1.

The laboratory’s primary focus is studies based on the collection and analysis of big data in multidisciplinary research related to architecture and urban environments. The lab is capable of collection, processing, and analysis of physical, spatial, functional, visual, and semantic data. The equipment includes: mobile meteorological stations, radiation meters, advanced photography and recording equipment, a professional book scanner, reproduction equipment, and various software used for analysis of the collected data and for functional imaging.

Although the data are produced according to different research procedures that stem from separate fields of knowledge, this distinction that exists in contemporary architectural research is artificial, and indicates the limitations of traditional research methods, rather than inherent features of the research field itself. The ability to centralize and manage multiple kinds of data in one lab, when the data’s collection methods stem from diverse scientific methods (exact sciences, social sciences, and the humanities), creates an unprecedented opportunity to uncover new connections and links between different aspects of architectural research. This ability is almost completely lacking in traditional research methods in the field.

The lab serves to promote architectural and spatial research in a wide array of subjects related to the use of big data, among them:

* Understanding the interconnection between the morphological and material aspects of the urban environment and its functional products, with an emphasis on energy consumption, thermal and visual comfort, and well-being.
* Suggesting new and innovative ways of coping with the environmental challenges of climate change, while focusing on its influence on urban micro-climates.
* Expanding our knowledge about historical changes in the technological and functional aspects of architecture, with an emphasis on the interrelationships between these changes and the theoretical aspects of architectural thought.
* Tracking cultural and social trends in the development of architectural theory, based on a comprehensive analysis of the semantic frequency of key terms in architectural thought.
* Developing innovative analytical methods relating to the functional aspects of the built environment, and adapting them into concrete tools that can be implemented in professional practice.
* Supporting the development of advanced building technologies with improved functional aspects, in cooperation with the construction industry.
* Expanding research partnerships with other fields of knowledge within the faculty (urban planning, landscape architecture, and industrial design), and with researchers from other disciplines (such as biology, civil and environmental engineering, electricity, computer science, and medicine) based on the shared use of spatial databases.
* Creating an infrastructure for multidisciplinary research teams to work with funding authorities in Israel and abroad.

2.

The Azrieli Architecture and Town Planning Library is Israel’s leading library for architecture, industrial design, landscape architecture, and urban planning and design, and the largest and oldest such library in the country. It could be described as Israel’s national library for architecture.

The origins of the library lie in the establishment of the Technion’s Faculty of Architecture in 1924. Until 1985, the library operated out of the Technion’s historical building in Haifa’s Hadar neighborhood. Today, the library is situated on the Technion campus, on the second floor of the Amado Mathematics Building. It is open on Sunday through Thursday, from 08:00–20:00, and during the summer months, from 08:00–15:00.

The reading rooms contain about 120 seats for individual and group work, and are equipped with 14 computers, two scanners, two light tables, two printers, and one photocopier, all of which can be used by the visiting public.

The library’s collection includes approximately 40,000 books and 125 journals covering the diverse fields taught in the faculty. The library primarily serves faculty members and students. In addition, the library is used by other members of the Technion community, guests from other universities and colleges, alumni, architects, and many other readers interested in architectural matters.

Student services at the library include:

* Borrowing and returning books
* Reference services
* Granting online access to items on the bibliographies in course syllabi through Moodle.
* Group and individual trainings that cover proper use of scholarly and journal databases.
* Individual instruction for students on the use of bibliographic tools
* Interlibrary loans

Services for faculty members include:

* Teaching support: acquisition of relevant books and journals for courses taught at the faculty
* Preparation of bibliographic items for courses, and scanning of various materials
* Creating guided tours catered to specific course subjects
* Supporting research needs: acquisition of books, journals, and databases for research purposes, consultation regarding the publication of books and articles, and creating citation reports for scholars for purposes of professional advancement
* Interlibrary loans

The library may be contacted in the following ways:

* By phone: 04-8294010
* Primary email address: arclib@technion.ac.il
* Viky Davydov, Head Librarian: viky@technion.ac.il
* Olga Sadovay-Panfil, Information Specialist: olga@technion.ac.il
* Lena Avrahami, Information Specialist: elanet@technion.ac.il
* Limor Zadok-Koren, Information Specialist: limor.zad@technion.ac.il

For more information and to search the library’s databases, please refer to the library’s website.

