PORTFOLIO

# LABORATORIES

CREATING A BETTER REALITY

ATI | Project

# Table of contents

PISA
MILAN
BELGRADE
ODENSE
COPENHAGEN
PARIS
GENEVA

PROFILE

# Creating a better reality

Architecture, landscape and technology conceived as a source of inspiration and enrichment of everyday life.

**ATI Project** is an international firm specialized in **integrated design** in the field of architecture and engineering, committed to the development of **sustainable buildings** with a reduced environmental impact.

The studio was established in 2011 by **Branko Zrnic** and **Luca Serri**, founders dedicated to research in bioclimatic architecture and renewable energy.

In just over a decade, the **team** has grown from **2 to 350 collaborators**.

The initial outline of the office is the same that still drives its growth today: a young, visionary, technological studio that natively uses BIM to promote **multidisciplinarity**, as well as **innovation** and **sustainability.**

The complexity and number of projects reflect the **internationality** of the studio, which today, in addition to its headquarters in **Pisa**, has offices in **Milan, Belgrade, Odense, Paris, Copenhagen** and **Geneva**.

**15**
YEARS OF CONSTANT GROWTH

**27.5 Mln**
TURNOVER IN EUROS

**1+ Milion of m²**
OF COMPLETED OR ONGOING PROJECTS

This university hospital embodies several key concepts, combining sustainability, integration with the context, innovation, well-being and functionality in a single project.

HEALTHCARE

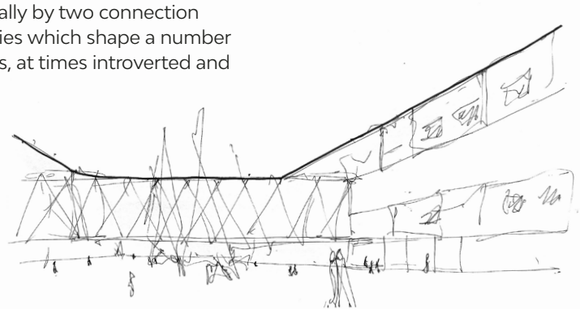
# Nyt OUH University Hospital

## Perfect harmony between technology, context and comfort

The project for the **New Odense University Hospital** is a **complex organism, both from a technological and urban perspective**; providing a space where the relationships between patients, local community and environment weld.

The structure is composed of four blocks, hosting clinics, day hospital, offices and educational labs, crossed horizontally by two connection trajectories which shape a number of spaces, at times introverted and immersed in the green landscapes and at times extroverted towards the city.

The **integrated design** of Nyt OUH has been developed thoroughly in **BIM technology**, performing a computerisation of the project, through which space, aesthetics and technology work together towards defining **one of the biggest hospitals in Europe.**



**Location:**
Odense, Denmark

**Typology:**
New construction

**Year:**
2018 - ongoing

**Status:**
Under costruction

**Dimensions:**
250.000 sqm

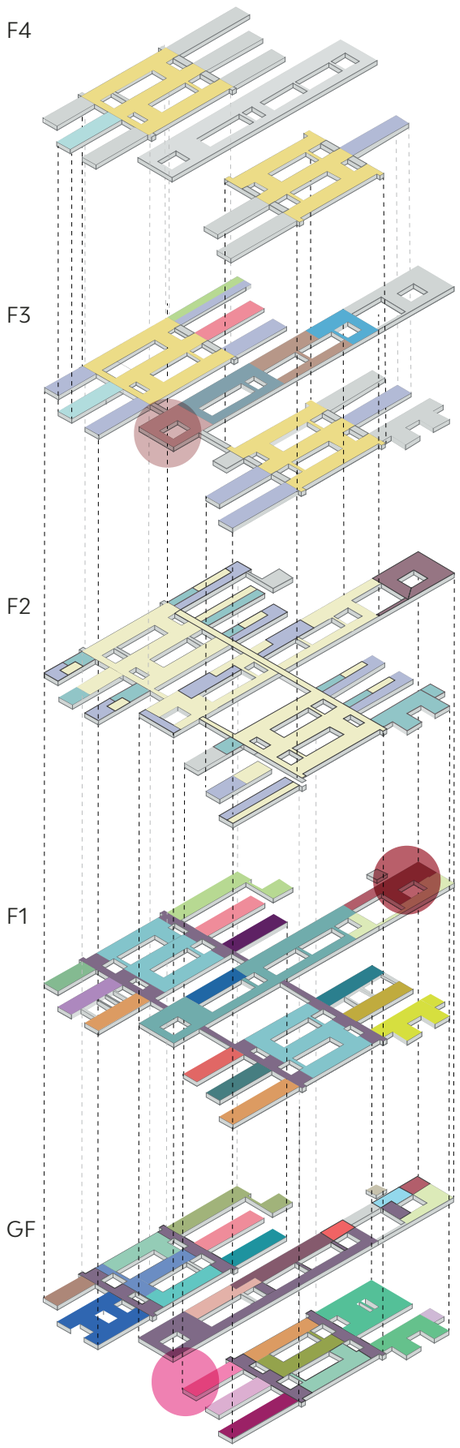
**Budget:**
€ 700 mln

**Client:**
JV (CMB+ITINERA)

**Activities:**
ARC - STR – MEP design,
Project Management support

**Awards:**
The Plan Award 2019 - Category: Future Hospital
BIM & Digital Award 2018 - Category: Public Buildings

**Credits:**
Project Concept: C.F. Moller
Render: MTSYS
Photo: Andrea Zanchi




Functional layout

# More than 180 clinical and research laboratories, and high-grade classified facilities

### F4 - Floor 4

- Mixed inpatient wardintensive care
- Office and administration sect.
- Emergency inpatient ward

### F3 - Floor 3

- Child psychiatry sect.
- Office and administration sect.
- Pediatric inpatient ward and inten. care
- Mixed inpatient wardintensive care
- Emergency inpatient ward
- Clinical genetics lab. dept.
- Clinical pathology lab. dept.
- Clinical biochemistry and pharmacology lab. dept.
- Clinical microbiology lab. dept.

### F2 - Floor 2

- Simulation center
- Technical area
- Office and administration sect.
- Staff facilities

### F1 - Floor 1

- All departments
- Clinical immunology lab. dept.
- Training center sect. (SUND)
- Intensive care sect.
- Radiology operating dept.
- Child psychiatry sect.
- Pediatric inpatient ward and inten. care
- Maternity and pregnancy inpatient ward
- Operating dept.
- Lung medicine sect.
- Emergency inpatient ward
- Mixed investigation and treatment sect.
- Hematology and rheumatology dept.
- Oncology dept.
- Pharmacy sect.
- High isolation technical area
- Otorhinolaryngology sect.

