

MANLIO MICHIELETTO  
ORCID: 0000-0003-2098-3414  
German University in Cairo, Egypt

# THE SACRED ARCHITECTURE OF THE COURTYARD TYPOLOGY: REINTERPRETING EGYPTIAN ANCIENT HERITAGE

---

## SACRUM ARCHITEKTURY DZIEDZIŃCOWEJ: REINTERPRETACJA STAROŻYTNEGO DZIEDZICTWA EGIPTU

### Abstract

The courtyard, a foundational architectural archetype, merges functional, climatic, and symbolic elements. In Pharaonic Egypt, it regulated light, ventilation, and social life while embodying cosmological and ritual significance. Temples such as Philae, Dendera, and Hatshepsut's Mortuary Complex transformed the domestic court into a sacred threshold between the earthly and the divine, where colonnades and hieroglyphs narrated creation myths and royal authority. This enduring Mediterranean typology, the courtyard, exemplifies a persistent dialogue between pragmatism and metaphysics, continually shaping architectural space across history. The design proposals for the Archaeological Institute in Aswan re-engage with these typological and morphological legacies, rediscovering the site's evocative power and reinterpreting historical meanings in a contemporary context.

*Keywords: architectural typology, Aswan, courtyard, Egypt*

### Streszczenie

Dziedziniec, będący podstawowym archetypem architektonicznym, łączy w sobie elementy funkcjonalne, klimatyczne i symboliczne. W Egipcie faraonickim pełnił rolę regulatora światła, wentylacji i życia społecznego, a zarazem ucieleśniał sens kosmologiczny i rytualny. Świątynie takie jak kompleks na File, Dendera czy zespół grobowy Hatshepsut przekształciły dziedziniec domowy w święty próg między tym, co ziemskie, a tym, co boskie – przestrzeń, w której kolumnady i hieroglify opowiadały mity o stworzeniu świata oraz potwierdzały autorytet królewski. Ten trwały śródziemnomorski typ architektoniczny stanowi nieprzerwany dialog między pragmatyzmem a metafizyką, nieustannie kształtując przestrzeń architektoniczną na przestrzeni dziejów. Projekty Instytutu Archeologicznego w Asuanie ponownie podejmują dialog z tym dziedzictwem typologicznym i morfologicznym, odkrywając na nowo siłę oddziaływania miejsca i reinterpreterując historyczne znaczenia w kontekście współczesnym.

*Słowa kluczowe: typologia architektoniczna, Asuan, dziedziniec, Egipt*

## 1. INTRODUCTION

Among the typologies that have endured across time and cultures, the courtyard stands as a profound architectural constant. It is a void that organises solid matter, a centre that

anchors domestic and sacred life, and a threshold where climatic, symbolic, and social dimensions converge. From the sun-drenched compounds of ancient Egypt to the classic case studies in Greek and Roman housing constructions, to the shaded *sahn* (courtyard) of Islamic architecture, both for private and public buildings, the courtyard has functioned as a spatial archetype and a conceptual model. This paper examines the courtyard as both a typological constant and a cultural palimpsest, tracing its evolution from Pharaonic Egypt through the temples and mortuary complexes to the Greco-Roman and Islamic paradigms and the “theatres” of domestic life, culminating in its modern reinterpretation in architectural education. The study is based on the theoretical approach of typological reasoning, where the type is not a static form to be copied but a generative principle linking historical continuity with architectural innovation. Using a multidisciplinary approach that combines architectural history, environmental analysis, and design experimentation, the paper highlights the enduring compositional relevance of the courtyard. Particular attention is given to the educational context of the German University in Cairo, where Design Studio 7 engaged students in reimagining the courtyard as the central element in designing a new Archaeological Institute in Aswan. The studio, titled *Designing the Memory: The Aswan Archaeological Institute*, served as a laboratory for exploring how typological and morphological thinking can influence design decisions that are both rooted in context and forward-looking. In support of this thesis, two proposals are presented and analysed, in which reactivating the layered meanings of the courtyard—spatial, climatic, and metaphysical—the projects demonstrate how a historical type can shape the present and, consequently, the future. The proposals have also been intended as a physical response to the need to reshape a silent fragment of the Aswan urban fabric, to be filled with a public institution to revitalise the built and unbuilt community. Reshaping a portion of the city assumes a crucial role as part of a historic narrative and, at the same time, in laying the groundwork for future developments.

