GARDEN of KNOWLEDGE

Adaptive Reuse of
Almo Collegio Borromeo
Pavia, Italy

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Degree Thesis
A.Y. : 2024-2026
First Semester

Abstract
EN

There are places where history speaks with greater intensity.

“There are places that have witnessed dialogues and encounters involving people that have influenced the course of mankind. There are places that history considers crossroads of thought and relations, where some of the most distinguished minds of all time have met and thrived. The Almo Collegio Borromeo is one of those places.”

The Almo Collegio Borromeo connects past and present, with a dialogue that extends through centuries. Almo Collegio Borromeo, the oldest merit-based college in Italy, was founded in 1561 by Saint Charles Borromeo to provide deserving but financially disadvantaged students the opportunity to study at the University of Pavia.Today, it stands as a prestigious international institution, welcoming more than 190 students, researchers, and professors from around the world.

As a response to the 2020 pandemic, the Dean of Almo Collegio Borromeo initiated the redevelopment of a previously abandoned green area to create an area of beauty, community, and connectivity for Pavia. This vision, rooted in the Collegio’s centuries-long tradition, requires architectural interventions that balance historic preservation and contemporary expansion. YAC Association has launched an international architecture competition, Garden of Knowledge, inviting proposals for adaptive reuse and expansion that will combine history, art, and nature in flawless harmony while further enhancing one of the world’s most prestigious cultural institutions.

In recent years, through initiatives like Horti, it has sought to strengthen ties with the city of Pavia by engaging the community in diverse cultural activities that integrate art, nature, ethics, and science. For this purpose, Collegio plans to create and reinvent strategic areas to accommodate new activities, including a reception lobby, flexible exhibition spaces, a bookshop, and functional offices for the management staff responsible for its cultural activities.

Within this thesis, we explore the adaptive reuse of cultural heritage and how it can make a positive impact on urban development and sustainability. Through the proposed project, we demonstrate how the expansion and transformation of Almo Collegio Borromeo can honor its historical significance while seamlessly integrating with modern needs. More than just preserving the past, this approach breathes new life into heritage, creating a space where tradition and innovation coexist.

Here, the past and present converse, creating a space where tradition enriches modernity and exploration becomes a narrative of continuity.

Abstract
IT

Esistono luoghi dove la storia parla con maggiore intensità.

“Luoghi dove si sono stratificati dialoghi e incontri, dove hanno transitato personalità che hanno influenzato il percorso del genere umano. Luoghi che la storia ha eletto a crocevia di pensiero e relazioni, in cui si sono aggregate e da cui hanno mosso i primi fondamentali passi alcune delle più illustri menti di ogni tempo. L’Almo Collegio Borromeo è uno di quei luoghi.”

Il Almo Collegio Borromeo collega passato e presente, dando vita a un dialogo che si estende attraverso i secoli. Il Collegio Borromeo, il più antico collegio di merito in Italia, fu fondato nel 1561 da San Carlo Borromeo per offrire agli studenti meritevoli, ma con limitate risorse economiche, l’opportunità di studiare all’Università di Pavia. Oggi, è un’istituzione internazionale di prestigio, che accoglie oltre 190 studenti, ricercatori e docenti provenienti da tutto il mondo.

In risposta alla pandemia del 2020, il Rettore del Almo Collegio Borromeo ha promosso la riqualificazione di un’area verde precedentemente abbandonata, trasformandola in uno spazio di bellezza, comunità e connessione per la città di Pavia. Questa visione, radicata nella tradizione secolare del Collegio, richiede interventi architettonici che bilancino la conservazione storica con l’espansione contemporanea. Per concretizzare questo progetto, l’YAC Association ha lanciato un concorso internazionale di architettura, Garden of Knowledge, invitando proposte di riuso adattivo ed espansione che uniscano storia, arte e natura in un’armonia perfetta, valorizzando ulteriormente una delle istituzioni culturali più prestigiose al mondo.

Negli ultimi anni, attraverso iniziative come Horti, il Collegio ha rafforzato il suo legame con la città di Pavia, coinvolgendo la comunità in attività culturali che integrano arte, natura, etica e scienza. Per perseguire questa missione, il Collegio intende creare e reinventare aree strategiche per ospitare nuove attività, tra cui una reception accogliente, spazi espositivi flessibili, una libreria e uffici funzionali per il team di gestione delle sue iniziative culturali.

In questa tesi, esploriamo il riuso adattivo del patrimonio culturale e il suo impatto positivo sullo sviluppo urbano e sulla sostenibilità. Attraverso il progetto proposto, dimostriamo come l’espansione e la trasformazione dell’Almo Collegio Borromeo possano onorare il suo valore storico, integrandosi armoniosamente con le esigenze moderne. Più che una semplice conservazione del passato, questo approccio infonde nuova vita al patrimonio, creando uno spazio in cui tradizione e innovazione coesistono.

Qui, passato e presente dialogano, generando uno spazio in cui la tradizione arricchisce la modernità e l’esplorazione diventa una narrazione di continuità

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Part I of this thesis was developed as group work in collaboration with Melika Soheili Langeroudi from October 2024 to September 2025.

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Part II presents the individual work developed independently by the author from January 2026 to July 2026.

PART 1
GROUP WORK

The Impact of the Adaptive Reuse of Cultural Heritage in Urban Development; A Case Study of Almo Collegio Borromeo in Pavia

This part of thesis was developed collaboratively with my colleague, Melika Soheili Langerudi. The group portion of this project was previously presented and discussed during the September 2025 graduation session.

Almo Collegio Borromeo is one of the most famous and historic universities in Italy, with the magnificence of the Renaissance and the brilliance of centuries of academic achievements. University located in the historic city of Pavia, was designed by Pellegrino Tibaldi [1], and overlooks the Ticino River [2], surrounded by landscaped gardens and the Borromeo Gardens. Vasari [3] described it as a "palace of knowledge" ("palazzo per la Sapienza") (Collegio Borromeo, 2010). However, today such old structures need to open a new chapter in their timeline, by improving functionality, sustainability, and accessibility, which poses challenging problems.

Adaptive Reuse is one possible solution to this requirement, a modern strategy to convert existing buildings for modern purposes while preserving their historic fabric. This tension between tradition and modernity that exists in the architectural and functional challenges of the conservation of Almo Collegio Borromeo will be balanced through adaptive reuse, considering its benefits to the academic community and the city of Pavia.

Adaptive reuse of Almo Collegio Borromeo is not merely a technical or architectural undertaking but it is representative of "University Social Responsibility" (USR), which has become highly significant in recent years (Bokhari, 2017). At the global and European levels, universities are increasingly recognized as key actors in the economic, social, environmental, and cultural sustainable development of urban and regional spaces (Goddard, 2007). The University of Pavia bears this responsibility regarding education, culture, and innovation and also regarding heritage preservation, sustainability, and well-being within its academic community. This work looks at how adaptive reuse aligns with the said responsibilities in an exemplary model of USR, balancing tradition and modernity.

Cities and regions need research and innovation to address challenges of sustainability, especially within the area of climate-resilient urban development, alternative clean energy, energy-efficient smart cities, sustainable transportation, culture-based revitalization, adaptive reuse, health and wellness, innovative human-centered design, social innovation, and inclusivity, and the circular economy (Marchigiani et al., 2023). The University of Pavia is the best example of the presence in history and initiatives regarding how academic institutions contribute to the evolution of urban spaces and their community.

Pavia: A City of Historical Depth and Modern Aspirations

A critical aspect of explaining the relationship between a university and its urban context is the analysis of the material and intangible relations, like typology, units of measurement, quantities between different elements, and places involved within the urban environment. Therefore, the role played by the university system within the urban system has to be reexamined. (De lotto et al., 2022)

Pavia is a city of profound historical and cultural significance, which represents centuries of architectural brilliance, academic excellence, and urban development. Known for its rich historical heritage, such as the historical University of Pavia, Certosa di Pavia [4], and Almo Collegio Borromeo. Throughout history, Pavia has evolved its layout to meet political and military needs, since its foundation in 89 BC as the Roman colony of Ticinum [5] (Da Marco, 2023), with interventions in urban planning and a new mobility plan between the 1730s and 1880s. (Da Lotto, 2008) because of the location of Pavia, along the Ticino River, historically proposed as a strategic and economic center. The character of the city is shaped by the combination of its medieval charm with a dynamic academic community.

