VU*LINK*

DESIGN CONTEST FOR THE RESTRUCTURING OF THE COMPLEX OF BUILDINGS FOR SCIENTIFIC PURPOSES LOCATED AT SAULĖTEKIO AL. 9., VILNIUS, AND A NEW BUILDING FOR THE VU FACULTY OF MATHEMATICS AND INFORMATICS

Conference Center
Entrance from Saulėtekis
Pedestrian Alley

VU Saulėtekis 1980

Context

The history of Vilnius University and its unique architectural complexes in Vilnius' Old Town and Saulėtekis reflect not only key stages in the city's development but also the evolution of Lithuanian culture.

In the dynamic 21st century, Vilnius University aims to transform its Saulėtekis complex. However, this process extends beyond practical solutions. Fundamental questions arise: What should the new university building be like? How can architecture foster progress and openness? What role should the university itself play in the society of the future?

We seek answers by analyzing historical university complex models and their connections to the structures of the world's most advanced organizations. At the same time, we emphasize the importance of heritage preservation and sustainability to ensure the continuity of existing structures.

Within this context, our goal was not only to define the broader vision of the project but also to reflect on the values of Vilnius University—one of the country's most important and open institutions: **openness, integrity, progress, and long-term sustainability.**

OPENNESS – INTEGRITY – Openness to the environment and an internal structure inspired by urban planning principles create conditions for integrating present and future activities. Such spatial organization encourages unexpected connections and the emergence of new ideas.

PROGRESS – university spaces must be dynamic—capable of adapting to new needs and diverse activities. By integrating the old with the new, a harmonious relationship with the surroundings is achieved, particularly on the first level of the building, where natural interaction with society takes place.

LONG-TERM SUSTAINABILITY – the true sustainability strategy in architecture lies in the longevity of buildings. Only by ensuring flexibility and the possibility of reconfiguration can structures remain relevant and valuable for centuries.

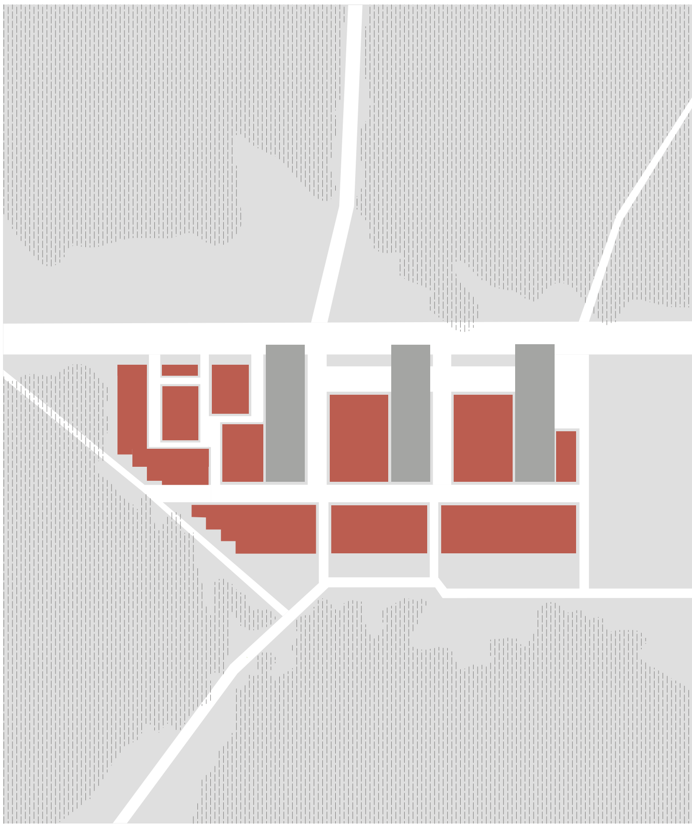
The Vilnius University complex in Saulėtekis is gaining new momentum—expanding with new functions and content. This transformation will turn the complex into a hub of science and innovation, where openness and high-quality architecture will facilitate the spread of new ideas. It will foster progress, strengthen a sense of community, and create opportunities for new synergies between science, creativity, and business.

Concept

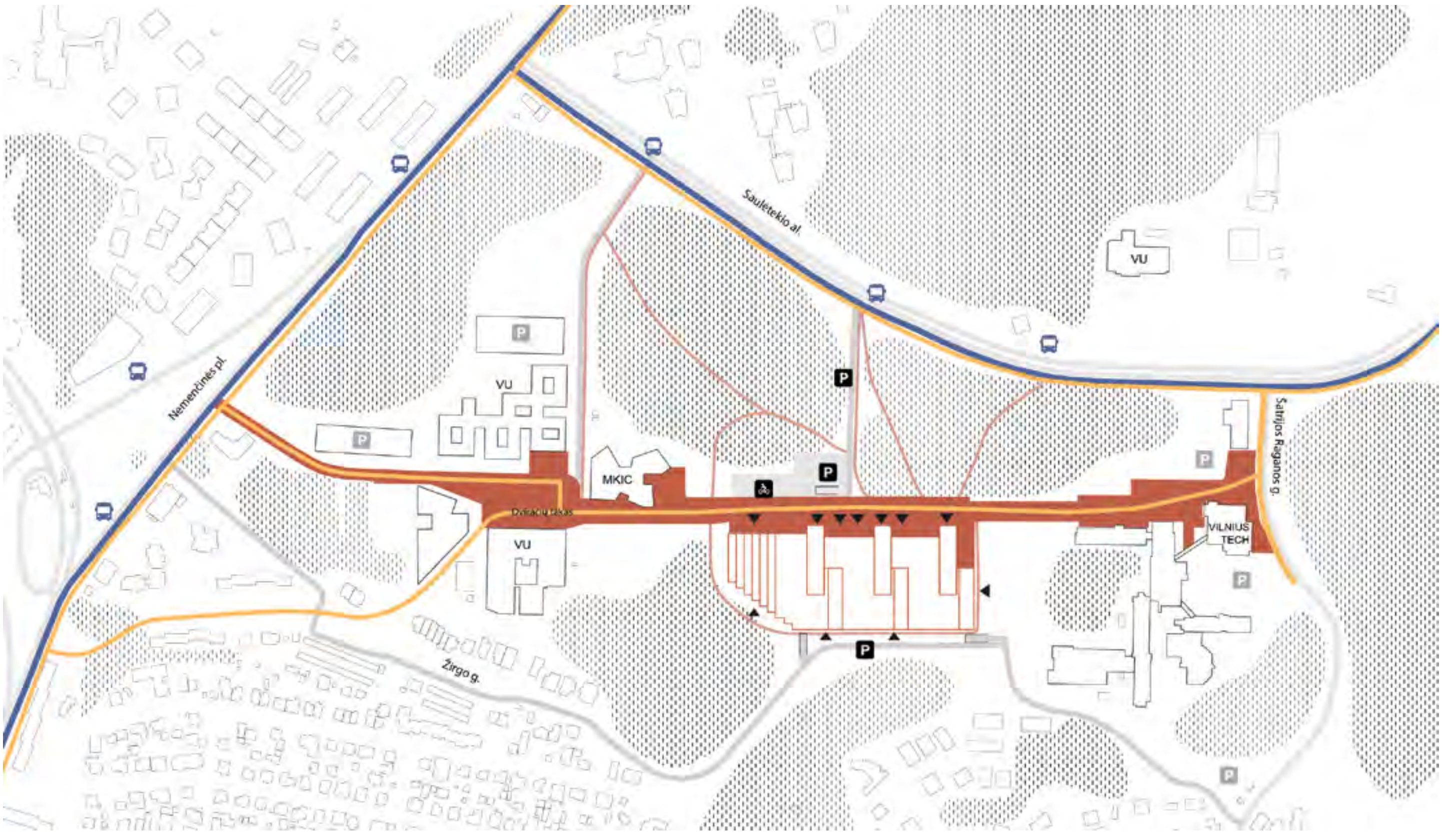
Vitality Through Activation

The Vilnius University building complex at Saulėtekio al. 9 is being expanded to meet the needs of a modern university. The goal of the VU LINK project is not only to create high-quality spaces within the complex but also to activate and integrate its surroundings, with a particular focus on Saulėtekis' pedestrian avenue as the main public connection of the university campus.

Considering the natural environment, the modernist, open-plan VU Saulėtekis complex concentrates as many public functions as possible at ground level: the Auditorium Center, Conference Center, cafes, dining halls, and other service areas, along with entrance halls for all faculties.
To accommodate an extensive functional program, the internal space of the complex is structured according to urban planning principles: hallways and public areas function as streets, large auditoriums and gathering spaces as squares. Within this framework, faculty buildings, laboratories, and administrative centers are clearly defined and seamlessly integrated. These elements interact dynamically within the complex, reinforcing the connection between the academic and urban environments.



Conceptual Scheme



Connection scheme

Architectural Idea

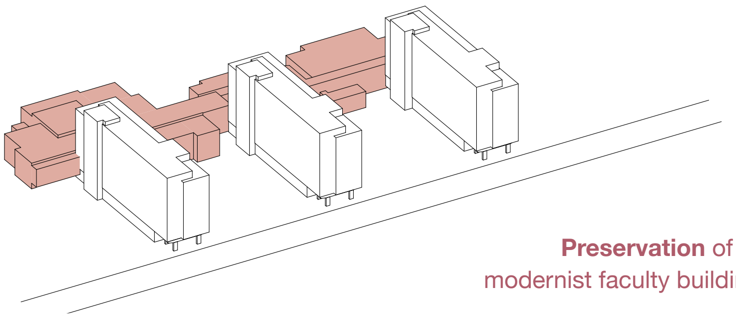
The architectural solution of the VU LINK complex is designed to be as compact as possible and is based on four key principles:

_ Activation of the ground level by concentrating open public functions, creating an urban-type structure, and fully replacing the existing Connecting Building with a more dynamic space.

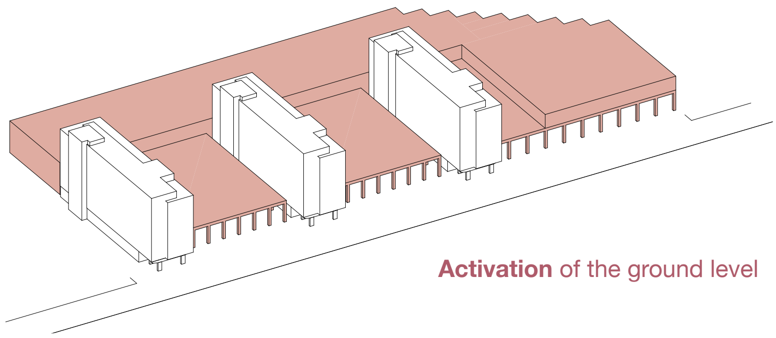
_ Preservation of the original composition and architectural elements of the modernist faculty buildings, while introducing contextual new elements to enhance their functionality and quality.