## 2. A TYPOLOGICAL APPROACH

The courtyard is among the oldest and most persistent architectural typologies in construction history. Across different eras and cultures, it has consistently served as a central open space—both literal and symbolic—around which life, climate, rituals, and memory are organised. Particularly in arid and semi-arid climates, the courtyard evolved not only as a climatic response but also as a spatial archetype that mediates between the inside and outside, the individual and the community, and the temporal and the sacred. Its ongoing significance highlights the courtyard not just as a functional element but as an architectural constant capable of harbouring multiple layers of meaning. Typological thinking in architecture considers form as a carrier of collective memory, tradition, and meaning, and here, following Aldo Rossi, who refers to the definition of type from Quatremère de Quincy:

the word type does not represent so much the image of something that must be copied or imitated perfectly, as the idea of an element that must itself serve as a rule for the model [...]. The model, understood from the point of view of the practical execution of art, is an object that must be repeated as it is; the type, on the contrary, is an object based on which everyone can conceive of works that may not resemble each other at all.<sup>1</sup>

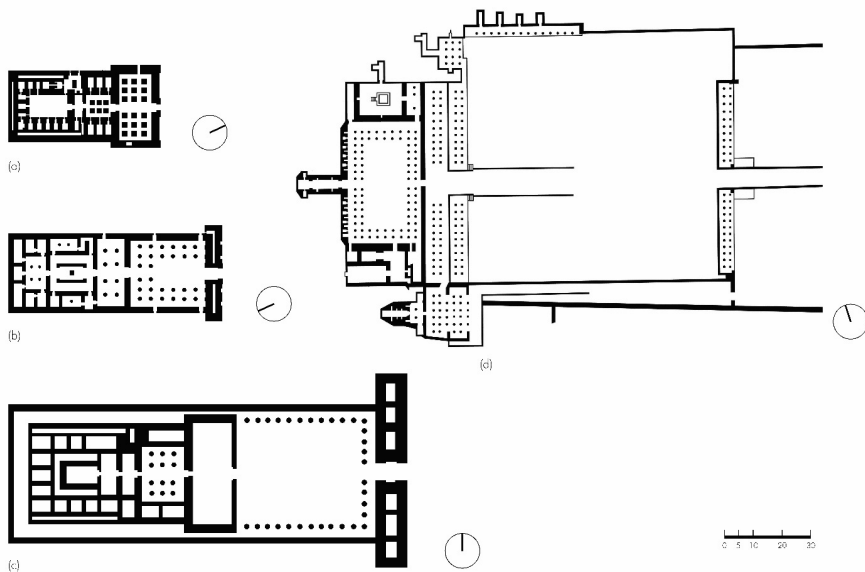
---

<sup>1</sup> A. Rossi, *Architecture of the city*, MIT Press, Cambridge 1982, p. 40.

In this context, the courtyard is not merely a stylistic feature but a compositional structure—an enduring spatial system adaptable to cultural shifts and symbolic interpretations. For Giorgio Grassi, the courtyard is a rational and ordered space that embodies urban continuity and architectural clarity.<sup>2</sup> Francesco Venezia regards it as a symbol of silence and memory—an echo of ancient spaces that have been layered over time.<sup>3</sup> Antonio Monestiroli describes the courtyard as an architectural concept that links the ancient and the modern, the sacred and the civic, within a coherent spatial grammar.<sup>4</sup>