The relationship between the development of Pavia's history and the contemporary urban demands is reflected in the urban structure. The urban pattern map shows that the structure of Pavia includes green areas, transportation systems, and built environments in a coherent setting relating its Roman roots to modern urban planning. The importance of strategic measures like adaptive reuse initiatives is what this urban pattern stresses in terms of preserving the historical identity of this area while increasing its practicality. The interaction between green areas, accessibility, and heritage buildings, as in the case of Almo Collegio Borromeo, demonstrates how urban planning can harmonize conservation programs with sustainable development goals.

In recent years, Pavia has proven its role in the enhancement of sustainable urban development. Natural features and human interventions shaped Pavia's urban landscape which reflects its complex history. Pavia's Geocultural Itinerary (GI) offers a lens through the historical layers of the city with important geostops, and key urban fabric nodes. Cultural and historical features have linked these geostops, which offer valuable insights into how the university's presence interacts with architecture and spaces, indicating the evolution of Pavia from its medieval roots to its modern academic and cultural functions. (Pelfini et al. 2021)

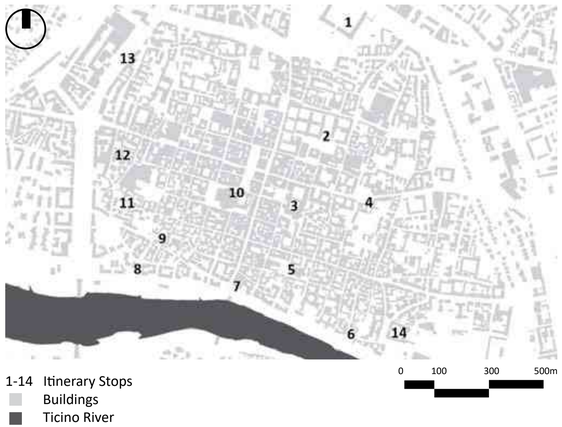


Figure 1. Locations of the itinerary stops of Pavia. (Pelfini et al. 2021)

1. Piazza Castello, 2. University main building, 3. San Tommaso building (Piazza del Lino), 4. Piazza Municipio, 5. San Michele Church, 6. Porta Nuova, 7. Piazzale Lungo Ticino, 8. Porta Calcinara, 9. San Teodoro Church, 10. Piazza del Duomo and Piazza della Vittoria, 11, Sant'Agata al Monte, 12. Dei Molini Street, 13. Cesare Battisti Vallet, 14. Almo Collegio Borromeo

Adaptive Reuse

Unlike new construction, which offers architects an entirely unbuilt space to begin with, adaptive reuse involves a reworking of an already existing structure. (Afra, 2022) This difference is especially important in heritage buildings where, by nature of the building, the process of reuse requires special consideration of its inherent characteristics. (Cramer, 2012) According to Douglas "any building work and intervention aimed at changing its capacity, function or performance to adjust, reuse or upgrade a building to suit new conditions or requirements" (Douglas, 2006)

Adaptive reuse of historic buildings is a way of conservation that prevents deterioration and maintains their value besides extending the building's life span. (Ottman et al., 2018) Adaptive reuse offers numerous advantages (Table 1), as it helps a community, the government, and developers lower the environmental, and economic costs of constant urban development and expansion (Samadzadehyazdi et al., 2020; Bullen et al., 2009). Besides environmental and economic benefits, adaptive reuse has many social advantages; creating a link to the past, preserving cultural heritage, and revitalizing historic buildings to breathe new life into neighborhoods, which benefited economic and community engagement while preserving what makes each area unique. (Philokyprou, 2014)

The adaptive reuse of heritage structures is a dynamic field in architectural and urban heritage conservation while integrating them into modern city environments (Djebbour et al., 2020). Applying these principles to Collegio Borromeo sets how historical places could be preserved while meeting today's needs.

Table 1. Pillars of sustainability and the benefits of adaptive reuse (Ottman et al., 2018)

Pillars of sustainable development	Benefits of adaptive reuse
Environmental	• Environmental enhancement
Environmental- economic	• Less use of resources, energy, and emissions • Enhancing the demand for preserved existing buildings • Stimulating vacant neighborhoods • Recovering energy embodied in buildings over a large period
Economic	• Economic development • Increasing the cost-effectiveness
Economic-social	• Expanding the Buildings life cycle • Giving value to resources of the community from properties that are not productive
Social	• Cultural continuity, identity, and sense of place • Giving a better aesthetic appearance to the built environment • Heritage conservation and presentation
Social-environmental	• Decreasing consumption of land and urban slump • Revitalization and upgrading of heritage districts and architectural and technical innovation

The impact of the Adaptive reuse of Almo Collegio Borromeo on Pavia

Universities are key actors and play a central role in the sustainable development of cities and the innovation of the society that hosts them (Tomasi et al., 2020). Universities are crucial for economic growth they act as major employers that support local businesses, thereby providing jobs to numerous people. In addition to benefiting the economy, universities support the implementation of innovative ideas in various areas, including digital technology, energy supply, transportation, and infrastructure. (Leal Filho et al., 2022)

Even today, the Collegio Borromeo keeps alive with enthusiasm the current legacy of the founder St. Charles, and the Borromeo family, their continuous commitment to education, culture, and the city community (YAC, 2024). The adaptive reuse of Almo Collegio Borromeo into a Knowledge Garden, hosting exhibition spaces and places for big events brings many benefits to Pavia. By preserving the site's historic architecture, the new use of the old building emphasizes the university's contribution to social and cultural activities. The exhibition offers a chance to showcase Pavia's significant contributions to science, culture, education, and history. This attracts tourists, scholars, and residents. It helps people interact with the culture and boosts the economy by bringing in visitors and creating new chances for local businesses.

A similar line of thought, including spaces for large gatherings—conferences, scholarly symposia, and civic events—remakes the building into a vibrant hub of activities. This function aligns with Pavia's strategic plans for urban renewal in that it creates the place as a focal point of intellectual and cultural exchange. Large events unite people, engage them in dialogues, and enhance the city's reputation as a center of innovation and knowledge. Besides, these activities resulted in economic growth by creating demands for services like hospitality, eating, and transportation.

The University of Pavia is increasing its interaction with the city and strengthening the ties between academic communities by turning one campus building of Almo Collegio Borromeo into a place for exhibitions and events. This new initiative furthers sustainable development goals and preserves the historically important site, placing the city at the forefront of using its historical heritage in innovative ideas for urban improvement.

Impact Diagram

The new Garden of Knowledge, Almo Collegio Borromeo, exemplifies how a historic building could be modernized without losing its cultural significance. This project benefited the city in many ways and highlights the commitment of the University of Pavia to cultural innovation and sustainable development to make the city a cultural hub in Lombardy, making it a serious factor in urban development. By considering an exhibition space and a venue for events, the Garden of Knowledge bridges the gap between historical context and the future, while resulting in, increasing the engagement of the community, cultural exchange, and economic growth.

This case study offers an excellent opportunity for the increased potential of historic building reuse to develop urban environments. It highlights the role of educational institutions and the adaptive reuse of cultural heritage, as well as the effects on society by balancing the preservation of historically significant structures with contemporary demand.

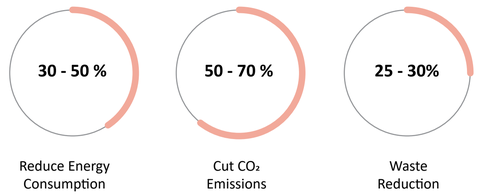


Figure 2. Sustainable urban development impact



Figure 3. Impact diagram of adaptive reuse of Almo Collegio Borromeo

Conclusion

The new Garden of Knowledge, Almo Collegio Borromeo, exemplifies how a historic building could be modernized without losing its cultural significance. This project benefited the city in many ways and highlights the commitment of the University of Pavia to cultural innovation and sustainable development to make the city a cultural hub in Lombardy, making it a serious factor in urban development. By considering an exhibition space and a venue for events, the Garden of Knowledge bridges the gap between historical context and the future, while resulting in, increasing the engagement of the community, cultural exchange, and economic growth.

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Notes

[1] *Pellegrino Tibaldi;* was an Italian mannerist architect, sculptor, and mural painter. 1527-1596

[2] *Ticino River;* is the most important perennial left-bank tributary of the Po River.