3.

The lab was established in order to promote research on subjects related to computer-based architectural design and manufacturing, and to enable students and faculty members at the Technion to access innovative digital fabrication tools.

The lab offers production and planning services to its students, researchers, and external clients.

The lab offers the following services, among others:

* Laser cutting
* Three-dimensional processing and milling using a 3 Axis CNC Milling Machine
* Three-dimensional scanning
* Three-dimensional printing
* Advice on planning, designing, and creating complex geometries

The lab is located on floor 0 of the Amado Mathematics Building. Opening hours are determined based on demand during the semester.

4.

The lab is responsible for guiding and educating students in traditional and digital manufacturing techniques, including technical and artistic aspects, and assisting the academic faculty in all subjects related to manufacturing, for both research and teaching needs. The lab contains a wide array of three-dimensional printers, machines for processing and cutting wood and metal, as well as welding machines, a painting room, and manual and electric tools for design and fabrication.

The lab is run by Moti Grosman.

The Design and Fabrication Lab is located on floor 0 of the Amado Building.

The lab is open to undergraduate and graduate students during the entire school year. Its opening hours are Sunday through Thursday, from 08:00–15:00. Additional opening hours are determined based on the semester workload.

5.

The Media Center and Photography Lab guides and educates students in the field of photography and media, from a technical and artistic perspective, and assists the academic faculty in research and teaching tasks related to photography and media.

The Media Center and Photography Lab is run by the photographer Haim Singer, with the help of specially-trained students.

The photography lab includes:

* A professional digital studio, with facilities for photographing models, three-dimensional design and two-dimensional works
* Changeable paper backgrounds and a green screen for video photography
* Professional video editing station
* Equipment for video and still photography, continuous studio lighting, and flash lighting
* Sound recording equipment: Zoom recording devices
* A 360-degree camera: Insta 360 Pro
* A photography drone: DJI Mavic Pro 2
* A photograph printer: Epson 4800

The photography lab is open to all students in the faculty, based on the registration protocol detailed in this document. Further instructions can be found here.

The photography lab is located on the first floor of the Amado Building.

Its opening hours are Sundays through Thursdays, 08:00–15:00.

Telephone: 04-8294014

Email: arcphoto@technion.ac.il

6.

The Built Heritage Research Center is the first project of its kind in Israel. Its origins lie in the Department for Architectural Documentation, established in the Faculty of Architecture and Town Planning at the Technion in 1975, which in 1990, under the direction of Prof. Gilbert Herbert, became the Center for Architectural Heritage. The Center has been led by Assoc. Prof. Alona Nitzan-Shiftan in recent years, and has renewed its research activity, acquisition of new collections, and publication of books.

Since 2017, thanks to the generous support of the Arenson family, the Center now operates under its new name, The Avie and Sarah Arenson Built Heritage Research Center. The Center, which is situated in the Faculty of Architecture and Town Planning, maintains constant and close connections with the faculty’s educational programs, and acts as a home-base for students and researchers studying various aspects of built heritage in Israel. The Center maintains partnerships with the Technion Historical Archive at the Central Technion Library, the Azrieli Architecture and Town Planning Library, the National Library of Israel, and other research institutions in Israel and abroad.