### 3. THE COURTYARD IN EGYPT OVER TIME

In Egypt, the courtyard has remained a central architectural feature for millennia, adapting to diverse cultural, religious, and environmental contexts while carrying a unique historical resonance. From early settlements to modern urban planning, this typology has shown remarkable continuity in both function and symbolism. In domestic architecture, particularly in Nubia and Upper Egypt, courtyards provided essential microclimatic benefits by regulating heat and aiding ventilation (Ill. 2). These open-air spaces were utilised for daily activities such as cooking, gatherings, rituals, and resting. At the same time, they served as spatial mediators between the indoors and outdoors, offering privacy while fostering social cohesion within extended families. The courtyard gained increased symbolic significance in ancient Egyptian sacred architecture. Temples like Karnak, Edfu, and Dendera (Ill. 1)

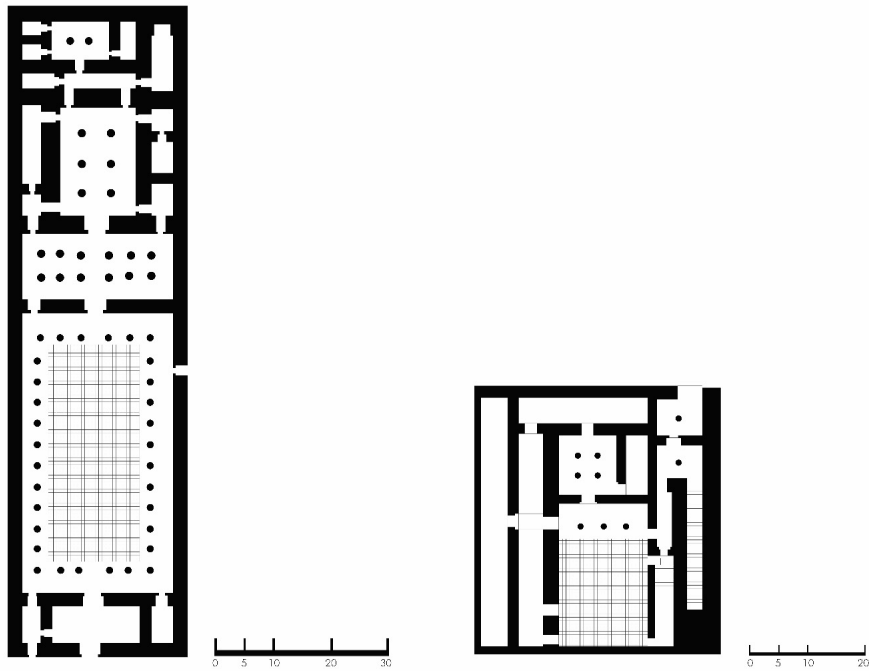


Ill. 1. Plan views of the Dendera (a), Karnak Khons (b), Edfu temples (c) and the mortuary complex of Hatshepsut (d), source: Manlio Michieletto, 2025

<sup>2</sup> G. Grassi, *La costruzione logica dell'architettura*, Electa, Milano 1983, p. 55.

<sup>3</sup> F. Venezia, *Che cosa è l'architettura. Lezioni, conferenze e un intervento*, Electa, Milano 2022, p. 37.

<sup>4</sup> A. Monestiroli, *L'architettura della realtà*, Laterza, Roma–Bari 2000, pp. 87–94.

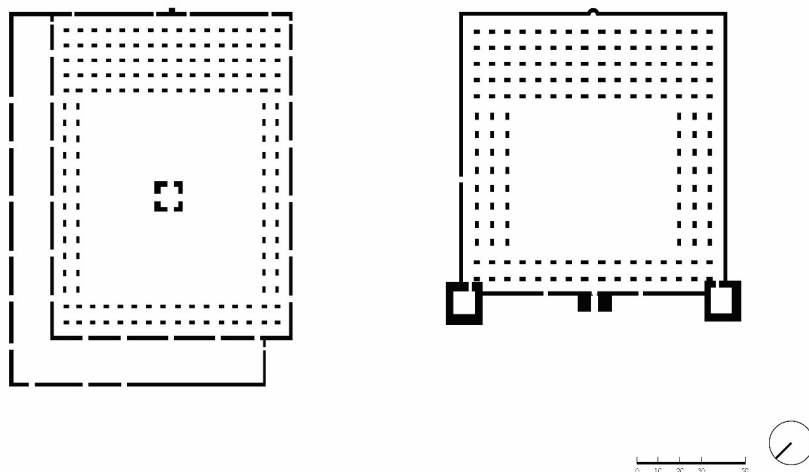


Ill. 2. Plan views of a palace (left) and house (right) in Amarna, source: Manlio Michieletto, 2025