[3] *Giorgio Vasari;* was an Italian Renaissance painter, architect, art historian, and biographer. 1511-1574

[4] *Certosa di Pavia;* is a monastery complex in Lombardy, Northern Italy, situated near a small village of the same name in the Province of Pavia, 8 km (5.0 mi) north of Pavia. Built from 1396 to 1495

[5] *Ticinum;* the Latin name of Pavia, was an ancient city of Gallia Transpadana, founded on the banks of the river of the same name.

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01

Territorial Framework

- Lombardy Boarders
- Province of Pavia
- Ground Figure
- Urban Pattern
- Urban Aspect
- Planimetry and Neighbours
- Building Functions
- Site Plan, Existing Situation

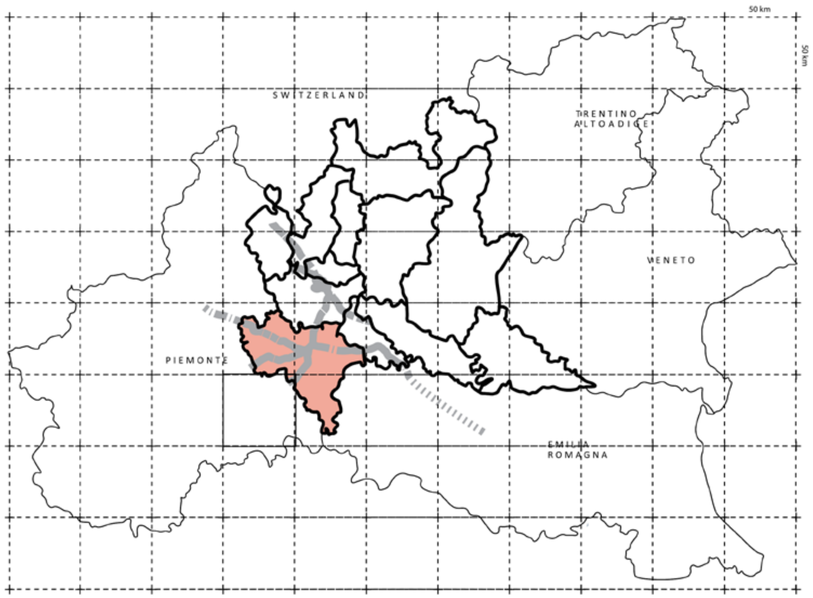


Lombardy

Province and Boarders

Lombardy, located in northern Italy, is one of the country's most economically vibrant and culturally rich regions, with Milan as its capital. It borders Switzerland to the north and shares regional borders with several other Italian regions: Piedmont to the west, Veneto to the east, and Emilia-Romagna to the south. This central position within Europe has made Lombardy a key hub for commerce, tourism, and transportation. Its provinces, including Bergamo, Brescia, Como, Lecco, and Pavia.

Lombardy's well-developed road and rail networks connect it internally and with neighboring regions and countries. Major highways such as the A4 (connecting Turin, Milan, and Venice) and the A1 (running south toward Bologna and Florence) make intercity travel fast and accessible. The extensive railway network, including high-speed trains, links cities like Milan, Brescia, and Bergamo, as well as smaller towns and neighboring countries. The region also boasts scenic routes for tourists, such as those winding around Lake Como or through the Valtellina valley, offering picturesque mountain and lake views.



Province of Pavia

Municipality and Boarders

Pavia is located in northern Italy within the Lombardy region, approximately 35 kilometers south of Milan. The city sits on the banks of the Ticino River, near its confluence with the Po River, which provides natural access routes that have historically facilitated trade and communication. The city's flat plains, surrounded by fertile farmland and vineyards, contribute to the region's agrarian economy and picturesque landscape, with views extending toward the distant foothills of the Alps.

Modern Pavia is well-connected by an efficient transportation network, including highways, trains, and buses that link it to Milan and other major Italian cities. The A7 motorway, which connects Milan to Genoa, runs close to Pavia, making it easily accessible by car. Pavia's central railway station offers frequent train services to Milan (a journey of about 20 minutes), as well as regional connections throughout Lombardy. This connectivity enhances Pavia's role as a suburban hub for Milanese commuters and as an academic center, drawing students and visitors to its historic university and cultural sites.



Ground Figure

Buildings and Roads

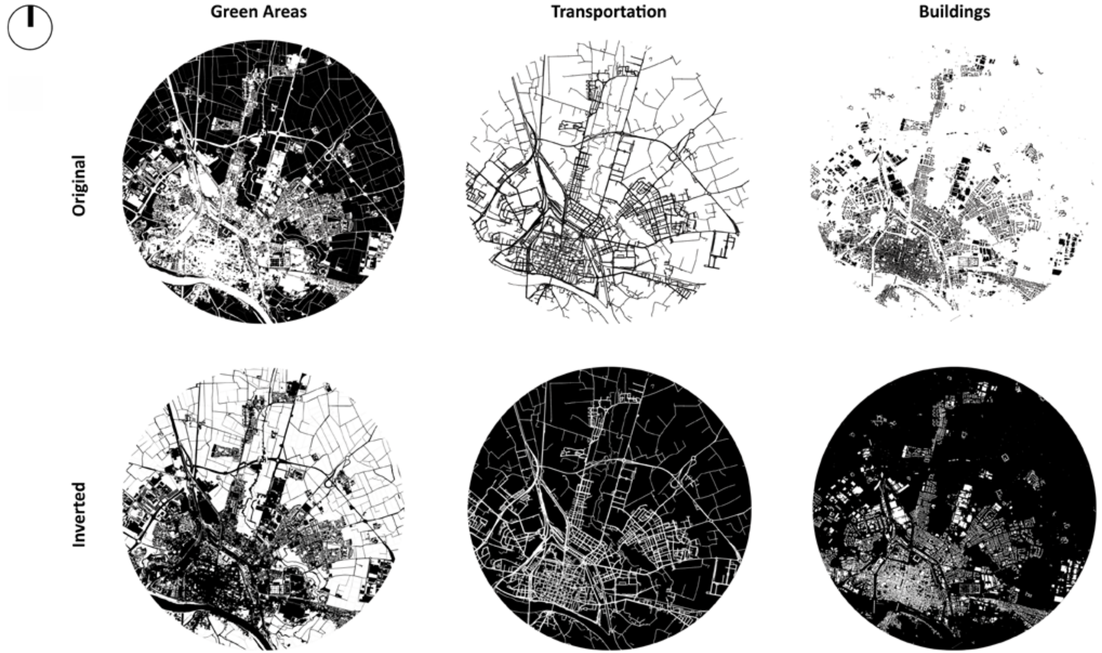


Vehicular Circulation
Pedistrian Circulation
Cycle Path
Railway
Secondary Road
Buildings
River

0 400 1200 2000 m

Urban Pattern

N 45.18526, E 9.15458





Vehicular Circulation
Pedistrian Circulation
Cycle Path
Railway
Secondary Roads
Buildings

0 200 600 1000 m

Urban Aspect



Area A Close Up

Collegio Borromeo is located in the city of Pavia, in the Lombardy region of northern Italy. Situated near the historic center of Pavia, the college lies along the banks of the Ticino River, close to significant landmarks such as the University of Pavia and the Certosa di Pavia, a famous Carthusian monastery. The college is housed in a beautiful Renaissance-style building, which reflects the city's rich academic and cultural heritage. Its central location allows students and visitors easy access to the vibrant town, with its blend of medieval architecture, cobblestone streets, and lively university atmosphere.

The Horti

New City Purpose



1 Entrance to Horti Park from Tosi Street
2 Ex Church Sant'Antonio di Padova Entrance
3 Entance from Galileo Vercesi Street
4 Building Entrance from Horti Park
5 Entrance to Courtyard from Horti Park
6 Entrance to Horti Park from Lungo Ticino Sforza Street

"Horti is a 35,000 square metre park that the Almo Collegio Borromeo of Pavia has redeveloped as a public space where natural habitats, contemporary art, cultural reflection, ethical commitment, equity and social inclusion intertwine. This area, once dedicated to cultivation for the College's students, is now a place for social interaction, creativity and knowledge, born from the belief that beauty has a redeeming and pedagogical power." to raising awareness of the protection of biodiversity and the environment (Environment), ethical and social commitment activities involving local bodies and businesses, with specific attention to fragile categories and people dealing with social and work reintegration (Ethics), and a permanent contemporary art exhibition, a sort of open-air museum (Art) hosting site-specific works by internationally renowned artists as Arnaldo Pomodoro, Mauro Staccioli, Ivan and David Tremlett. Furthermore, thanks to archaeological excavations undertaken in collaboration with the University of Pavia, it is possible to see the ruins of the church of San Marco in Monte Bertone that will be the object of a future artistic intervention.

