

ESTABLISHED LAB UNIT PORTFOLIO

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1. CU ESTABLISHED LAB UNIT PORTFOLIO: URBAN FORM LAB

This report offers a comprehensive overview of the Urban Form Lab, Cairo University. The lab was established in 2021 and is upgraded through Pro-green labs.

1.1. Aims, Mission Statement and Scope of Interests

The **Urban Form Lab** is a service laboratory, and a Centre for Urban critical and creative thinking, teaching, research and practice in Architecture, Urban Form and Urbanism. The lab is based at the Department of Architecture, Faculty of Engineering, Cairo University.

AIMS: The lab aims at engaging and collaborating with; undergraduate and postgraduate students, researchers, academic and professional partners, local communities, local authorities and international partners to address and investigate issues related to cities and urban areas. The lab seeks to; monitor, extrapolate, and reach better understanding of urban spaces, places and settings, and to propose appropriate solutions to urban problems through detailed analysis of its physical and non-physical contexts; together with the closely related historic, environmental and cultural aspects and influences. The lab seeks to undertake studies, formulate and develop; contextual and environmental, economic and socially sustainable proposals.

MISSION STATEMENT: The lab adopts and deploys urban design and community design methodologies and approaches in addressing; research studies, projects, and urban issues, problems and challenges – this enables the lab to effectively contributing to and enhancing; urban design and community design knowledge and practices and to integrate research studies, projects, practice, and products, into architectural education and learning process, for the undergraduate and postgraduate levels at the Department, the Faculty and the University.

SCOPE OF INTEREST: Projects, research and applied studies, closely related to the aims and objectives of the Urban Form Lab, include the following realms:

- Urban Design (various scales and levels),
- Formulating, developing, and proposing; architectural and urban Development Control Guidelines and Regulations for existing and new urban areas,
- Urban Identity and Character of Historical and Heritage areas (conservation, protection, and control),
- Infill Design in urban Historic, Heritage and Areas of Value,
- Urban Form and Morphology studies,
- Design and development of Urban, Open Spaces and Places.
- Urban Health, Quality of Life, and Quality of the Built Environment,
- Design and development of Public Spaces in Residential areas,
- Urban Design and Development studies.

1.2. Hard Capacities of the Urban Form Lab

This section outlines the **hard capacities** of the **Urban Form Lab** at Cairo University. These include physical infrastructure, equipment, and software assets that support the Lab's operations, research activities, and academic engagement.

1.2.1. Venue

The **Urban Form Lab** is housed on the **4th floor of the Department of Architecture**, Faculty of Engineering, **Cairo University**. The Lab is strategically located within the academic heart of the Faculty of Engineering, Cairo University, fostering daily interaction with faculty members, researchers, and students. Its proximity to lecture halls and design studios supports integrated learning and collaborative research.

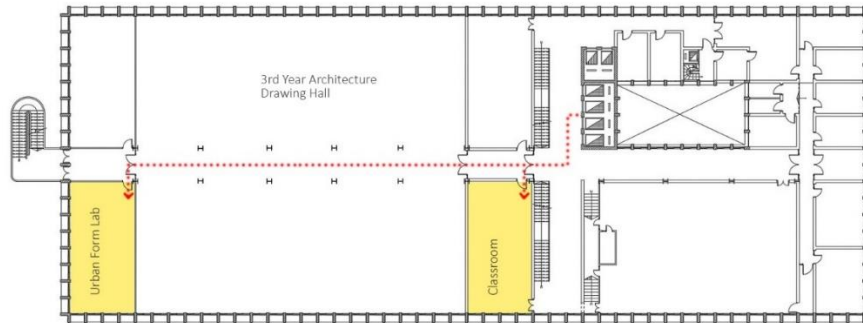


Figure 1: The Urban Form Lab, the 4th Floor, Department of Architecture, Faculty of Engineering, Cairo University



