

FUTURE STORAGE

PEZINOK, SLOVAKIA

Conversion of the Pezinok Wine Factory

ACCOMPANYING REPORT

LOCATION

The proposed conversion project is located in the town of Pezinok, situated in the Bratislava Region, less than 20 kilometers northeast of the capital city. The town extends along the southeastern foothills of the Lesser Carpathians, an area protected as the Lesser Carpathians Protected Landscape Area (CHKO Malé Karpaty). It is this unique location—combining close proximity and excellent accessibility to Bratislava with immediate contact with nature—that makes Pezinok a strategic and attractive location.

Pezinok boasts a rich history that has been closely linked to viticulture and filmmaking/winemaking since time immemorial. The first written mention of the territory of present-day town dates back to 1208 (under the name “terra Bozin”). Thanks to the production of high-quality wine and the economic strength of the local burghers, Pezinok was granted the privileges of a free royal town in 1647. Extensive vineyards, which have lined the slopes of the Lesser Carpathians for centuries, have shaped not only the character of the surrounding landscape but also the strong cultural and economic identity of the region. The Pezinok Winery premises represent an important legacy of this 20th-century industrial-agricultural heritage, when it served as a central hub for processing the harvest from the entire surrounding area.

Today, as the economic and logistical needs of the region evolve, a challenge arises to transform these extensive industrial spaces. The project addresses the conversion of the former Pezinok winery into an innovative “warehouse of the future.” The design responds sensitively to its environment—fully exploiting the logistical potential of its proximity to Bratislava and major transport arteries, while emphasizing ecology and sustainability with respect for the neighboring Lesser Carpathians Protected Landscape Area. The goal of the conversion is to breathe new, technologically advanced life into the dilapidated site, building upon the productive history of the location and sensitively reshaping it for the needs of the 21st century.

URBAN AND CONCEPTUAL DESIGN

The urban and conceptual design for the conversion of the Pezinok winery responds sensitively to the strategic location of the town in close proximity to the capital city of Bratislava and in direct contact with the Lesser Carpathians Protected Landscape Area. The main goal of the proposal was to divide and reorganize the existing complex, not only from a functional but also from an aesthetic point of view. Given that the entire original structure is made of reinforced concrete, avoiding full-scale demolition was paramount from both an ecological and economic standpoint. The chosen approach of strictly selective demolition minimizes the overall carbon footprint of the project, which is a key parameter for an operation defined as a “warehouse of the future.” A new architectural intervention in the form of a prominent linear rooftop extension measuring 12 × 194,5 × 5 meters introduces a clear horizontal volume to the site. This strong geometric element creates a deliberate compositional contrast to the original, inconsistent, and fragmented group of buildings, thereby urbanistically unifying the entire complex and giving it a new, distinct identity.

ARCHITECTURAL AND LAYOUT DESIGN

The architectural and layout design consistently respects the idea of a hybrid arrangement through a clear horizontal division of operations. The lower hall, reshaped into two interconnected bays, functions as the technological and presentation core. The main logistics and goods reception are concentrated in its right section along with the central warehouses, which are organized rationally according to materiality and specific storage methods rather than historical periods. The central part, including the transformed original heavy concrete tanks, is reserved for the main exhibition area. A newly separated section represents the organic warehouse—this specific sector directly references the winemaking tradition of the site and the nearby protected landscape area; it serves for mushroom cultivation and the safe preservation of rare seeds or plants within a stable and controlled microclimatic environment. The linear rooftop extension is thus logically and vertically connected to the ground-floor operations: research laboratories are located directly above the organic warehouse, and a separated volume offers a private entrance for a block of seven residential units intended for temporary accommodation. A restaurant is situated above the central exhibition, and the right wing is optimally filled with administration. At the same time, this rooftop extension allows for a smooth horizontal transition from the central exhibition and the adjacent exhibit study rooms directly into the media library, while the ground-floor parterre remains free, permeable, and open for movement across the site. Due to its autonomous function, the upper part of the complex is separated from the lower hall by a green patio, which functions as a rain garden and effectively retains rainwater from an area of several hundred square meters. It is conceived as a multi-event hall designed in the spirit of a “box-in-a-box” (volume within a volume), creating a high-quality layering of spaces in the interior. Visitors first enter a fully glazed winter garden, which also functions as an energetic buffer zone, reducing the heating and cooling costs of the building. From the winter garden, one proceeds to the main foyer, from which the halls themselves are accessible. Two smaller halls, each with an area of approximately 200 m², are located on the ground floor of the extension, along with the necessary backstage facilities for performers and catering. A representative access in the form of two spiral staircases leading directly from the winter garden, or two straight staircases from the foyer area, leads to the main hall with a generous area of 600 m². The upper floor of the hall features its own independent facilities and a bar.

STRUCTURAL SOLUTION

The structural solution builds on a material dialogue between a massive plinth and a lightweight rooftop extension. While the substructure is defined by a robust reinforced concrete skeleton, the new horizontal volume is designed as a lightweight steel structure functioning on the principle of a bridge deck. The greatest technical challenge lies in the structural support of this nearly 200-meter-long construction on top of the original hall's substructure, with the design verifying two conceptual variants. The first variant counts on utilizing the existing system, where steel brackets will be installed onto the original columns after local disassembly of the filigree ceiling; these brackets will provide support for the new skeleton, subject to structural verification of their load-bearing capacity. The second variant considers the creation of an entirely separate, independent support system integrated into the new steel structure, thereby completely eliminating any overloading of the original building. In both cases, the load-bearing system of the extension is designed on the principle of a combined truss with a height of 600 mm, corresponding to an ideal 1/10 ratio relative to the 6-meter span. The choice of this system brings a fundamental advantage in the form of unobstructed, continuous openings within the web of the trusses, allowing for the seamless and concealed routing of all utilities, HVAC, and piping without the need for suspended ceilings that would reduce the clear height. Furthermore, the truss is integrated directly into the rest of the hall's roof, bringing the finished floor level of the extension exactly to the level of the original roof plane. This roof plane is supplemented with new layers of an extensive green roof, ensuring a seamless visual, functional, and ecological transition between both structures.

IDEA

The main idea of the design is to open a space to the public that is traditionally closed in such institutions. While in the past, warehouses and archives were accessible only to a select few, this project introduces the concept of a “living depository.” The technical, logistical, and scientific background, which has so far remained hidden, becomes the center of action and education. The architecture of the building uncovers 99% of what conventional museums hide underground or behind closed doors. The building will thus provide a home to a massive collection. Visitors will not just see a sterile, pre-selected result, but will get to know the process itself and the immense scope of human creativity—ranging from fashion, textiles, and furniture to theater, metalwork, ceramics, glass, and sculpture, all the way to architecture, painting, and product design. This approach fundamentally changes the role of the visitor. They are no longer just a passive spectator viewing a finished exhibition, but become an active explorer. The space does not offer a fixed route; instead, it invites people backstage, where they can explore the archives at their own pace and with all their senses. People will see the daily work of experts and witness firsthand how objects are collected, preserved, restored, and researched. The boundary between cultural space and working background is blurred. As a result, archival objects cease to be just dead history and instead help us better understand our past, present, and future. The openness of the project carries a strong social and educational dimension. The archive functions as an open database of knowledge and a lively place for the community, where professional work naturally intertwines with the free movement of the public. In addition to storage, the space is designed to flexibly host temporary exhibitions, creative workshops, theater performances, or screenings. These events take place in direct contact with the actual operations of the museum—from scientific research to the technical preparation of exhibitions. By revealing the backstage, the building ceases to be just an ordinary warehouse on the fringes of interest and becomes an important urban landmark and a new type of public space. It is a celebration of transparency, where the preservation of knowledge and objects for the future becomes a shared experience.

BALANCES / PROJECT METRICS

Built-up area of the building = 11 699,80 m²

Original gross floor area (GFA) total (2 floors) = 23 399,60 m²

Demolished floor area = 2414,32 m²

Retained and adapted skeleton floor area = 20 985,28 m²

New floor area of the rooftop extension (3rd floor, steel structure) = 2 413,40 m²

Total resulting gross floor area after conversion (GFA) = 23 398,68 m²

ECOLOGICAL BENEFIT_EMBODIED CARBON FOOTPRINT

SCENARIO A (PROPOSED CONVERSION)

- Demolition of concrete sections: 2 414,32 m² × 40 kg CO₂e/m² = 96 572,80 kg CO₂e
- Remediation and conversion of retained 2-floor skeleton: 20 985,28 m² × 50 kg CO₂e/m² = 1 049 264,00 kg CO₂e
- New lightweight steel rooftop extension (3rd floor): 2 413,40 m² × 380 kg CO₂e/m² = 917 092,00 kg CO₂e
- Total carbon footprint of the design: 2 062 928,80 kg CO₂e (cca 2 063 ton CO₂)

SCENARIO B (COMPLETE DEMOLITION AND NEW 2-FLOOR STRUCTURE):

- Complete demolition of the entire 2-floor building: 23 399,60 m² × 40 kg CO₂e/m² = 935 984,00 kg CO₂e
- New monolithic construction (including heavy foundations): 23 398,68 m² × 650 kg CO₂e/m² = 15 209 142,00 kg CO₂e
- Total carbon footprint of a new build: 16 145 126,00 kg CO₂e (cca 16 145 ton CO₂)

ECOLOGICAL VERDICT

By preserving the complete two-story skeleton instead of undergoing full-scale demolition, the proposed project saves a total of 14 082 197,20 kg CO₂e. This represents an 87,2 %, **reduction** in the embodied carbon footprint, fully validating the concept of a sustainable “Warehouse of the Future.”

