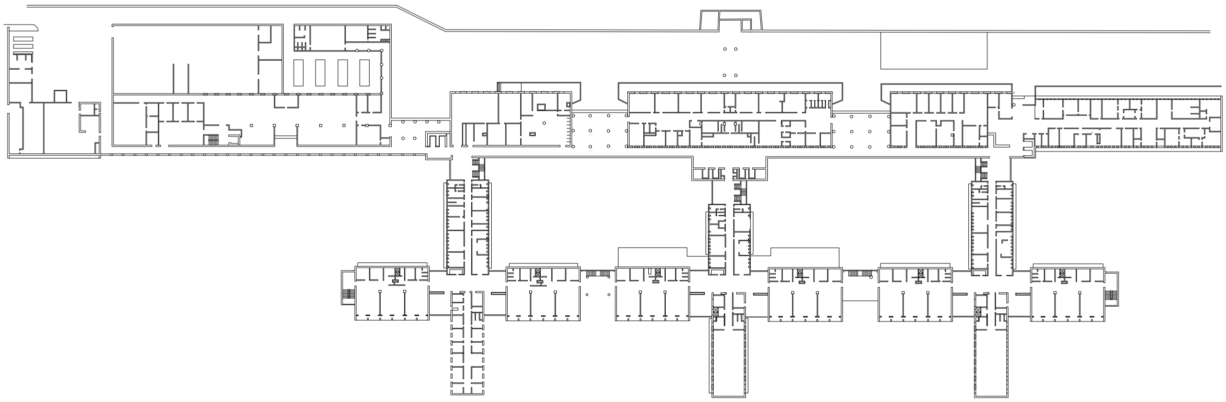


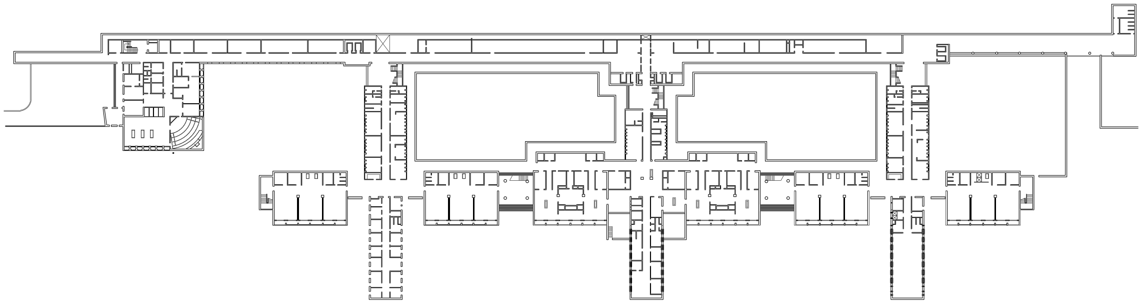
its three blocks sitting on the three terraces that had initially been fashioned for the second design scheme. Each terrace had a 3.6-metre rise, resulting in three blocks with four, five and six storeys.

The series of three distinct blocks running north–south along the terraces and cascading down the slope was a departure from earlier hospitals in many parts of the tropics, which largely comprised low-lying pavilions surrounded by gardens and trees, joined together by covered walkways. The design of the new hospital was to improve internal conditions for patients and medical staff alike.

The easternmost block is where the main entrance is located, with the casualty department on the ground level and the outpatient admissions on the first floor, accessed via a stunning, elevated, curved driveway. The four-storey outpatients' block included accommodation for interns and doctors on-call. The middle block was five storeys tall, comprising the clinical departments, maternity units and a private wing, each with its own operating rooms. The third and westernmost block was for the general wards, with operating theatres on the ground floor. A key feature of the project was the imposing western façade with the patient wards enjoying views to the valley below and to Makerere University College on the opposite hill.

While the building does appear as an imposing 198-metre block, it actually comprises three smaller units of about 55 metres each separated by breezeways, day spaces for patients and vertical circulation. These spaces aid the thermal performance of the building and provide links to the outdoors, acknowledged as a critical component of the healing process. They also acted as noise buffers between the different wards. The entire project was designed to be bright and airy, a theme carried through from the main entrance hall, as a double-height





▲ Plan of floor with operating theatres (middle terrace), 1:3000.

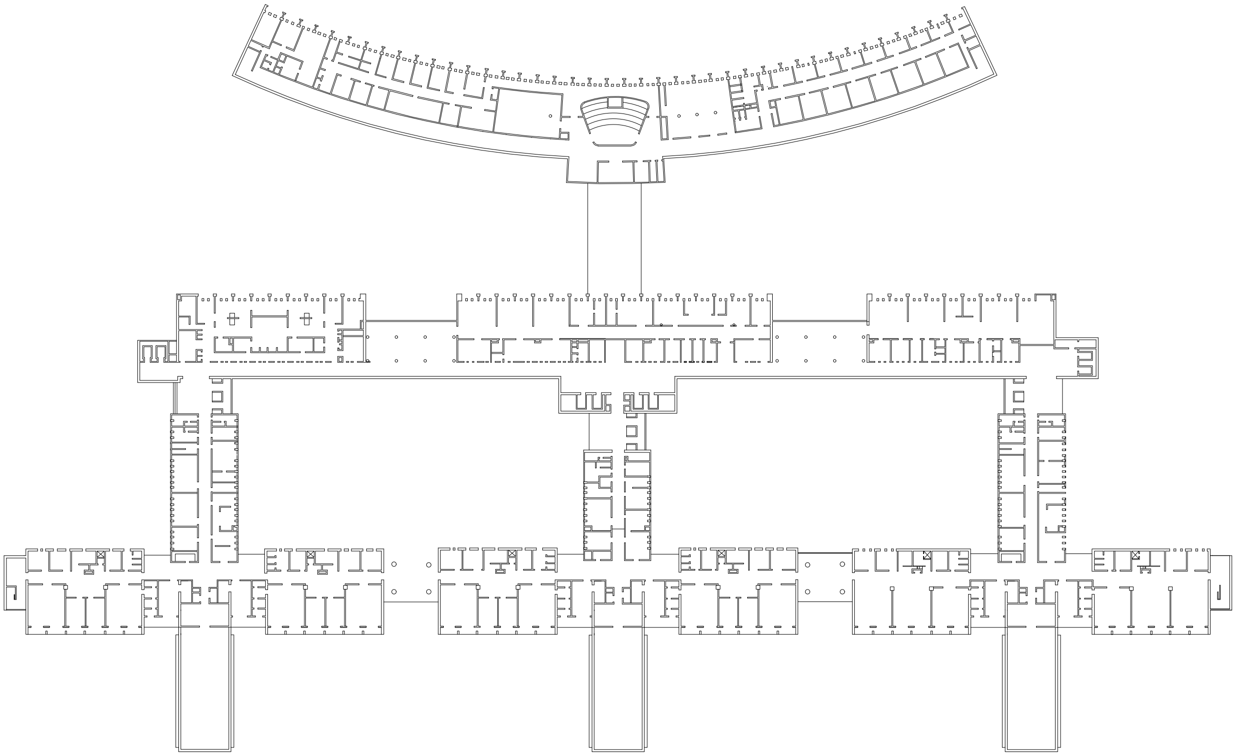
▲ Plan of floor with paediatric and surgical wards (bottom terrace), 1:3000.

▼ View of the main entrance.

lobby, to the wards with their expansive, operable windows affording patients views to the outside.