Figure 2 : Plan of Lab Area, and Fabrication Zone

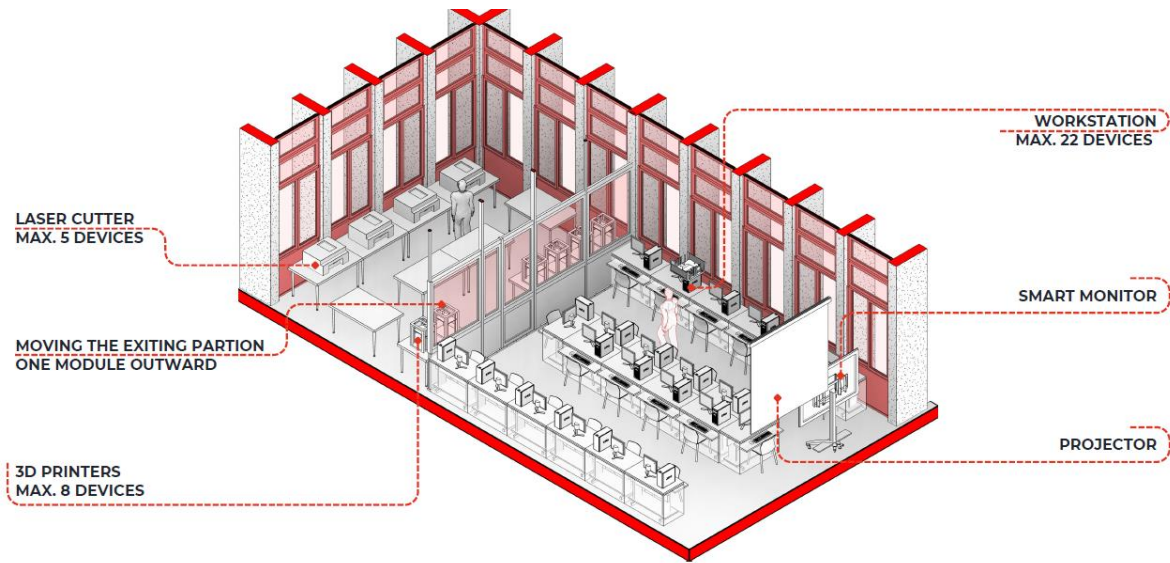


Figure 3 : Axonometric Study of the Lab.