_ Continuity of modernist architectural principles, shaping elegant new extensions to the existing faculty buildings to improve the integration of faculty and administrative spaces while maintaining the transparency of the complex along the north-south axis and emphasizing the contrast between horizontal and vertical composition elements.

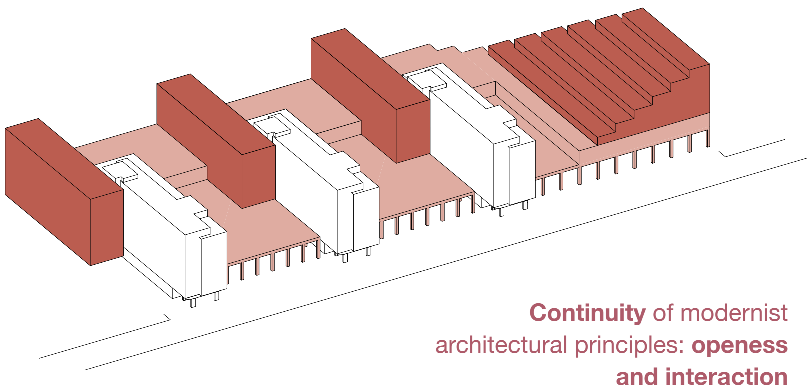
_ A new Faculty of Mathematics and Informatics (MIF) designed to highlight openness and strong horizontal internal functional connections, fostering collaboration and interaction.



Preservation of the modernist faculty buildings



Activation of the ground level



Continuity of modernist architectural principles: **openess and interaction**

Architectural Quality of the Connecting Building

The Connecting Building extends across the entire construction zone, forming urban-style internal streets (halls) and plazas that link the Auditorium Center and Conference Center. Surrounding these spaces are various public functions, including reading rooms, coworking areas, dining halls, cafés, and access points to faculty, administration, and laboratory spaces located on the upper floors. Smaller auditoriums are integrated into the faculty buildings and their extensions. The program of the Connecting Building program is divided into two main parts:

_ Ground Level: A network of open public spaces, including the Auditorium Center (AC), Conference Center (KC), halls, cafés, dining halls, and other service functions.

_ Upper Levels (3rd–8th floors): Three elevated building volumes attached to existing faculty buildings house administrative spaces, including; West: Physics Faculty's Laser Research Center (LTC) and Physics Faculty Student Initiative Spaces. Central Section: Information Technology Services Center (ITPC), VU Administration, Property Management and Services Center (TVPC), VU Publishing House

These administrative blocks are functionally integrated with their respective faculties, improving overall accessibility and interaction.
The former courtyards between faculties are transformed into functional spaces by aligning the floor levels with the western building's foundation and adjusting the roof plane to match the first-floor slab of the eastern faculty buildings. This design creates higher interior spaces while harmonizing with the existing architectural composition.

Continuing the compositional tradition of the existing Connecting Buildings, a tinted brick-colored concrete gallery with recessed glazing visually opens to the north, integrating the main entrances to the Auditorium and Conference Centers, which are planned within courtyards between the faculties. Inside, the open-grid principle is maintained— a 6x6 m column grid is adapted to different functions, with spans increased to create spacious auditoriums and conference halls, while lobbies are designed for flexibility.

The grid pattern continues on the roof, featuring skylights of varying sizes that optimize natural lighting. This structure extends over two levels in the southern section, while an airy roof with skylights covers the east-west connecting hall, repeating the pattern in second-floor auditoriums and conference rooms.

Functionality of the Connecting Building – Interior Space Planning

The Connecting Building follows an open grid structure, incorporating internal alleys for movement. Two main east-west connections are planned along the northern access points and the southern faculty façade. North-south connections and entrances are organized at each eastern-facing faculty building, linking hallways with faculty entrances. The same connectivity principle is also applied in the new Faculty of Mathematics and Informatics (MIF) building.

These pathways provide access to all auditoriums and faculty first floors. Additionally, an east-west passage—a toned concrete gallery on the northern side of the Connecting and MIF buildings—enhances the Saulėtekis pedestrian avenue, offering sheltered walkways and functional spaces for outdoor cafés and meetings. The Connecting Building's layout is designed to prioritize large public functions on the ground floor, ensuring efficient circulation and accessibility.

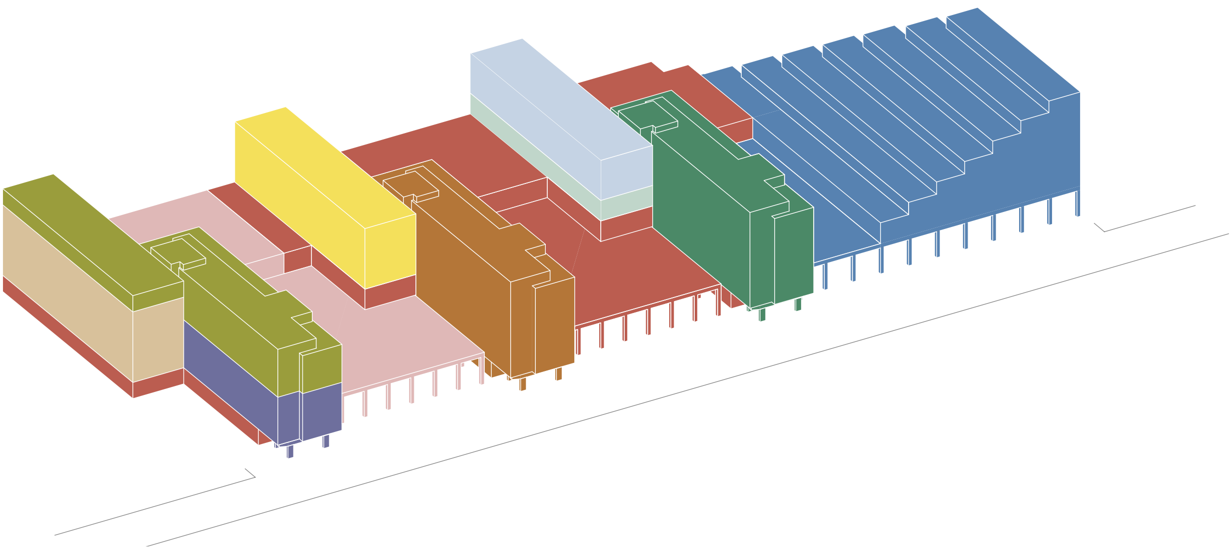
The largest AC auditoriums, conference halls, and public functions are located on the first floor. The Conference Center (KC) is integrated into the overall structure, but its main halls maintain partial autonomy for independent operation:

__ Eastern Courtyard – A 1,000-seat conference hall with an amphitheater, descending to the underground level. Ground floor: Lobby, cloakroom. Underground level: Service areas, restrooms, TV studios, storage, and direct access from parking. Wide staircases connect the levels. Two smaller conference halls (in the southeastern corner) with a dedicated first-floor lobby.

__ Western Courtyard – A transformable AC hall with an amphitheater and modular partitions, allowing division into three separate auditoriums (500, 300, and 200 seats). Retractable glass walls enable flexible integration with event spaces in the adjacent hallways. Underground level: Additional auditoriums, a cinema hall, and support spaces.

__ Southern Section: Ground floor – Smaller AC auditoriums (100–300 sq. m.). Second floor – Medium-sized AC auditoriums (50–120 sq. m.), accessible via the gallery. Ramps and staircases accommodate the site's varying elevations, ensuring seamless transitions between new and existing structures. These elements enhance spatial character while allowing higher ceilings in key halls.

Building Structure



EXPLICATION

VU Administration

FF – Faculty of Physics

TF – Faculty of Law

KF – Faculty of Communication

MIF – Faculty of Mathematics and Informatics

EVAF – Faculty of Economics and Business Administration

CONNECTING BUILDINGS:

AC – Auditorium Center

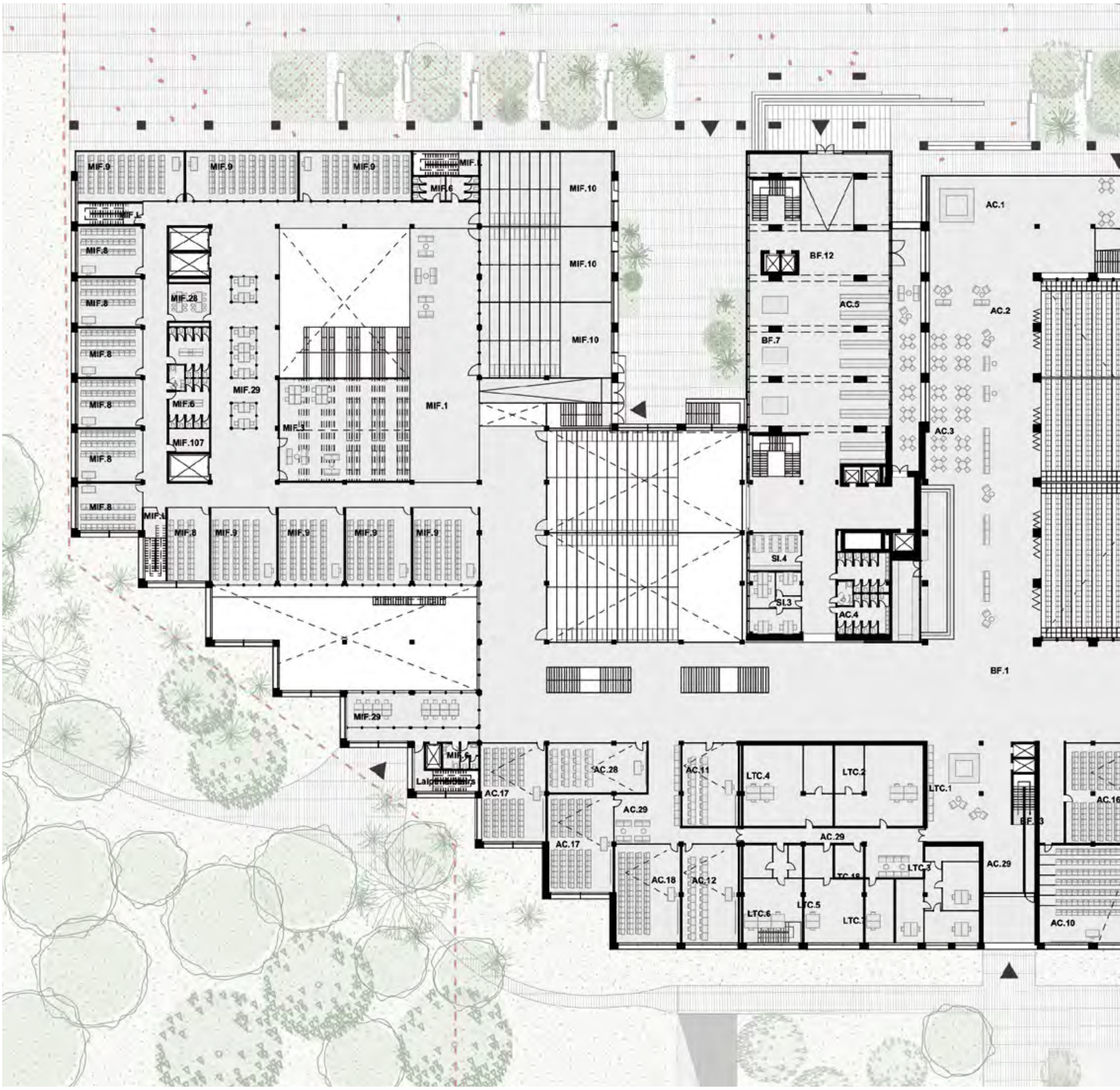
KC – Conference Center

TVPC – Property Management and Service Centre

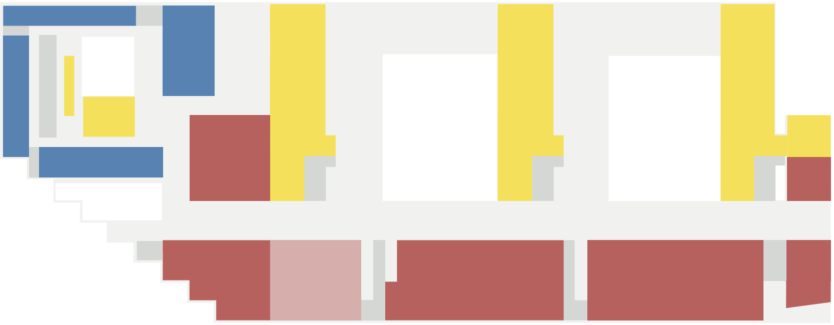
LTC – Laser Research Center

ITPC – Information Technology Service Center

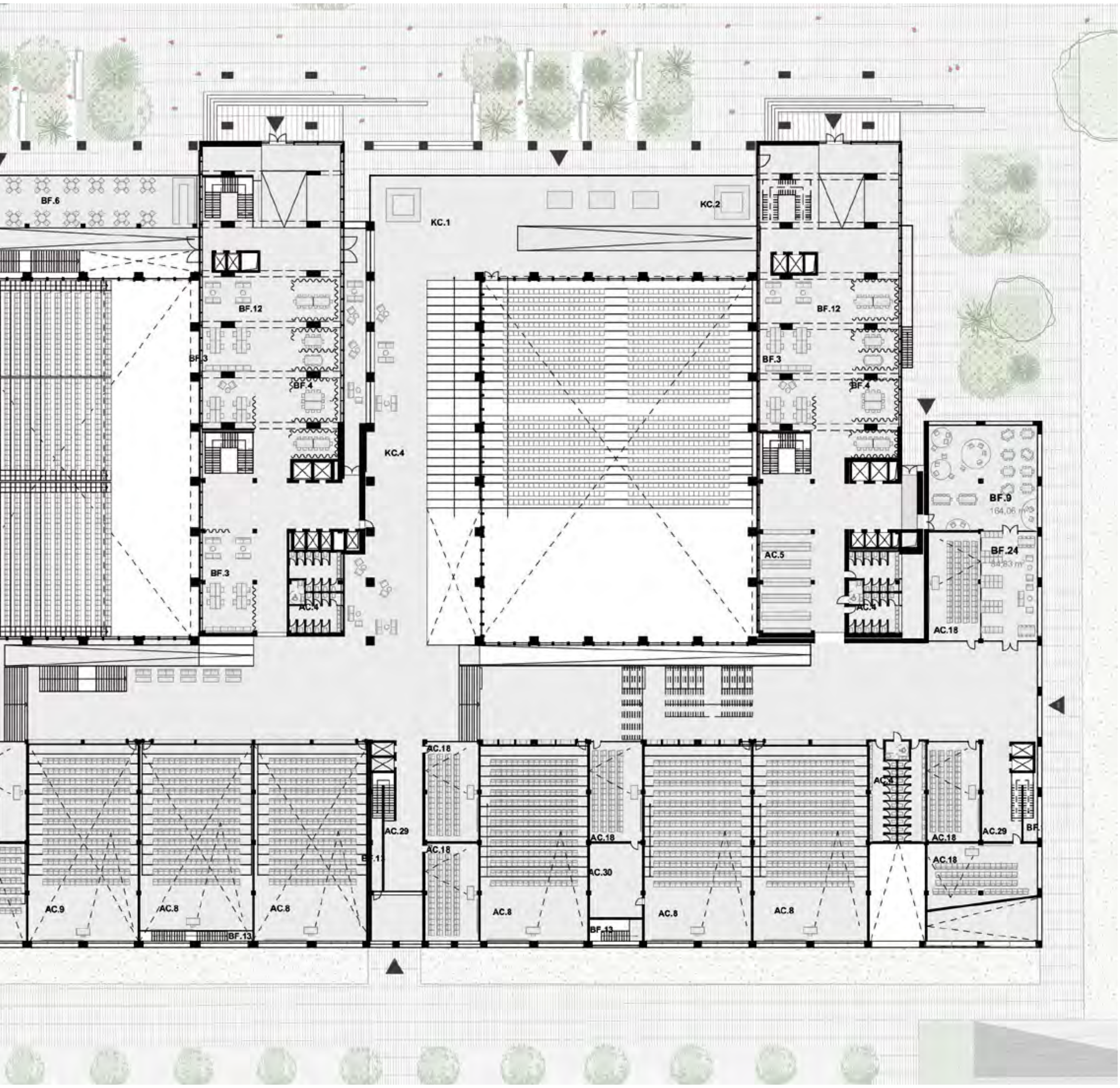
Ground floor plan



Functional Scheme



- Hallways
- Common-use functions
- Technical rooms
- JR Administration / offices / laboratories
- JR Auditoriums / conference rooms
- **MIF** Auditoriums / student study areas



Conference Center Hall in the Connecting Building

Existing buildings of the Physics (FF), Economics and Business Administration (EVAF), Law (TF), and Communication (KF) faculties

Architectural quality of existing faculty buildings

The project VU LINK proposes integrating the existing Faculty of Physics (FF), Faculty of Economics and Business Administration (EVAF), Faculty of Law (TF), and Faculty of Communication (KF) buildings by connecting them at the underground, first, and second-floor levels with the Connecting Building. This design extends the open-plan layout of the Connecting Building into the first-floor spaces of these faculties, which feature distinctive concrete structural supports. The existing buildings' first floors are cleared to maximize open space, improve internal orientation, and enhance vertical connections. This is particularly important as the project includes new eight-story extensions, linking three faculty buildings at their main elevator lobbies, ensuring integrated use.

The renovation concept of the existing faculty buildings focuses on several key improvements:

— Preserving the modernist composition, and original structural and architectural elements, and ensuring contextual integration of new or modified components while enhancing their quality.

— Optimizing internal space for private workspaces (offices) with flexible partitions for adaptability. Transparent partitions will be used in corridors near key vertical connections, alongside shared break areas, kitchenettes, and meeting rooms.

— Integrating facade and climate control systems to enhance workspace comfort, reduce operational costs, and maintain architectural identity.

The faculty buildings will be stripped down to their structural core, with a complete replacement of interior elements, engineering systems, and facades. The characteristic concrete structures, staircases, elevator shafts, and main finishing materials (concrete, wood, glass, yellow dolomite) will be preserved. The first floor will be integrated into the open-plan Connecting Building, with minimal transparent partitions in evacuation routes, emphasizing visibility and vertical connections.

The project includes a significant number of separate workspaces, offices, and auditoriums, ensuring efficient spatial organization. Additional measures will improve natural lighting in vertical connections and introduce transparent partitions in corridors. Spaces with transformable partitions will provide future flexibility.

The facade and climate control system upgrades include new horizontal facade strips made of three-layer reinforced concrete panels with A-class thermal insulation, replicating R. Dičius' original concrete panel design. The window strips will be replaced with anodized aluminum constructions with vertical fins for solar control. Automated blinds, connected to the HVAC system, will be integrated into the new concrete elements. The southern and northern facades and the elevator block will be insulated with a ventilated facade finished with dolomite panels. The upper extension will house HVAC ventilation chambers and cooling systems, while solar panels will be installed on the roofs.

Functionality of Existing Faculties – Interior Space Planning

The Physics Faculty (FF) remains in its current building, which will be fully renovated according to the proposed architectural solutions. The FF building is connected to a new extension that will house the Information Technology Services Center (ITPC), Data Center, workshops, storage, and waste management facilities, with some of these functions located in the existing faculty basement.

The Economics and Business Administration Faculty (EVAF) will also remain in its current building, undergoing a full renovation in line with architectural plans. EVAF will be linked to a new extension that will accommodate the central administration of Vilnius University.

The Law Faculty (TF) and Communication Faculty (KF) will retain their functions within their existing buildings, which will be completely restructured according to current and planned architectural solutions. The KF program will be located on the 2nd to 6th floors, while TF will occupy the 7th and 8th floors. A portion of TF's facilities will be in the 7th and 8th floors of the new extension, where department offices, administration, and professor offices will be situated. The lower section of the extension will house the Property Management and Services Center (TVPC).

Conference Center Entrance from Saulėtekis Pedestrian Alley

New extensions

The architectural quality of the New Extensions

The design includes three new buildings positioned above the Connecting Building, serving as extensions of the existing faculties (each measuring 14x62 meters). These structures are attached to and connected with the faculty buildings via the elevator block on the eastern side. This approach maintains the complex's transparency in the north-south direction while accommodating administrative and laboratory spaces, seamlessly integrating them with the existing faculties through renovated vertical connections such as elevators and staircases.

The architecture of the extensions is a hybrid, combining the modernist structure of the existing buildings with direct integration into the elevator block from the third to eighth floors. The first and second floors function as part of the Connecting Building, featuring an open hall space with a 12-meter span. The third to eighth floors are dedicated to smaller administrative spaces, designed with lightweight glued timber structures, a modular aluminum façade with an integrated solar control system, and automated blinds. The southern façade is made of toned concrete with solar shading elements. On the southern side, a new elevator and stairwell block connects directly to the Connecting Building's main alley.