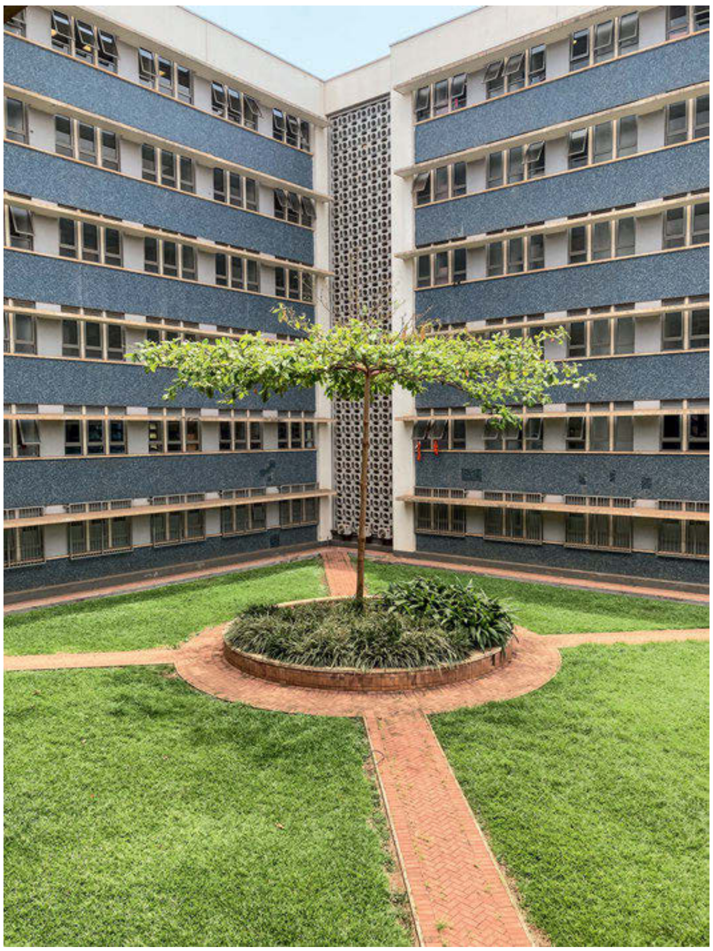
The cost-conscious design made use of simple finishes, with precast-terrazzo panels for the external walls, window sills and shading canopies. The terrazzo contrasted with external surfaces finished with cement plaster, paint and granite rubble. The granite rubble provides a textural contrast to the smooth terrazzo and rendered and painted surfaces. Air conditioning was restricted to essential spaces, such as the operating theatres, with most spaces relying on natural ventilation in line with the Tropical Modern DNA of the building. Mitigating the sun was achieved through horizontal shading devices protruding above all windows, with deep reveals and vertical shading providing additional protection for east- and west-facing façades.

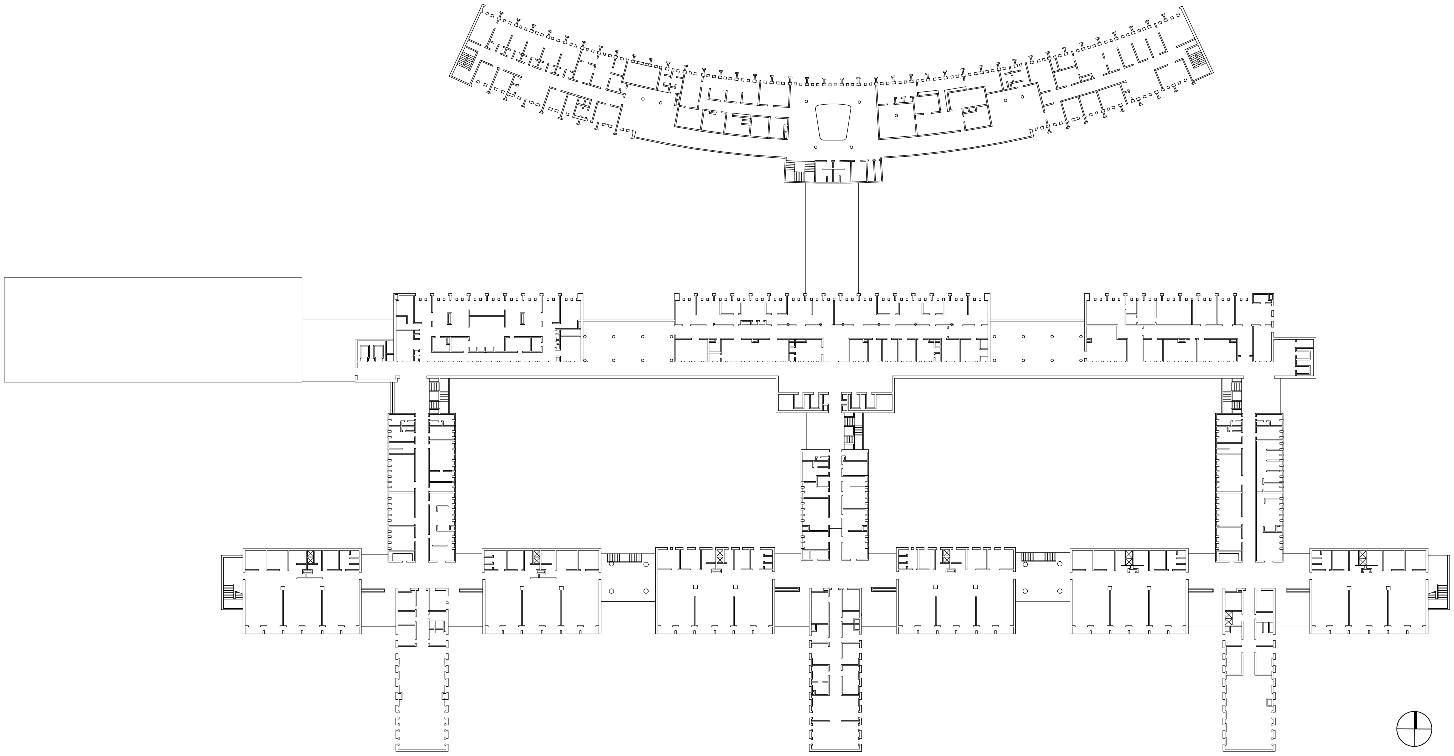
While the initial intention had been to demolish Old Mulago, those buildings were retained as the need for medical services grew exponentially and new departments such as the Uganda Cancer Institute were initiated. As the main referral hospital in Uganda, admissions to the New Mulago Hospital have over the years exceeded the designed capacity. Significantly, the designers had not



▲ Plan of floor with maternity wards, 1:2000.

▼ Views of open entrance area.





▲ Plan of floor with private maternity wards, 1:2000.

envisioned any extension to the building, given the nature of the site and the fact that it would be difficult to add a wing while the hospital was in operation. Nevertheless, a first proposal to extend the hospital was submitted in 1970 by the firm Shepheard and Epstein, and, over the past decade, extensions have been made, though not in keeping with the original design intentions and thus compromising the building's integrity. The structure has deteriorated considerably over the past half century, a consequence of prolonged civil wars and limited funding for maintenance and repair. Nevertheless, it still stands as a testament to the ambitions of the designers to create a hospital that could offer the best medical services available and give medical students the same opportunities as they would get in Europe. As an architectural endeavour, the New Mulago Hospital stands as a landmark project signifying the value placed on modern medical care and medical education in Uganda.