The Center provides Israeli and international researchers with a dynamic laboratory in which to examine the nature of the urban environment and the ideas from which Israeli architecture originated. Researchers, students, and practitioners are invited to use the Center to study past and present principles that explain and enrich our contemporary reality, and identify trends in current architectural practice. The valuable materials housed in the Center are an ever-growing treasure trove of documents and collections that provide visitors with extraordinary opportunities to examine the history of local Israeli architecture. These materials help us understand the role of the spatial disciplines – architecture, landscape design, and urban planning – in the development of the local space. Moreover, they allow us to examine the ways in which architects and designers have expressed competing visions for the urban environment. As such, the Center for Built Heritage constitutes a national resource of prime importance, not only for scholars of architecture, but for anyone interested in Israeli history, culture, and politics.

The Center strives to fulfill its goals through three main courses of action: a research lab, an archive, and a publication house.

The research lab supports scholars and professionals, and advances the study and documentation of the Israeli urban landscape while focusing on subjects relating to the history, theory, and heritage of the built environment, and aspects of its architecture, planning, and design. The laboratory encourages research dealing with the Mediterranean and Middle Eastern context reflected in the local and traditional architecture, buildings, and landscape, which represent a variety of religions, social groups, and historical periods. In particular, the laboratory attempts to fill the knowledge gap concerning Arab architecture in Israel. Special emphasis is given to research that makes use of the archive’s collections, as well as to supporting courses and research that utilize this resource. The laboratory also runs a research group, hosts guest lecturers, and holds a yearly conference promoting research in the field. As part of the “Year of Haifa” announced by the faculty, and in cooperation with the Municipality of Haifa, the laboratory adopted Haifa’s history and its preservation as a central project.

The Heritage Center Archive, which stands at the heart of the Built Heritage Research Center, began to take shape with the establishment of the Department for Architectural Documentation during the mid-1970s, and today includes a variety of new collections. These materials are an ever-expanding treasure trove, providing an exceptional opportunity to examine the role and development of local spatial disciplines. The archive constitutes a national resource of great importance, and seeks to promote and maintain its collections according to professional standards, while restoring and preserving valuable documents. The archive ensures that the collections with which it is entrusted are kept in proper conditions, with all the necessary professional archival services they require. The archive’s team works to preserve and process the documents in its collection, making them accessible to researchers, professionals, and the public.

The Center’s archive includes early collections related to the development of the Technion and the city of Haifa, including the collections of the architects Prof. Alexander Baerwald, Dr. Gideon Kaminka, Max Loeb, Prof. Yohanan Ratner, the Technion portion of Prof. Alexander Klein’s collection, and more. The center also houses various other resources, including files on some 200 architects who worked in Israel, both past and present; a collection of student projects from the 1960s onwards; a collection of maps and aerial photographs from various periods; a collection of glass plate negatives from the British Mandate period; and a collection of books published by the Center. In recent years, the Center has increased the scope of its materials, and invested efforts in cataloging, organizing, and sorting its collections. Moreover, the Center has resumed the collection of new materials from leading Israeli architects, including: the collection of architect Yaakov Yaar, Israel Prize laureate; the collections of Arch. Saadia Mandel and Nachum Meltzer, among the pioneers of building preservation in Israel; and important collections concerning the history of the city of Haifa, such as the collection of Arch. Moshe and Leopold Gerstel, that illuminates the integration of architecture in Haifa and the inter-cultural connections that it created. A dedicated professional team and a group of motivated students preserve and process the documents, making them accessible to the public.

The Publishing House: In parallel with the renewed activity of the archive, and the addition of new collections, the publication of important architectural documents has also been resumed, by means of a publication house that operates as part of the Center. In recent years, the publication house has published three books representing three different series that it is promoting: the Testimonies Series, which publishes historical manuscripts (the first book in the series was *Life and Architecture,* by Yaakov Yaar, published in 2016); the Document Series, which publishes primary archival sources (the first book in the series was *Aphoria – Architecture of Independence*, by Jeremie Hoffmann and Hadas Nevo-Goldberst, published in 2017); and the Collection Series (the first book in the series was a collection of articles by Prof. Ruth Enis, published in summer 2019). Publications are also planned in the Research Series, which will publish scholarly texts by faculty members and researchers, and the Question Series, which deals with significant subjects in historical architectural research. The Research Center publishing house initiates projects in cooperation with researchers and professionals, based on collections held in our archives.