ECONOMIC BENEFIT: CAPEX

SCENARIO A (PROPOSED CONVERSION):

- Local demolition works: 2 414,32 m² × 80 EUR/m² = 193 145,60 EUR
- Structural modifications and reprofiling of retained structure: 20 985,28 m² × 350 EUR/m² = 7 344 848,00 EUR
- Construction of steel extension: 2 413,40 m² × 850 EUR/m² = 2 051 390,00 EUR
- Total capital expenditure: 9 589 383,60 EUR

SCENARIO B (COMPLETE DEMOLITION AND NEW BUILD):

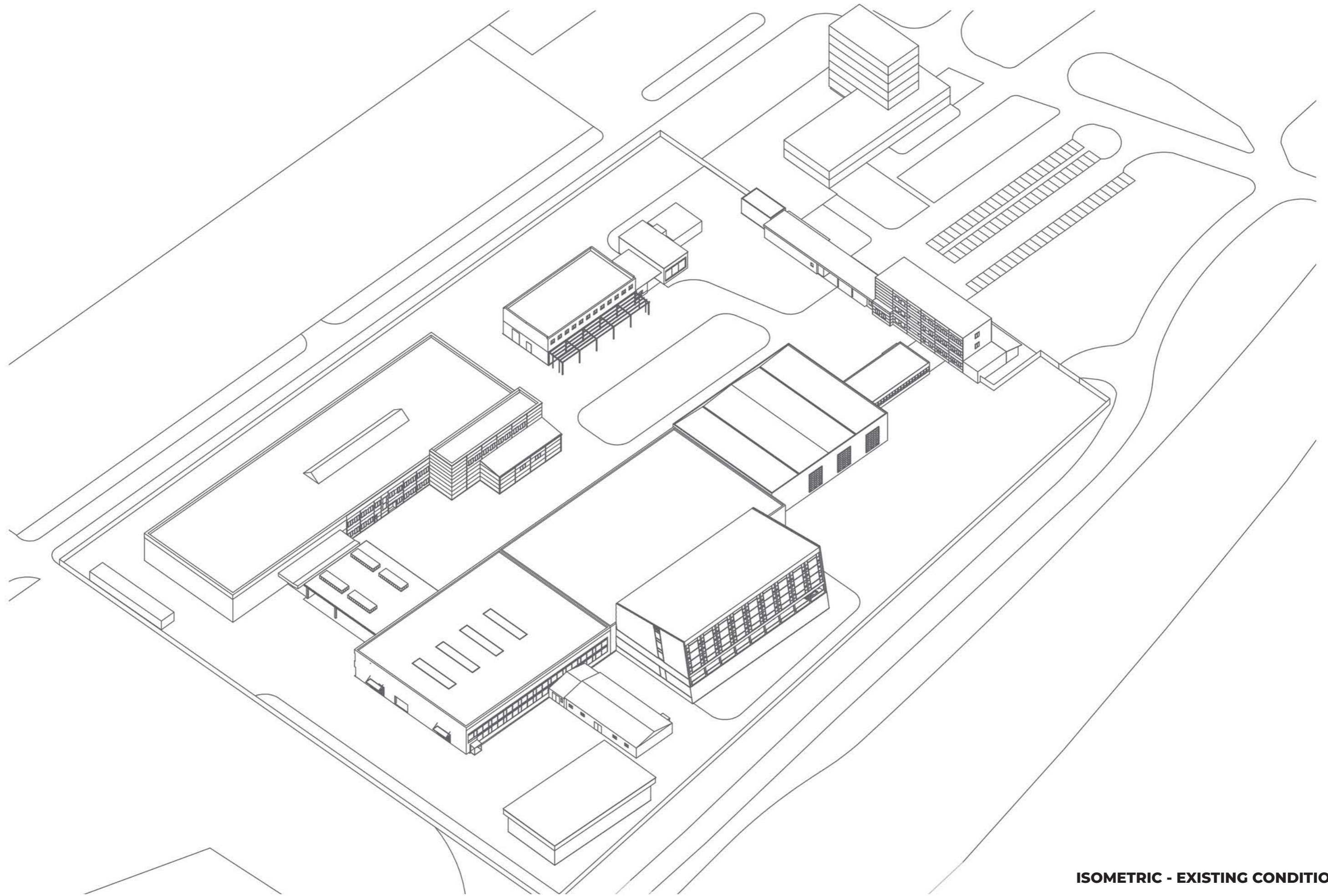
- Demolition of the entire original 2-floor building and debris disposal: 23 399,60 m² × 80 EUR/m² = 1 871 968,00 EUR
- New monolithic concrete pouring and foundation of an equally sized GFA:
23 398,68 m² × 1 100 EUR/m² = 25 738 548,00 EUR
- Total capital expenditure of a new build: 27 610 516,00 EUR

ECONOMIC VERDICT:

Retaining the two-story logistical plinth and choosing a lightweight steel rooftop extension instead of full-scale demolition generates a direct financial saving of 18 021 132,40 EUR. The implementation costs for the primary load-bearing structures are thus reduced by 65,3 %.

1. Source data derived from the global ICE database (Inventory of Carbon and Energy, University of Bath) and RICS standards (Whole Life Carbon Assessment). Carbon coefficients (demolition: 40 kg/m², concrete remediation: 50 kg/m², steel structure: 380 kg/m², new reinforced concrete: 650 kg/m²) are sourced from the global ICE database (University of Bath) and RICS standards, accounting for heavy machinery, materials, and transport.

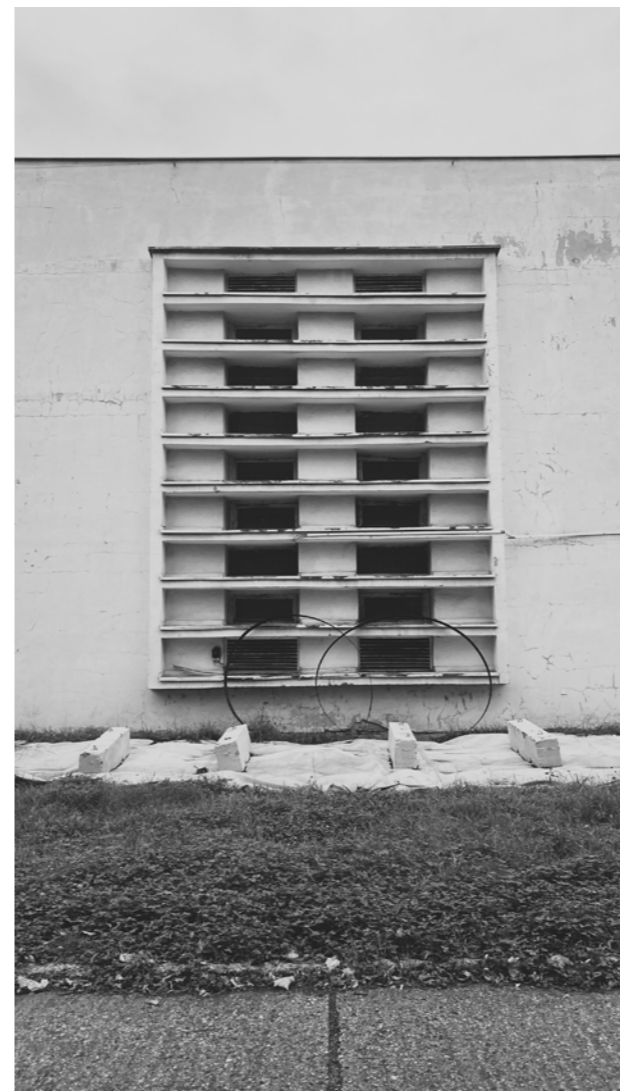
2. Economic calculations are based on Central European construction cost indices (methodology comparable to Cenkos / ÚEOS databases), where the target price of €1,100/m² for a new monolithic structure includes complex foundation works, while the skeleton remediation (€350/m²) and steel Vierendeel truss installation (€850/m²) reflect savings on primary structural layers.