Functionality of the New Extensions – Interior Space Planning

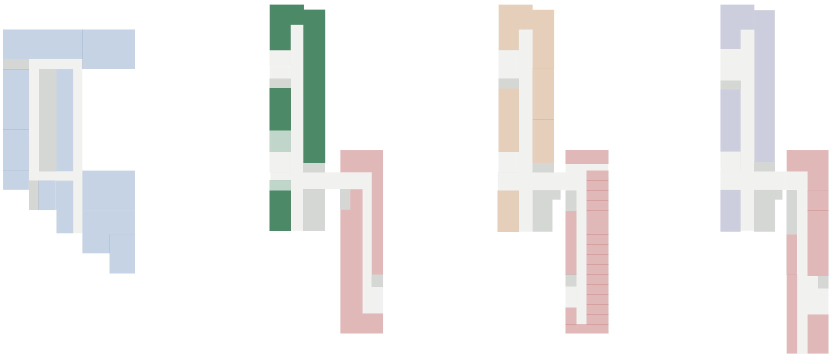
- The extension attached to the Physics Faculty (FF) will house the Laser Research Center (LTC) in the basement and on the 1st to 5th floors, while the Information Technology Services Center (ITPC) will be located on the 3rd to 8th floors. Student initiative spaces will be placed at the basement level with access from the main elevator block.
- The extension connected to the Economics Faculty (EF) will accommodate the General VU Administration offices on the 3rd to 8th floors, within the existing faculty's designated area.
- The extension attached to the Law Faculty (TF) and Communication Faculty (KF) will house VU Publishing House on the 3rd floor, with storage in the basement, while the Property Management and Services Center (TVPC) will be located on the 4th to 8th floors.

The horizontal integration of these functions with the existing faculties will enhance the operations of these VU structures, while the use of existing vertical connections will improve orientation within the Connecting Building's first floor.

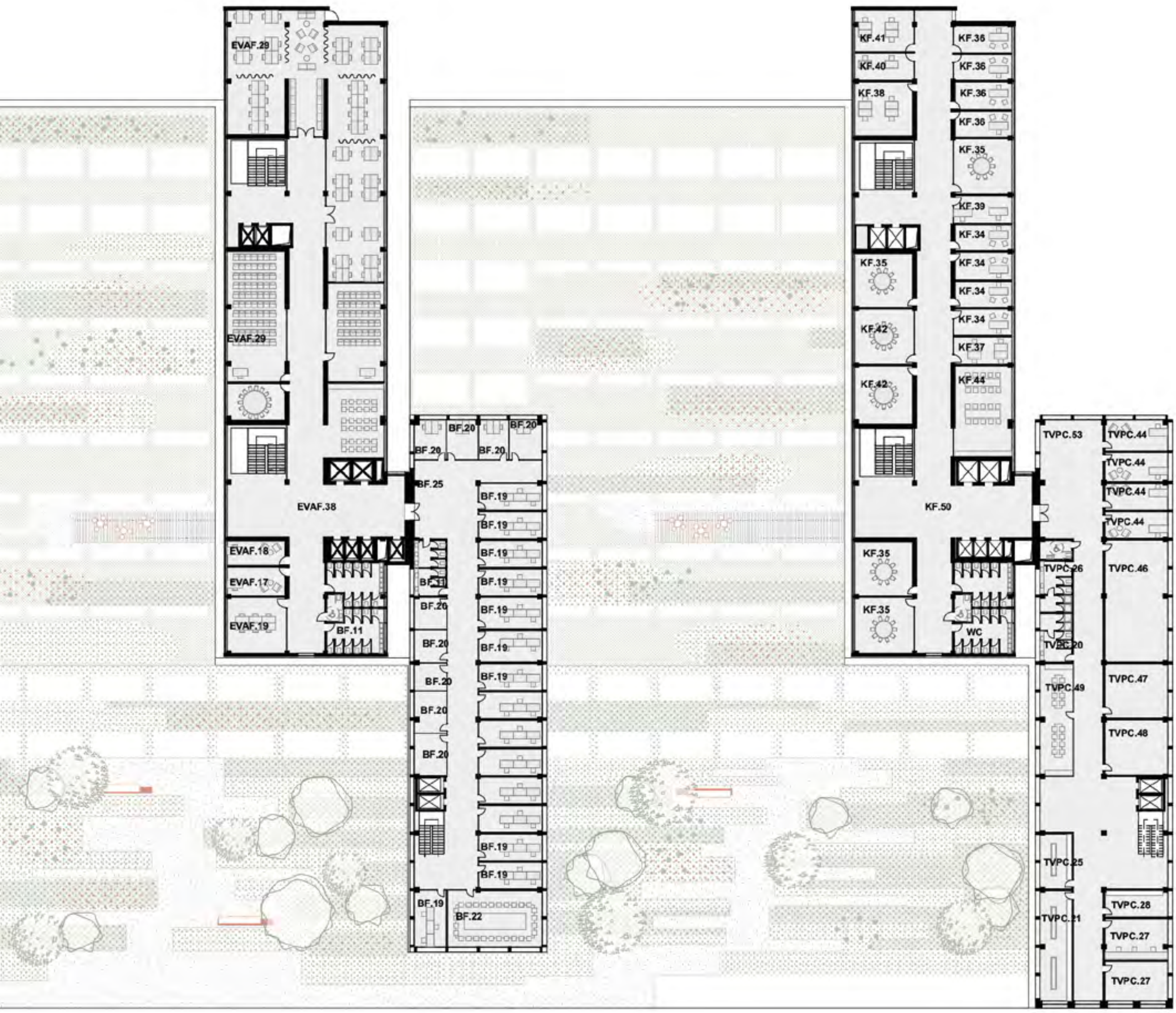
The view of the complex from Saulėtekio Avenue

3rd floor plan

Functional Scheme



- Hallways
- Technical rooms
- **KF** Administration / offices / laboratories
- **JR** Administration / offices / laboratories
- **MIF** Administration / offices / laboratories
- **EVAF** Administration / offices / laboratories
- **FF** Auditoriums / student study areas
- **FF** Administration / offices / laboratories



New Faculty of Mathematics and Informatics (MIF)

Architectural Quality of MIF

The architectural design of the new MIF building creates spaces that promote collaboration and openness, based on the following principles:

_ A maximized building footprint at ground level accommodates key public spaces, including halls, a dining area, a library with a reading room, and large auditoriums.

_ A stepped volume decreasing towards the west harmoniously integrates the building into the complex while effectively accommodating the extensive MIF functional program. Additionally, it provides attractive terraces for MIF staff and students.

_ A clearly defined central hall with an amphitheater spanning five floors facilitates easy orientation and access to the main auditoriums and public spaces.

_ The inner courtyard with greenery and access from the central hall and auditoriums separates the MIF building from the FF building.

The architectural expression of MIF reflects these principles in its façades. Access from the Saulėtekis pedestrian avenue extends the open-tone concrete gallery, connecting it with the Connecting Building. The open structure, featuring large windows and toned concrete elements, highlights the stepped form of MIF along the avenue and its western side facing the forest. The southwestern section of MIF is also stepped in plan, creating a connection between interior spaces (library, auditoriums) and the western direction. The stepped MIF volume descends and connects with the Connecting Building, while an open courtyard along the western facade of the existing FF building allows for the separation of implementation phases.

Roofs / Fifth Façade

The designed Connecting Building and MIF roofs are a key part of the concept. The semi-transparent lower roofs are well visible from the upper floors of surrounding buildings, while skylights of varying sizes naturally illuminate public spaces. Greater transparency is provided for public areas, while the roofs of smaller auditoriums and laboratories are more enclosed. The southern roof, featuring greenery, transitions into a transparent section in the north and is designed for use and fire safety purposes.

Similarly, the MIF roof is semi-transparent above the lower part, decreasing in transparency as it rises and transitions into green roofs and terraces. These improve the environment, reduce overheating, and ensure natural lighting and ventilation. The stepped façade creates outdoor spaces for administration and institutes.

Stepped MIF Volume Decreasing Towards the West

MIF Functionality – Interior Space Planning

The architectural concept of the new MIF building is focused on collaboration and openness, structured around a central hall with an amphitheater, connecting different building zones and floors.

_ **1st floor**: The main entrance from the northern pedestrian alley leads into a spacious, stepped central hall, extending up to the 4th floor. Surrounding it are key public functions: a cafeteria in the north, large auditoriums with movable walls in the west, and a library overlooking the forest in the south. Beneath the amphitheater is the MIF data center with technical facilities. Vertical connections (elevators, staircases) are located on the west side, linking all 8 floors and 2 underground parking levels.

_ **2nd–3rd floors**: The main hall with an amphitheater serves not only as a distribution space but also as a venue for meetings and events. It hosts gatherings, celebrations, and its amphitheater structure creates a natural vertical connection between floors. Entrances to the main auditoriums and the inner courtyard are planned on the eastern side, while smaller auditorium blocks are located in the south and west. The MIF administration is situated on the western side of the third floor, with direct access to outdoor terraces. In the southern section, spanning the second and third floors, shared auditoriums of the Connecting Building are planned.

_ **4th floor**: Computer labs are distributed around the central atrium, ensuring good lighting and a comfortable work environment. On the west side, terraces provide spaces for relaxation and social interaction.

_ **5th–9th floors**: The MIF building transitions into a “traditional” administrative structure, similar to existing faculty buildings. Workspaces are positioned along the perimeter, with windows and terraces on the west side. The central area contains vertical connections and service spaces, including restrooms. 5th floor – Data Science Institute, 6th floor – Computer Science Institute, 7th–8th floors – Mathematics and Applied Mathematics Institute, 9th floor – Technical level, housing HVAC and other systems.