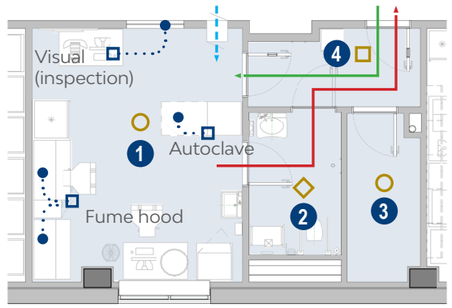
### GF - Grand Floor

- All departments
- Child psychiatric inpatient ward
- Pediatric inpatient ward and inten.care
- Cardiology operating dept.
- Radiology dept.
- Neonatal medicine sect.
- Day hospital sect.
- Cardiovascular medicine sect.
- Emergency room
- Clinical pathology lab. dept room
- Clinical immunology lab. dept.
- Fertility center
- Training center sect. (SUND)
- Allergology and dermatology dept.
- Nephrology and dialysis dept.
- Chapel
- Radiotherapy dept.
- Pharmacy sect.
- Endoscopy dept.
- Nuclear medicine dept.
- Mixed investigation and treatment sect.
- Ophthalmology and dentistry sect.
- Gastroenterology mixed sect.
- High isolation inpatient ward



## Clinical Microbiology Department – BSL-3 Analysis Laboratory

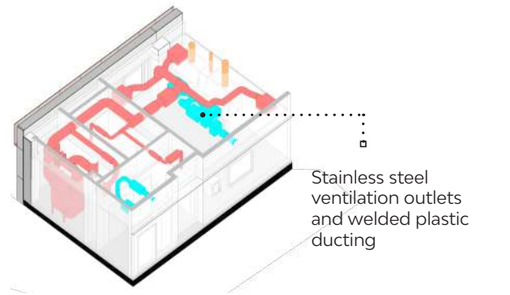
Convertible to BSL-4




1. Laboratory
2. Bathroom
3. Canister
4. Filter

**Pressure gradient**

- -10 Pa
- -20 Pa
- -30 Pa

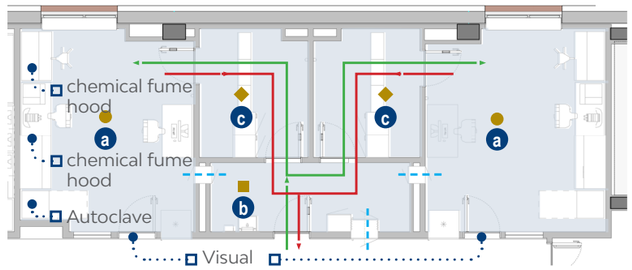


Stainless steel ventilation outlets and welded plastic ducting

- Exhaust ducts, intake terminals, canisters
- Supply air ducts (HEPA-filtered at terminal)
- Filtered exhaust ducts with rooftop discharge, separated for hoods, cabinets, and containment systems

## Clinical Immunology Department – Stem Cell Research Laboratories in GMP C

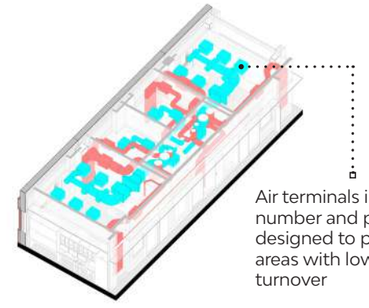
* with a Class A isolator




a. GMP C
b. GMP 0/D
c. GMP D/C

**Pressure gradient**

- 15 Pa
- 30 Pa
- 45 Pa

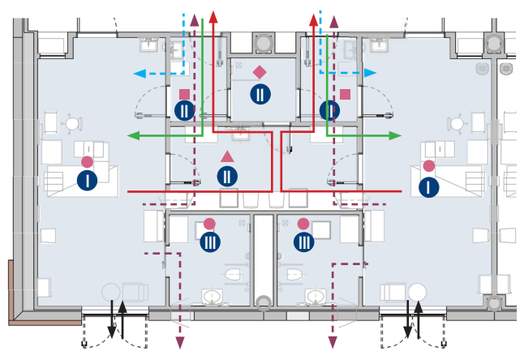


Air terminals in number and position designed to prevent areas with low air turnover

- Supply air ducts with absolute filtration and terminal units
- Exhaust air ducts with column terminals at 1/3 and 2/3 positions

## Infectious Diseases Ward – BSL-4 Biocontainment Patient Rooms

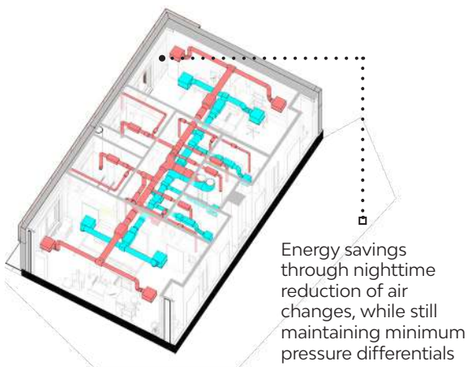
* with dedicated ducting for every 2 co-infected patients




I. Patient room
II. Anteroom / Airlock
III. Bathroom

**Pressure gradient**

- -15 Pa
- -20 Pa
- -30 Pa
- -40 Pa



Energy savings through nighttime reduction of air changes, while still maintaining minimum pressure differentials

- Supply air ducts with terminal absolute filtration
- Exhaust air ducts

In the heart of the Sienese hills, a new building that marks a step towards the renewal and improvement of care.

HEALTHCARE

# Siena Hospital – Ambulatories

## Continuity and excellence of outpatient services

The construction of the new outpatient building is part of the Redevelopment and Development Plan of the Azienda Ospedaliero - Universitaria Senese (AOUS), which includes anti-seismic and fire prevention measures, functional and aesthetic redevelopment of existing structures and a new distribution of functions.

The building dedicated to outpatient clinics will be distributed over seven floors to maximize the use of available space and ensure an optimal division of the different activities and functions. This size has been carefully calculated to accommodate all the functions necessary for efficient provision of services, while ensuring a comfortable environment for patients and staff.

The project as a whole includes the construction of a new car park, improving the road access to the hospital complex, adding pedestrian and cycle paths with attention to ensuring patient accessibility and differentiating external logistics flows without interfering with emergency routes.

The new structure will allow the continuity and quality of outpatient services to be maintained in a formal and well-organized context, thus contributing to the well-being of users.

**Location:**
Siena, Italy

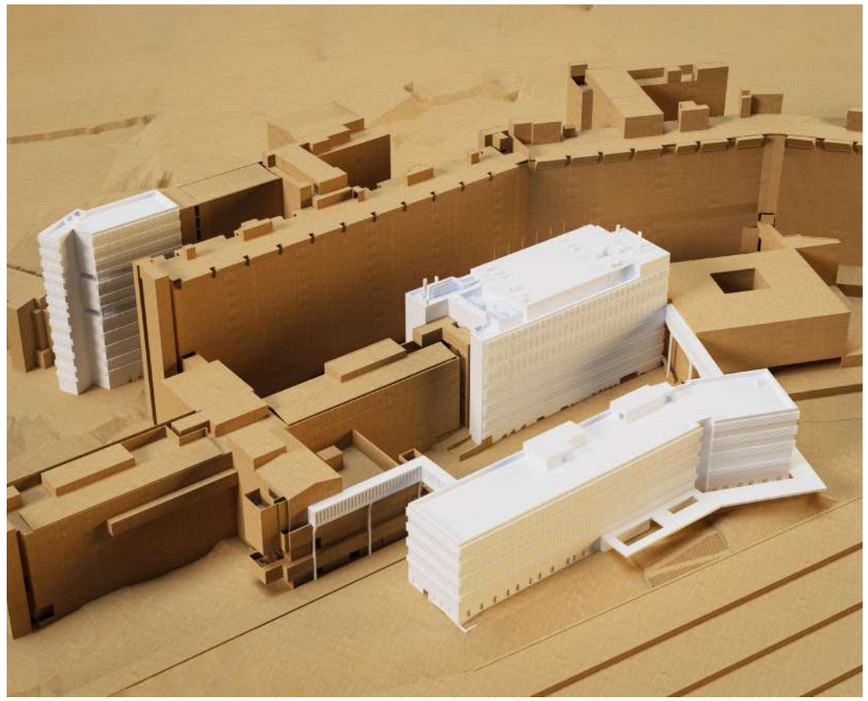
**Year:**
2024 - ongoing

**Status:**
Design in progress

**Dimensions:**
13.900 sqm

**Client:**
Siena University Hospital

**Activities:**
ARC - STR - MEP design



### Key highlights of the project

The building integrates high-performance laboratories and cleanrooms, equipped with modern technologies designed to optimize production processes, including a nitrogen supply line for cryogenic storage, tissue cryopreservation, and two levels of pharmaceutical production.