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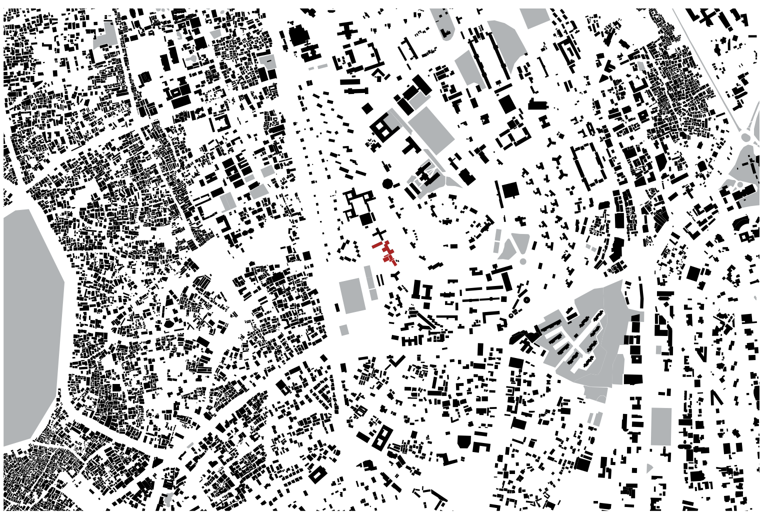
TIMOTHY LATIM

MARY STUART HALL OF RESIDENCE EXTENSION

Makerere University, Kampala, 1972
ARCHITECTS Peatfield & Bodgener Architects

▲ Mary Stuart Hall of Residence, built 1953, was first extended in 1959.

▼ Figure-ground plan, 1:10,000, 00° 19' 50" N 32° 33' 59" E



Mary Stuart Hall of Residence was built in 1953 as the first hall of residence for female higher-education students in Uganda. It was named after Mary Stuart (1900–2000), the wife of Bishop Simon Stuart of Namirembe Cathedral, who was committed to education of women (Kabuye, 2023). A second extension to the girls' hall of residence building was built after the first extension established in 1959 proved insufficient (Adengo, 2018). This extension to the so-called "Box", as the residence is commonly known, was designed by Peatfield & Bodgener in 1965 and completed in 1972 to meet the need for increased accommodation.

The extension was masterfully inserted between the first hall of residence from 1953 and the 1959 extension. The new block linked the existing buildings on the ground level by creating the main entrance through a central court that allows for crosswise movement. It provides access to the parking lot to the east; to the students' accommodation and warden to the west; to the dining hall and more accommodation to the south; and, straight ahead to the west, to the tower. The entrance court blurs the threshold between the indoors and the outdoors, with a part of it open to the sky and the façades perforated, thus allowing light and air to permeate the space.

The circulation through the building changes position from the lower levels to the higher levels. From the open court on the ground level, the sole access to the first floor is a striking spiral staircase. From level two to level eight, there are two staircases: a central one and a narrow emergency stair on the southeast side of the building. Both staircases are accessed from a central vestibule, to which the students' rooms, common facilities and ablutions are also connected. The lifts were installed and operated normally until the early 1980s. Lack of maintenance led to a tragedy and, subsequently, the permanent shutdown of the lifts.

The name “Box” predates the construction of the tower by more than a decade. It emerged out of the strict rules imposed on female students at the time: “The girls were fairly thickly hedged with regulations, for it was with considerable doubt from parents and responsible people that they had been admitted to Makerere in the first place. Small wonder then that the College nickname, which is still used, was ‘the Box’ and if picking up a young lady a student was said to be going to get her out of the box. The inhabitants are naturally ‘boxers’” (Macpherson, 1964, p. 169). The two long edges of the rectangle are distorted, and the plan of the “Box” reveals the shape of a hexagon. The tower follows the orientation of the existing buildings that lie off the east–west axis. The longer façades face northwest and southeast while the shorter façades are oriented towards northeast and southwest. This was the optimum orientation to minimise solar gain for the tower block. For this reason, the shorter façades are protected by extruding balconies that span the entire elevation.

The building is made entirely of off-shutter, reinforced concrete with different features and expressions. However, the exposed concrete can be seen to fan both horizontally, engulfing and bridging the adjacent existing structures, and vertically, in a monolithic, geometric block. The concrete on the exterior, which moves in horizontal bands around the façades, is the most prominent feature on the building. The combination of the extrusion and the recesses reduces the direct radiation of the façade, serving as a sunshade. This kind of placement creates an illusion as to the number of floors the tower has. While the tower has horizontal bands, the ground level vertical bands in a rhythm.

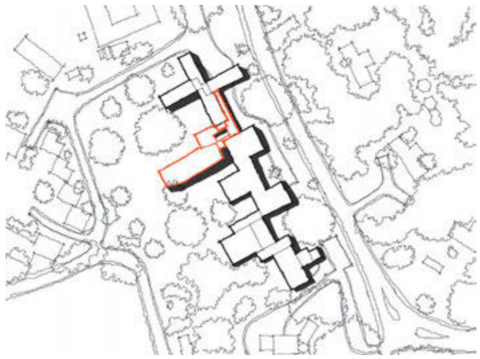
The orientation and massive concrete structure make the rooms cool and airy with no need for artificial

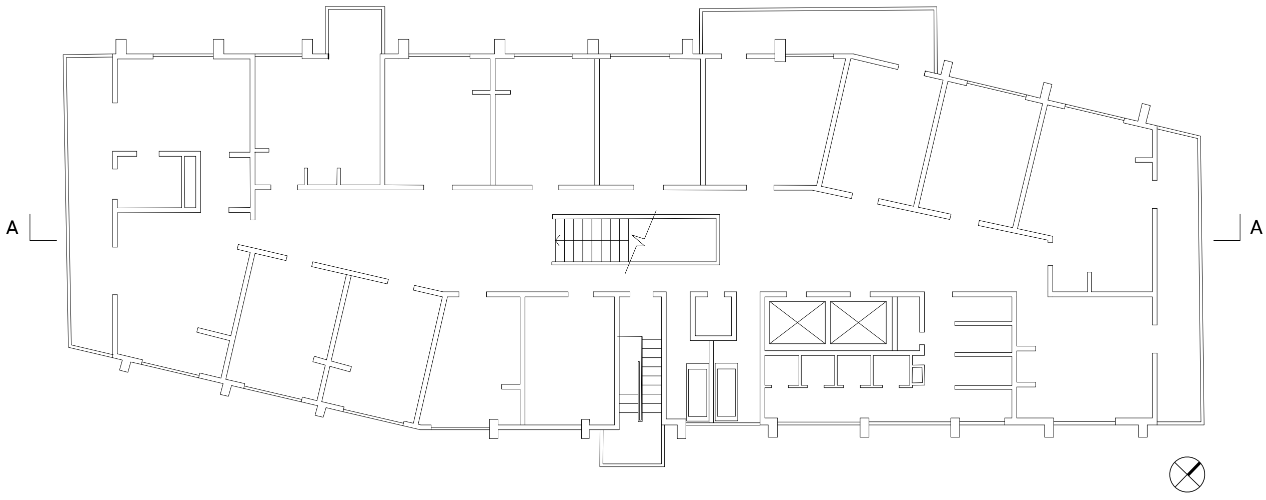
◀ Connection of the “Box” to the historical Mary Stuart Hall.

▲ Entrance to Mary Stuart Hall.

▼ Box”-extension to Mary Stuart Hall.

▼ Interior staircase in the “Box”.