The Heritage Center strives to create an active center with a rich knowledge base, ensuring that past documents and projects have a future that is vibrant and relevant, and enabling free access to the material for all who are interested.

Information:

The archive is open to the public. We recommend scheduling a meeting in advance.

For additional information and to arrange a visit to the archive, please contact us at:

Email: heritage@technion.ac.il

Telephone: 04-8294011

Amado Building, Room 211, The Technion, Haifa 3200003

Office Holders:

Head of the Research Center: Prof. Alona Nitzan-Shiftan – alona@technion.ac.il

Collections Manager: Arch. Elad Horn – hornelad@gmail.com

Publication House Manager: Oryan Shachar – oryans@tx.technion.ac.il

Archivist: Itay Keren – itay.k@technion.ac.il

7.

The Center for Urban and Regional Studies, which was the first of its kind in Israel, was established at the Technion in 1969 by the late Prof. Moshe Hill. Since 1989, the Center has enjoyed the generous support of the Philip and Ethel Klutznick family. The Center is situated in the Faculty of Architecture and Town Planning, and is closely connected to the faculty’s Urban and Regional Planning Program. It cooperates with other research institutions and research fellows at the Technion and nationwide. The purpose of the Center is to promote knowledge concerning the understanding of processes of urban and regional development and functioning, and to help establish development policy on a national, regional, and local scale. The principles guiding the researchers’ work are, on one hand, excellence in research on an international standard, and on the other hand, contribution to the quality of life of the residents of Israel.

The center’s researchers are active in the following fields: land use planning, social planning, economic planning, psychological aspects of the relationship between humans and the environment, legal aspects of planning, environmental aspects in planning, housing, transportation, urban rehabilitation, local development, real estate development, natural resources and planning (water and energy), landscape planning and design, advanced computerized techniques in planning, public involvement in planning, mitigation of conflicts in the process of urban development, and planning for specific population groups, including Arabs, the elderly, and children.

The Center’s research is funded by national and international institutions and foundations, as well as by most Israeli government ministries, by local authorities, and by other public foundations in Israel. The knowledge accrued through these studies is distributed to decision makers, planners, and research fellows through a variety of means: first and foremost, through an independent publishing house, which publishes books, reports, and position papers (in both Hebrew and English), as well as through seminars, symposia, and public conferences. The Center’s researchers frequently take part in international and Israeli scientific and professional conferences, and serve in public, national, and local committees.

Research and publication fields:

* Planning and plans at various levels: national, regional, and local
* Housing, construction, and urban renewal
* Land policy and real estate development
* Economic development and spatial dynamics
* Land and transportation use
* Natural resources, environment, and landscape
* Social and psychological aspects in planning
* Planning in the Arab sector

Additional details can be found on the Center’s website: <http://curs.net.technion.ac.il/>

8.

The Center for Architectural Research and Development was established in the 1980s and has grown steadily ever since. Its research subjects are diverse: energy use in buildings (including lighting), housing, social dimensions, morphology, urban design, theory and criticism in architecture, and subjects pertaining to digital design. The primary subjects funded by Israeli ministries were the development of an Israeli energy code and municipal planning principles, including the development of guidelines concerning solar rights. The Center sponsors research by faculty members, associate faculty members, and graduate students.

9.

The faculty Dean between 2003 and 2005.

In 1969 she initiated research and teaching at the faculty on the subject of computer-assisted architectural planning, and in 1979 she initiated research and teaching on passive solar bio-climatic planning.

Her research deals with the development of computerized models for the creation and evaluation of climate- and energy-conscious planning, and for bio-climatic guidelines that conserve energy in buildings and cities.

She has supervised more than twenty doctoral and master’s students, and written more than 130 original articles that have been published in professional journals, as chapters in books, and in peer-reviewed collections of articles from international conferences.