Strategically located between two existing facilities, it is designed to ensure continuous horizontal pathways for the movement of personnel, materials, and information. The project prioritizes adaptability to future technological changes, health requirements, and spatial and procedural needs, thanks to modular spaces capable of accommodating multiple functions throughout the building's lifespan, reconfigurable without structural interventions, supported by an optimized distribution of systems and dedicated technical rooms.

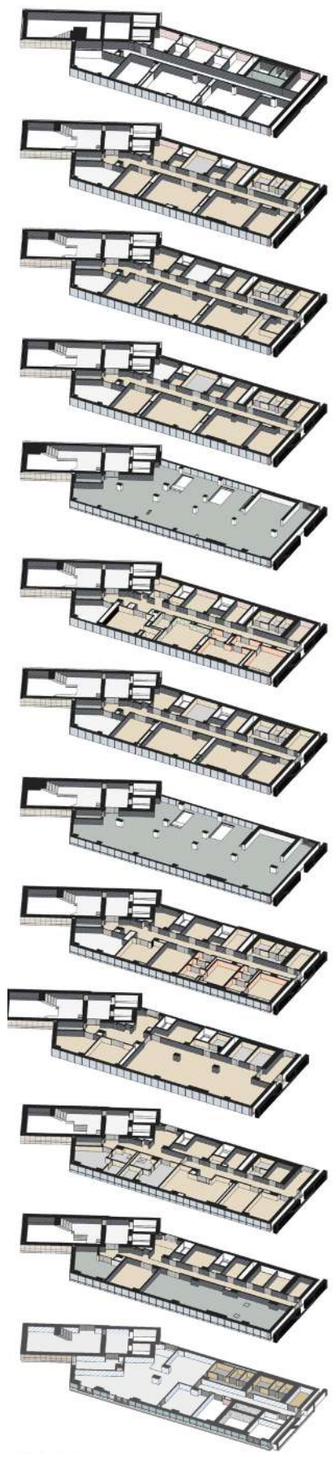
### Technological complexity

The building is equipped with sophisticated ventilation and exhaust systems, separated for chemical and biological hoods, as well as ventilated safety cabinets. Redundant systems are also in place for the air handling units to ensure correct and continuous operation.

The project includes classified laboratories (cleanrooms) compliant with strict GMP and UNI EN ISO 14644 standards, where pharmaceutical and dermatological products for transplant services can be produced. Indeed, the building serves as a reference center for immunotherapy and houses the tissue bank for the Tuscany Region. For this reason, a specialized area for cryogenic storage is provided, equipped with oxygen level monitoring and emergency ventilation systems, in accordance with UNI 11827:2021 guidelines.

The use of modular benches with integrated service connections allows spaces to be quickly reconfigured according to research developments, providing a flexible, safe, and cutting-edge laboratory environment.

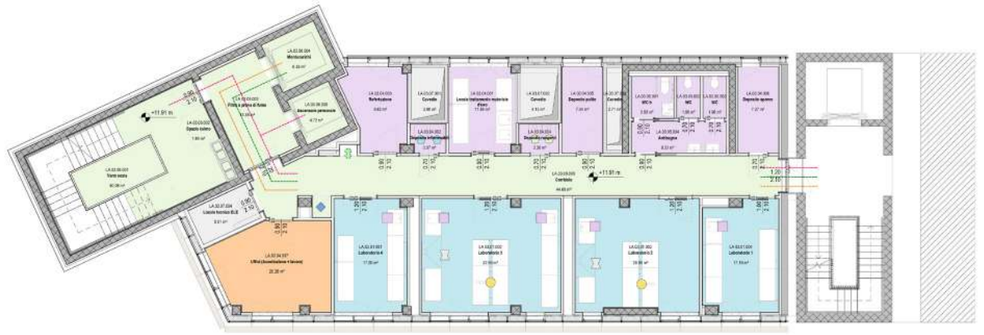
### Functional layout




### Model for resilient platforms

Classified laboratories – high-performance environmental control

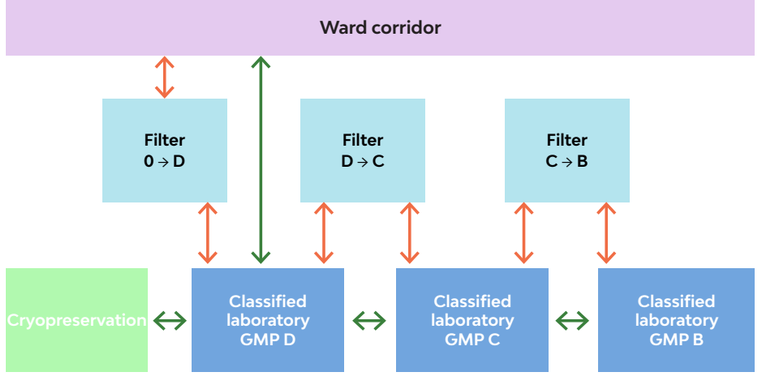
Unclassified laboratories – low complexity



Equipment legend

- Self-contained breathing apparatus (SCBA)
- Class II Biological Safety Cabinets (BSC)
- Emergency shower
- Double-chamber ventilated pass box
- Pneumatic tube system
- Chemical fume hoods
- Ventilated reagent cabinet
- Double-chamber ventilated pass box
- Sink with eyewash station
- Suction hood / Local exhaust hood
- Flammable storage cabinet
- Internal viewing panels

Classified laboratories layout
**Oncological immunotherapy**




Personnel flow
Material flow


Towards the hospital of the future: a hub focused on innovation, user well-being and connection with the community

HEALTHCARE

# Padua Hospital

## An integrated ecosystem of care, nature and technology

The new Padua Hospital will be a cutting-edge structure, carefully designed to integrate harmoniously into the surrounding context. An innovative, technological, sustainable and resilient hub, focused on the well-being of users and community.

Located in the San Lazzaro district of Padua, the hospital will be connected to the city through a network of multimodal road infrastructures.

It will be the first post-pandemic hospital in Italy, strongly interconnected with research activity and designed to be able to respond to every future need. With over 192,000 sqm 963 beds, 58 primary departments, and a 7-storey tower dedicated to research, it will offer cutting-edge care and flexible spaces, capable of responding to the trends of digitalisation and technological innovation and to the challenges caused by unexpected events and changing environmental and social conditions.