MIF Central Hall with an Amphitheater

Logistics and Underground Infrastructure

One of the reasons for the demolition of the Connecting Building is the need for an underground parking solution to meet the complex's requirements. A two-level underground parking facility is designed beneath the Connecting Building and MIF, adapted to the natural terrain. It is accessed via three entrances:

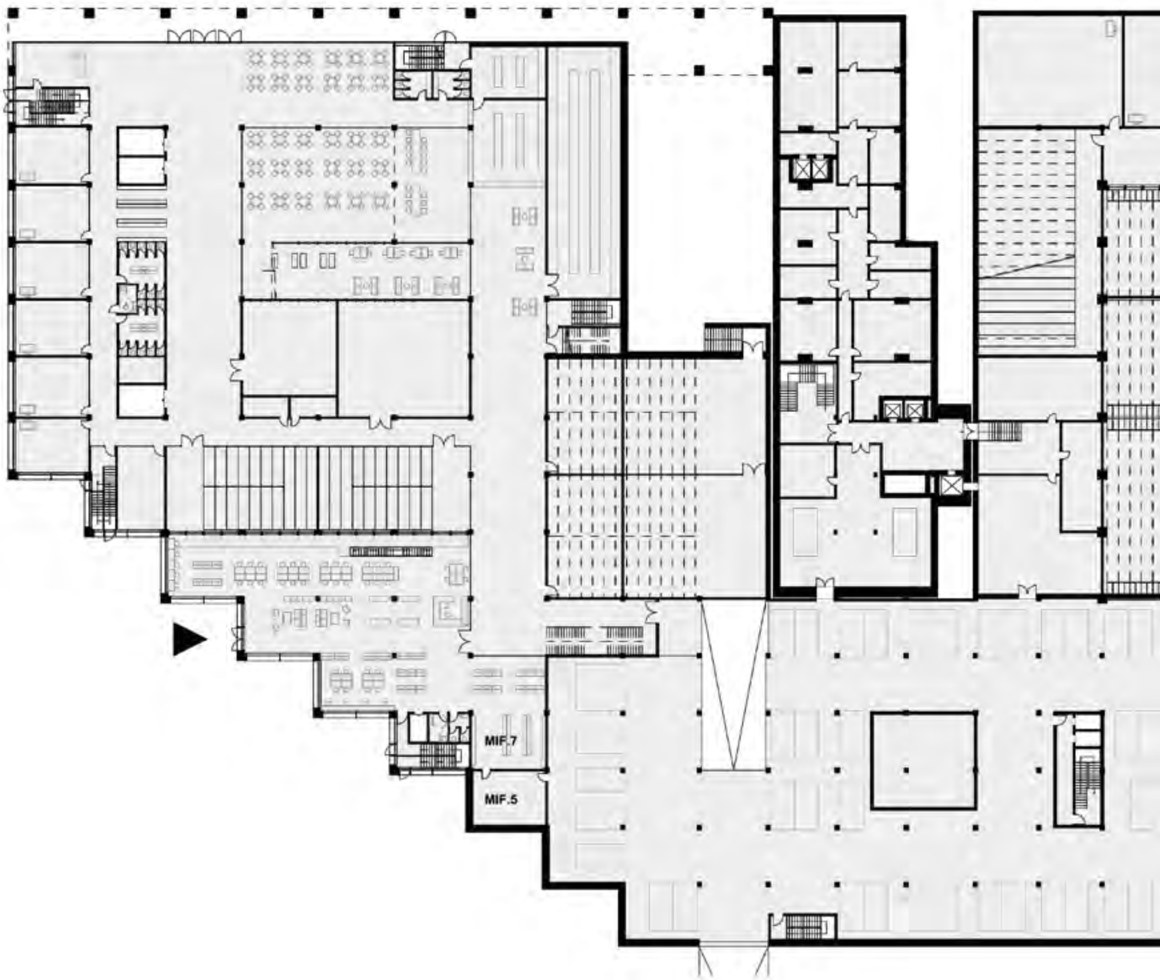
- **From the north** (Saulėtekis Avenue) – through a renovated surface parking lot and a tunnel beneath the pedestrian alley, optimizing access and separating bicycle traffic.
- **From the south** (Žirgo St. branch) – at the junction of MIF and the Connecting Building, with an internal ramp connecting the two levels.
- **From the east** (part of the Connecting Building) – designated for storage, loading ramps, staff, and Conference Center parking. Above this area is the TVPC administration.

The two-level parking facility includes 600 spaces, with designated spots for disabled individuals and electric vehicle charging stations. The first underground level features a 320-space bicycle parking area, accessible via a separate tunnel. Entry to the parking levels is provided through staircases and elevators, which connect the underground levels to the main buildings, as well as direct access to the lobbies of the Conference Center, Auditorium Center, and MIF.

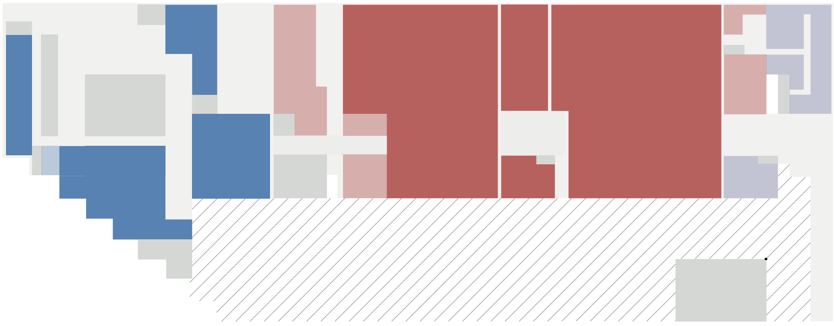
The underground level also includes Connecting Building auditoriums, conference rooms, auxiliary spaces, and smaller auditoriums, connected to the first floor. A cinema hall (10 m high) is located on the second underground level, accessible through the amphitheater. Spaces for HVAC equipment are planned beneath the auditoriums and conference rooms.

The 4,100 sq. m. underground parking facility is designed to function as a shelter in emergencies. Connections to auxiliary spaces (restrooms, cloakrooms, and storage rooms) will improve conditions for large crowds, while staircases and exits will ensure safe evacuation routes.

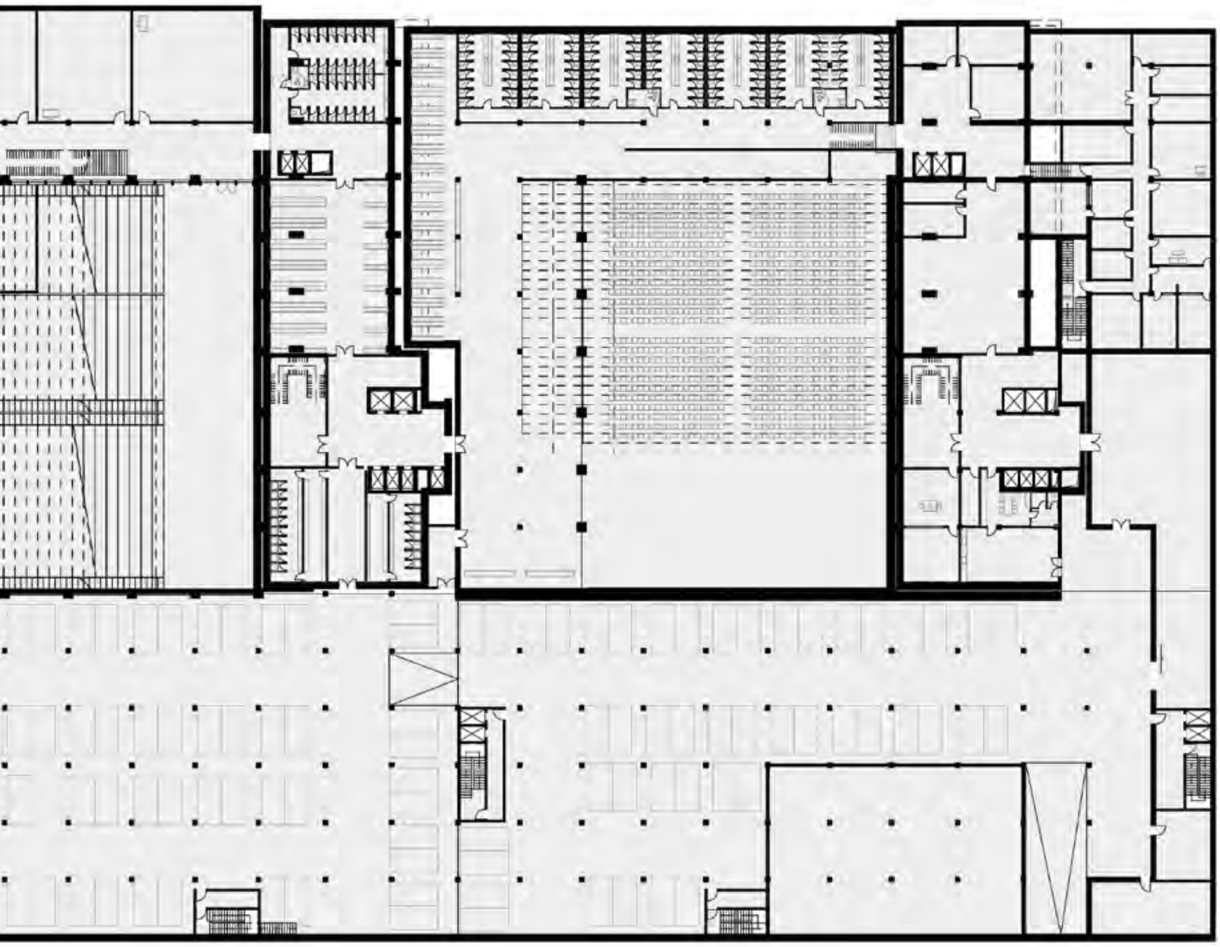
-1 floor plan



Functional Scheme



- Hallways
- Technical rooms
- Parking lot
- KF Administration / offices / laboratories
- JR Administration / offices / laboratories
- JR Auditoriums / conference rooms
- MIF Auditoriums / student study areas



Landscape Design and Access

Pedestrian, Bicycle, and Vehicle Movement in the Complex vicinity

Saulėtekis pedestrian and bicycle alley
The goals of openness and integration are achieved by connecting the complex to the Saulėtekis pathway system, VU campus, and bicycle and transportation infrastructure. The open ground floor with an entrance from the pedestrian alley highlights these principles.

Building access areas are designed for gatherings, outdoor cafes, relaxation zones, and seating areas. A gallery roof provides weather protection, while terraced spaces with greenery create semi-isolated resting areas. In the evening, low-level lighting enhances the ambiance.

The main alley with a bicycle path is designed without stairs, featuring gentle slopes that connect the entrances to the Connecting Building, MIF, and its courtyard. A row of trees lines the northern side, while part of the existing parking area in the south is replaced with greenery. The bicycle path is set apart from the pedestrian zone, with an open bicycle parking area planned

The northern section is redesigned by repositioning the parking boundary, integrating green spaces, and open bike parking. Main entrances remain visible from Saulėtekis Avenue, and the parking area is divided by tree and greenery strips, ensuring comfortable pedestrian movement. The underground parking is accessed via an open descent, and the bicycle lane leads to an underground bike storage facility.

Eastern access
The existing green space is preserved as a recreational area for the Law and Communication faculties and Conference Center visitors, with access through the southern gallery. A ramp leads to the green roof of the Connecting Complex, expanding the green area and enabling fire truck access.

A pedestrian and technical transport link is created between the pedestrian alley and Saulėtekis Avenue (Žirgo St. branch). The eastern area features freely arranged benches under tree clusters and a children’s playground.

Southern access
Considering the renovated Saulėtekis Avenue (Žirgo St. branch), a small parking lot is designated for staff, event services, and utility transport. Pathways connect the eastern and western parts of the complex with the southern façade.

Underground parking ramps run parallel to the complex, separating pedestrian and vehicle movement. The eastern entrance is higher, designed for parking and the utility zone in the southeastern corner, with a waste container site nearby. The western entrance, serving students and staff, aligns with the northern access point.