were constructed along strict axial alignments with colonnaded courts, marking thresholds between the human and the divine realms. Sunlight flooded the open space, inscribing solar rhythms into the architecture, while narrative reliefs on the surrounding columns conveyed divine legitimacy and mythic histories.<sup>5</sup> They were open to the sky and frequently aligned with solar or astronomical phenomena, using light to encode cosmic rhythms into architecture. Reliefs on surrounding columns depicted religious narratives and reinforced pharaonic authority, transforming the courtyard into a stage for ritual and theology. Light and shadow became tools of spiritual expression, while colonnades and spatial sequences made the sacred journey comprehensible through movement. This architectural language persisted in the royal mortuary temples of the New Kingdom, known as “mansions of millions of years”, underscoring their enduring role as cult sites for the deified king.<sup>6</sup> Drawing from domestic architectural terminology, these temples were designed as eternal dwellings for the deified king. Their open courtyards hosted public ceremonies whilst guiding visitors inward toward increasingly sacred and darker spaces. This spatial choreography reflected theological world-views, encoding cosmic order via symmetry, axiality, and orientation. In Islamic architecture, the courtyard evolved into the *sahn*, the central element around which homes, mosques, and madrasas were organised. Although its form adapted to new religious and cultural contexts, the fundamental logic remained: an enclosed central space offering environmental

<sup>5</sup> F.A. Hassan. *The Aswan High Dam and the international rescue campaign for Nubia*, “African Archaeological Review” 2007, no. 3, pp. 73–94.

<sup>6</sup> T. Wilkinson, *The complete temples of ancient Egypt*, Thames & Hudson, London 2000, p. 25.

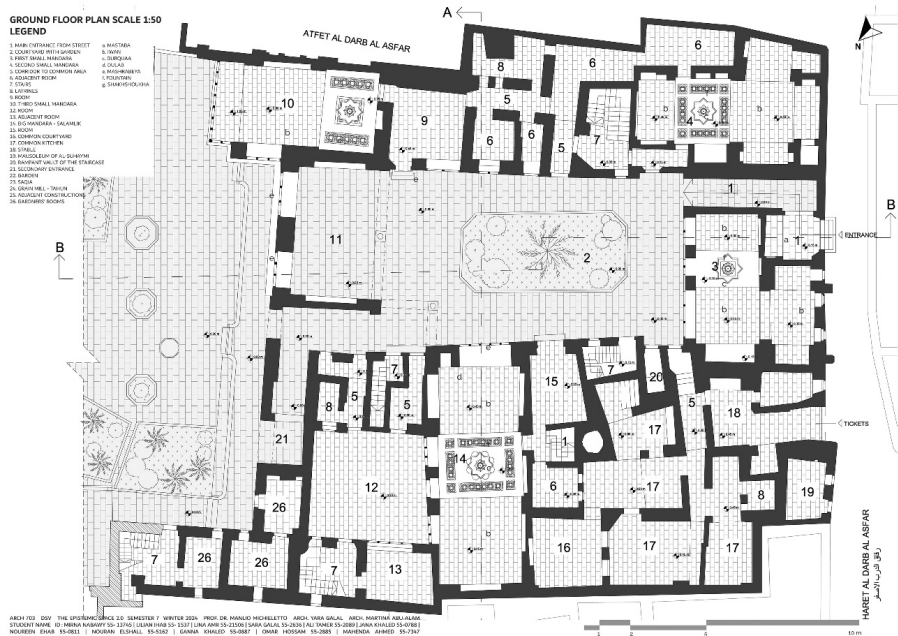


Ill. 3. Plan views of the al-Hakim (left) and Ibn Tulun (right) mosques, source: Manlio Michieletto, 2025