ISOMETRIC - EXISTING CONDITION







FUTURE STORAGE - THE LIVING DEPOSITORY OF THE FUTURE

PUBLIC REALM OF KNOWLEDGE

TRANSPARENCY

STORAGE
RESTORATION
ART HANDLING

ACCESSIBILITY

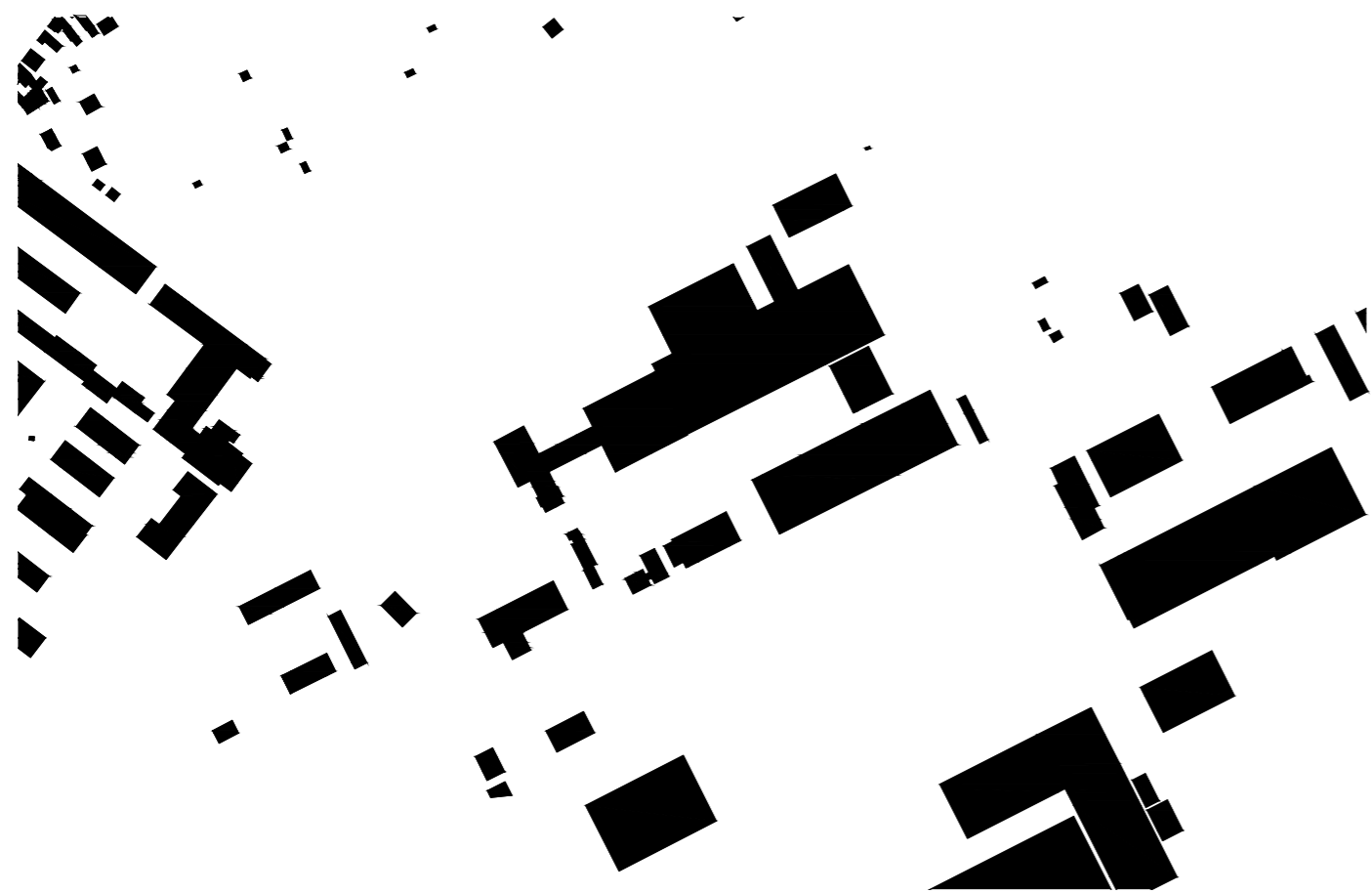
ELITE-FREE SPACES
STUDY OF SELECTED ARTIFACTS