0 60 180 300m



Site Plan

Current Situation

Labels

1 Ex-church sant'Antonio
2 Playing Park
3 Horti Park
4 Ecvacation Site
5 Horti Bistrot
6 Almo Collegio Borremeo
7 Ticino River

Paved Surface

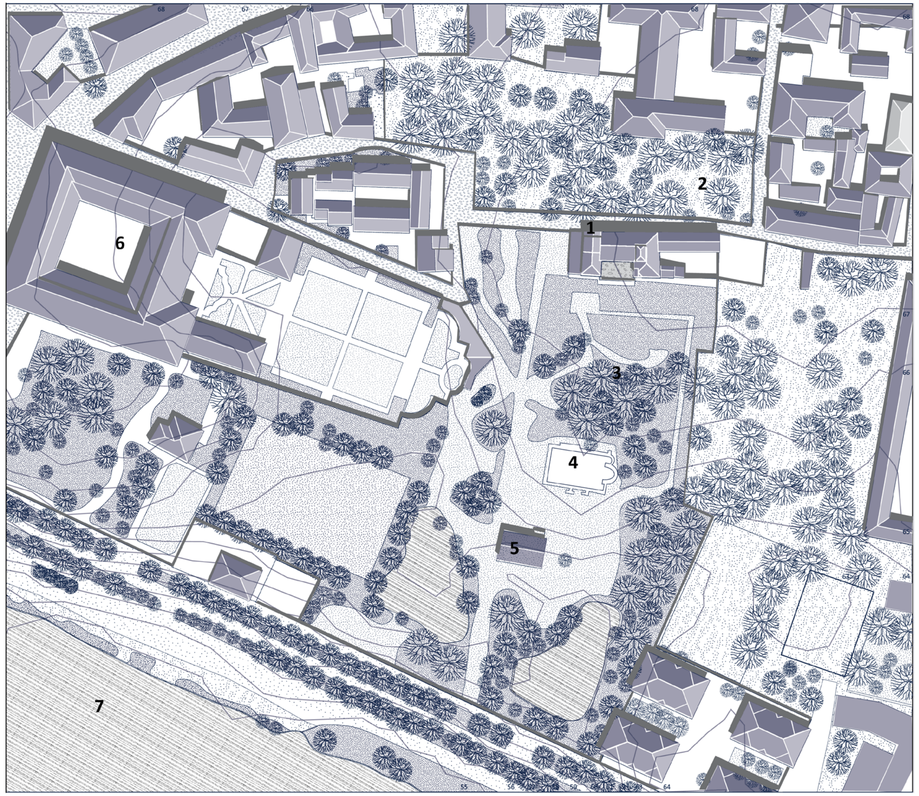
Asphalt Road
Earthen Ground
Paved External Surface

Land Use

Lawn Surface
Dense Vegetation
Water Body

Elevation unit: meter
Every contour line is equal to 1 unit.
Topography from: contourmapcreator

0 20 60 100m





Almo Collegio Borromeo, Main Building

Almo Collegio Borromeo, an elegant example of late Renaissance architecture, followed local patterns of urban architecture, with an enclosing courtyard which served as the center of the life for the college community with covered walkways. a cloister-like courtyard led to a garden which was an improtant part of the residential colleges.

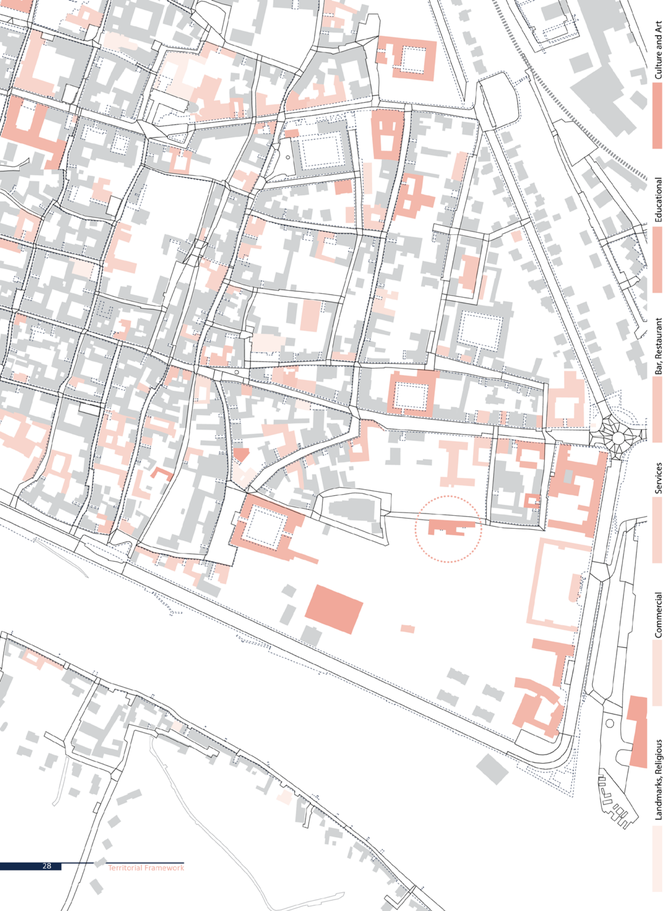
Almo Collegio Borromeo, Alumni Section

Almo Collegio Borromeo - Alumni Section, located in the north of the Horti Borromaici, which dates back to the 1500s. consists of a longitudinal building, a central structure, and a church with an adjoining sacristy, all arranged around two courtyards that serve as focal points for circulation and communal spaces.

horti Park, Horti Borromaici

Horti Park, is a historic green space that has been transformed into a vibrant hub for education, research, and community activities. Originally part of the Horti Borromaici, the area was once used for botanical studies and agricultural purposes linked to the college. Today, the park serves as a multifunctional space, blending historical elements with modern sustainability initiatives.

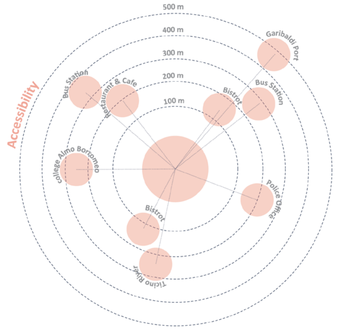
Reference: Alexander, J. H. (2001). *The Collegio Borromeo: a study of Borromeo's early patronage and Tibaldi's early architecture.* University of Virginia.



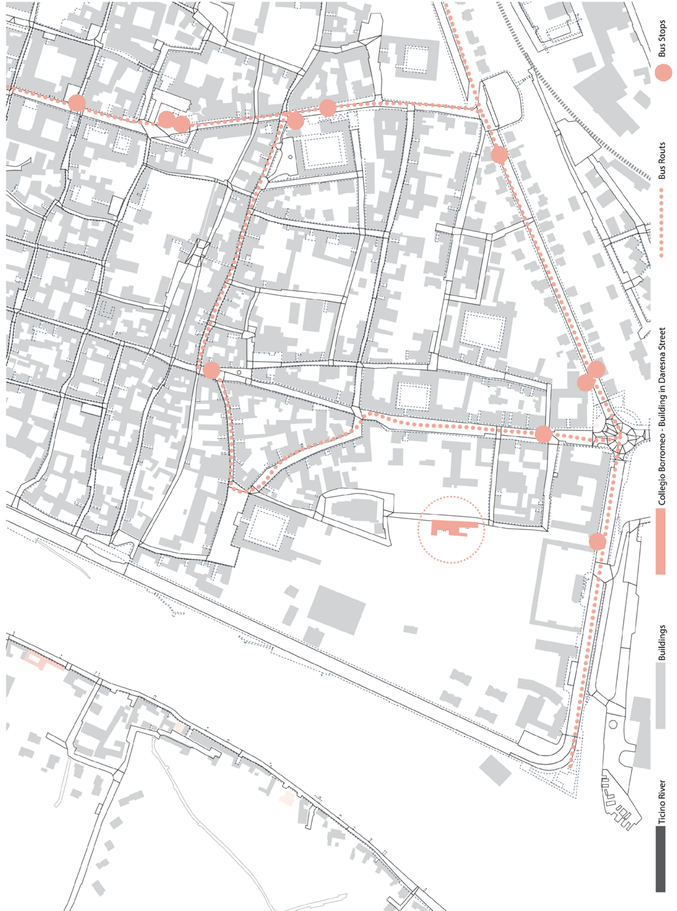
Building Functions

Related Neighbours

This neighborhood in Pavia is the heart of education and culture, home to Almo Collegio Borromeo and many other renowned colleges, schools, and institutions. Sitting by the Ticino River, it offers stunning views, a rich historical atmosphere, and a lively student presence. It's not just about academics—cafés, restaurants, and local services make it a welcoming and social place where students, professors, and visitors come together. The map highlights how different buildings serve the community, using colors to show which spaces are most connected to education and culture.