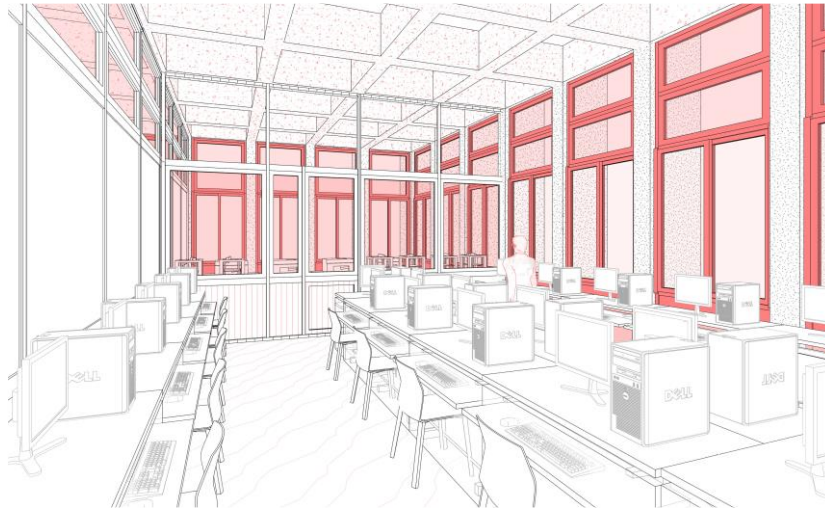


Figure 4 : Interior Shot Lab Area

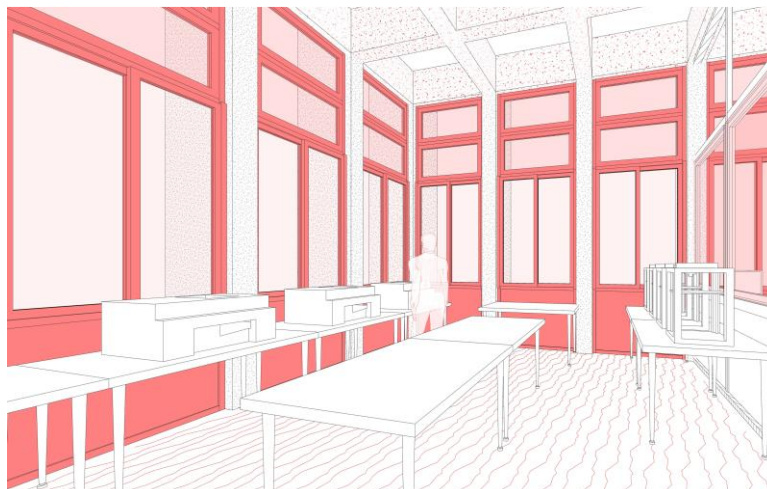


Figure 5: Interior Shot 2 Fabrication Zone

1.2.2. List of Equipment and Software

Table 1: List of Equipment & Software Applications

Name	Model
Cameras	NIKON Z6
Camera Lens	NIKKOR Z DX
360 photo camera	Insta360
4 x 3D Printer	3D Printer Neptune 4 Max
2x Desktop PC	Dell Optiplex
Reality Capture	Reality Capture Software
Tripod	Manfrotto Aluminum Tripod
Smart Interactive Display	Samsung WAD
4 x Laser cutting machine	Laser Cutting Robota 3040
3D Camera	Matterport MC250 Pro2 Professional 3D Camera + Back Bag
4 x AC Stabilizer (4x)	PlusEnergy (SVC-D3K)
2 x Security Camera	HIKVISION
4 x Flexible Magnetic Bed	Bell Tech
NAS backup system	Synology DiskStation® DS923+
4 x HDD Hard disks	Synology Plus Series 3.5" SATA HDD
Projector	Projector Full HD
	Equipment already bought and supplied to CU
	Investigations of Purchasing in progress

1.3. Soft Capacities of the Urban Form Lab

This section describes the **soft capacities** of the Urban Form Lab, with a focus on its human resources, organizational structure, and collaborative working culture. These capacities are essential for sustaining the Lab's operations, implementing projects, and engaging with academic, governmental, and community stakeholders.

1.3.1. Administrative Hierarchy of Staff

The staff within the lab is organized into three distinct groups: **the scientific committee, technical staff, and administrative staff**, each with specific responsibilities that contribute to the overall functioning and success of the lab. The organizational structure of the Urban Form Lab is structured to ensure effective governance and operational efficiency.

At the top of this structure is the **scientific committee**, which holds the responsibility for making key decisions regarding research project topics. This committee plays a crucial role in aligning the lab's research efforts with the broader academic objectives linking the lab to various courses and academic programs.

The **Advisory Board**, composed of experts from academia, industry, and policymaking, provides strategic guidance and oversight into the lab's initiatives. The Director leads the lab, defining its vision, managing its operations, and fostering collaborations. Supporting the Director, the Deputy Director aligns the lab's activities with academic goals and coordinates engagement with faculty and students. The Research Team, comprising graduate students and faculty members, undertakes interdisciplinary research projects addressing urban challenges. The Non-Academic Partners Coordinator bridges the gap between the lab and external communities, fostering meaningful partnerships. Additionally, the Technical Staff ensures the lab's operational efficiency by managing its resources, while the Administrative Staff handles logistical and financial support, ensuring seamless execution of the lab's initiatives. Together, these roles form a cohesive framework for achieving the lab's objectives.

Beneath the scientific committee, there is a **technical staff** team that is responsible for the management of the lab and the distribution of tasks. They play a vital role in supporting the scientific committee's decisions by implementing the necessary logistical and technical arrangements for research projects.

This hierarchical structure promotes a clear division of responsibilities, allowing the **scientific committee** to focus on strategic decision-making while the **technical staff** manages the practical aspects of lab operations.