PROCESS AS CONTENT

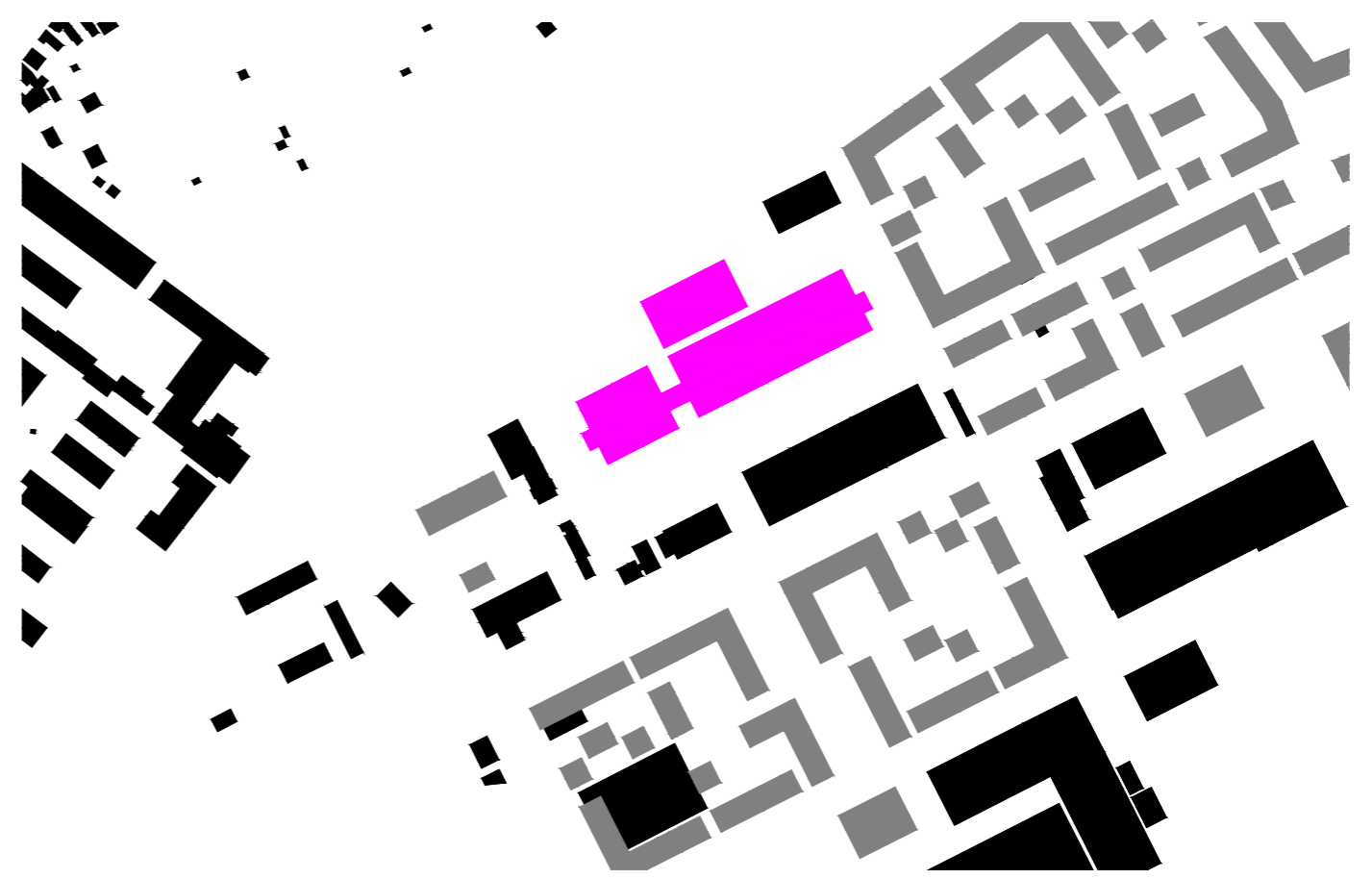
AUTHENTICITY

REDEFINING THE
ARCHIVE

MATERIALITY



EXISTING CONDITION



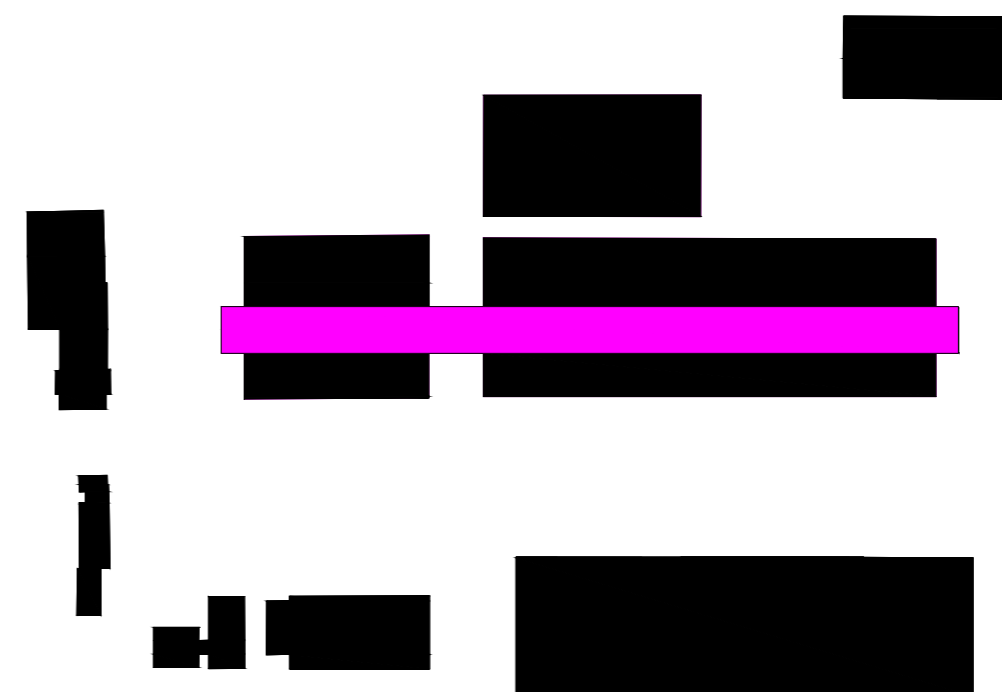
FINAL PROPOSAL

CONCEPTUAL URBANISM (GÁLISOVÁ, GRÁC, KOCIANOVÁ)



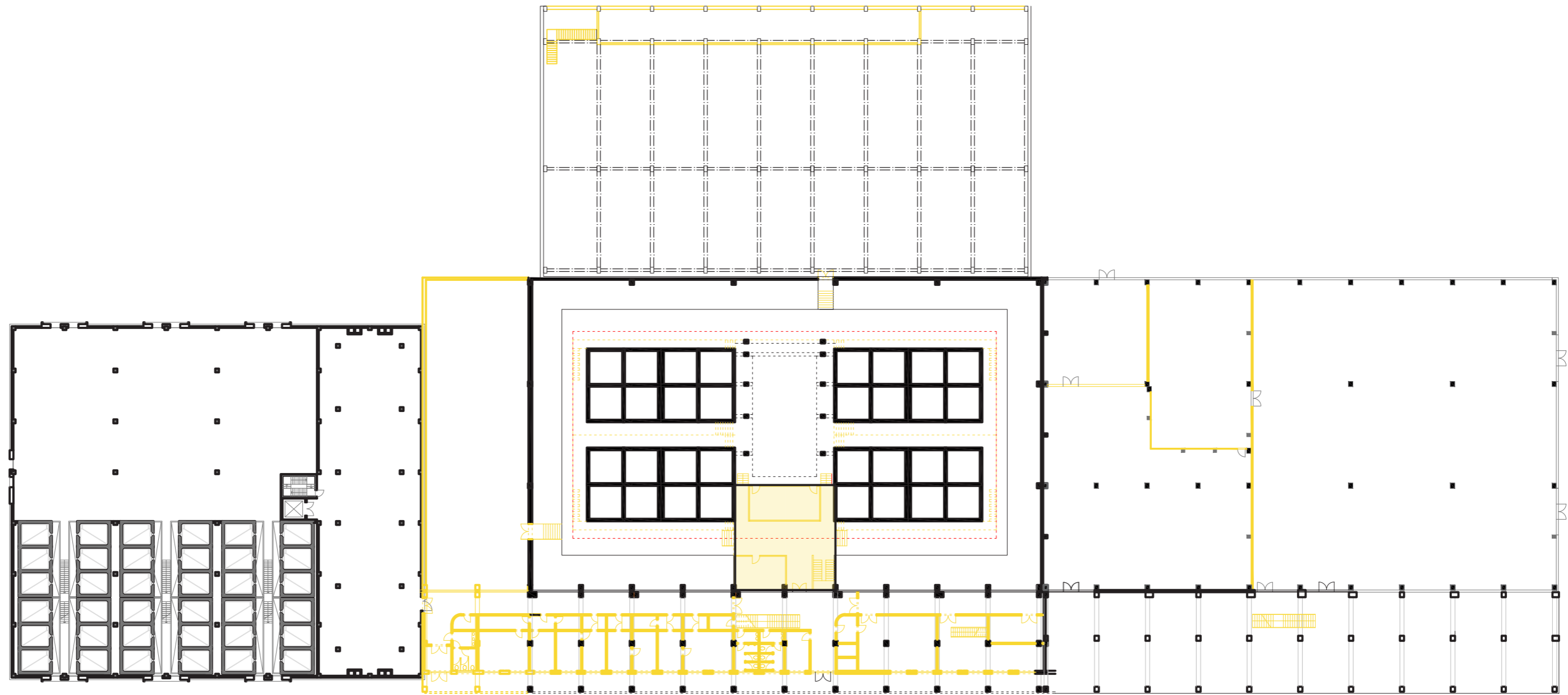
DEMOLITION

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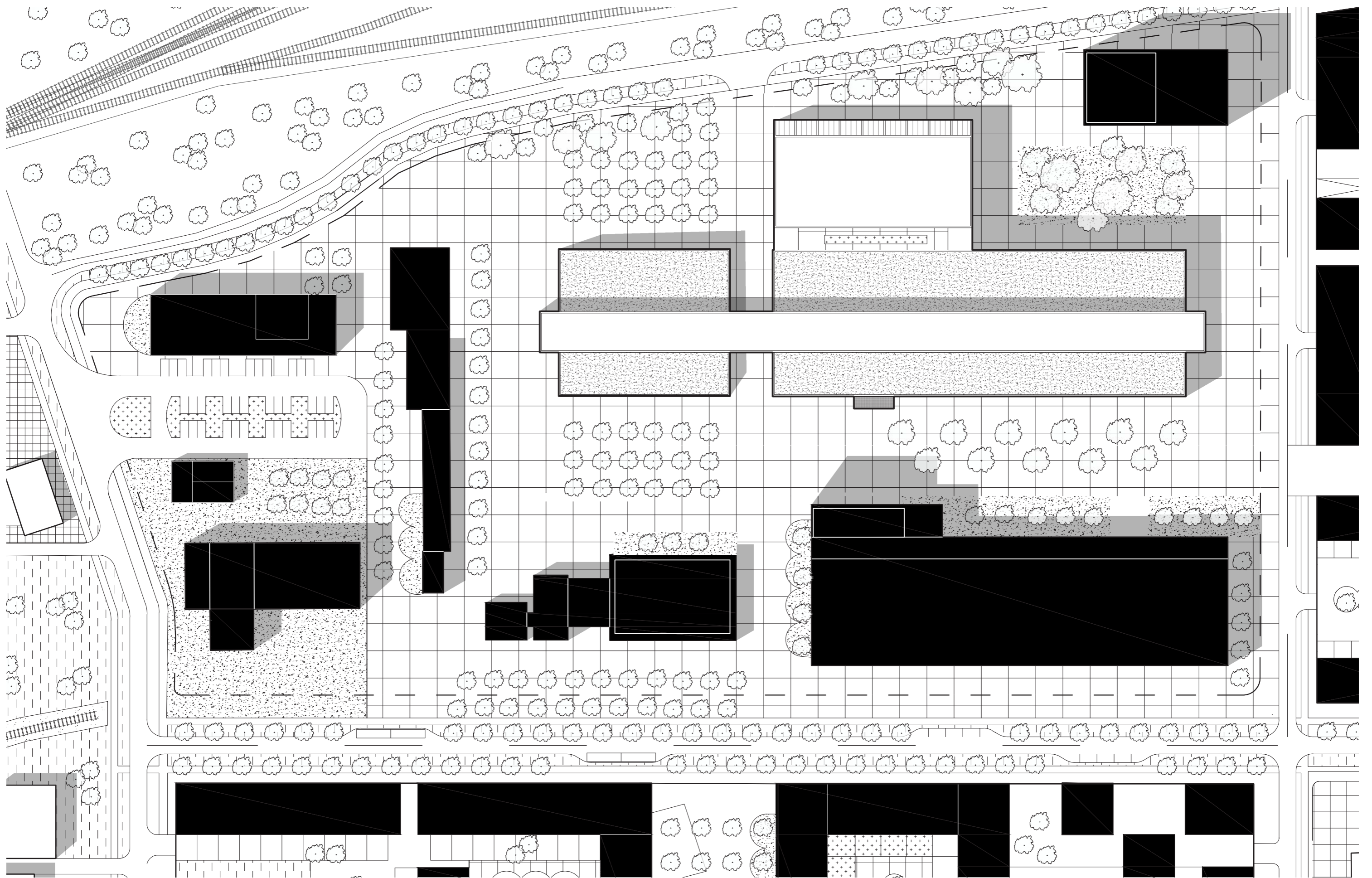