The structure integrates carefully into the landscape, preserving the site's precious wooded areas, and ample green roofs. The dialogue with nature is a common thread of the project, which permeates its every aspect and becomes an essential element in the treatment process. The building opens up towards nature and at the same time welcomes it into its internal areas and courtyards, creating green oases in which to relax, meet and rehabilitate.

Like an ecosystem of care, nature and technology, the new hospital pays maximum attention to sustainability, integrating solutions aimed at reducing energy consumption and protecting the environment, with those dedicated to optimizing internal comfort. This combination qualifies it as a nearly zero energy building, a park-hospital destined to become the new green lung for the community.

**Location:**
Padua, Italy

**Typology:**
New construction

**Year:**
2022 - ongoing

**Status:**
Design in progress

**Dimensions:**
192.000 mq

**Client:**
Padua University Hospital

**Activities:**
ARC - STR - MEP, Infrastructures and Landscape design

**Collaborators:**
Politecnica Ingegneria ed Architettura (JV Leader) – Cooprogetti – Techint

# Teaching and Research Tower

### A center of excellence

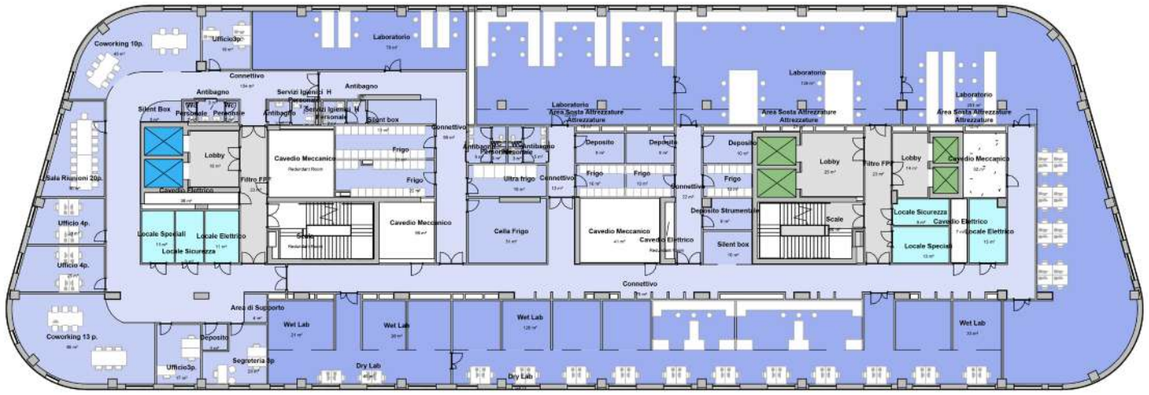
The Teaching and Research Tower of the Padova East Campus is a center of excellence that synergistically integrates healthcare, education, and biomedical research, becoming a key reference point for innovation within the new hospital complex.

Designed as an autonomous, flexible, and highly technological facility, it promotes multidisciplinary and multiscale research through modular spaces, shared facilities, and strategic connections with the hospital's clinical and laboratory areas.

Equipped with modern educational areas, advanced skill labs, and dedicated spaces for students and researchers, the Tower represents a dynamic and continuously evolving environment, capable of rapidly adapting to changes and new requirements in scientific and educational activities.

### Typical Floor Laboratory Legend

- Laboratories
- Offices, cold rooms, and facilities
- Connecting spaces
- Filters and lobby
- Mechanical shafts
- Electrical, special, and safety rooms




### Biobank

The Research Biobank, located on the ground floor with a dedicated access, is designed to high standards of functionality and safety to manage large volumes of biological samples. It features two –20°C storage rooms, also prepared for high-capacity automated robotic systems, and three support laboratories for sample reception, processing, and experimentation, in addition to a supply storage area. The offices, sized for 10–15 people, together with a meeting room and a shared collaboration area, facilitate coordination and teamwork. Its flexible configuration makes the Biobank a strategic and innovative hub within the Teaching and Research Tower.

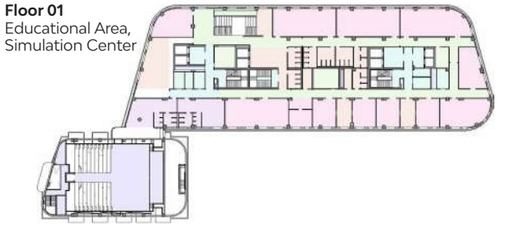

### Biobank Legend

- Laboratories
- Offices and facilities
- Connecting spaces

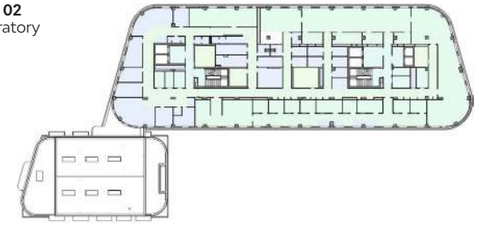
### Functional diagram

**Floor 00**
Auditorium, Entrance, Biobank

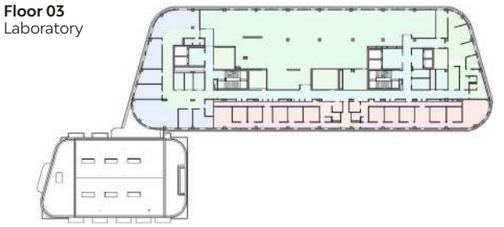
**Floor 01**
Educational Area, Simulation Center



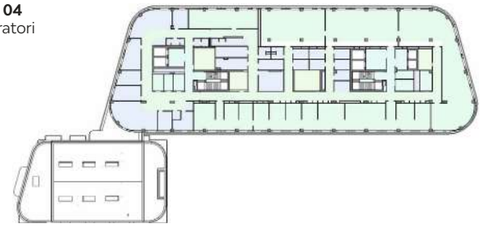
**Floor 02**
Laboratory



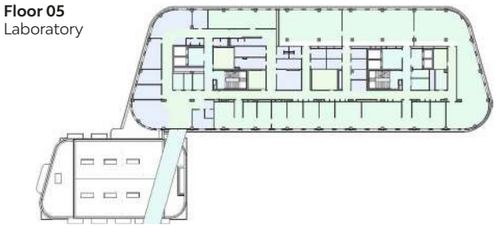
**Floor 03**
Laboratory



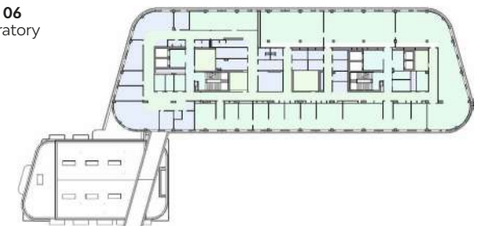
**Floor 04**
Laboratori



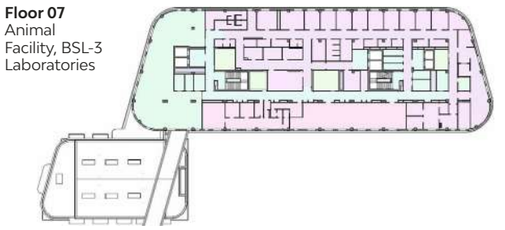
**Floor 05**
Laboratory



**Floor 06**
Laboratory



**Floor 07**
Animal Facility, BSL-3 Laboratories



### Research area

The Research Area of the Tower has been designed to ensure maximum flexibility and shared spaces capable of accommodating continuously evolving technologies and supporting truly multidisciplinary research. Typical floors host core facilities for wet and dry labs, logistical services, and an administrative module with a reception, offices, and coworking spaces, aimed at promoting collaboration and the exchange of ideas. The wet labs, conceived as modular open spaces, ensure long-term adaptability, while highly specialized areas – BSL-3, Cell Factory, and Animal Facility – are organized into dedicated zones for efficiency and safety. The area is further complemented by advanced domains such as preclinical imaging, omics sciences, biomedical engineering, genetics, microbiology, neurobiology, and regenerative medicine, creating an innovative ecosystem where research, education, and healthcare integrate synergistically.