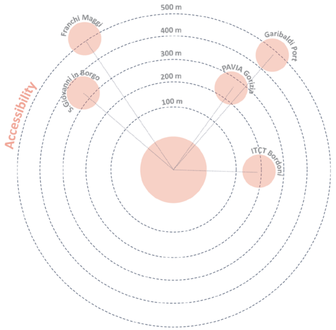
0 100 300 500 m



Public Transportation

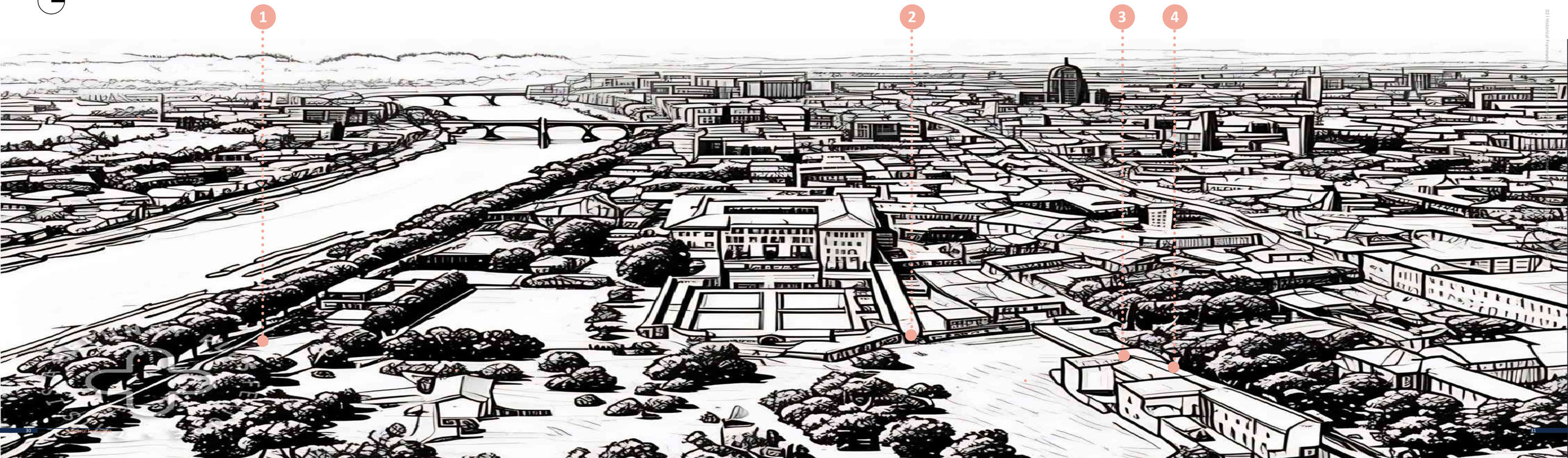
Bus Station and Routs

From Pavia's main train station, Almo Collegio Borromeo can be reached via public transportation by taking bus line 3, which stops near the station. Passengers should disembark at the "Pavia - Garibaldi/S. Giovanni In Borgo" stop, from where it is a short three-minute walk to the college. Alternatively, the college is accessible on foot from the station in approximately 24 minutes.



Site Plan

Entrance to Horti and Building



1

Entrance to Horti Park from Lungo Ticino Sforzta Street: Located along the picturesque Lungo Ticino Sforza Street, this entrance welcomes you to Horti Park with scenic views. It is a perfect spot for both nature lovers and urban explorers alike.

2

Entrance to Horti Park from Tosi Street: This entrance offers easy access to the serene Horti Park, surrounded by lush greenery. Located near the heart of the city, it provides a peaceful retreat from urban life.

3

Ex Church Sant'Antonio di Padova Entrance: The entrance to the Ex Church Sant'Antonio di Padova invites visitors into a historically rich area. The space once served as a church, now transformed into a venue of culture and reflection.

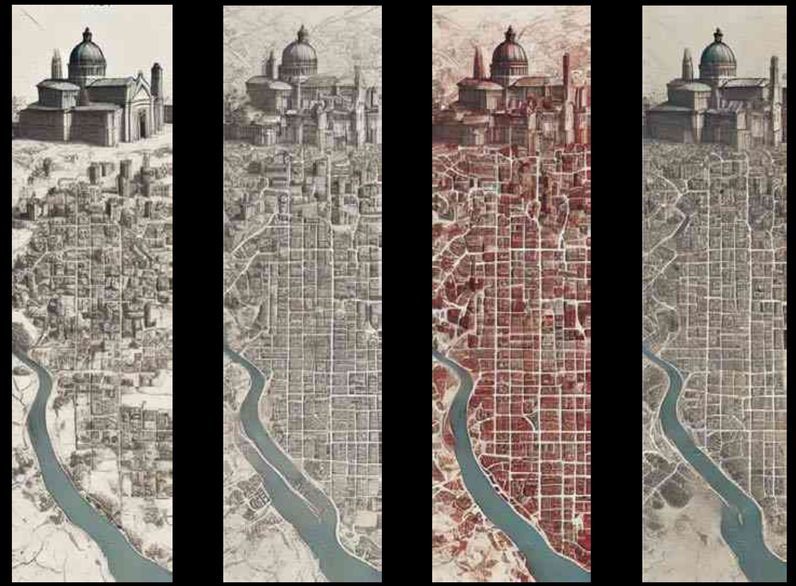
4

Entance from Galileo Vercesi Street: The entrance from Galileo Vercesi Street connects you to a charming pathway leading into the tranquil park. It's a calm, scenic way to explore the outdoor beauty of the area.

02

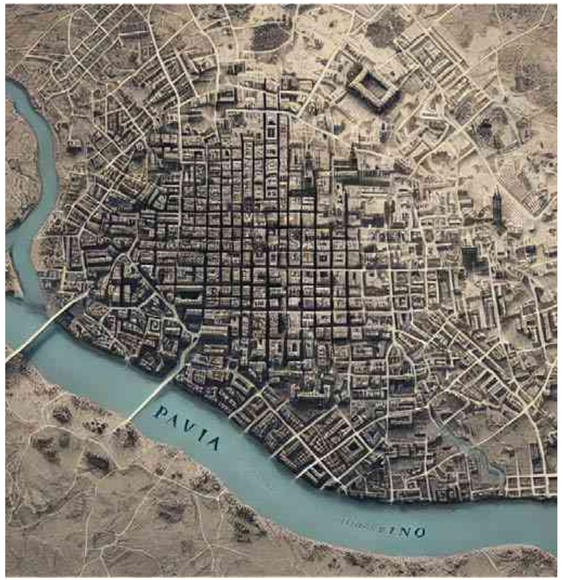
Historical Framework

- From Ticinium to Pavia
- Urban Development
- Background
- Historical Maps
- Urban Transportation
- Historical Timeline
- History of The Church
- Restoration of the Building



From Ticinum to Today Pavia

Urban Development



Pavia, a city with ancient roots, has a rich architectural history that spans from the Roman era through the Renaissance and Baroque periods, up to the present.

Foundation and Roman Architecture: Originally known as Ticinum, Pavia was a Roman settlement around the 1st century BCE. Roman Pavia had typical Roman urban planning, including grid-based streets, an amphitheater, and public baths.

Lombard Capital: After the fall of the Western Roman Empire, Pavia became the capital of the Lombard Kingdom in 572 CE. The Lombards introduced unique architectural elements, particularly in religious buildings.

Expansion of Religious Architecture: Pavia became a significant religious and cultural center, marked by the construction of several major Romanesque churches.

Gothic Influence: The Gothic period brought more ornate and vertical structures, along with pointed arches and decorative facades.