VERTICAL EXTENSION

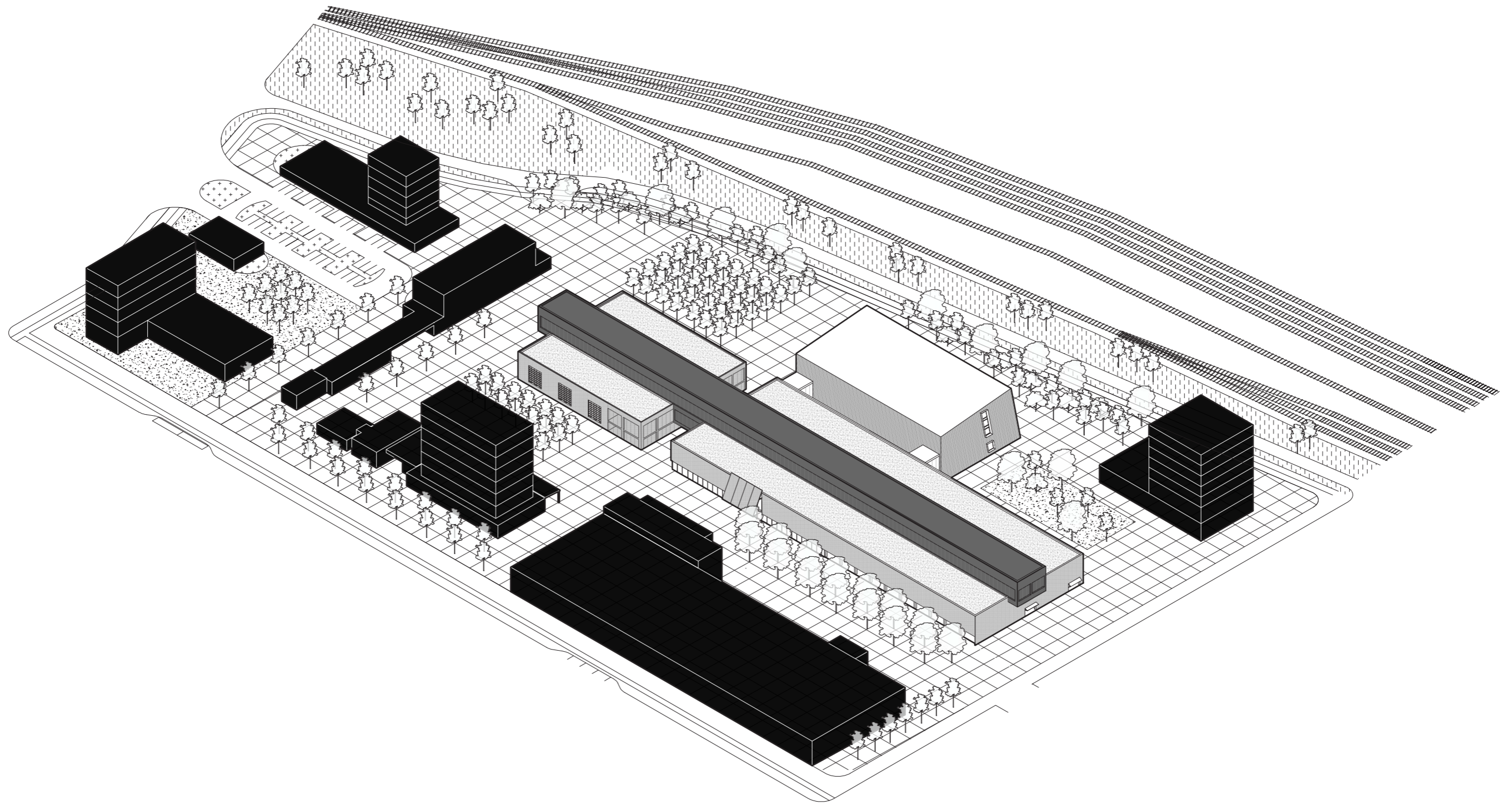
Retained and adapted skeleton floor area = 20 985,28 m²
 New floor area of the rooftop extension (3rd floor, steel structure) = 2 413,40 m²
 Total resulting gross floor area after conversion (GFA)= 23 398,68 m²

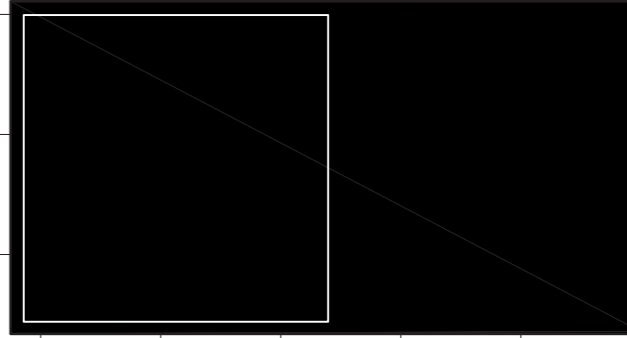
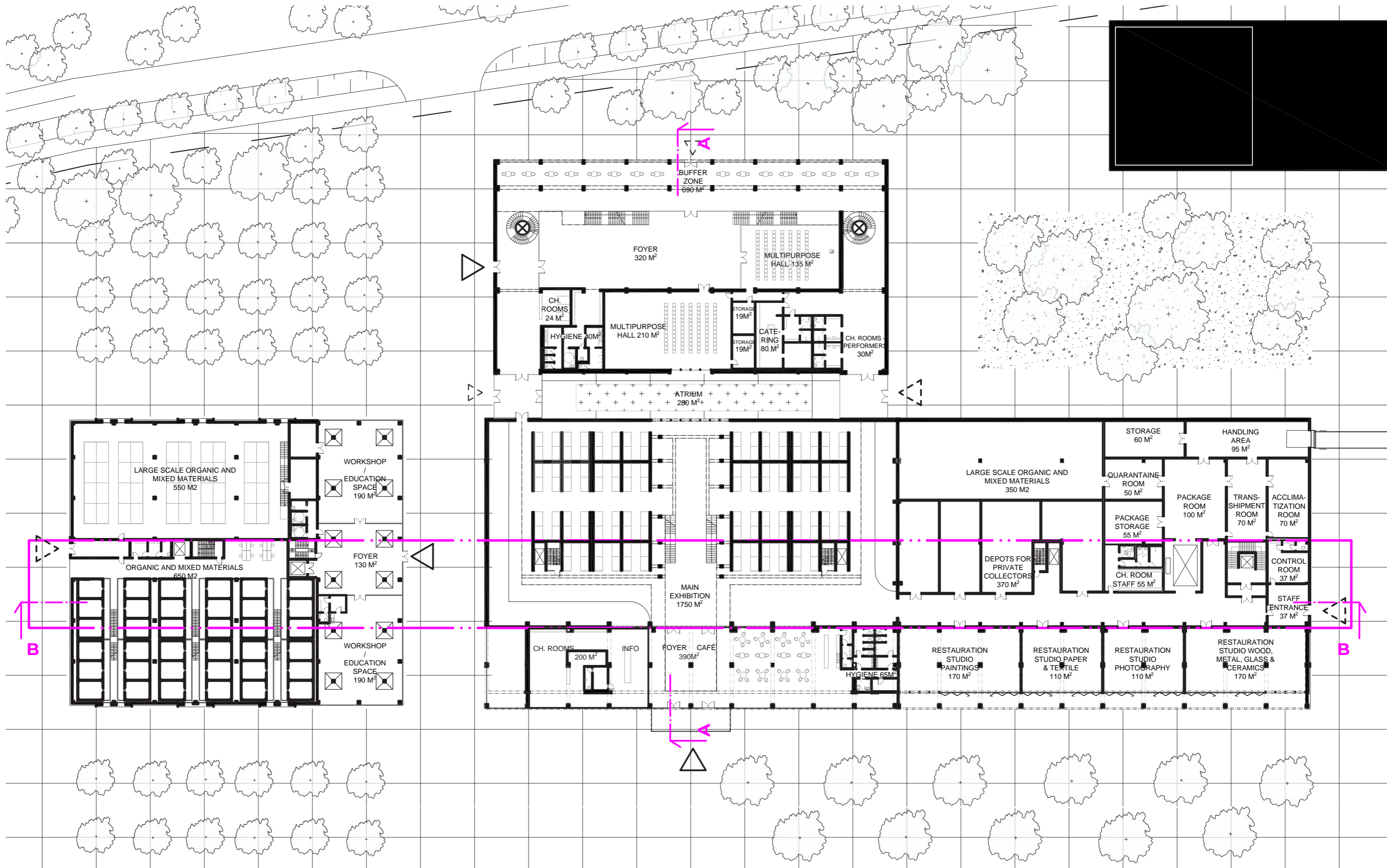