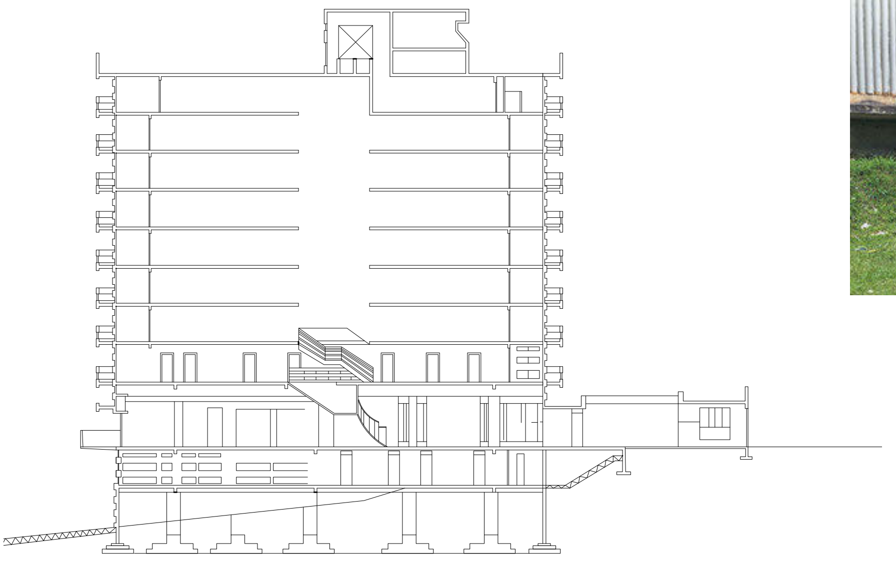




▲ Typical floor plan, 1:250.

▶ Exterior staircase at ground level.

▼ Section A–A through the “Box”, 1:350.



ventilation, although the vestibule on the interior is poorly ventilated. The stairwell creates a vertical stack through the building, but the air from the ablutions leaks into the vestibule, which can be stuffy and have bad odours whenever there are plumbing blockages or floods.

Mary Stuart Hall comprises some very peculiar features of the Modern Movement in Uganda, namely, massive concrete façades, a distorted form and the off-shutter concrete. The building has undergone few modifications and renovations since its initial design. However, in 2021, a fire spread through the ground level and damaged the northeast façade. Restoration efforts have been undertaken with hardly any noticeable differences between what was burned and what was the original building.

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TIMOTHY LATIM

FACULTY OF EDUCATION

Kyambogo University, Kampala, 1987
ARCHITECTS Peatfield & Bodgener Architects

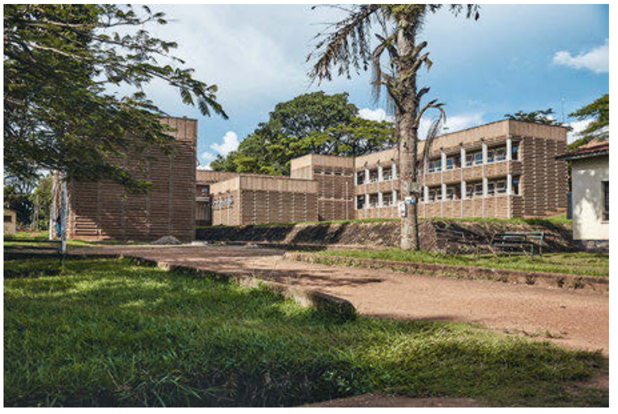
Kyambogo University emerged after the amalgamation of two institutions, the Institute of Teacher Education, Kyambogo, and the Uganda Polytechnic, Kyambogo. The latter had originally been situated at Makerere and was named Makerere Technical College. The Technical College was moved to the Kyambogo quarter to make room for the new Makerere University College. The university received funding from the Government of Uganda and the British Government for its operations and development.

The Faculty of Education was commissioned by the Ministry of Education to Carl Bro International A/S Consulting Engineers and to Peatfield & Bodgener Architects. At the time, the office already had a number of important buildings to its name, including the National Theatre (1959), the Uganda Legislative Building (1960, today Uganda Parliament), Uganda House (1974) and the Uganda Commercial Bank (today Cham Towers, 1976). The architects' appointment was cancelled, however, halfway through the project, so that the final executed works were an interpretation by the project engineers (Curtin, 2021).

The building sits on the western side of the university campus on a fairly steep, sloping site. It has four blocks: an administrative block to the north, lecture blocks on the east and on the west, library and laboratories, and an auditorium in the centre, all linked together by covered walkways. The blocks are further joined by common facilities, which include ablutions and the stairwells to the different levels.

The blocks were stepped to follow the slope of the site. The lecture hall on the east is the highest and the lecture halls on the west are the lowest, with the auditorium and the administrative block sitting on a high plinth to accommodate the level differences.

With the exception of the panels designed to reduce direct radiation onto the building, not much consideration seems to have been given to solar radiation on the



▲ Southeast exterior view with lecture halls.

▼ Figure-ground plan, 1:5000, 00° 20' 58" N 32° 37' 36" E

▲ Northeast exterior view with lecture halls and classroom wing.

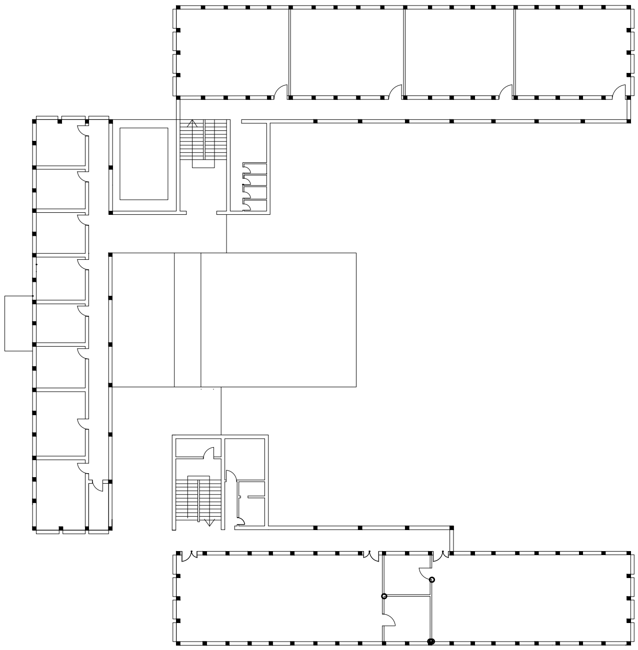
▼ South façade with prefabricated-concrete panels.

east- and west-facing blocks. The glazing is directly exposed to the morning and harsh afternoon sun with no roof overhang. However, passive ventilation was integrated throughout, with carefully placed openings above the windows to allow for constant cross-ventilation through the building. A few large trees also provide shade to the building on the east.

The circulation was originally designed to allow users to enter from all directions. Meanwhile, the exits have been closed off, leaving only the main access open. The main access for the building leads from the parking lot and through the administration block to the inner courtyard that measures 8 by 5 metres.