### Functional Diagram Legend

- Reception
- Main Storage Area
- Educational Area – Circulation
- Main Educational Area
- Secondary Educational Area
- Biobank – Circulation
- Main Biobank Area
- Secondary Biobank Area
- Shaft
- Electrical Shaft
- Mechanical Shaft
- Connecting Spaces
- Technical Rooms
- Electrical Technical Rooms
- Main Changing Room

A project that integrates the new university center with the historical heritage of Ferrara, promoting sustainable and accessible spaces for a dynamic community.

EDUCATION

# UNIFE Biomedical Chemical Hub

## Urban Renaissance of the San Rocco Area

The revedelopment project, part of the former S.Anna Archiepiscopal Hospital are in Ferrara, is set within a context of great historical and cultural significance, as it is part of the UNESCO World Heritage Site “Ferrara, city of the Renaissance”.The initiative includes the construction of two new university buildings and a parking facility, as a part of a broader recovery plan for the San Rocco area, located in the heart of the historic center.

The project aims to harmonize the new buildings with the existing structures. The first building, intended for teaching, will host 1809 students with a pigmented concrete facade and large windows to optimize natural light. The second, intended for research laboratories, will have a façade with pigmented concrete pillars. The third building will be a three-level car park with 40 parking spaces, designed not to increase traffic. A fundamental aspect of the project is the promotion of sustainable mobility. More thant 50% of the area will be dedicated to pedestrian and cycling pathways, creating new plaxas and tree-lined spaces that provide a safe and pleasant environment while limiting the use of motor vehicles. Accesibility is another key objective, and the buildings will be designed to ensure access for people with reduced mobility.

Overall, the design prioritizes the use of eco-friendly materials, incorporating integrated solutions to ensure high standards of comfort and environmental sustainability.

**Location:**
Ferrara, Italy

**Typology:**
University /
New construction

**Year:**
2023 - 2024

**Status:**
Design completed

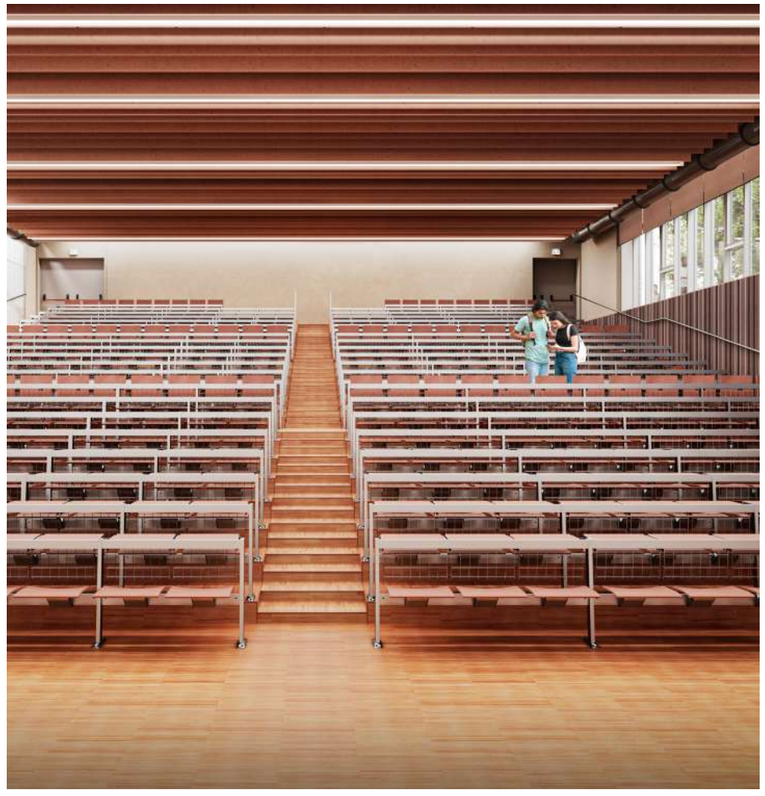
**Dimensions:**
6.600 sqm

**Budget:**
€ 24 mln

**Client:**
ITI Impresa Generale Spa

**Activities:**
Executive design ARC - STR - MEP

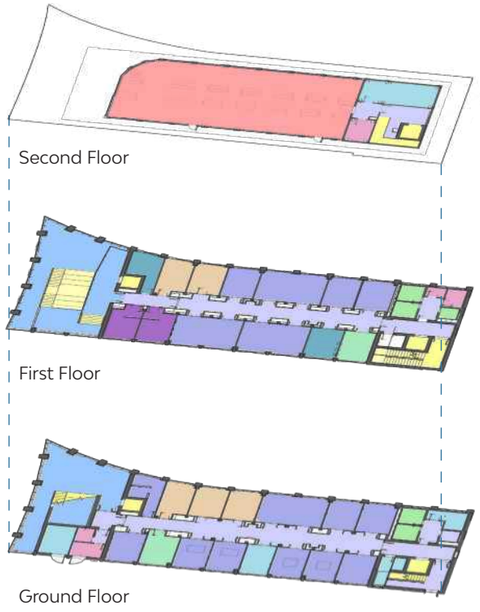
**Credits:**
Preliminary and final design:
Rossiprodi Associati Srl - S.B. Arch
Bargone Architetti Associati - Ingegneri Riuniti Spa - Geo Group Srl