DEMOLITION - 1st, 2nd floor

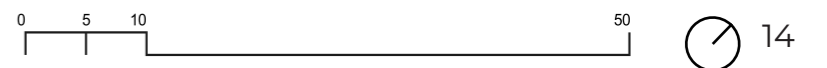


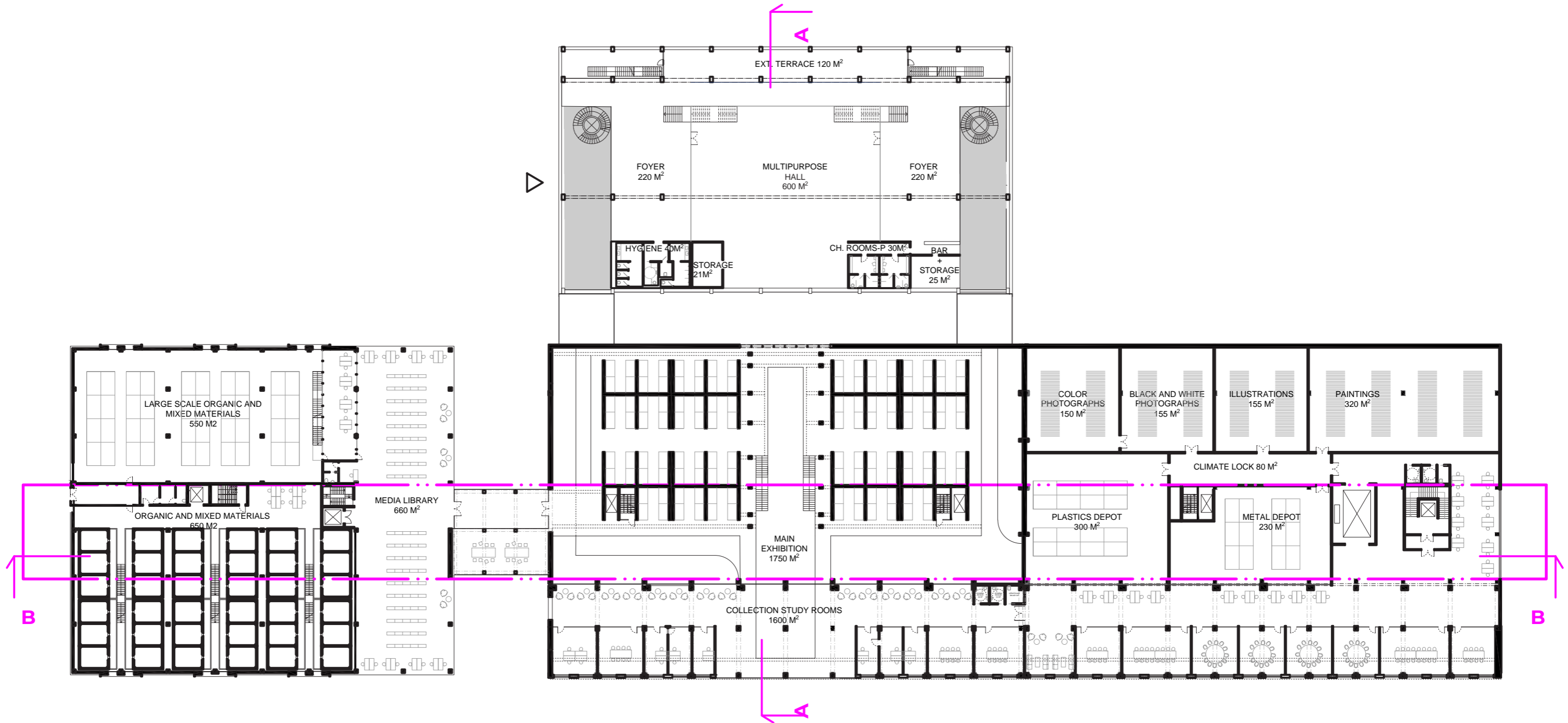
MASTERPLAN, M1:1000



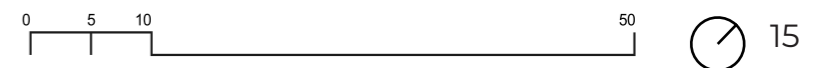


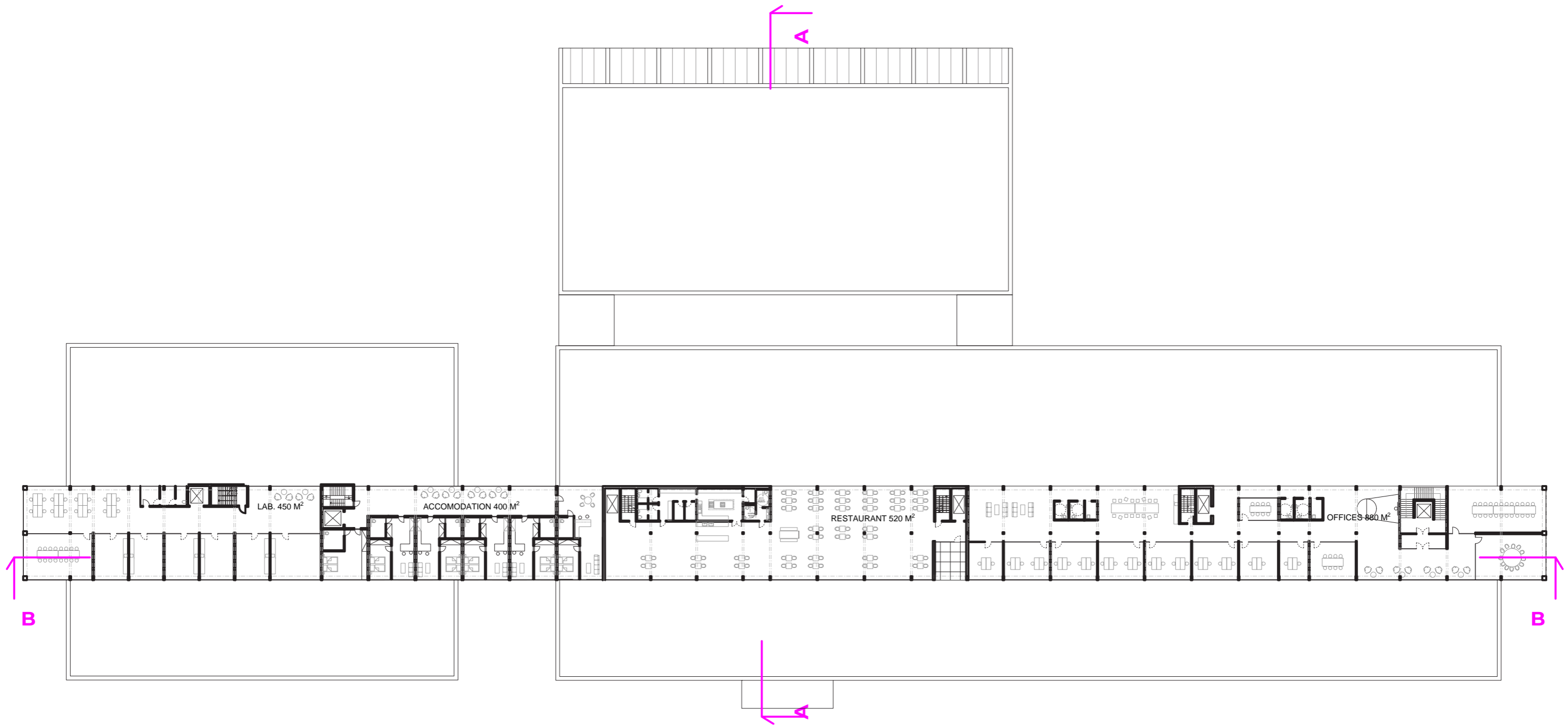
1st FLOOR





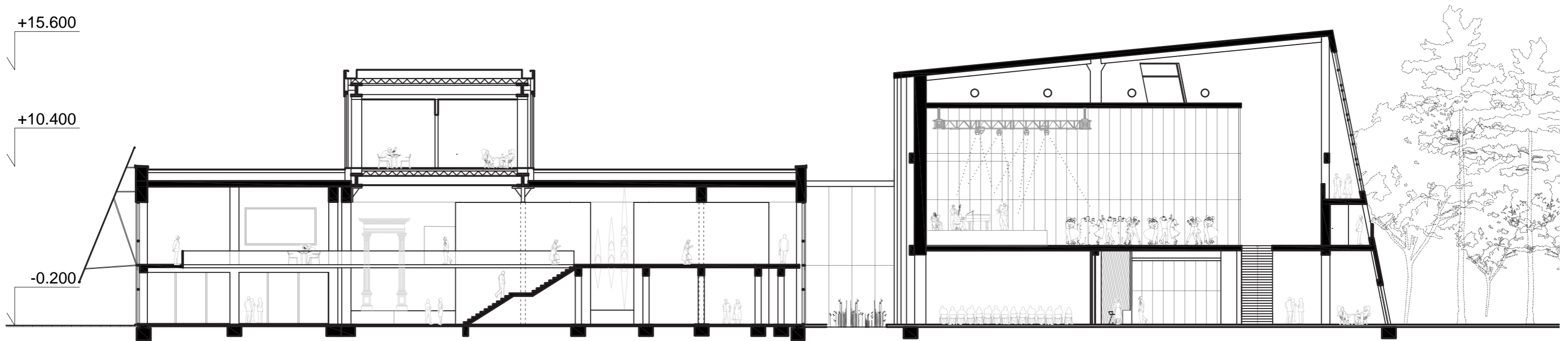
2nd FLOOR



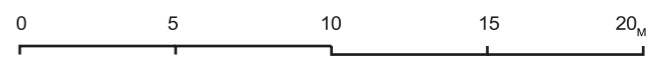