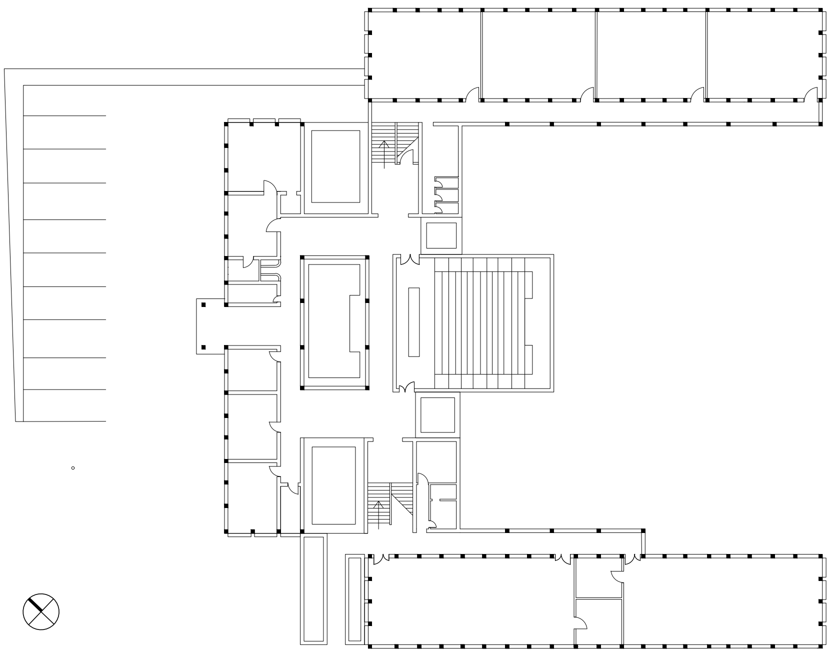
The most striking feature of the building is its materiality. The façade is clad predominantly with precast, rough-cast rectangular concrete modules. The modules have weathered into a brown colour that contrasts with the white-painted columns. The module has two design types, the first is used to close off the building, the second with a hollow section for light and ventilation. The module was employed on at least two other buildings on the Kyambogo University Campus – namely, Pearl Hall of Residence, completed in 1987, and the Faculty of Agriculture, completed in the same year. One building at Makerere University – Africa Hall of Residence – also makes use of the concrete module. This choice is indicative of one of the Modern Movement's principles: the modular standard of prefabricated construction.

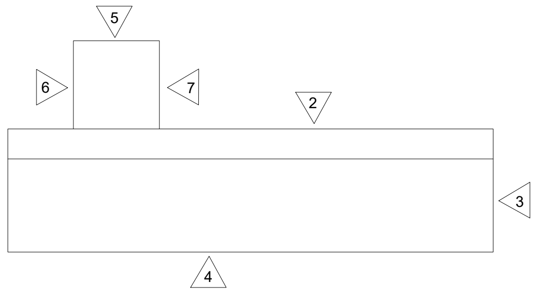
The buildings' main component are reinforced concrete panels used as infill walls; a system that was employed for other buildings as well (e.g. Bogolobi Flats). Timber is used



▲ First floor plan, 1:650.

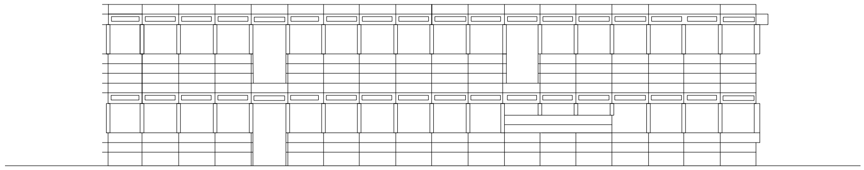
▼ Ground floor plan, 1:650.





▲ Locations of elevations, 1:1000.

▼ Interior courtyard.



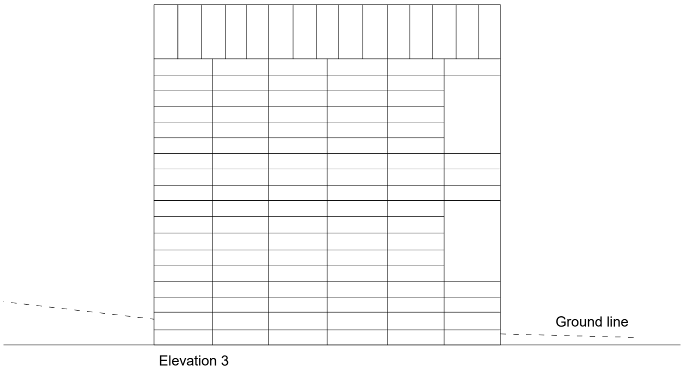
▲ Elevation 2, 1:100: classroom façade.

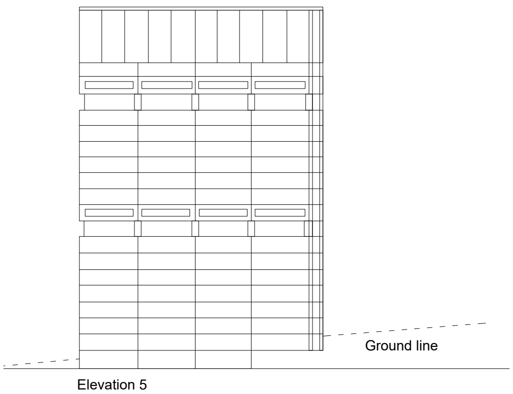
▼ Façade detail.

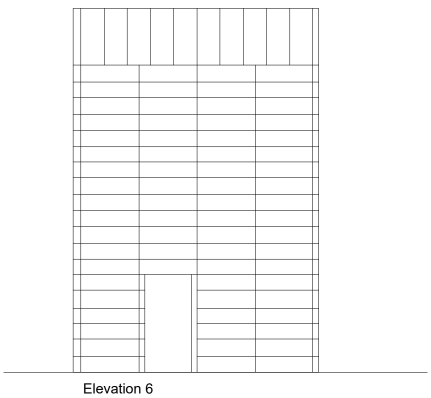
▼ Elevation 1, 1:100: classrooms façade.

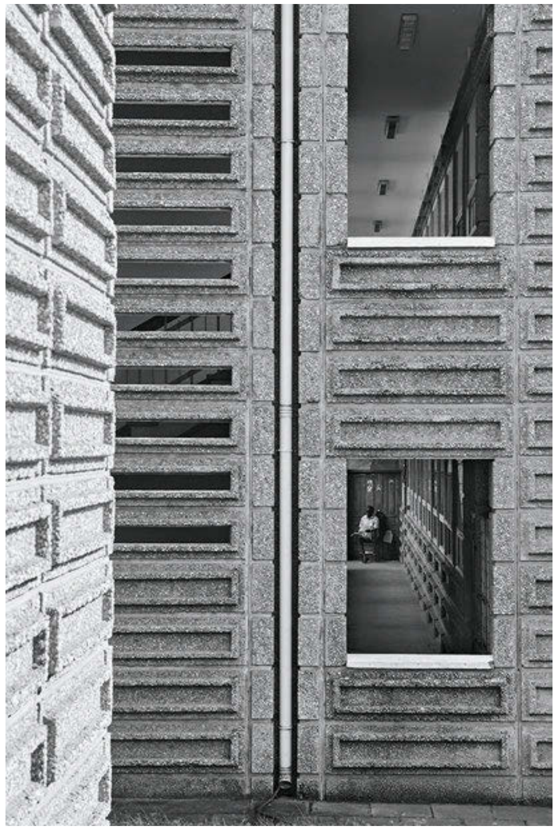
▼ Elevation 3, 1:50: Staircase block.

▼ Elevation 4, 1:50: Staircase block.