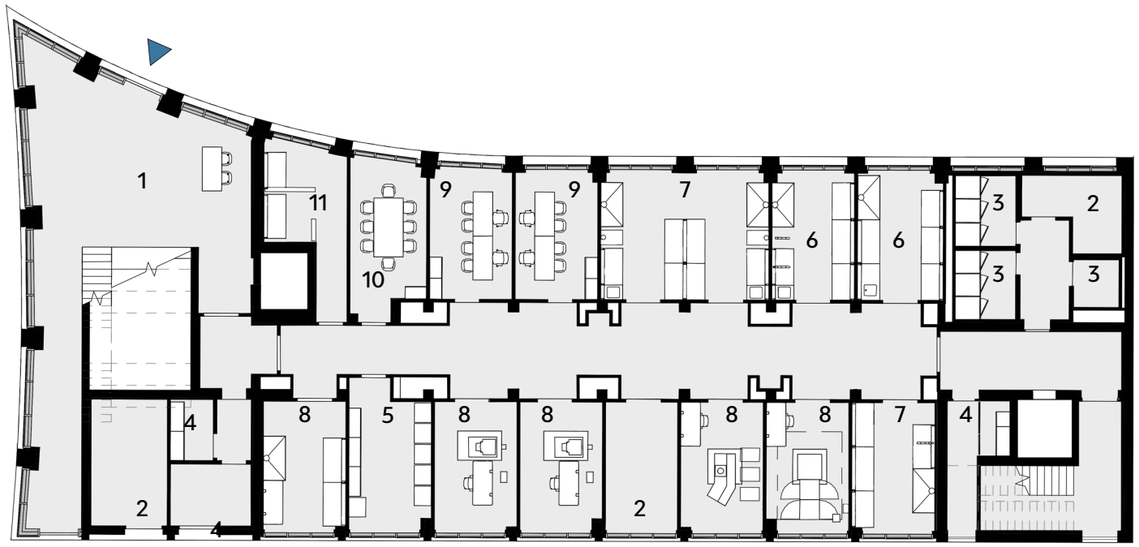



- **Building A:** Dedicated to education, it houses four large classrooms, study rooms, and relaxation areas.
- **Building B:** Hosts chemical and biomedical research laboratories as well as university offices.
- **Building C:** Serves as a multi-level parking facility.

**Functional Diagram Legend**

- Laboratories
- Offices
- Entrance
- Technical Room
- Ancillary Room
- Laundry
- Connecting Spaces
- Vertical Circulation
- Equipment Area
- Cold Room
- Changing Room
- Storage Room
- Toilets




The spatial layout is designed to highlight the laboratories, located in the central section of the building. Clear and logical pathways connect the entrance hall directly to the floors dedicated to scientific activities, ensuring intuitive orientation and accessibility for all users. The repetition of the distribution structure across the various floors, together with the strategic placement of services and vertical connections, creates an organized, efficient, and easily reconfigurable work environment, capable of accommodating diverse research and experimental needs.

**Ground Floor Plan Legend – Building B**

1. Entrance Atrium
2. Technical Room
3. Toilets
4. Storage Room
5. Cold Room and Cabinets
6. Histology Laboratory
7. Laboratory
8. Microscopy Laboratory
9. Office
10. Meeting Room
11. Microtome Room

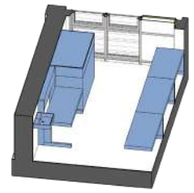
▶ Main entrance

**Space flexibility**

The distribution of the laboratories is modular and flexible, easily adaptable to any need or change in the functional program, allowing highly varied uses of the educational spaces while ensuring maximum rationality and simplicity of use. This design characterizes the spaces with a clear identification of functions and internal pathways.

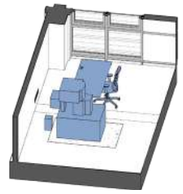
The internal dry partitions, installed above the service floor screed, allow spaces to be redefined according to different requirements.

Laboratory 1



Laboratory 2

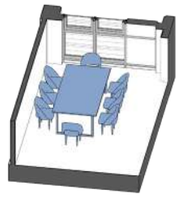
Laboratory 3

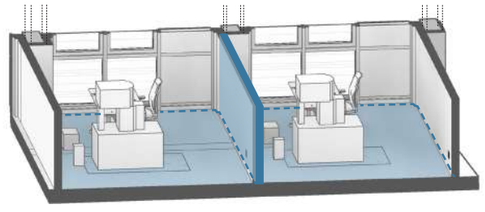


Office 1

Office 2

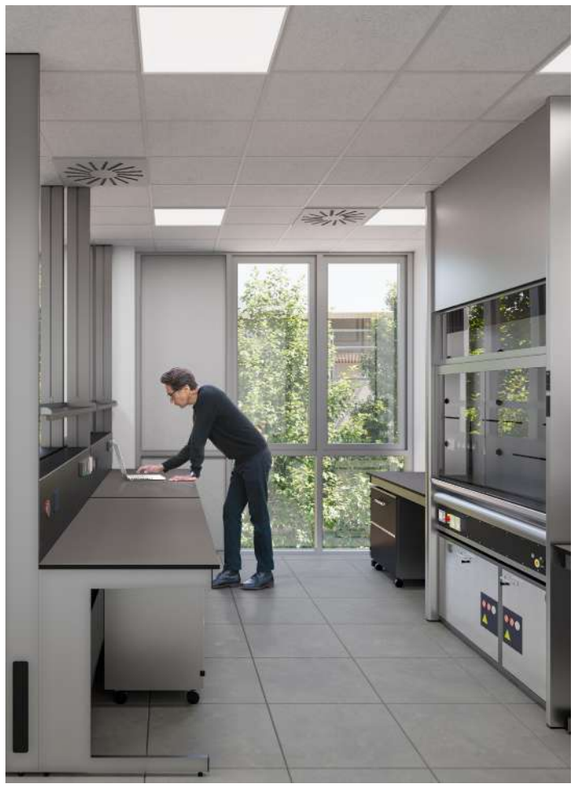
Meeting room

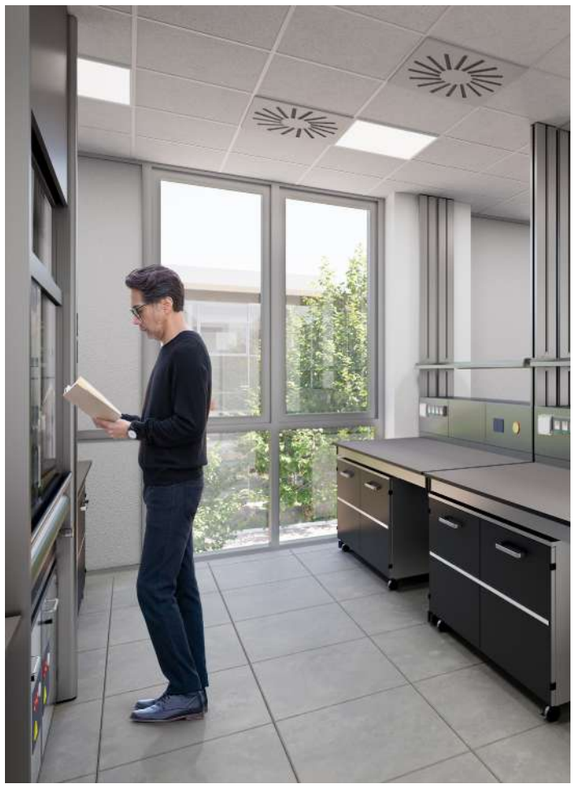




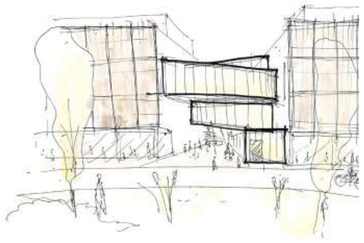
2 Laboratory

1 Laboratory





Through integrated design in a BIM environment, the University centre brings together functional, plant and technological requirements.



EDUCATION

# University of Florence DAGRI Project

## A functional health facility in dialogue with the context

The new headquarters of the Department of Agricultural, Food, Environmental and Forestry Sciences and Technologies (**DAGRI**) and the School of Agriculture at the Scientific-Technological Complex of Sesto Fiorentino is a successful example of **integrated design**.