Renaissance Flourish under the Visconti and Sforza Dynasties: Pavia became a center for humanism and the arts, influenced by Renaissance ideals.

Baroque Ornamentation and Religious Architecture: This period brought grandiose and elaborate Baroque designs to Pavia's churches and palazzi.

Neoclassicism and Academic Expansion: The University of Pavia continued to expand, with neoclassical buildings that emphasized symmetry, order, and grandeur.

Adaptation to New Styles: Pavia incorporated modern architectural styles, including Art Nouveau and Rationalism.

Preservation and New Construction: Today, Pavia balances architectural conservation with modern construction projects, including the development of educational and research facilities.



Roman Era

1stCenturyBC-5thCenturyAD

Pavia, originally known as "Ticinum," was an important Roman settlement. A map layer could depict the organized Roman grid with main roads, public spaces, and the Ticino River, which played a significant role.



Medieval Era

6th - 14th Century

During the Lombard and later Carolingian periods, Pavia was a capital and expanded with fortifications. This map layer could show the medieval walled city with dense, irregular streets and key religious sites like the Basilica of San Michele.



Renaissance Era

15th - 17th Century

The Renaissance brought some urban renewal and the development of important structures, like the Certosa di Pavia monastery nearby. The map layer might illustrate a slight expansion beyond medieval walls and the influence of Renaissance architecture.



Modern City

18th Century - Present

Pavia continued to grow, with expanded suburbs, modern roads, and infrastructure reaching beyond historical walls. This map layer could show modern layouts surrounding the ancient core, with industrial and residential areas.

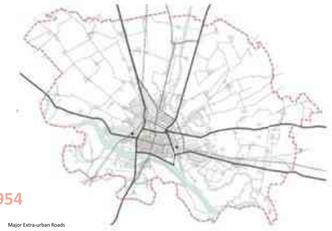
Urban Transportation Development

Reference: Silvia Mabfredi



1860

- Major Extra-urban Roads
- Major Urban Roads
- Other Roads
- Railway
- Train Station
- Walls
- Wall Gates



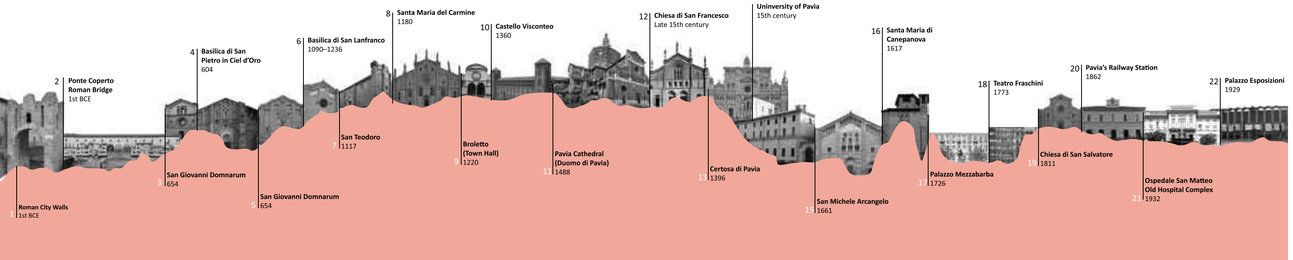
1954

- Major Extra-urban Roads
- Major Urban Roads
- Other Roads
- Railway
- Train Station



Now

- Major Extra-urban Roads
- Major Urban Roads
- Other Roads
- Railway
- Train Station
- Major Roads Since 1860
- Other Roads Since 1860



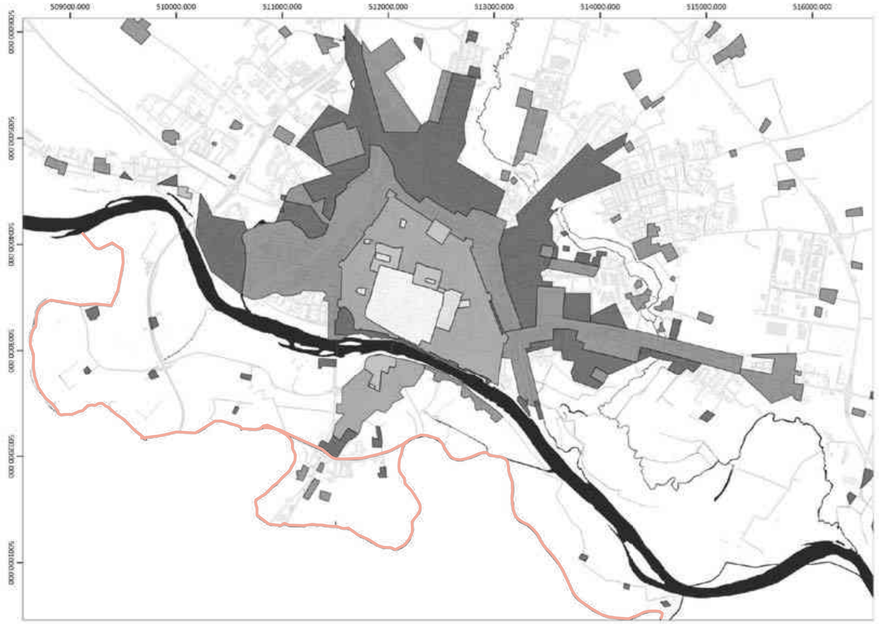
Historical Urban Development

Urban Expansion

- Roman
- Early Medieval
- Late Medieval
- Modern Age
- 19th Century CE
- 1954

- Building
- Municipality limit
- Road
- Ticino River

0 300 900 1500 m

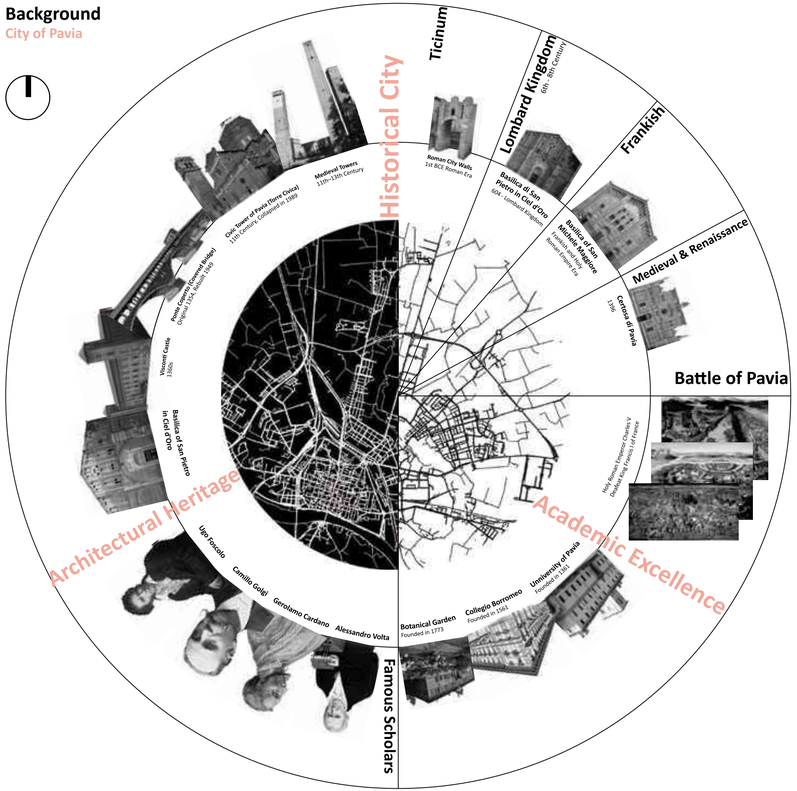


Reference

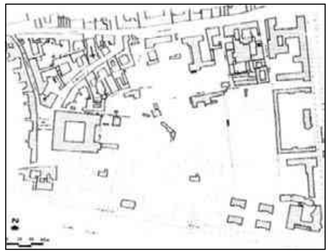
Pelfini, M., Brandolini, F., D'Archi, S., Pellegrini, L., & Bollati, I. (2020). Papia civitas gloriosa: urban geomorphology for a thematic itinerary on geocultural heritage in Pavia (Central Po Plain, N Italy). Journal of Maps, 17(4), 42–50. https://-doi.org/10.1080/17445647.2020.1736198

Background

City of Pavia



ALmo Collegio Borromeo, Site Plan from 1978



This site plan from 1978 showcases the Almo Collegio Borromeo's main building along with its surrounding structures, including the notable building on Darsena Street. It provides a glimpse into the historical layout of the area, reflecting the architectural context of that time.