comfort, privacy, and symbolic order. Mosques such as Al-Hakim and Ibn Tulun exemplify this continuity (Ill. 3). Likewise, in the city of Amarna, excavated houses reveal the enduring importance of the courtyard in residential design (Ill. 2). It demonstrates how typological persistence endures within cultural change, re-proposing elements such as arcades, symmetry, and axuality that recall Pharaonic temple courts re-imagined for a new liturgical context.<sup>7</sup> The courtyard fosters a poetics of space—encompassing movement, stillness, and encounters—while also fulfilling essential environmental functions such as daylight access, ventilation, and thermal regulation.<sup>8</sup> Despite differences in religious beliefs and spatial programming, the courtyard remained a stable typological core. Its recurring features—symmetry, enclosure, axial access, and open sky—reflect a deep-rooted cultural logic. This typological continuity highlights an architectural approach founded on adaptation and reinterpretation rather than innovation. Over time, the Egyptian courtyard evolved into a multifaceted space, serving various functions: environmental, social, cosmological, and liturgical. Therefore, the courtyard in Egyptian architecture exemplifies how space can embody layered meanings. It is not merely a functional void but a spatial idea—one that frames human rituals, cosmic cycles, and ethical values. Its development reveals architecture’s capacity to carry cultural memory whilst adapting to new forms and ideologies. Through it, Egyptian builders crafted not just structures but symbolic environments that continue to inspire architectural thought across time and space.

<sup>7</sup> C. Norberg-Schulz, *Existence, space and architecture*, Praeger Publisher, New York 1971, pp. 78–90.

<sup>8</sup> H. Fathy, *Natural energy and vernacular architecture. Principles and examples concerning hot arid climates*, University of Chicago Press, Chicago 1986, pp. 163–165.



Ill. 4. Plan view of the Manzil El Suhaymi house, source: Mirna Nabawy, Lilian Ihab, Lina Amr, Sara Galal, Ali Tamer, Jana Khaled, Nourreen Ehab, Nouran Elshall, Ganna Khaled, Omar Hossam, and Mahenda Ahmed, 2025 (student group, Design Studio V, academic year 2023/2024)

#### 4. MEDITERRANEAN TYPOLOGICAL PERSISTENCE

The courtyard typology expanded across the Mediterranean world, adapting to diverse cultural and climatic conditions while retaining its essential form: a central void organising built spaces. In Greek and Roman architecture, the courtyard evolved into a central organising element within the domestic sphere. Greek *oikos* and peristyle houses centred on open courtyards that provided light, ventilation, and social gathering spaces. The Roman *domus* refined this model with the *atrium* and *peristylum*, which conveyed familial status while maintaining axial order. Though religious symbolism was less explicit than in Egyptian temples, the architectural sequence from public to private spaces and the emphasis on symmetry and orientation reflected a continuity of spatial hierarchy. Christian monastic architecture, particularly Romanesque and Gothic cloisters, also preserved and transformed the typology of these structures. Enclosed quadrangles surrounded by arcades facilitated circulation, reflection, and gardening. Like Egyptian temple courts, these spaces created a spatial and symbolic buffer between the sacred and the worldly.<sup>9</sup> Throughout these transformations, the courtyard maintained its central purpose: to order architectural experience around a void imbued with symbolic weight. This persistence reveals not only typological adaptability but also a cross-cultural appreciation for the courtyard’s epistemological depth. It bridges past and present, offering a model of architecture grounded in both cultural continuity and spatial rationality.