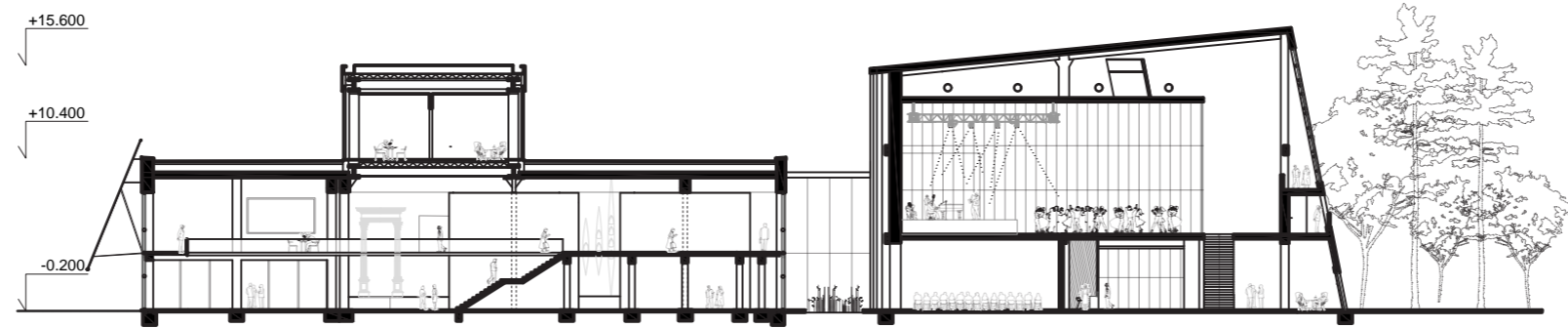
3rd FLOOR



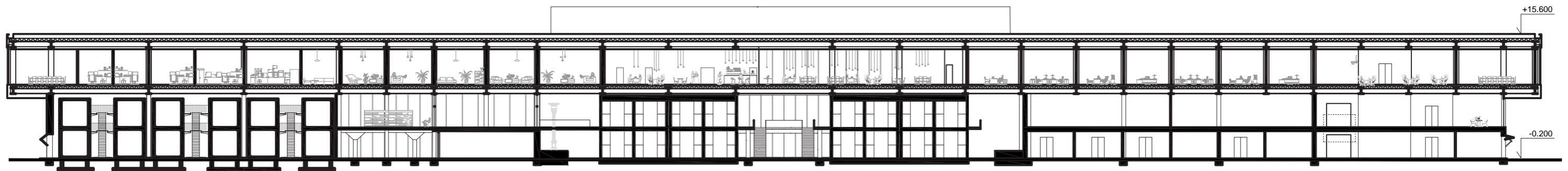


CROSS SECTION A-A,



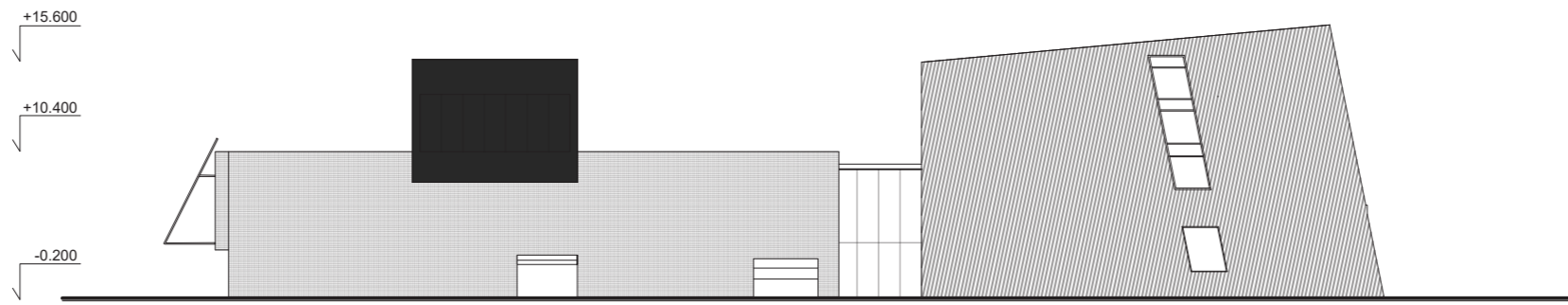


CROSS SECTION A-A

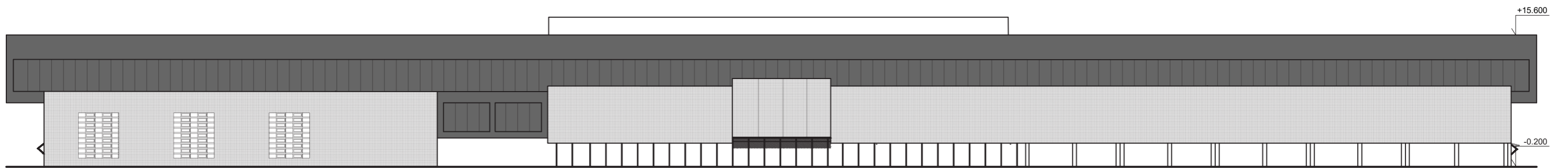


LONGITUDINAL SECTION B-B

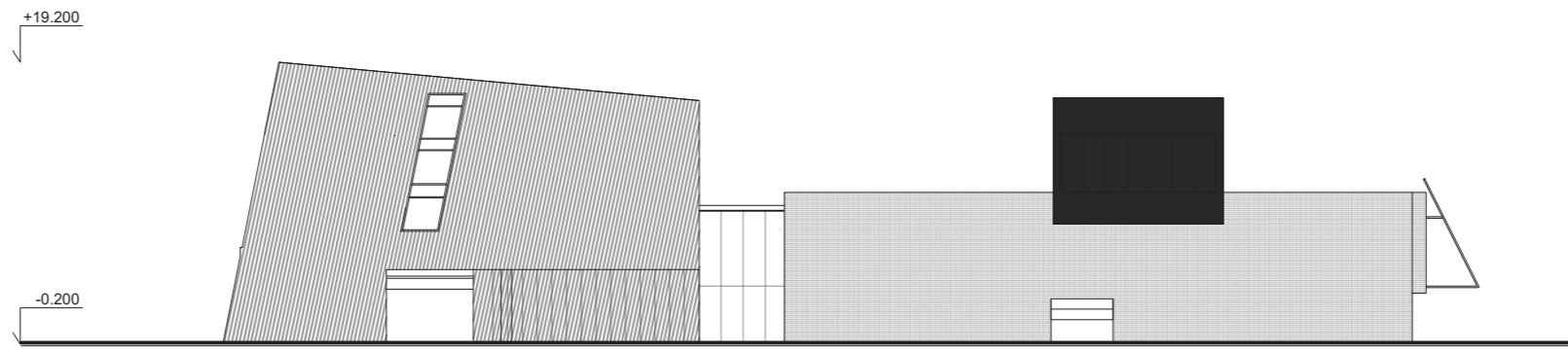




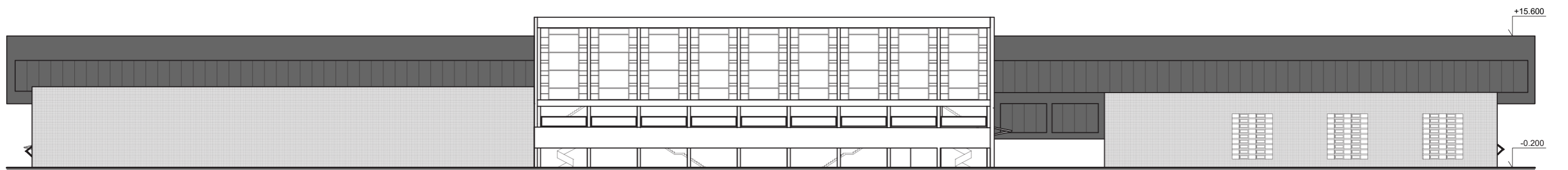
NORTHEAST ELEVATION