The project brings together a series of technological complexities and requirements linked to education, research, and sharing, thanks to the instrumental and methodological potential of the **BIM approach**.

The intervention is structured in a regular urban layout, formed by **compact and autonomous volumes**, to ensure better management of user flows and the functioning of the entire architectural machine.

The **ten independent pavilions** are connected by **elevated ramps** and staircases outlining the open spaces, a meeting place for teachers and students but above all bioclimatic devices for the best indoor comfort.

The external partitions – a reference to the surrounding fields and gardens – work as true **technological membranes**, regulating ventilation and natural lighting. **Sustainability**, **energy efficiency** and **reduced environmental impact** are ensured through the adoption of **innovative technological solutions.**

**Location:**
Sesto Fiorentino, Italy

**Typology:**
University /
New construction

**Year:**
2020

**Dimensions:**
43.000 sqm

**Budget:**
€ 81.6 mln

**Client:**
University of Florence (UNIFI) –
Consorzio Energia Toscana (CET)

**Activities:**
ARC - STR - MEP design

**Collaborators:**
TEKNE

**Credits:**
Experimental University Laboratory - Unifi

# Research spaces

Within the University Campus, Buildings F and H house the main areas dedicated to Research Laboratories, organized to accommodate activities in the sections of Agricultural Engineering, Land and Environment, Food Processing, Soil Science, and Animal Science.

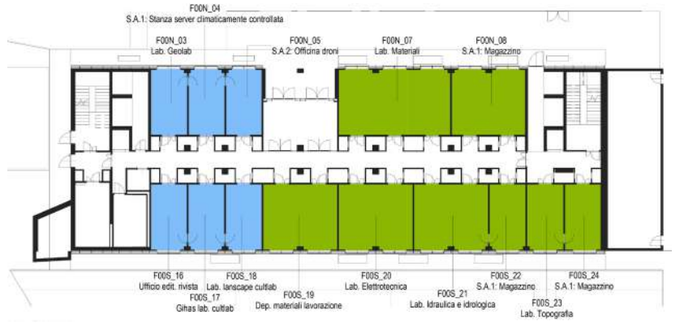
The design of the spaces is based on a careful definition of the laboratory module, conceived to optimally meet the operational needs of researchers. Each environment is configured with an ergonomic arrangement of workstations, promoting both individual focus and teamwork through wide, easily accessible central pathways.

The shape and orientation of the spaces are designed to maximize natural light and ventilation, ensuring comfort conditions that enhance the quality of scientific work. Mechanical and technical systems have also been developed with a high level of attention: dedicated service shafts, technical ceilings, and work gas distribution systems allow for rapid interventions, easy maintenance, and long-term flexibility.

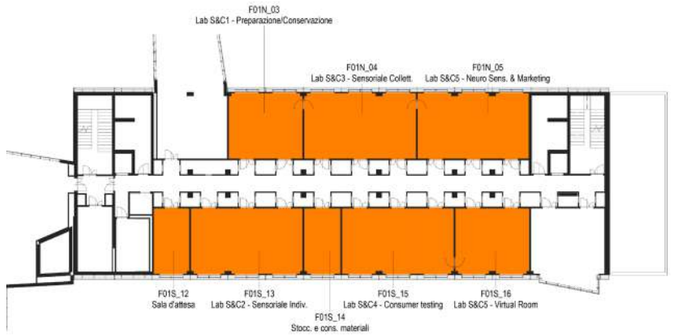
Together, these design choices create efficient, safe, and adaptable laboratories capable of supporting advanced research activities and accommodating the evolution of the scientific disciplines they host.

## Building F

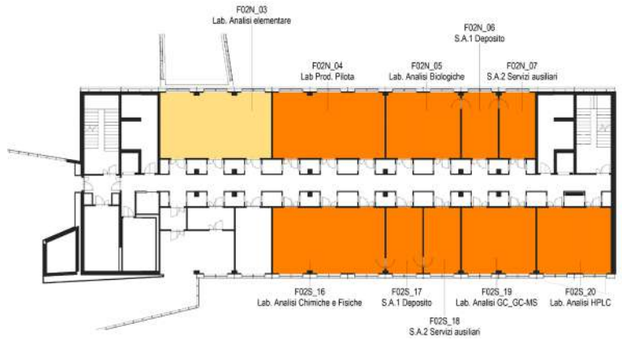
Ground Floor Plan



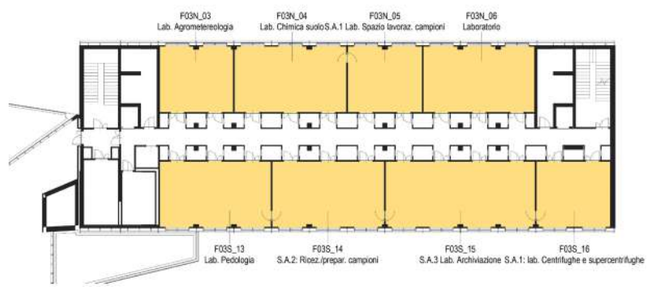

Second Floor Plan




Second Floor Plan




Third Floor Plan




**Legend – Functional Diagram**

**Ground Floor Plan**

- Agricultural, Forestry, and Biosystems Engineering
- Land and Environment

**Second Floor Plan**

- Food Processing – Quality & Preference
- Animal Science

**Second Floor Plan**

- Food Processing – Quality & Preference
- Soil Science

**Third Floor Plan**

- Soil Science
- Animal Science

## Technological Features

### Ventilation System

The laboratories are equipped with a full-air ventilation system that ensures controlled environmental conditions and effective air renewal. Supply air is introduced continuously to guarantee proper conditioning, while return air is regulated to balance the fume hood extraction, avoiding unwanted imbalances or depressions. The AHUs, located on the roof, feed a distribution network integrated into vertical shafts and the suspended ceiling, from which air is delivered to each laboratory. Each fume hood has a dedicated exhaust system, a solution that ensures high performance and efficient management of the systems even under the most demanding operational conditions.

### Technical Gas System

The buildings housing the research laboratories are served by a technical gas distribution system designed to ensure reliability, safety, and operational flexibility. The complex is organized with dedicated technical rooms for cylinder storage, easily accessible from the outside to facilitate supply and maintenance. From these rooms, supply lines extend to the various buildings, equipped with regulation and control systems that allow pressures and flow rates to be adapted to the specific needs of the laboratories. The distribution network is designed to integrate with future implementation plans of the University, ensuring maximum flexibility in the configuration of usage points and scientific equipment.