<sup>9</sup> C. Norberg-Schulz, *op. cit.*

## 5. THE ARCHAEOLOGICAL INSTITUTE IN ASWAN

The typological approach underpinned design research at the German University in Cairo (GUC), where students registered in Design Studio 7 were tasked with designing a new Archaeological Institute in Aswan—the projects aimed to reinterpret the courtyard typology, exploring its formal, environmental, and compositional potentials. The idea of establishing an Archaeological Institute in Aswan originated from a two-year collaboration with the Italian Institute of Archaeology in Cairo, aimed at integrating the needs of archaeological missions operating in the region, which lacked a research centre. The earliest settlements in Aswan were concentrated around Elephantine Island and originated as market formations during Pharaonic and Greco-Roman times, spanning from approximately 3000 BCE to the 7th century CE. The market emerged as a key node in Aswan's development. The city expanded onto the east bank of the Nile and the market became more structured. During the Islamic period, the market evolved into a structured *souq* (bazaar), a narrow and organically developed area with densely packed neighbourhoods surrounding it. During British rule, Aswan saw more structured urban planning, influenced by European models. A grid-based plan with colonial administrative buildings and the new railway station was laid out, cutting through traditional markets and older neighbourhoods. The urban and site analysis was followed by the selection of case studies, which were analysed to extract guidance for the design process. Combining historical references with contemporary needs, students proposed designs where the courtyard was not only a spatial element but a cultural statement, linking the Institute to the local built and un-built environment. Some projects explored modular grids, while others focused on axial alignments and treated the contrast of light and shadow as a constructive material. However, all of the projects demonstrate how the courtyard's typology supports ongoing architectural thought. Among the twelve defended projects, the research describes two of them: the one by Jana Amir, Karma El Antably, and Yoanna Sameh, and the one by Ilaria Samuel and Salma Moussa. The projects evoke the spirit of ancient temples and mortuary complexes' spatial combination while engaging modern architectural strategies and sustainability principles. A site visit enhanced awareness of dealing with the past – a foundational principle also rediscovered in the suggested case studies.

### 5.1. FIRST PROPOSAL

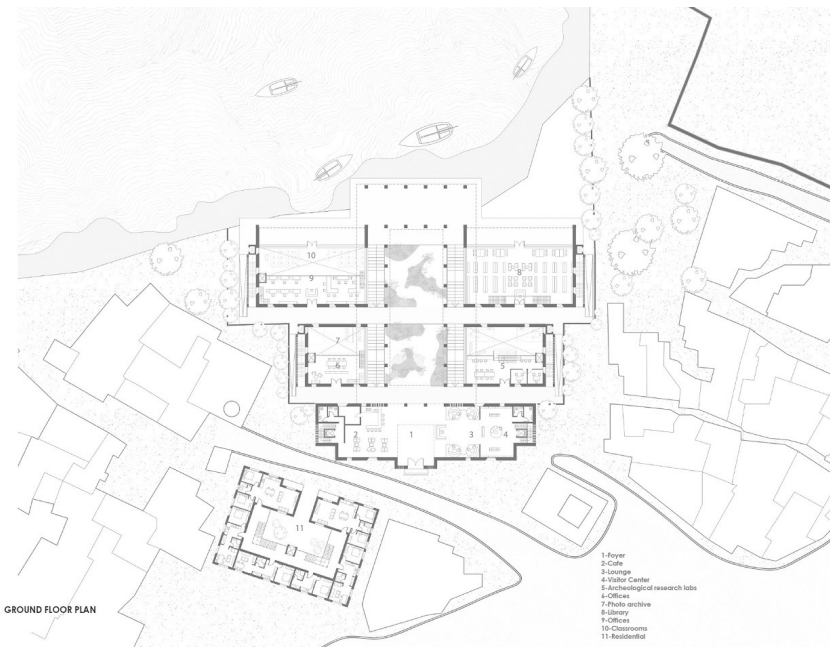
Morphologically, the project is structured around a disciplined grid that accommodates laboratories, archives, and offices, all of which are oriented around the courtyard. The rectilinear volumes are intentionally stepped and aligned with the topography and oriented to maximise prevailing winds and views of the Nile (Ill. 6). These spatial strategies reflect a commitment to site-specific design and echo the architectural sequencing of Pharaonic temples, where thresholds, processions, and spatial gradients led worshippers from the earth to the divine. Specifically, the overall design was mainly inspired by two references: the Pharaonic temple layout and the Zhejiang Museum by David Chipperfield. The courtyard operates as the compositional and symbolic heart of the building. Its proportions and architectural syntax—columns, porticoes, and axial alignment—draw from historical precedents (Ill. 5). This subtle formalism allows the courtyard to serve as a space of memory and innovation, reconnecting the Institute to a long architectural lineage while addressing present-day needs. The entry is marked by a transitional space reminiscent of a pylon, followed by, as stated,