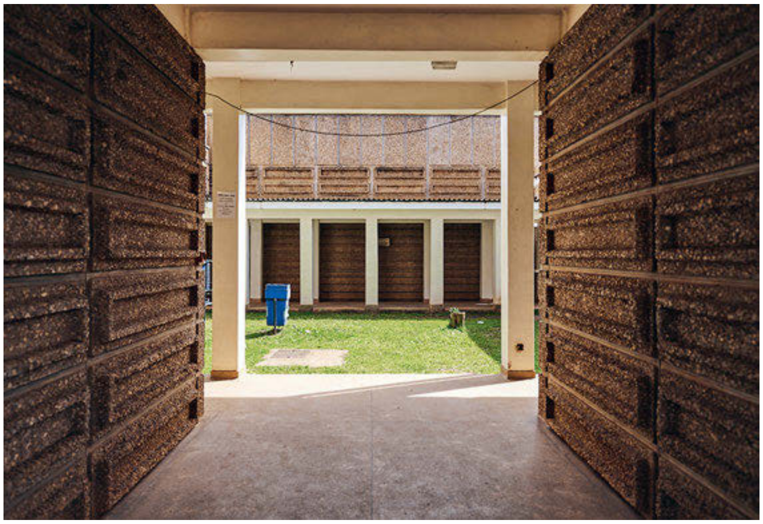






for the handrails and doors. The window frames are made of aluminium.

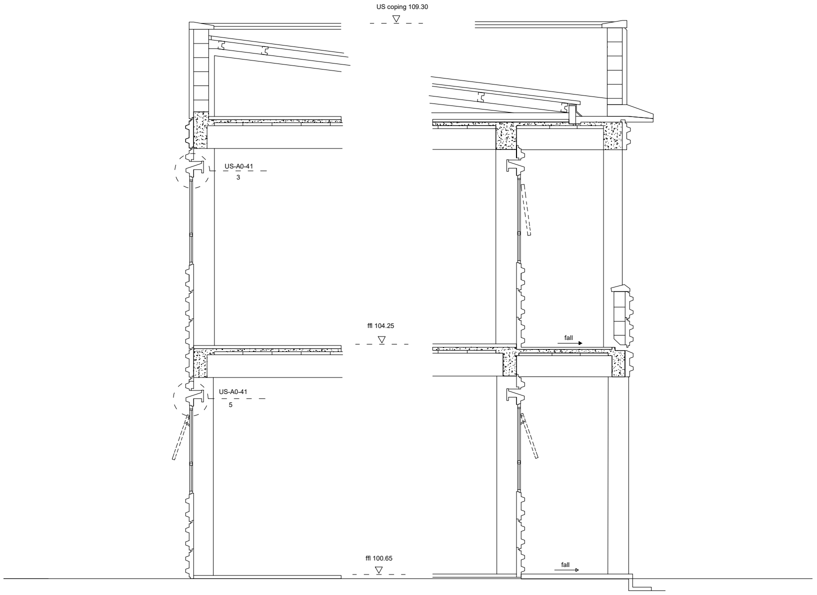
The Faculty of Education Building falls into the category of buildings that were designed using the same grid as the other two faculty buildings while being responsive to their respective sites. The approach to materials, size and the resolution of the spatial issues is similar in the three campus buildings mentioned (Africa Hall of Residence, Pearl Hall of Residence, Faculty of Agriculture), albeit with differences in orientation and response to the site terrain. These buildings have not undergone considerable alteration, standing as a testament to their original interpretation of the clients' needs.



▲ The main entrance is set into a precast, rectangular, concrete-module façade.

▶ Passageway to the interior courtyard.

▼ Section through classrooms , 1:200, showing the passive ventilation concept.



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Jonathan Kplorla Agbeh works as a research and teaching assistant with the School of Architecture and Design (SADe), Central University, Ghana. He is also a managing partner at Inspo7 Studios, an architecture startup in Accra. He is committed to the history of architecture and development of sustainable, energy-efficient architecture. His current research investigates the multiple eras of physical development of Ghana, in particular the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi.

Afua Ampomah-Amoako is a registered architect in Ghana and a lecturer at the Faculty of Built Environment at Accra Technical University. She has vast experience in construction and her interest spans across spatial planning, sustainable architecture and historic buildings and interiors. She has written about fire-safety measures for student housing in Kumasi and passive design strategies in tropical interior spaces. She is a mentor to young architects and designers.

Bayo Amole is a Professor of Architecture with 44 years of teaching and research in a pioneering role at the Obafemi Awolowo University in Ile-Ife Nigeria (formerly

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Zara Ferreira is an architect and a PhD student at Técnico – University of Lisbon, where she is a researcher at CITUA (Centre for Innovation in Territory, Urbanism and Architecture), within the project "reHAB – Habitat Regeneration as a Cradle for Resilient Healthy Communities". She is dedicated to the study of Modern Movement architecture, with a particular focus on the post-war period. Her master's thesis (2012), *Modernity and the Climate of Lusophone Africa. School Architecture in Mozambique: Fernando Mesquita's Program (1955–1975)*, was developed within the research project "EWV_Exchanging worlds visions: modern architecture in Lusophone Africa (1943–1974)", on which she was a researcher (2011–2013). From 2014 to 2018, she was the Secretary-General of Docomomo International and editor of *Docomomo Journal*.

Kate Foss is a registered architect practising in South Africa and the United Kingdom. After working across a broad range of building sectors in London, she is now based in Cape Town. She focuses her time on building new homes as well as renovations of buildings with heritage significance. She has a keen interest in African Fine Art.

Mohieldin Gamal is a practising architect and writer. He was the chair of the first cycle and country representative of the Docomomo Sudan Chapter, as well as being a founding member. After studying at the University of Nottingham and working at prominent architectural practices in London, he returned to Sudan in 2021 to pursue a deeper understanding of the country and its architecture. He is currently based in London, teaching at the University of Khartoum and researching the built heritage of Sudan and Africa.

LaQuaye Glover-Tay is a Ghanaian architect who focuses on sustainable design solutions suitable for the West African region. Her work includes research on traditional Ghanaian buildings and on sustainable architecture in West Africa. She has served as a juror for the World Bank's IFC EDGE Green Building Challenge and promotes green design through platforms like the African Women's Voices and the Ghana Green Building Summit. LaQuaye explores innovative approaches, such as the reuse and repurposing of waste materials, in her design projects. Her current research centres on the Mamprobi Post Office as a case study for assessing the long-term effectiveness of green design components in Tropical Modernist buildings.

Brendan Hart and **Yasmin Mayat** are Johannesburg-based architects, heritage practitioners and academics. They cofounded Mayat Hart Architects in 2012. The practice's work combines architecture, research, conservation and advocacy with considered projects that aim to respond to the rich and complex architectural and social history of South Africa. Their portfolio has been widely published, both locally and internationally, with award-winning projects including the restoration of the iconic 1937 modernist building Aiton Court (winner of the 2021 Docomomo International Rehabilitation Award). Brendan and Yasmin lecture at the University of the Witwatersrand.

Suha Hasan founded ASH, an architecture atelier based in Stockholm, Sweden. She is a former lecturer at the University of Bahrain. Before that, Suha trained and worked as a journalist. Suha is the co-founder of Mawane, a platform for urban research based in Bahrain. She is the director of the AA Visiting School Khartoum, which explores the intersection of architecture history and the environment. Her current research investigates the agency of architecture and archives in forming memory in the post-colonial city. She also serves as a consultant for UNDP Sudan. Suha is a founding member of Modern Sudan Collective.

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Justicia Caesaria T. Kiconco is a senior graduate architect and architectural researcher. Her experience across various roles and institutions reflects her commitment to both design and research. At FBW Architects and Engineers Rwanda, she develops innovative design solutions. She aims to bridge the gap between architectural practice and academia by exploring design methods, visual representation, textual analysis and strategies for action. She also worked as an architectural researcher at MASS Design Group and as lecturer in History of Architecture at Uganda Martyrs University. She holds a Bachelor of Environmental Design and a Master of Architecture (Professional) from Uganda Martyrs University.