SOUTHEAST ELEVATION



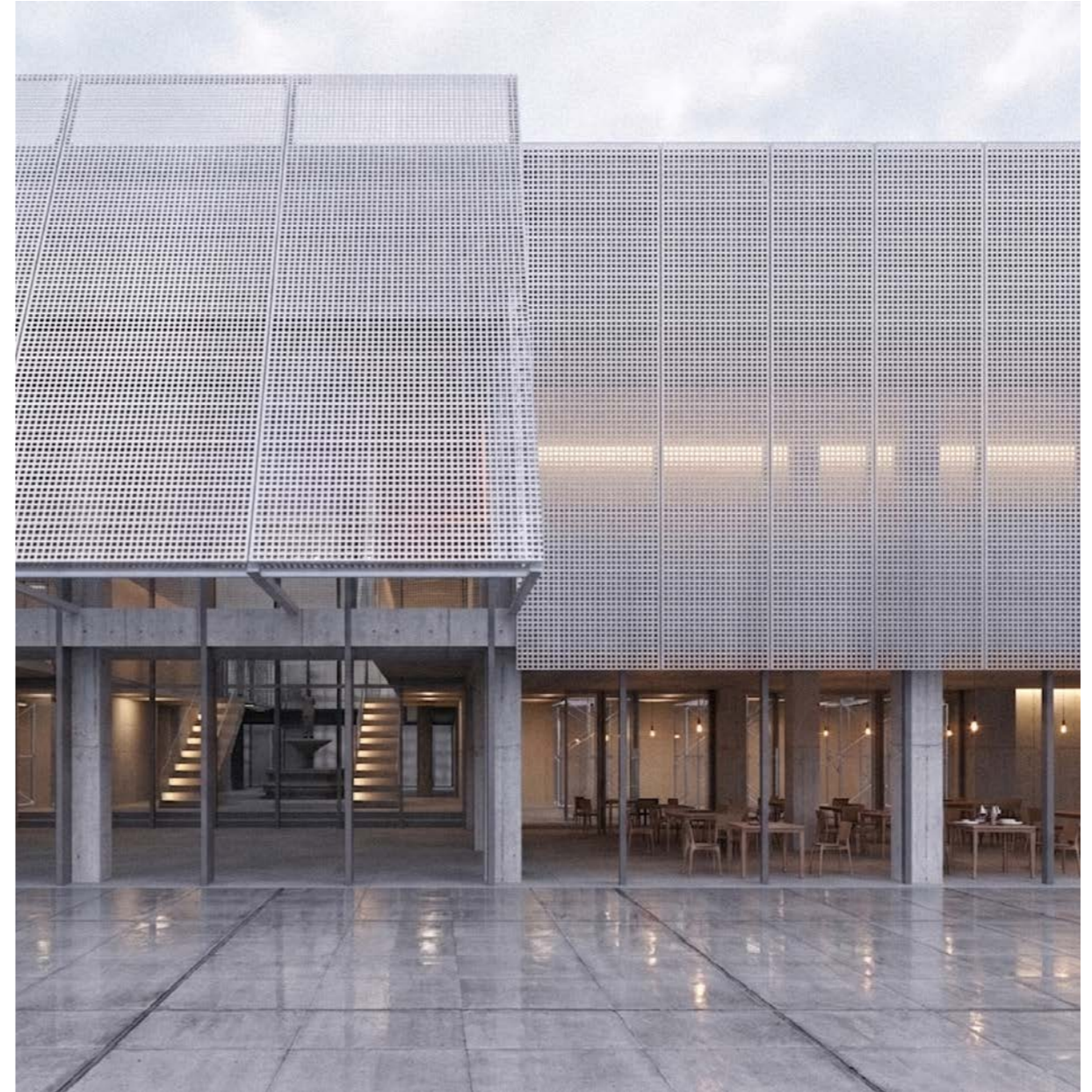
NORTHWEST ELEVATION



SOUTHWEST ELEVATION









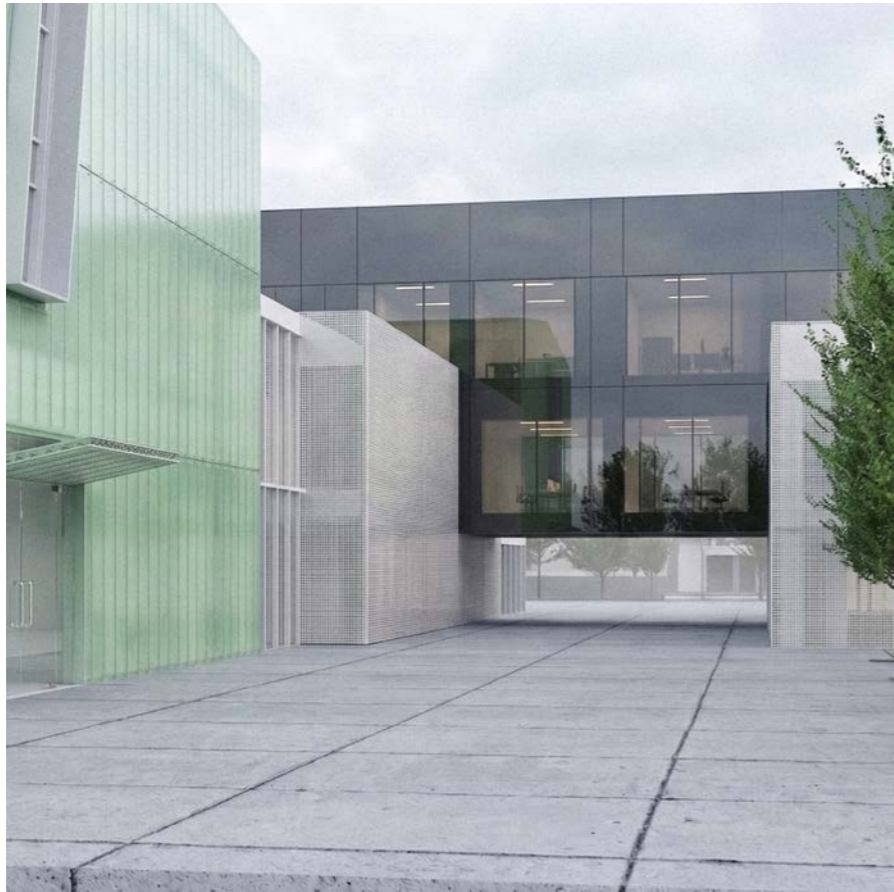




RENDER - MAIN EXHIBITION







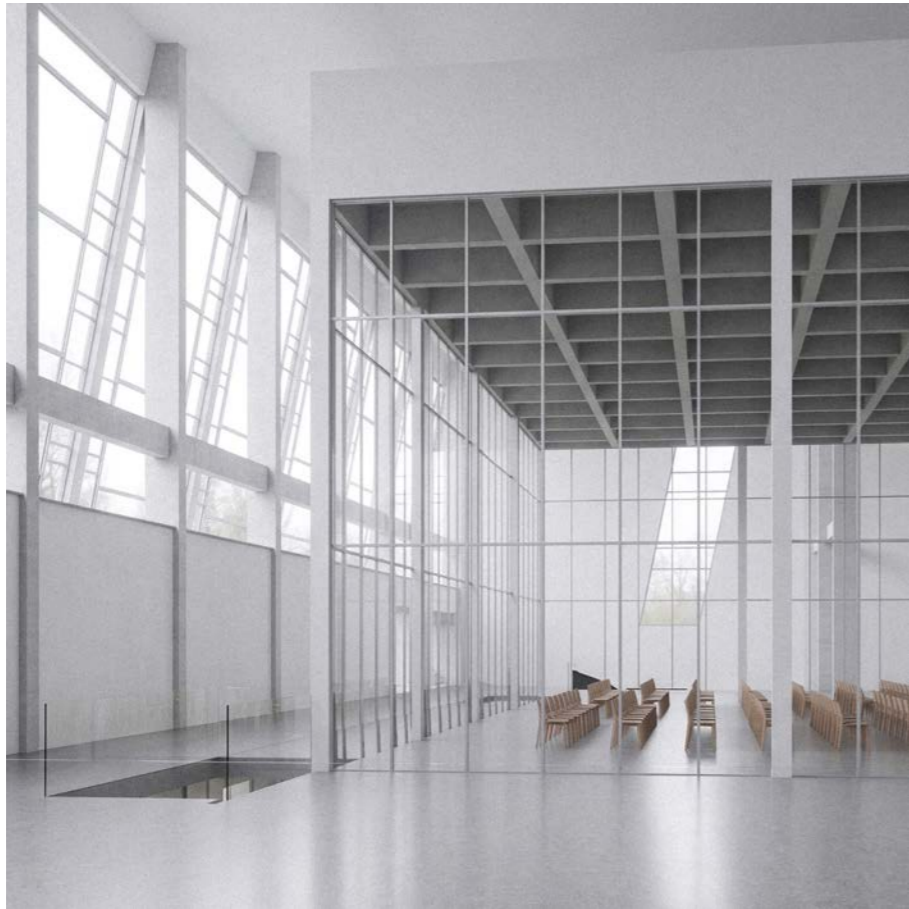
RENDER - MULTIPURPOSE HALL



RENDER - MULTIPURPOSE HALL



RENDER - MULTIPURPOSE HALL





RENDER - MULTIPURPOSE HALL