ARCH 0001 | Design Studio VII | Designing the memory: The Avenue Archeological Institute | SEMESTER 10 | SS2025 | PROF. DR. MARILIO MICHELETTI | ARCH. HEEM ASHOUR | ARCH. YANA GAZAL  
 JANA AMIR SS 2024 - KARMA EL ANTABLY SS 2024 - YOANNA SAMEH SS 2024



Ill. 5. View of the Institute of Archeology from the Nile, source: Jana Amir, Karma El Antably and Yoanna Sameh, 2025 (student group, Design Studio VII, academic year 2024/2025)



Ill. 6. Site plan of the Institute of Archeology proposal, source: Jana Amir, Karma El Antably and Yoanna Sameh, 2025 (student group, Design Studio VII, academic year 2024/2025)

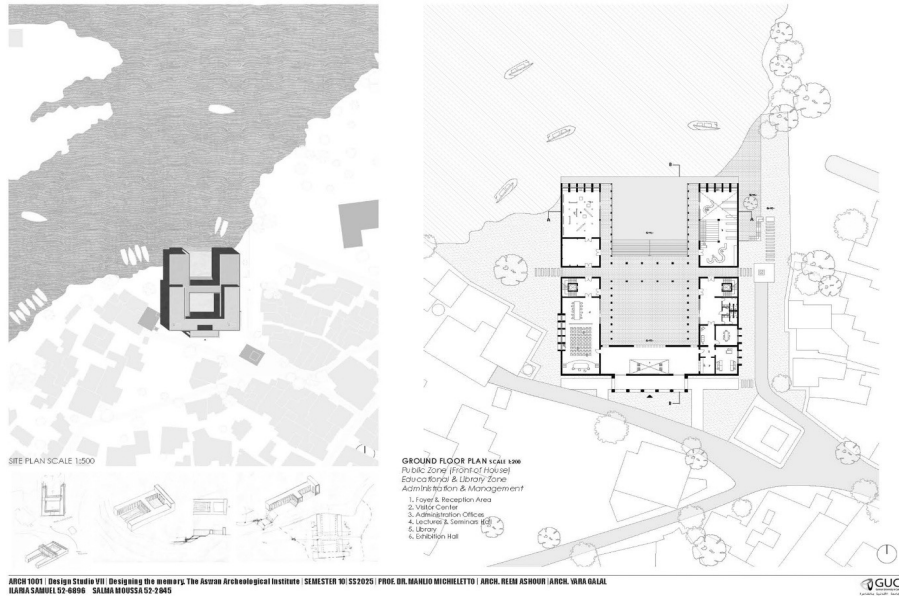
a sequence of parallel blocks placed orthogonally around the courtyard. Movement through the Institute is rhythmic and layered at different levels, combining axiality with flexibility to accommodate various functions. This progression reflects the dual identity of the building as both a place of research and a site of cultural interaction. Material choices reinforce this synthesis of past and present. Locally sourced stone and clay-based finishes resonate with the geological context and reflect the material palette of ancient constructions, thus evoking a sense of identity. These choices are not merely aesthetic; they ground the building in sustainable construction practices and support thermal performance, contributing to reduced environmental impact. Ultimately, the Italian Archaeological Institute in Aswan exemplifies how contemporary design can critically engage with its heritage. By drawing on the sacred geometry of the past and translating it into a sustainable, functional framework, the project offers a powerful model of architectural continuity and reinvention.