In 1994, she founded the Climate and Energy Lab in Architecture, which she directed until 2008, when she retired.

The Climate and Energy Lab in Architecture conducts research for governmental agencies such as the Ministries of Energy and Water (“The Development of Energy Saving Standards in Buildings”), the Ministry of Environmental Protection (“The Kyoto Protocol”), and the Ministry of Construction and Housing (“Guidelines for the Conservation of Solar Rights in Urban Planning”).

She is a member of the expert committee for the development of standards SI 5282, “Rating Buildings According to Energy Consumption,” and SI 5280, “Energy in Buildings – the Building Envelope,” which is an obligatory standard. She composed the chapter on energy for the SI 5281 standard, “Sustainable Buildings.” These standards are based on research conducted in the Climate and Energy Lab in Architecture.

She had received multiple awards for her research activities, among them three prestigious international prizes.

10.

The Situation Room is a multidisciplinary lab for practical research that designs and redefines the content of public policy in general, and socio-spatial policy in particular, and is directed by Dr. Meirav Aharon Gutman.

The lab’s partners are municipal authorities, non-profit organizations, and local communities, that together develop spaces and apply innovative processes for urban planning and management, based on models of collaborative organizations (co-production). The lab provides a connection between a toolbox identified with the paradigm of the “smart cities,” and advanced public participation practices. It addresses two central deficiencies in these fields: on the one hand, the “smart city” paradigm focuses primarily on urban infrastructure and does not focus on social matters as an integral part of planning and running cities, nor is it capable of producing and managing local knowledge provided by residents. On the other hand, the existing “smart cities” model makes little use of technological tools to advance processes of public participation.

The Situation Room’s lab is both a place and an idea:

The idea is to develop an innovative toolbox for designing urban policy that responds to socio-economic objectives.

As a place, it is a situation room supported by advanced technologies that enables a smart decision-making process.

By combining two integrated operating spheres – a virtual space that adopts the principles of the Web 2.0, and a physical space, based on interactive and immersive platforms – the lab develops a toolbox to promote urban planning, management, and development.

Subjects developed and implemented by the lab:

* Digital Twin: a digital translation of the physical world into an advanced GIS model. Our lab emphasizes building visual models that enable managing and predicting social problems.
* Social GIS (a socio-geographic information lab): using GIS tools to map qualitative and quantitative data concerning social and economic issues, and depicting them visually in an accessible manner for use by decision makers and interested local parties.
* Civic Monitoring: using the most advanced technological tools to enable local residents to create civic monitoring processes for urgent social and economic issues.
* Decision Environment Space Design: characterizing, designing, and building decision-making spaces, based on an immersive interaction experience, in order to redesign discussion spaces and encourage the accessibility of social issues for all parties involved.
* Participatory Design: the lab develops and implements design tools and methodologies that actively involve a group of stakeholders: clients, end-users, entrepreneurs, and others, in order to develop products and policies that comply with the demands of all stakeholders.
* Human-Computer Interaction: the lab develops and designs physical and virtual platforms for multiparty decision-making processes, based on interaction and digital tools.
* Data Drive Simulation: developing and designing simulations and interfaces that enable decision-making for social issues based on multiple data sources.

The location of the lab and its technologies:

The lab is located in the Hadarion building (23 Balfour Street, Haifa), at the heart of the Hadar neighborhood. The lab supports the UX-User Experience of two synchronized technologies: an immersive experience, obtained by projection onto an eight-meter concave wall, which is part of the oval structure of the space; and an interactive experience, created by using a touch-table, capable of recognizing objects as large as 120 by 150 centimeters, that corresponds with the traditional interactive sand table. In addition, the lab has a joystick system and remote controls that enable movement and roaming within the model.

The lab’s team:

Lab directors: Dr. Dana Sivan and Arch. Batel Yossef Ravid

Lab staff: Eyal Cohen, Zohar Weiss, Anne Aksel