Western Access
On the western side, a pedestrian path will be designed through the pine forest with minimal impact on the natural environment. This path will connect Saulėtekis Pedestrian Alley with the southern access points of the complex, ensuring convenient access to the MIF library and summer terraces near the stepped western façade. Additionally, it will provide access to emergency staircases in the MIF building.

Surfaces

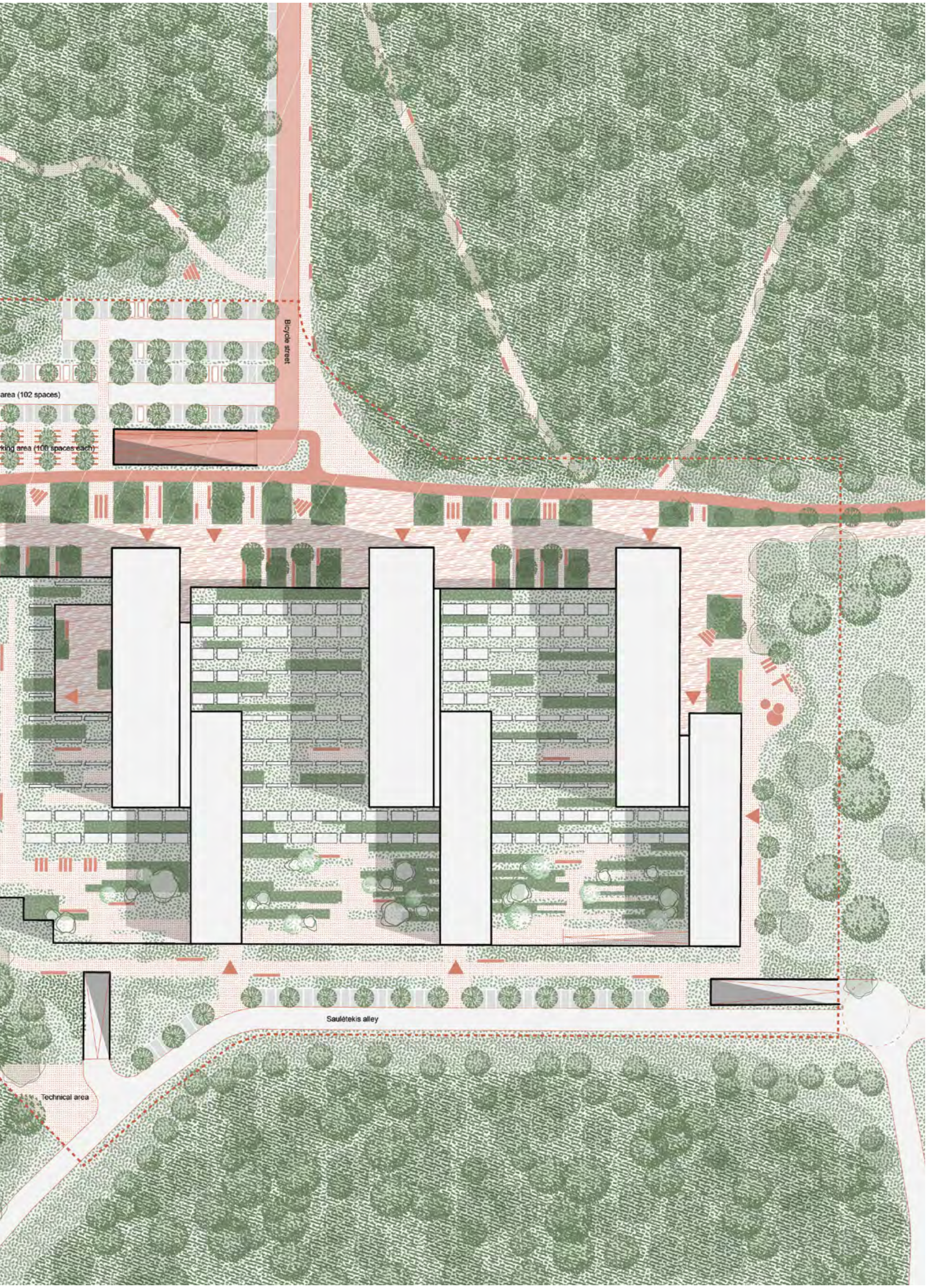
Light-colored concrete elements maintain the tradition of the Saulėtekis campus, enhanced with new solutions. Large concrete structures are used in the pedestrian alley for stairs, greenery planters, and parking entrance barriers. The complex roof features a toned concrete surface, combined with stone or brick chippings and greenery. Small architectural elements (benches, trash bins, lighting) are lightweight painted metal structures.

Accessibility for All

The site and its access points are designed following universal design principles—public spaces will be barrier-free, comfortable, and safe for people of all ages and physical abilities.

The New Faculty of Mathematics and Informatics (MIF) with Greenery on Rooftop Terraces


Saulėtekis alley
Nemenčinė street
Car parking
Bicycle lane
Pedestrian alley



Bicycle street
area (102 spaces)
rking area (100 spaces each)
Saulėtekis alley
Technical area

Greenery

Like many modernist university campuses designed in the 20th century, Saulėtekis is characterized by vast open green spaces. However, this environment is monotonous and lacks human scale. Although the campus is surrounded by forests, the surrounding of the faculties – the spaces used daily by students and staff – is poor: open meadows with few solitary plants.

It is proposed to enrich the environment with more diverse public spaces and greenery. By combining different plant species and creating multi-level greenery, it would be possible to achieve harmony of different heights, textures and colors, thus giving the landscape more vitality and aesthetic value. More diverse greenery not only improves the quality of the environment, but also has a positive effect on the emotional state of students - green spaces reduce stress, stimulate creativity and improve overall well-being.

Different green spaces in the project area:
__**Saulėtekio alley** – the main public space connecting the buildings of VU and Vilnius Tech universities with the surrounding areas. It is a pedestrian and bicycle path that connects smaller green spaces of different character: terraces, squares and meadows.
__**Plantation near the facades** – terraces with abundant greenery and recreation areas are installed near the front facade of the VU building, creating a cozy and aesthetic environment.
__**Sunny meadows** – open green spaces near the library and the Faculty of Law, intended for recreation and leisure.
__**The forest and its paths** – a natural natural zone that encourages active recreation and connection with nature.
__**Library square** – a space for community gatherings and academic life.
__**Green roof** – it is planned to green the roofs of buildings in order to improve the microclimate, reduce the thermal impact of buildings on the environment and increase biodiversity.
__**Street and parking lot landscaping** – in order to reduce urban impact, trees and other plants are planned to be planted along the street and in parking areas.

When designing the site plan, the aim was to preserve as much greenery as possible. However, some of the plants are being removed at the site of the new Faculty of Mathematics and Informatics. The plants are being compensated by planting new greenery, trees and shrubs in the alley near the front facade of the faculty, in the parking lot and on the service street near the connecting building.

Planting at the main facade

The green spaces, located along the facade of the building near the main entrances, are in partial shade, where sunlight reaches about 5 hours a day in the spring-summer months. Therefore, shade-tolerant plant groups are selected: spreading asters, ferns, hakone, sedges, bluebells, astilbe, and rogersia.

A carpet layer of threadlike wintergreen is inserted along the paths, giving the space integrity. The plants are arranged in such a way as to ensure harmonious growth, avoiding intertwining of crowns and allowing light to reach lower plants.

The plant species are adapted to grow in the shade, but minimal care should be taken. It is recommended to install an irrigation system and monitor the humidity level on hot days, and water regularly during the vegetation of the greens. To maintain moisture, use mulch, which will also inhibit the growth of weeds. Periodically thin out densely grown weeds (sages, hakones) to maintain decorative and healthy plants.

Existing landscape

Proposed diverse landscape

Plantation at the alley

The green spaces, located along the facade of the building near the main entrances, are in partial shade, where sunlight reaches about 5 hours a day in the spring-summer months. Therefore, shade-tolerant plant groups are selected: spreading asters, ferns, hakone, sedges, bluebells, astilbe, and rogersia.

A carpet layer of threadlike wintergreen is inserted along the paths, giving the space integrity. The plants are arranged in such a way as to ensure harmonious growth, avoiding intertwining of crowns and allowing light to reach lower plants.

The plant species are adapted to grow in the shade, but minimal care should be taken. It is recommended to install an irrigation system and monitor the humidity level on hot days, and water regularly during the vegetation of the greens. To maintain moisture, use mulch, which will also inhibit the growth of weeds. Periodically thin out densely grown weeds (sages, hakones) to maintain decorative and healthy plants.

Roof landscaping

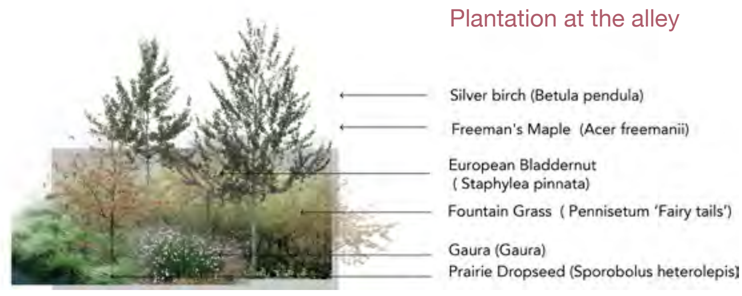
Roof greening is a sustainable and aesthetic practice that can improve the energy efficiency of buildings, reduce stormwater runoff and increase biodiversity. It is recommended to combine extensive and intensive greening methods, selecting plants according to the building's roof structure, loads and lighting. Extensive greening requires less maintenance. This type of system is thin and lightweight, and usually does not require additional irrigation.

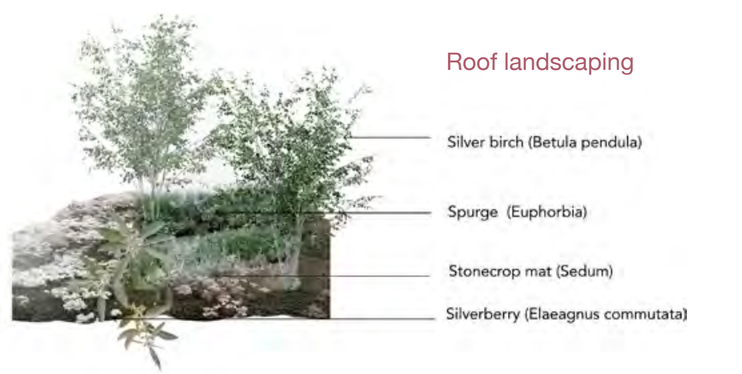
Various types of sedum are suitable for extensive greening. Sedums are unpretentious succulent perennials that store water in their leaves, which makes them particularly drought-resistant. The sedge carpet can consist of various species (*Sedum album, Sedum cauticola, Sedum spurium, Sedum acre*), diversifying them with other drought-resistant perennials, such as Geranium, Sempervivum, Carex, Gaura lindheimeri, Thymus serpyllum, Fragaria, Euphorbia.