## 5.2. SECOND PROPOSAL

Positioned along the edge of the Nile in Aswan, this Archaeological Institute proposal is conceived as a spatial narrative that bridges antiquity and contemporary research. The design is informed by two architectural case studies: the mortuary complex of Hatshepsut, which inspired the use of terraced levels and colonnaded procession to define rhythm and movement, and Giorgio Grassi's residential unit in Borgo Ticino, Pavia, which contributed to the integration of dual courtyards and a rational, ordered typology. Configured in an H-shaped plan, the building is organised around two distinct courtyards that anchor circulation and modulate the transition between public and semi-private zones (Ill. 8). The upper courtyard, located at ground level, is framed by a colonnade, establishing a ceremonial and rhythmic



Ill. 7. View of the Institute of Archeology from the Nile, source: Ilaria Samuel and Salma Moussa, 2025 (student group, Design Studio VII, academic year 2024/25)



III. 8. Site plan of the Institute of Archeology proposal, source: Ilaria Samuel and Salma Moussa, 2025 (student group, Design Studio VII, academic year 2024/2025)

entrance sequence. A centrally placed axial staircase leads to the second courtyard, which is embedded below grade and opens directly toward the Nile (III. 7). This sunken space physically brings users closer to the river, thereby strengthening the building’s relationship with its natural context, while also creating a microclimate that enhances comfort. The Institute is composed of four levels, ranging from a basement to a second floor, which house exhibition halls, research laboratories, archival storage, and educational spaces. The sectional organisation—moving from ground level to the riverfront courtyard—creates a sense of descent and discovery, thus mirroring the archaeological process itself. The interplay of solid and void, elevation and excavation, produces a layered spatial experience that is both environmentally responsive and formally coherent. Through the careful manipulation of spatial hierarchy, material depth, and framed views, the Institute reinterprets historical strategies through a contemporary lens, thereby becoming a vessel for preservation, a platform for knowledge, and a landmark rooted in the cultural and environmental context of Aswan.

## References

- [1] Fathy H., *Natural energy and vernacular architecture. Principles and examples concerning hot arid climates*, University of Chicago Press, Chicago 1986.
- [2] Grassi G., *La costruzione logica dell’architettura*, Marsilio, Venezia 1983.
- [3] Hassan F.A. *The Aswan High Dam and the international rescue campaign for Nubia*, “African Archaeological Review” 2007, no. 3, pp. 73–94.
- [4] Monestiroli A., *L’architettura della realtà*, Laterza, Roma–Bari 2000, pp. 87–94.

- [5] Norberg-Schulz C., *Existence, space and architecture*, Praeger Publisher, New York 1971.
- [6] Rossi A., *Architecture of the city*, MIT Press, Cambridge 1982.
- [7] Schulz C.N., *Existence, Space and Architecture*, “Perspecta” 1971, no 13, pp. 78–90, <https://doi.org/10.2307/1566953> (access: 20.06.2025).
- [8] Venezia F., *Che cosa è l'architettura. Lezioni, conferenze e un intervento*, Electa, Milano 2022.
- [9] Wilkinson T., *The complete temples of ancient Egypt*, Thames & Hudson, London 2000.

#### Author's Note

##### **Assoc. Prof. Manlio Michieletto, PhD, Architect**

Associate Professor of the Architecture & Urban Design Department. He holds a Master of Architecture and a PhD in Architectural Composition from the IUAV University of Venice. He had several teaching and research positions at various institutions in Europe and Africa. After being an Associate Professor in DR Congo, he was appointed the Dean of the School of Architecture and Built Environment at the University of Rwanda. In 2011, he launched his own practice of designing and realising projects in Italy, Burkina Faso, DR Congo, and Rwanda. His research focuses on satellite city development, architectural heritage, and tropical architecture. Dr. Michieletto is supervising doctoral theses that focus on modern and adaptive architecture.

[manlio.michieletto@gmail.com](mailto:manlio.michieletto@gmail.com)