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Ana Magalhães is an architect (Faculty of Architecture, University of Lisbon – FAUL, 1988) with a master's degree in Architecture Theory (Lusíada University of Lisbon – ULL, 2001). Her PhD thesis (ULL, 2015) was on *Modern Migrations: Architecture in the Diaspora – Angola and Mozambique (1948–1975).* She has been an assistant professor at ULL since 1990 and a researcher at CITAD (Research Centre in Territory, Architecture and Design) since 2015. She is the author of *Moderno Tropical – Arquitectura em Angola e Moçambique, 1948–1975* (Tinta da China, 2009), which was awarded the DAM Architectural Book Award 2010 in the category of Architecture History. She investigates 20th-century architecture, especially modern architectural heritage in the colonial period, on which she has published several articles. She has also been a practising architect since 1989 as partner at Atelier do Convento – Arquitectos.

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Jean Molitor completed an apprenticeship as a photographer and specialised as a camera assistant. He later studied Artistic Photography at the Academy of Visual Arts in Leipzig, graduating with a Master of Art. He has been working as a freelance photographer and filmmaker since 1994. After extended periods of work in South America and Asia, Jean has devoted himself more and more to his artistic work. His photographic oeuvre has been shown in numerous exhibitions both nationally and internationally, from Copenhagen and Kristiansand to New York and São Paulo. In 2009, he conceived bau1haus, his architecture-oriented art project in Bujumbura, which combines documentation with scientific research. His photographs have been featured in numerous publications.

Bola Oguntade is an urban planner with over a decade of experience in photography, communication design and print management. Documenting the physical changes in Lagos has opened his mind to the need to curate and understand urban processes and to safeguard and maintain the environment. He is the co-founder of the media agency Top Rank Images Limited. He is also a recipient of the German Academic Exchange Service (DAAD) Bilateral SDG Graduate Scholarship (2021–2023).

Maria Manuel Oliveira completed her architecture degree at the School of Fine Arts of Porto in 1985. She is a full researcher at Lab2PT and a lecturer at the University of Minho School of Architecture, where she has been teaching and conducting work on architectural and urban design at Minho School's Studies Centre. She has practised as an architect and published in the areas of urban design and intervention in architectural heritage. Her current studies focus on derelict buildings critical for urban memory, and she is involved in research projects related to these themes in East African countries.

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Margarida Quintã, born in 1981 in Porto, is an architect based in Porto and a researcher at CITUA (Centre for Innovation in Territory, Urbanism and Architecture) at the University of Lisbon. She holds a degree in architecture from the Faculty of Architecture of the University of Porto (2007), and a doctorate with distinction and honours from the Instituto Superior Técnico in Lisbon and the École Polytechnique Fédérale de Lausanne (2019). Her doctoral thesis, *Modern Schools in Angola, 1961–1975: Design with Climate and Heritage*, examines the climatic performance of Angolan architecture during the last years of Portuguese colonial rule. Through a detailed, critical analysis of the passive environmental-control systems developed for tropical modern architecture, her work demonstrates the symbiotic relationship between climate responsiveness and environmental comfort.

Tahera Rezaie is an architect from Afghanistan. Since 2023, she has been enrolled in the master programme for Integrated Façade Design at Technische Hochschule Ostwestfalen-Lippe (TH OWL) in Detmold. Before 2021, she was a teaching assistant and interior designer in Afghanistan. In her research on modern 20th-century residential buildings in Kabul, she came across the activities of Docomomo International and decided to establish Docomomo Afghanistan in 2020. Despite the challenges she faced during the Kabul upheaval, Tahera continues her efforts to contribute to architectural education and research in her homeland.

Annika Seifert heads the Chair for Climate-Responsive Design and Construction at the Faculty of Architecture, University of Stuttgart. Previously, she worked in teaching and research at Lucerne University of Applied Sciences and at the Technical University of Berlin. She practices in Dar es Salaam and Zurich with APC Architects, founded in 2010 in Tanzania. Her work focuses on climate-adapted design, the rediscovery of traditional construction methods and the rehabilitation of existing structures. In 2012, as part of a strong local movement, she co-founded the Dar es Salaam Centre for Architectural Heritage (DARCH) in Tanzania. She aims to promote a decolonised understanding of architectural heritage and history.

Muram Shaheen is an architecture graduate with interests in art, architecture, history and cultural-heritage preservation. After graduation, her research work focused on documenting the German Pavilion in Khartoum as part of the Modern Sudan Collective, from initial ideation to construction and second life time of the building (1960–2022), in addition to expanding on warfare and Cold War relations in the context of this building. Her visual and written documentation includes modelling, illustrative diagrams and photographs.

Karlien Thomashoff is a director at Thomashoff+Partner Architects and Y+K Architects, with notable architectural contributions including the restoration of Justice College, the renovation of the School of Architecture at the University of Pretoria and the modernist-inspired House Rooke. She graduated with distinction in 1992 from the University of Pretoria. In 1996, she participated in the bi-annual "SA Rome Scholarship in Architecture" for further studies at the British School of Architecture in Rome. She regularly serves as a design-award programme juror in South Africa. In 2023, she was a juror for the Political Animals National Architecture Competition for the South African Pavilion at the 18th International Exhibition – La Biennale di Venezia. She is a member of the Executive Committee of Docomomo South Africa.

Laura Nin Thomashoff completed her master's in architecture in 2021 at the University of Pretoria, where she graduated with a distinction in design. While working as architectural candidate at Thomashoff + Partner Architects, she contributed to a proposal for the restoration of Coromandel, Mpumalanga. She gained hands-on experience in historical-artefact preservation while working as an assistant in the University of Pretoria's Architecture Archives (AAUP). In 2023, Laura received a post-graduate diploma for Urban Heritage Strategies from IHS Erasmus University, Rotterdam and participated in a workshop at the RCE (Rijksdienst Voor Cultureel Erfgoed) in Amersfoort. In 2024 she was selected for a VLIR-UOS scholarship at KU Leuven for a Master of Human Settlements degree.

Ana Tostões is an architect, architectural critic and historian. She is a professor at Técnico – University of Lisbon and leads the Heritage line of CITUA (Centre for Innovation in Territory, Urbanism and Architecture), focusing on the history and rehabilitation of Modern Movement architecture with an emphasis on climate design and north-south cultural transfers. She has been an invited professor at UTokyo, ETSAUN, Polimi and FAUP. She has published *Key Papers in Modern Architectural Heritage Conservation* (2012), *Modern Architecture in Africa: Angola and Mozambique* (2013, awarded with the Gulbenkian APH Prize), *Modern Heritage. Reuse, Renovation, Restoration* (Birkhäuser, 2022), *The Critical Monumentality of Álvaro Siza* (2023) and *Modernist Women Interior Designers and Artists* (2024). President of Docomomo International until 2022 and editor of the *Docomomo Journal* (2010–2021), she is the chair of ISC/Publications. President of AICA_SP and Docomomo_PT, member of the Science Academy of Lisbon and the Fine Arts National Academy, she was awarded the Académie d'Architecture Publications and Critic Medal, the X Bienal Ibero-Americana de Arquitectura y Urbanismo, and the Order of Infante Dom Henrique commendation.