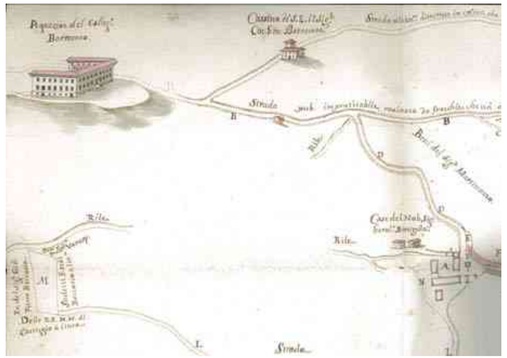
Reference

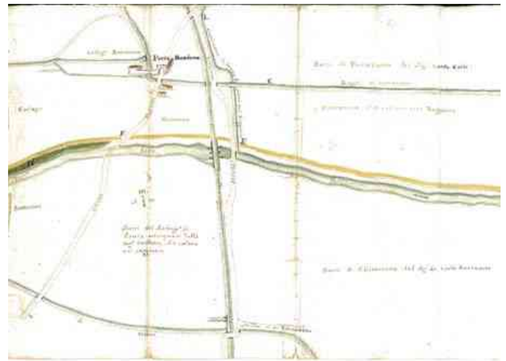
Calvi, G., & Erba, L. (1978). Almo Collegio Borromeo. I restauri dell'edificio settecentesco in via Darsena, sede della nuova Sezione Laureati Contardo Ferrini.

Historical Maps of Pavia

Related to Collegio Borromeo

An aechival map of the Collegio Borromeo's Pagezzera estate, showcasing its layout and agricultural infrastructure in th 17th century. An important seventeenth-century acquisition, after the alienation of the less productive lands of Santa Maria della Strada, was the Pegazzera estate (on the hills of Oltrepo pavese), in which an elegant building in charge was built both for the management of the farm and to serve as a representative villa and to accommodate staff and students of the College in the hot summer months.





References

L'architettura e la committenza, in 'Almum Studium Papiense' Storia dell'Università di Pavia, a cura di D. Mantovani, Vol. 1: Dalle origini all'età spagnola, Tomo II: L'età spagnola, Milano, Cisalpino, 2013, pp. 925-932; Un palazzo per la Sapienza. L'Almo Collegio Borromeo di Pavia nella storia e nell'arte, a cura di P. Pelosi, Pavia, TCP, 2014.

Historical Timeline
Almo Collegio Borromeo

1561./

Foundation Bull of Pope Pius IV

Pope Pius IV issued the bull Ad apostolicae dignitatis apicem, formally authorizing Saint Charles Borromeo to establish a university college in Pavia. Borromeo envisioned the college as a place for rigorous intellectual and moral formation for future leaders in both the Church and the Milanese state. He chose Pellegrino Tibaldi, a prominent Renaissance architect, to design a building in line with his ambitious educational goals.



1564./

First Stone Laid

On June 19, the first stone was laid to start construction, marking the physical beginning of Borromeo's vision. The project took over 20 years, and Borromeo made frequent adjustments to the design, including expansions to support the growing needs of the institution. This marked a significant moment, symbolizing the dedication of Saint Charles Borromeo, the driving force behind the college's founding, to create an institution that would serve as a center for academic and spiritual formation.



1568./

Giorgio Vasari

Pellegrino Bolognese, painter of sum expectation and beautiful ingenuity [...] Finally he gave a beginning in Pavia for Cardinal Bonromeo to a palace for Sapienza.

Description of the works of Francesco Primaticcio Bolognese, abbot of S. Martino, painter and architect, in "The lives of the most excellent Italian painters, sculptors and architects, from Cimabue up to our times", ed. 1568



1579./

Completion of Chapel of Santa Giustina

A chapel dedicated to Santa Giustina, the patron saint of the Borromeo family, was completed within the college. The chapel symbolized the spiritual dimension of the college, aligning with Borromeo's mission to provide not just academic but also moral and spiritual guidance to students.



1581./

First Students Admitted

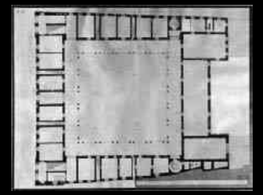
The year 1581 was pivotal for Collegio Borromeo, as it welcomed its first students, establishing the educational mission that Saint Charles Borromeo had envisioned two decades earlier. One of these inaugural students was Federico Borromeo, Charles's cousin, who would go on to become a distinguished cardinal and a key figure in the Catholic Reformation. Here's a closer look at the events of 1581 and Federico Borromeo's role in shaping the legacy of the college.



1588./

Completion of the Main Building

In 1581, Collégio Borromeo's main building was nearing completion, solidifying its status as a prominent educational institution. After years of construction and dedication, the building was finally ready to welcome its first cohort of students in April, establishing it as a home for rigorous scholarship and religious training. Designed by renowned architect Pellegrino Tibaldi under the commission of Saint Charles Borromeo, the college's architecture was inspired by Renaissance ideals of beauty, order, and functionality.



1604./

Decorative Additions by Cesare Nebbia and Federico Zuccari

In 1604, Collegio Borromeo was further enriched by a significant artistic contribution that brought its spiritual and cultural heritage to life through art. The grand hall, or "Aula Magna," on the upper floor was adorned with a series of frescoes dedicated to Saint Charles Borromeo, the college's founder. These frescoes were painted by Cesare Nebbia and Federico Zuccari, both prominent Italian painters of the late Renaissance, known for their religious art and elaborate detailing.



1620s./

Expansion by Francesco Maria Richini

Architect Francesco Maria Richini added an eastern wing featuring a baroque fountain and an Italian garden (hortus conclusus), completing the building's quadrilateral design. The garden served as a contemplative space, aligning with the college's mission to provide an environment conducive to both



18th Century./

Educational Focus

The college became a key institution for educating future leaders in law and the Church. Its graduates often held high-ranking positions, such as bishops and cardinals, and the college's prestige grew as it produced influential figures in Milanese government and the Catholic Church. Renato II oversees the maintenance and enhancement of Collegio's facilities, including structural repairs, architectural upgrades. Collegio Borromeo's alumni were frequently recruited into significant positions within the Milanese government and the Catholic Church. Key figures of this era included Cesare Monti, who became the Archbishop of Milan, Federico Visconti and Giuseppe Pozzobonelli, both cardinal-archbishops of Milan, and Marco Arese,.



1816./

Stendhal's Visit

In 1816, the Collegio Borromeo in Pavia was noted by the French writer Stendhal during his travels in Italy, a significant moment in the college's modern history.
December 15, 1816 [...] I had come to Pavia to see the young Lombards who study in this university, the most
scholar from Italy [...] I was very pleased with the architecture of the Borromeo College; it is by Pellegrini, the author of
the church of Rha, on the road from Milan to Simplon.

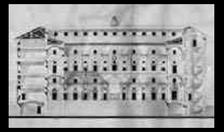
Rome, Naples and Florence, 1826



1818-1820./

Architectural Enhancements by Giuseppe Pollak

Architect Giuseppe Pollak redesigned the river-facing side of the college, including the addition of a wrought iron gate adorned with the Borromeo emblems. This completion solidified the college's classical look, preserving Pellegrini's original vision while modernizing parts of the structure.



1818-1820./

Alessandro Manzoni

Former Senator of the Kingdom of Italy, In 1580, [Federico Borromeo] he expressed the resolution to devote himself to the ecclesiastical ministry, and took the habit of the Church.
from the hands of his cousin Charles, who a fame, already ancient and universal, preached saint since then. He went in little
later in the college founded by this in Pavia, and which still bears the name of their country.

The betrothed, chapter XXII



1915-1918./

World War I

During the First World War, Collegio Borromeo was requisitioned by the Italian government and transformed into a military hospital to aid in the war effort. The college's residential and communal spaces were repurposed to accommodate wounded soldiers, with dormitories converted into wards and medical facilities. This adaptation brought lasting changes to the building's infrastructure, including new medical and sanitation installations designed to meet hospital needs. The period left a lasting impact on the college, and once the war ended in 1918, extensive work was required to restore Collegio Borromeo's educational environment and historic architecture.