Gradually, a transition is made to more intensive greening, the sedge carpet remains as a covering layer, which is supplemented with shrubs and trees. Suitable for such greening are spirea (*Spirea*), privets (*Ligustrum*), left to grow in a free form without shaping them, and elms (*Elaeagnus commutata Bernh., Elaeagnus angustifolia L.*). Tree species with an appropriate root protection system are selected, such as birches (*Betula pendula*), Caucasian plum (*Prunus cerasifera 'Pissardii'*), mountain pines (*Pinus mugo*), and smooth honeysuckle (*Amelanchier laevis 'Snowflake'*).

Parking lot landscaping

Greening the parking lot reduces the heat island effect, retains rainwater and improves environmental quality. It is proposed to plant plants that are resistant to urban conditions, polluted air and drought. These are Silver Maple (*Acer x freemanii*) and Panicum virgatum. The width of the green belt in the parking lot for trees together with shrubs is 2.5 m. The same trees are planted on the street in the southern part of the building, near the connecting building. Trees are planted every 3 parking spaces.





Sustainability and implementation

Sustainability in architecture means not only efficient resource use but also building longevity. The VU LINK project aims to create a flexible, integrated, and time-resistant academic complex, reflecting Vilnius University's values of openness, integration, progress, and durability:

_ Progress and preservation of modernist elements – Spaces are designed to be flexible and adaptable to changing needs. The original faculty composition is maintained, enhanced with contextual elements that improve functionality and energy efficiency, creating a harmonious integration of old and new solutions.

_ Durability – An open-plan design with a column grid allows spaces to be easily reconfigured. The MIF building and new extensions, with A++ energy efficiency, use sustainable materials, including wooden structures, to minimize environmental impact.

_ Public functions and urban integration – Strengthening the university campus accessibility, the reinforced concrete structure of the Connecting Building ensures longevity and future space adaptability.

_ Energy efficiency and ventilation – The VU complex maximizes natural light and ventilation, using automated skylights, open halls, and operable windows, reducing dependence on mechanical systems. The use of cooling systems and geothermal heat pumps to enhance heating efficiency will be assessed during the design phase.

_ Renewable energy – Solar panels improve energy efficiency, while automated LED lighting adjusts to natural conditions.

_ Rainwater management – The project includes rainwater collection, infiltration into the ground, and partial reuse.

Existing building materials

Existing embossed facade elements

Existing dolomite stone facades

Existing dolomite stone facades

Existing concrete load-bearing structures cast in formwork made of boards

Existing red bricks facades

New extension materials

Tinted brick-colored concrete

Tinted aluminum edging for solar control

Anodized aluminum profile facades

Natural color glued laminated timber (CLT)

Natural colored concrete

Structural Solutions

The VU LINK structural scheme preserves the existing faculty buildings, comprehensively renovating them without altering the primary structural elements. Facades are upgraded, replacing windows with aluminum constructions and concrete panels with three-layer elements featuring A-class insulation, restoring the original design. The concrete “legs” on the ground floor are renovated but not insulated to maintain the architectural concept.

The Connecting Building features a hybrid structure, combining monolithic and precast reinforced concrete. The underground section consists of segmented monolithic concrete, with a 6x6 m column grid. Larger spaces are spanned with precast concrete beams incorporating skylights. The Conference and Auditorium Center halls use precast concrete and steel truss structures. Facades consist of load-bearing three-layer concrete elements with insulation and toned concrete finishing. The roof integrates a rainwater drainage system, skylights, and a toned concrete finish. The southern section includes an accessible roof for fire truck access. Above the 1-2 story sections of the Connecting Building, lightweight faculty extensions (glued laminated timber, subject to further design refinement) are planned. For stability, reinforced concrete elevator shafts and a precast concrete southern facade are used.

The MIF building has a composite structure. The basement and first two floors are reinforced concrete monolith, while floors 3-9 consist of a hybrid system of reinforced concrete columns and beams with glued laminated timber floor slabs, following an 8x6 m grid. Stability is ensured through reinforced concrete elevator shafts and precast concrete facades (A++ energy efficiency). The atrium is spanned by metal-wood trusses. Roof terraces are greened with up to 0.5 m of soil, and concrete and wooden floors are finished with concrete floors with integrated heating. The 9th floor houses HVAC systems, including cooling units with steel structures for load distribution. Concrete elements are toned and specially treated to enhance texture uniformity.

Construction / Implementation Phases

The project consists of three main construction phases, which can begin from the western section:

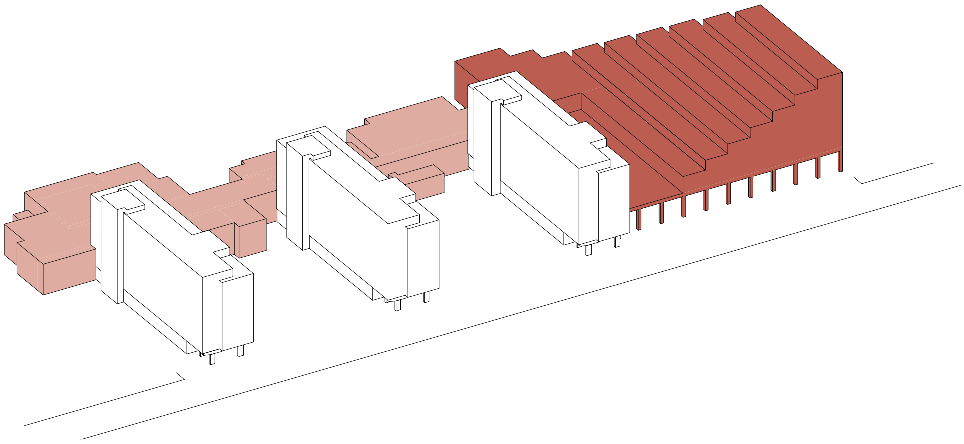
_ **Phase A** – Construction of the MIF building and underground parking with access points, including the northern parking area beyond the pedestrian alley. During this phase, existing faculty buildings and the Connecting Buildings remain operational. Underground parking entrances from the south and north are completed, along with parking and access improvements on the north or west. Additionally, the pedestrian alley from the VU Saulėtekis Library to the complex is proposed for renovation. This phase requires the installation of energy supply and engineering networks for the entire complex.

_ **Phase B** – Partial demolition of the Connecting Buildings (half) and construction of part of the new Connecting Block, including the Physics Faculty (FF) and its extension, along with a section of the underground parking. The pedestrian alley and southern access points near the new complex section are improved. EVAF, TF, and KF buildings remain operational.

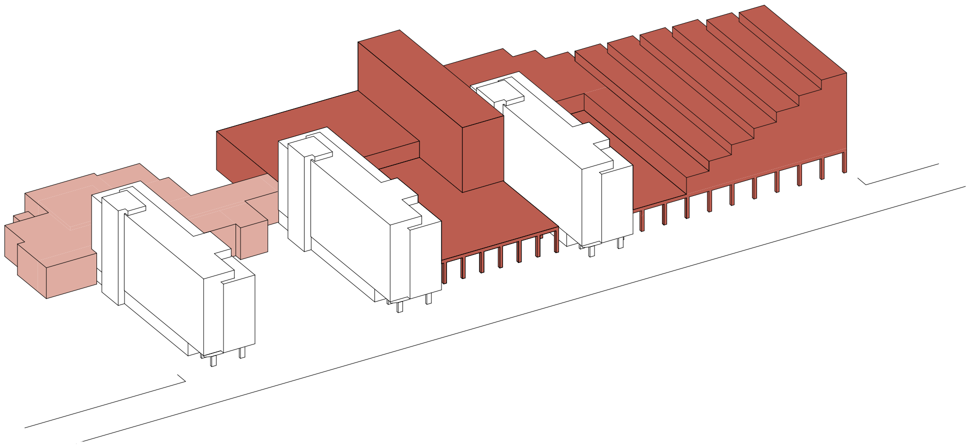
_ **Phase C** – Complete demolition of the remaining Connecting Buildings, and completion of the Connecting Block with the Conference Center and underground facilities. Renovation of the EVAF, TF, and KF faculty buildings with their extensions, along with southern and eastern access improvements.

During the design phase, Phases B and C can be combined, simplifying the project. With minor modifications, the construction sequence could begin from the eastern section, starting with faculty renovations and the construction of the new Connecting Building.

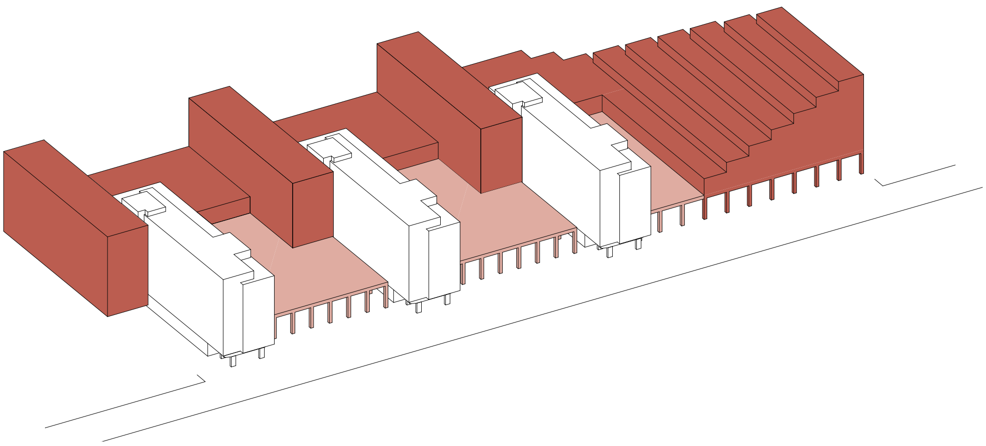
Phase A



Phase B



Phase C



Climate (HVAC) Solutions

The indoor climate and comfort management of the complex is an integral part of the overall architectural design, based on the following principles:

_ All new and renovated buildings will feature active solar control systems on façades and roofs, reducing excess heat in summer while allowing sunlight in during colder months.

_ Both mechanical ventilation and air conditioning, as well as natural ventilation, will be implemented through automated and manually operable windows, vents, and skylights in all buildings to decrease energy expenditure during the intermediate season.

_ A decentralized HVAC system will distribute climate control equipment throughout the complex. Noisy cooling units will be placed on upper building levels, while ventilation for high-occupancy spaces, such as auditoriums and conference halls, will be installed in technical areas below these spaces.