Ola Uduku is head of the Liverpool School of Architecture, Liverpool University. Uduku researches modernist architecture, the history of educational architecture in West Africa and social-infrastructure provision for minority communities in the "West" and "South". She is an advocate of equity in all its forms in the workplace, particularly in the architectural profession. She promotes the documentation and recording of modernist buildings and landscapes at Docomomo in Africa, and was President of the African Studies Association UK (2020–2022). Her current research focuses on examining donor aid and its relationship to architecture in the 21st century, and also the history of health architecture in Africa.

Sandra van der Merwe is an architect and director at NM & Associates Planners and Designers, an architecture, urban-design and planning practice based in Claremont, Cape Town. She is interested in how urban, sustainability and heritage considerations at various scales contribute to contextually appropriate, resilient buildings and positive public environments. She co-chairs Docomomo South Africa with Ilze Wolff.

Kaija Voss was born in Berlin in 1965. After studying architecture in Weimar (Bauhaus University), she completed her doctorate at the University of Hanover. She worked as a research assistant at several institutes for architectural history, most recently at the TU Dresden. Today she is an architectural historian, author and lecturer as well as a freelancer for the *Süddeutsche Zeitung* and *Bayerische Staatszeitung*. Kaija has published numerous articles on building and art history. She specialises in the Bauhaus and classical modernism. She took over the scientific consulting for Jean Molitor's bau1haus project in 2016. She is involved in the preservation of listed buildings at the German Foundation for Monument Protection and the association Kulturerbe Bayern e. V. Since 2024, she has been head of the Grünwald district centre of the Munich Adult Education Center.

Kirk White is a retired architect based in Durban, who has practised along the southeastern seaboard of Africa. He has worked in South Africa, in Zimbabwe and in central Mozambique, with specialised interests in conservation of the built environment and in researching the architectural origins of the Modern Movement in the region.

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ACKNOWLEDGEMENTS

Most relevant were the partners in and from Africa who helped with their experience and networks in each country and beyond with additionals contacts during the excursions and exhibitions.

From the Shared Heritage Africa (SHA) project, we would like to thank first of all Ola Uduku (University of Liverpool), Kuukuwa Manful (University of Michigan Ann Arbor) from the Docomomo Accra Chapter in Ghana and Taibat Lawanson (University of Lagos), well known and respected for her research on educational buildings and urban development in Africa, and Mark Olweny (Uganda Martyrs University) in Kampala, Uganda. All greatly supported the application and execution of the project during the visits of the SHA team to Nigeria, Uganda and Rwanda. Their commitment to the younger generation, the (built) heritage of Africa and their enthusiasm was instrumental to the achievements of the SHA project. The photography and exhibitions showing the research results were strongly supported by the project partners, i.e. photographer Jean Molitor and Christian Burkhard from Architectuul, an architectural platform that – through its co-workers in various countries – forms an international architecture community. Both collaborated in setting up exhibitions and sharing their knowledge enthusiastically with the SHA Fellows. Finally, Anica Dragutinovic (TH OWL) coordinated the contact amongst the SHA Fellows from the very beginning, during their visits to Europe to the 17th International Docomomo Conference in Valencia in 2022 and to the 19th Docomomo Germany Conference in Frankfurt 2023. Three exhibitions were organized in Lagos (2022), in Kampala (2023) and Frankfurt (2023).

Special thanks to our SHA Fellows Abdul-Rashid Alhassan, Emmanuella Ama Codjoe, Jonathan Kplorla Agbeh, Olubola Oluwole Oguntade, Otitooluwa Tubi, Immaculata Nneoma Abba, Justicia Caesaria Kiconco, Timothy Oryema Latim and Christine Matua – and to our editorial support team at TH OWL in Detmold, namely Svenja-Christin Voß, Tahera Rezaie and Najmeh Najafpour.

We also like to thank the members of the SHA project's Advisory Board with Ana Tostões (University of Lisbon), Iain Jackson (University of Liverpool), Irene Appeaning Addo (University of Ghana), Kaija Voss (architectural historian) and Tino Mager (ICOMOS Germany). And we are grateful to the German Federal Foreign Ministry for their support of the project with a grant (AZ99210073) in 2021–2023.

From the research project "EWV_Exchanging Worlds Visions: Modern Architecture in Lusophone Africa (1943–1974), Looking Through Brazilian Experience Established Since the 1930s", developed by Técnico – University of Lisbon as the principal contractor, we extend our thanks to the FCT – Portuguese Foundation for Science and Technology, who funded the project (PTDC/AURAQI/103229/2008), as well as to the participating institutions: Escola de Arquitetura da Universidade do Minho, Instituto Camões, Instituto de Investigação Científica Tropical, Eduardo Mondlane University and Agostinho Neto University. We also express our gratitude to the project consultants, Antoni Folkers (ArchiAfrika), Carlos Eduardo Comas (UFRGS), Isabel Martins (UAN), José Forjaz (FAPF-UEM), José Pessoa (UFF), Luís Lage (FAPF-UEM), Tom Avermaete (ETH Zurich) and Maria João Teles Grilo (UMA), as well as to the members and fellows of the project for their contributions to the fieldwork, research, redrawing and photographs.

Finally, the work was further supported by national funds through FCT – Portuguese Foundation for Science and Technology, I.P., within the research unit CiTUA (10.54499/UIDB/05703/2020), namely by providing a research fellowship to Zara Ferreira, who coordinated the sections on Angola and Mozambique for this publication.

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Legend
t = top
r = right
l = left
m = middle
b = bottom

Modern Movement buildings change over time and, while some are in a state of dilapidation, others have been renovated. In order to make this documentation as precise as possible, we added the year the photograph was taken in parentheses, wherever it could be found out. Please note also that for layout reasons the scales of drawings are sometimes an approximation.

Every reasonable effort has been made to identify the buildings in the photo reportages introducing each country but we did not always succeed. Should you be able to provide further information, please contact us at Docomomo International. This information will be added in subsequent editions.

Docomomo International would like to thank the German Federal Foreign Office (AA) that funded the project Shared Heritage Africa. Rediscovering Modern Masterpieces (FK AZ99210073) coordinated by DOCOMOMO Germany. This work is also supported by national funds through FCT - Portuguese Foundation for Science and Technology, I.P., within the research unit CiTUA (10.54499/UIDB/05703/2020).

Graphic design, layout and typesetting Miriam Bussmann

Copy editing and project management Ria Stein

Production Heike Strempel-Bevacqua

Drawings and editorial support Najmeh Najafpour, Tahera Rezaie, Svenja-Christin Voß

Paper 135 g/m² Magno Volume FSC Mix

MIX
Paper | Supporting responsible forestry
FSC® C009051

Printing Gutenberg Beuys Feindruckerei GmbH

Lithography bildpunkt Druckvorstufen GmbH

Cover Public Works Department, Independence Arch, Accra, Ghana, 1957;
photograph: Jean Molito

Library of Congress Control Number: 2024916675

Bibliographic information published by the German National Library
The German National Library lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available on the Internet at http://dnb.dnb.de.

ISBN 978-3-0356-2833-3

e-ISBN (PDF) 978-3-0356-2835-7 Open Access
DOI: https://doi.org/10.1515/9783035628357

Im Westfeld 8, 4055 Basel, Switzerland
Part of Walter de Gruyter GmbH, Berlin/Boston

The book is published open access at
www.degruyter.com.
Printed on acid-free paper produced from chlorine-free pulp. TCF∞

Printed in Germany

9 8 7 6 5 4 3 2 1

www.birkhauser.com