**Legend of Ductwork and Equipment – Air Supply Network**

- Supply ductwork
- Return ductwork
- Exhaust ductwork to outside

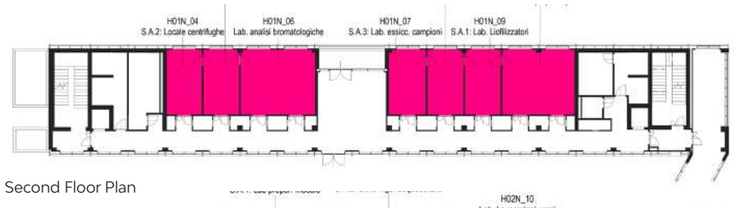
**Legend of Hydronic Piping and Room Terminals**

- Medium-temperature hydronic supply line
- Medium-temperature hydronic return line

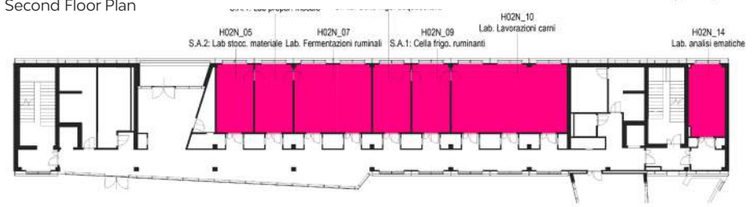
## Building H

Ground Floor Plan

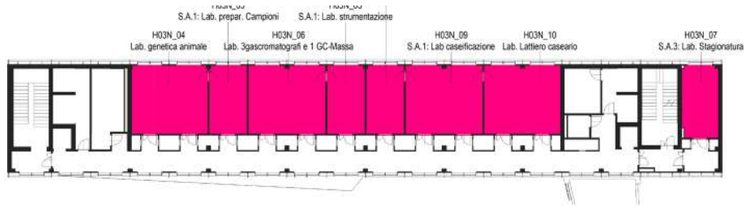
First Floor Plan



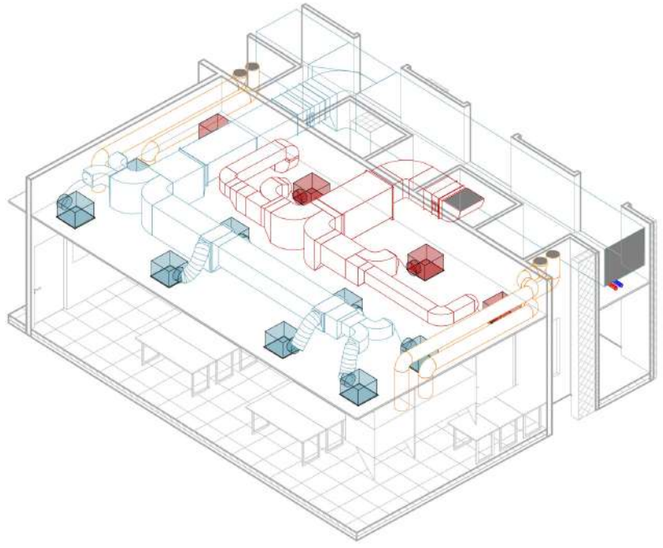

Second Floor Plan




Third Floor Plan




Typical Laboratory – Mechanical Systems
Secondary Distribution Layout



# Certifications

BIM UNI PDR 74:2019
CERTIFIED COMPANY

ISO 9001:2015
CERTIFIED COMPANY

ISO 14001:2015
CERTIFIED COMPANY

ISO 45001:2018
CERTIFIED COMPANY

UNI PDR 125:2022
CERTIFIED COMPANY

SA 8000:2014
CERTIFIED COMPANY

ASSOCIATE OF
CONFINDUSTRIA
ASSOIMMOBILIARE

MEMBER OF
OICE

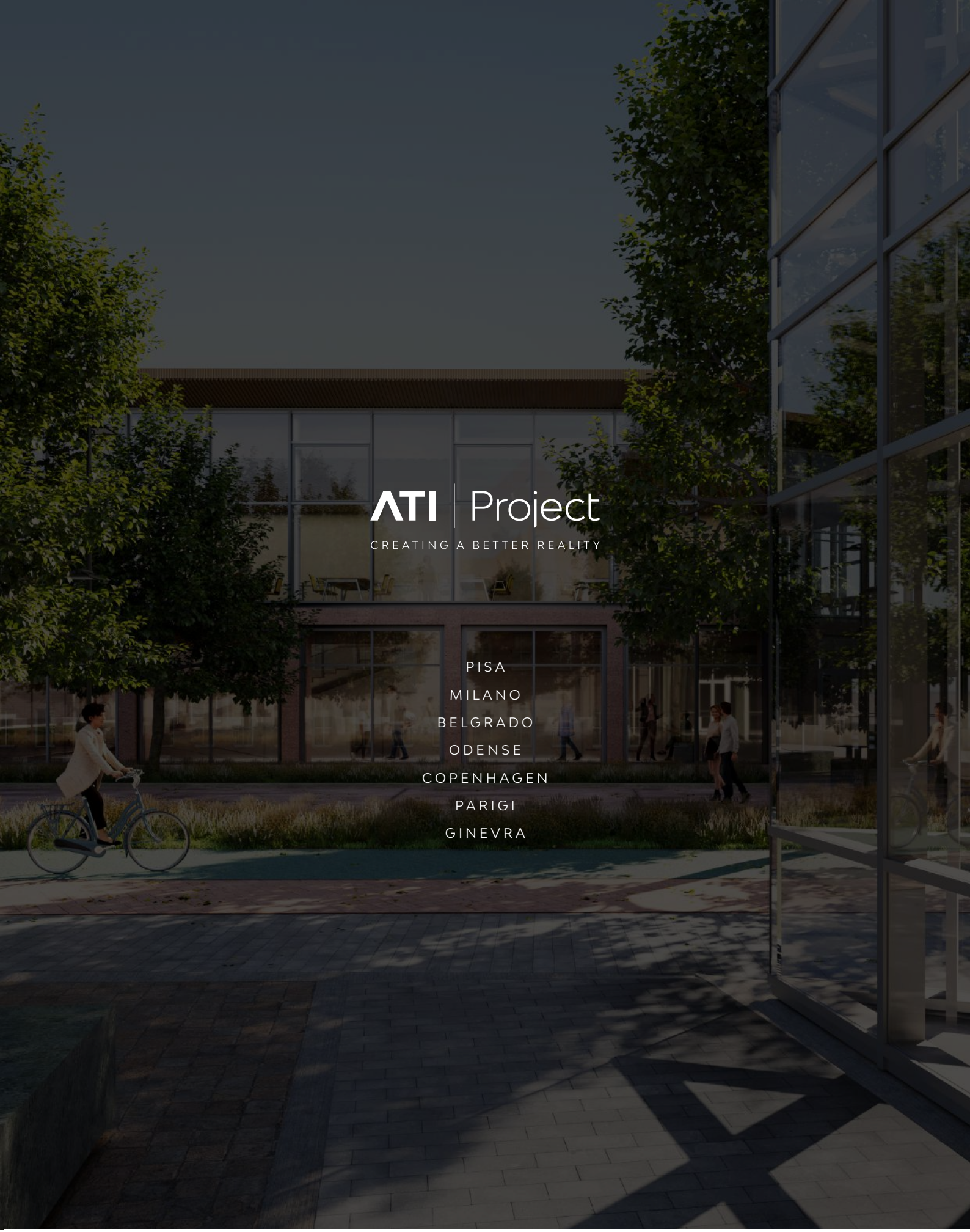
MEMBER OF
EFCA

MEMBER OF CNETO
CENTRO NAZIONALE EDILIZIA
E TECNICA OSPEDALIERA

BIM QUALITY
ENVIRONMENT POLICY

SOCIAL RESPONSABILITY
POLICY

GENDER EQUALITY
POLICY


ATI | Project
CREATING A BETTER REALITY
PISA
MILANO
BELGRADO
ODENSE
COPENHAGEN
PARIGI
GINEVRA