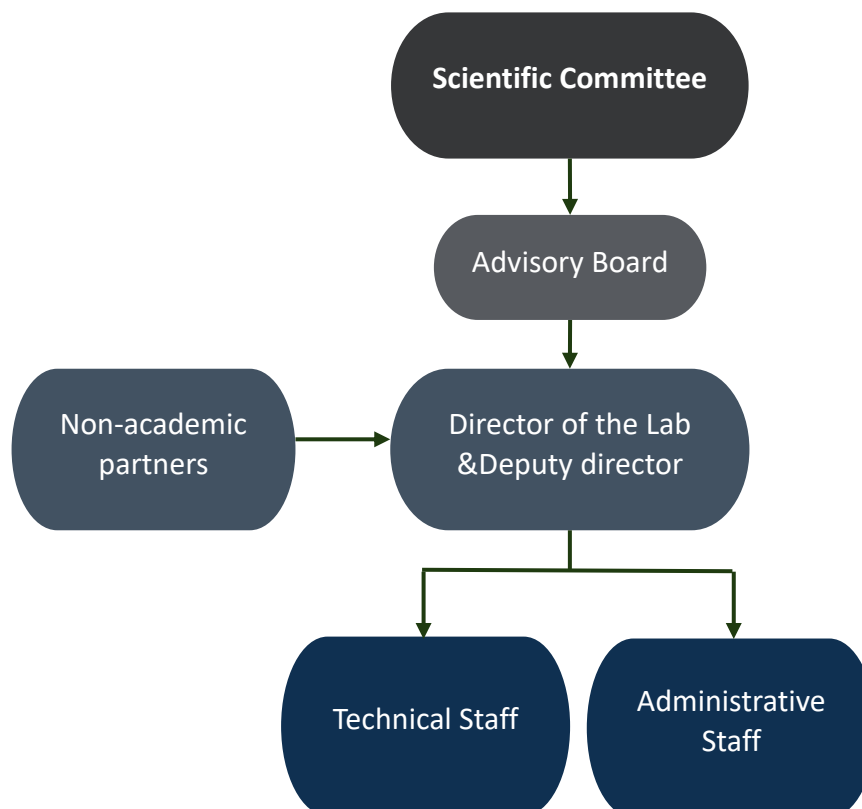


Figure 6: The Organisational Structure of the Urban Form Lab, Cairo University

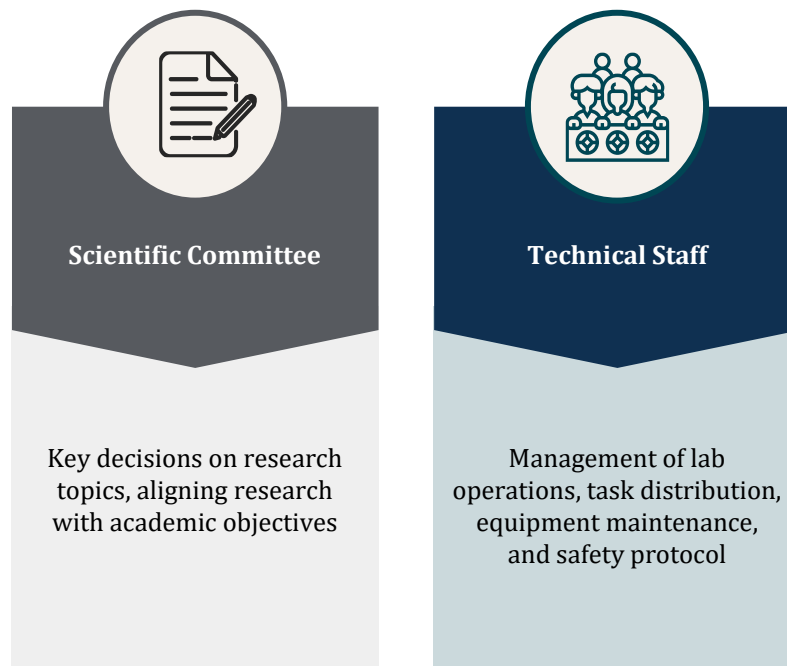


Figure 7: Hierarchy and Decision-making System at the Urban Form Lab, Cairo University

1.3.2. Communication Channels and Contacts

The Urban Form Lab (UFL), Cairo University, has established a strong online presence by creating dedicated official website and social media pages. These platforms serve as a vital tool for sharing the lab's activities, research, and projects related to urban form and architecture. Through these pages, the UFL engages with a broader audience, including students, researchers, and professionals, fostering discussions on critical urban issues. The social media presence also promotes the lab's role as a hub for creative and critical thinking in urban design, providing insights into the latest trends, events, and collaborations in the field of urbanism and architecture.