_ A Building Management System (BMS) will be integrated during project development, allowing control of indoor climate, lighting, access, security, and fire suppression systems. It will also be linked to room reservation and occupancy monitoring, enabling energy-saving measures such as pre-cooling spaces before events using natural ventilation.

_ A combined underfloor and air heating system is planned for key buildings. The primary heat source will be central heating networks, with feasibility studies planned for integrating cooling equipment and geothermal solutions to enhance heating efficiency.

Lighting and Energy Sources

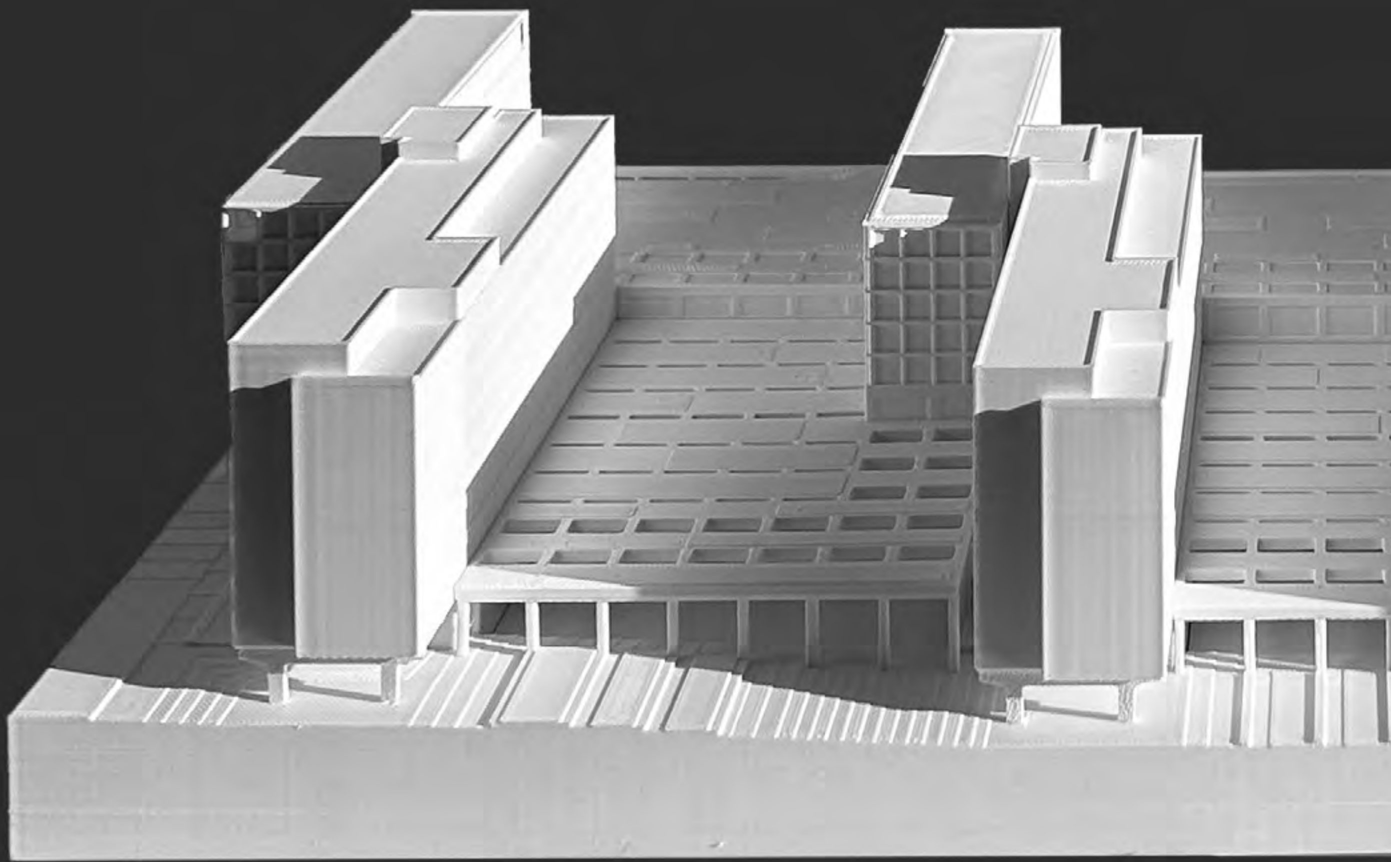
Natural lighting is essential for an effective learning environment, so the VU complex maximizes daylight in all spaces, including the Auditorium Center. Large glass panels with external solar control systems in both existing and new buildings ensure a high-quality study and work environment. Large AC auditoriums receive light through skylights, smaller ones through façades, and some benefit from additional indirect lighting via hallways.

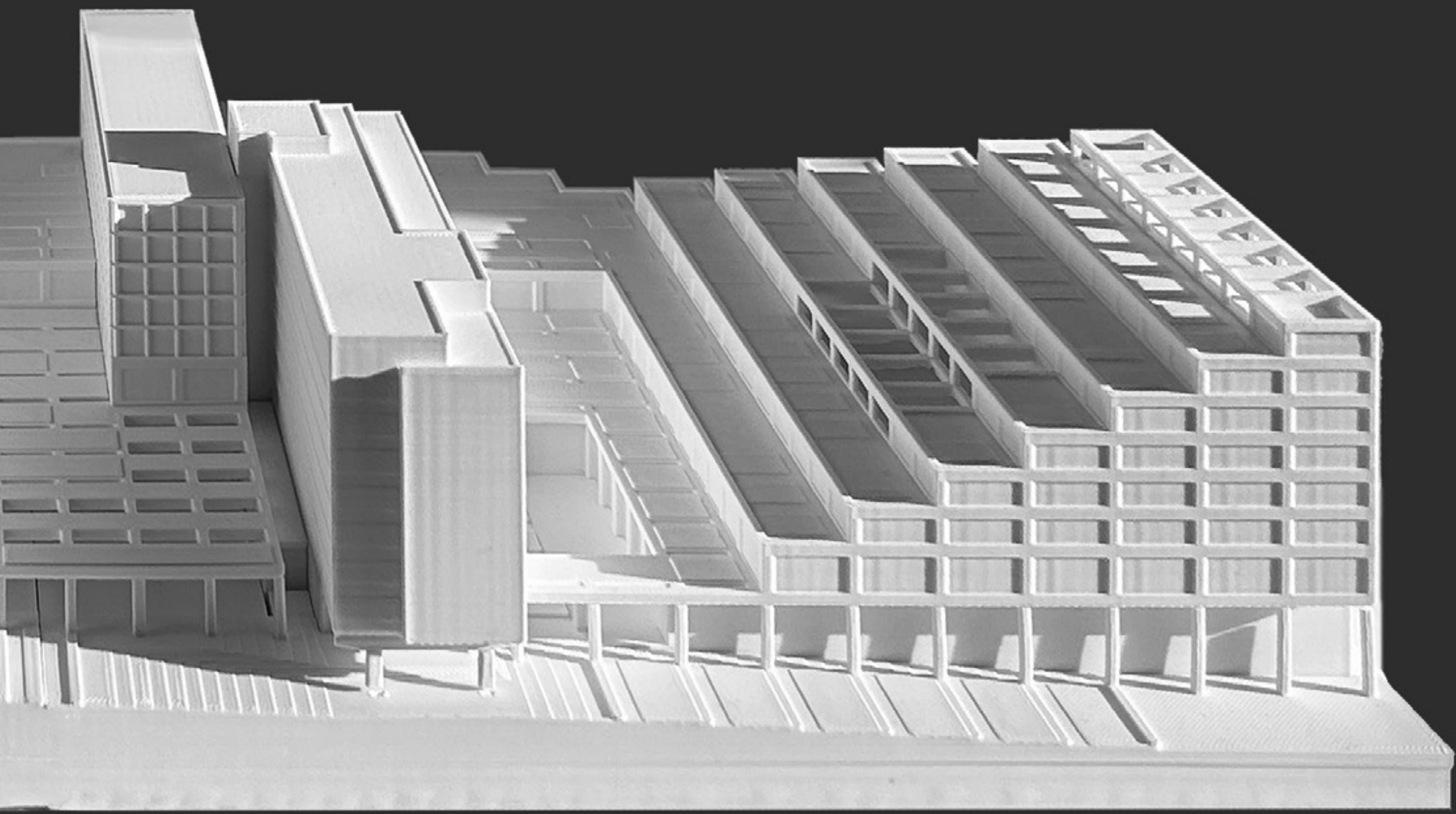
An LED lighting system with automatic controls, integrated into the Building Management System (BMS), smoothly transitions between natural and artificial lighting based on time of day, season, and room occupancy. Outdoor lighting enhances accessibility, with key pathways, pedestrian, and cycling avenues illuminated by high-mounted fixtures, while rest areas and rooftop spaces feature low, warm-toned lighting that highlights trees. The Connecting Building and MIF galleries are illuminated with integrated lighting that transitions into the interior halls, while the façades are minimally lit to emphasize the modernist architecture.

For fire safety, security, and technical infrastructure, electric generators and/or battery storage units are planned, and distributed according to construction phases and faculty needs. Solar panels will be installed on existing and new buildings, partially covering HVAC equipment.

Integration of Artworks

All original artworks in the existing faculty buildings will be preserved. The Connecting Building mural will be relocated to the new facility, integrated near the Conference Center. Additionally, new artworks will be installed throughout the complex as part of the percentage for Art initiative.





Site and Building Parameters

	Part of the Complex	Total Above-Ground Area (sq. m)	Total Underground Area (sq. m)
1.	Renovated faculty buildings of the scientific complex, Price Proposal Part A	24 947	2 058
2.	Renovated Connecting Building of the scientific complex, Price Proposal Part A	27 454	24 617
3.	New Building for the VU Faculty of Mathematics and Informatics, Price Proposal Part B	13 454	26 496
4.	**Total sq. m:**	**65 855**	**53 171**

Site (Building Zone) Indicators

Site area:	28 005 sq. m
Building density:	80 %
Building intensity:	2.36
Green area:	7 245 sq. m

Renovated Faculty Buildings, Extensions, and Connecting Building (part 1)

Total area:	79 076 sq. m
Above-ground area:	52 401 sq. m
Underground area:	26 675 sq. m
Building volume:	370 045 cubic m
Number of floors:	9
Number of underground floors:	2
Number of underground parking spaces:	290
Number of above-ground parking spaces:	138
Height:	32.50 m

(existing height)
(Existing faculty buildings exceed the specified 30.00 m height limit.)

MIF Building (part 2)

Total area:	39 950 sq. m
Above-ground area:	13 454 sq. m
Underground area:	26 496 sq. m
Building volume:	162 873 cubic m
Number of floors:	8
Number of underground floors:	3
Number of underground parking spaces:	283
Height:	29.95 m

(measured from the average elevation of the construction zone)