URBAN FORM LAB LINKTREE: <https://linktr.ee/UrbanFormLab>

Website: <https://ufl.eng.cu.edu.eg/en/>

LinkedIn: <https://www.linkedin.com/company/101050893/admin/dashboard/>

Facebook: <https://www.facebook.com/urbanform.lab/>

Instagram: <https://www.instagram.com/urbanform.lab/>

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1.3.3. Partners (Academic and Non-Academic)



Figure 8: Academic and non-academic partners of the Urban Form Lab – Cairo University

In addition to the official project partners, the Urban Form Lab has actively collaborated with a range of academic and non-academic institutions that have enriched its research, outreach, and impact.

Academic Partners:

The lab has established academic partnerships with several esteemed institutions, including **Brandenburg University of Technology Cottbus-Senftenberg**, **Newcastle University (UK)**, and the **International Seminar on Urban Form (ISUF)**. These partnerships have contributed to knowledge exchange, joint research initiatives, and shared teaching and training experiences, particularly in the fields of urban morphology, sustainable urbanism, and heritage-led regeneration.

Non-Academic Partners:

Non-academic partners play a vital role in bridging theory and practice, as they bring local knowledge, real-world challenges, and policy-oriented perspectives to the lab's work. The Urban Form Lab has collaborated closely with **the Cairo Governorate** and **the Governorate of the New Valley**, among others. These partnerships aim to co-develop context-sensitive solutions for pressing urban issues, ranging from the revitalization of historic areas to the planning of emerging settlements.

1.3.4. Strategies for sustainability

This section describes the urban lab financial and governance strategies, and the framework created to ensure that both financial and governance efforts support long term sustainability

Financial Sustainability Strategies

The long-term financial plan proposed for the urban lab aims to ensure its sustainability, growth, and the successful achievement of its research and operational goals. To accomplish this, diverse funding sources should be explored, including the development of a strategy for consistently applying for grants. Building partnerships with local government, private stakeholders, and academic institutions is also crucial, as is fostering relationships with alumni and local businesses to secure sponsorships. Implementing an effective accounting system is essential to accurately monitor income and expenses, with regular financial reporting serving to maintain transparency and accountability. Additionally, it is important to assess potential financial risks, such as funding shortages, economic downturns, or shifts in research priorities, and to develop strategies to mitigate these risks. These strategies might include diversifying

funding streams or establishing emergency funds. By integrating these components into the long-term financial plan, the urban lab can establish a sustainable financial model that supports its mission, encourages innovation, and effectively addresses pressing urban challenges.

- Governance Sustainability Strategies

Governance strategies focus on developing frameworks that aim to enhance staff capacity over the long term by improving their skills, knowledge, and overall effectiveness. The goal is to boost research productivity, foster innovation, and strengthen collaborative efforts within the team. These frameworks involve conducting comprehensive needs assessments to identify existing competencies and highlight gaps that need to be addressed to meet the lab's objectives. Additionally, establishing channels for staff to communicate their training needs is essential, along with organizing targeted training and development programs such as workshops and seminars. It is important to allocate time during work hours to allow staff members to participate in these professional development activities. Facilitating opportunities for interdisciplinary collaboration is another key aspect, encouraging staff to work on joint research projects that enhance their skills and expand their professional networks. Building partnerships with universities, research organizations, and private stakeholders further supports these efforts. Moreover, implementing leadership development programs aimed at strengthening management, strategic planning, and communication skills among staff members contributes to a sustainable and effective governance framework.

1.4. Integration of Teaching and Scientific Research within Lab Activities

The lab is accessible to all courses within the Faculty of Engineering, Cairo University. Instructors are welcome to utilize the space and its resources for teaching activities with their students. Additionally, the lab and its facilities are available to all researchers affiliated with the Faculty of Engineering, providing support for their academic and research endeavors.

The lab is committed to creating strong linkages between research and education by fostering collaboration with local and international partners, as well as private and public stakeholders. This integration ensures that research outputs inform teaching practices while academic programs contribute to applied research.

A key step in this process is mapping and engaging relevant stakeholders, including academic institutions, industry partners, governmental bodies, and community organizations. Understanding their roles, interests, and expectations will enable the lab to design tailored strategies for collaboration.

Equally important is the clear articulation of research objectives and shared goals, ensuring all partners align with the lab's mission. This common understanding will enhance the impact of cooperation through joint research projects, co-developed educational modules, and innovative platforms such as living labs, creating a dynamic ecosystem that bridges theory and practice.