Early 1900s./

Modernization

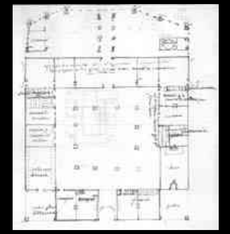
Technological upgrades include the installation of electrical, heating, and telephone systems. A new floor, known as the "iperuranium," is added to house students, and the underground area is renovated for use as a library, multimedia rooms, and recreational spaces.omeo's role in shaping the legacy of the college.



1920s./

Continuation of Expansion

Francesco Maria Richini's intervention is completed, defining the eastern side with the Italian garden, incorporating a Baroque-style fountain, and adding a wrought-iron gate bearing Borromean emblems. This included the continuation of Francesco Maria Richini's work, with the focus on the integration of the eastern side of the building and the development of the gardens surrounding it. The "hortus conclusus", a key feature of the college.



1926-1936./

Residence of Poet Venceslav Ivanov

During the years 1926 to 1936, the college hosted Venceslav Ivanov, a prominent Russian poet and philosopher, known for his contributions to Russian Symbolism. Ivanov's residence at Collegio Borromeo was significant both culturally and academically, as he influenced the intellectual atmosphere of the institution. His presence marked the college as a center not only for traditional academic studies but also for cultural exchange



1957./

Reflections by Rector Cesare Angelini

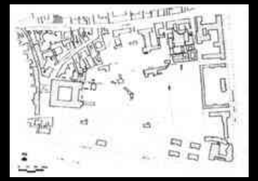
Founded for a few dozen students [...] this Borromeo reveals what was the young man for the people of the sixteenth century: the respect for his dignity, the trust in the high promises he carried with him and they also had to find materially the place where to mature and implement. And even today the Founder imposes his style on those who enter, inviting him to a patrician sense of life and to the awareness of the praiseworthy works. It is, without a doubt, one of the first Colleges of Italy [...] It can be well said biblically that in Pavia the Borromeo College is the house that cheers up the city: with the impetus of its achyethttone lines, the power of its bulk that sees the passing of the centuries and over it, the majesty of its hall celebrated by frescoes always in palpi, the breath on the river and on the "coherent" gardens;The first of the students.



1976./

New Section for Recent Graduates

In November 1976, Borromeo College in Pavia established a new section for recent graduates pursuing advanced studies, focusing on qualification rather than expansion. This new facility aims to provide affordable accommodation in a conducive environment to support serious academic endeavors.



1990s./

Restoration and Preservation

Restoration of historic gardens, updating of library facilities, and addition of multimedia spaces. Renovation of the Renaissance building on Via Perelli provides a new administration building. Restoration and preservation efforts aimed at both maintaining its historical and architectural integrity and adapting the college to modern educational needs.



2009./

Opening of the Women's Section

n 2009, Collegio Borromeo marked a significant turning point in its history by opening its doors to female students. This was a landmark decision, as the college had previously been a male-only institution since its foundation in 1561.



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G. Angelini, *I collegi della Riforma cattolica. L'architettura e la committenza, in 'Almum Studium Papiense' Storia dell'Università di Pavia*, a cura di D. Mantovani, Vol. 1: Dalle origini all'età spagnola, Tomo II: L'età spagnola, Milano, Cisalpino, 2013, pp. 925-932

Un palazzo per la Sapienza. L'Almo Collegio Borromeo di Pavia nella storia e nell'arte, a cura di P. Pelosi, Pavia, TCP, 2014.

Modern Day./

In the modern era, Collegio Borromeo continues to be a vital institution, blending its historic legacy with modern educational practices, infrastructure, and cultural significance. Today, the college is regarded as a prestigious and historically significant institution in Pavia, and its operations are focused on the continued preservation of its rich architectural and cultural heritage, while also meeting the evolving needs of its students.

As a centuries-old institution, Collegio Borromeo is an ongoing historical, architectural, and artistic monument. The college maintains a careful balance between historical preservation and modernization:

Regular Maintenance and Restoration: The college regularly carries out restoration work on its artistic and architectural elements, ensuring that the frescoes, paintings, sculptures, and historical structures remain intact. This includes the restoration of the frescoes in the Chapel of Santa Giustina and the Hall of the College, as well as the facade and other key architectural features.

Preserving the Gardens: The Borromaric Horti, the historic gardens, are also regularly maintained, ensuring they retain their historical significance while adapting to modern landscaping practices.

16th Century

Founded in 1561 by Saint Charles Borromeo, Collegio Borromeo began construction, added the Chapel of Santa Giustina, and officially opened to students by 1588.

17th Century

Expansion continued, with artwork by Cesare Nebbia and Federico Zuccari, and architect Francesco Maria Richini completing the quadrilateral structure and gardens.

18th Century

The college established itself as a premier institution for jurists and clergy, gaining prominence within the Church and Milanese state.

19th Century

Giuseppe Pollak enhanced the building's southern façade, and Stendhal praised its architecture during his visit in 1816.

20th Century

Repurposed as a military hospital during WWI, Collegio Borromeo later modernized with electric and heating systems, hosted Russian poet Vyacheslav Ivanov, and expanded under Rector Cesare Angelini.

21st Century

Extensive restorations preserved its historic spaces, and in 2009, the college opened a section for female students, continuing its legacy as a vital educational landmark.

History of the Church
Saint'Antonio di Padova

1740 - 1756./

Construction Church if Sant'Antonio

The Church of Sant'Antonio was constructed in the Lombard Baroque style, with influences from renowned architects such as Veneroni and Cassani in 1740-1765. The church was oriented north (unusual for churches of the time, which typically faced west), aligning with the adjacent building and allowing street access for the faithful.
The layout featured a strictly rectangular plan and two distinct sections: The external church (public-facing area for the faithful). The internal church (private space reserved for patients of the institution).



1790./ Early 19th ./

Decoration of Church if Sant'Antonio

The layout of the church and the adjacent complex was documented by Engineer Ratti as part of a sale process. The church had a divided interior and showcased elaborate Baroque decorations in its public section.
The marble coat of arms above the entrance was chiselled away during the French Revolution, as was typical for ecclesiastical symbols of that era



Demolition Southern Wing

A significant portion of the southern wing of the complex (adjacent to the church) was demolished, as indicated in city plans from 1823 onward. The complex's overall structure was reduced, with the church and a few other buildings remaining intact.



Mid 19th./ 20th Century./

Transformation to Accommodation

Alterations in the complex's function led to the introduction of partitions and modifications to accommodate multiple families. These changes negatively impacted the church's original layout and architectural integrity.

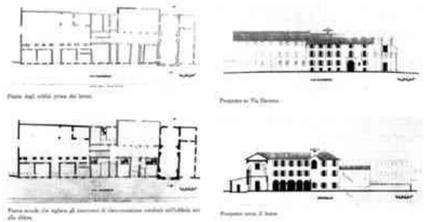


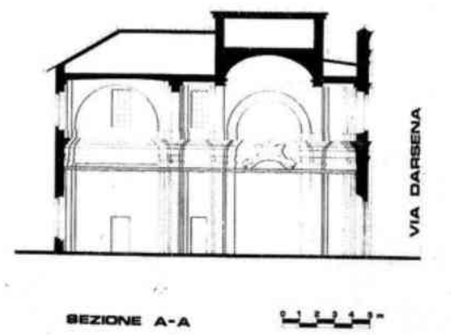
Abandonment

The church, along with other parts of the complex, fell into abandonment and disrepair. The roof and structural elements were heavily damaged due to weathering and lack of maintenance.



Restoration of the Building
Collegio Borromeo, Building in Darsena Street





Reference

Calvi, G., & Erba, L. (1978). Almo Collegio Borromeo. I restauri dell'edificio settecentesco in via Darsena, sede della nuova Sezione Laureati Contardo Ferrini.

Before

After

Foyer to Hall





Foyer to Exhibition





Stair Case





Summary

Historical Timeline

1561
Foundation

Pope Pius IV issues the charter Ad apostolicae dignitatis apicem, allowing Saint Charles Borromeo to found a university college in Pavia.

1564
Construction Begins

The first stone is laid on June 19; Pellegrino Pellegrini (Tibaldi) is the lead architect.

1579
Chapel of Santa Giustina

The building was equipped with a chapel dedicated to Santa Giustina, patron saint of the Borromeo family.

1581
First Students Admitted

A boarding community is established, including Saint Charles' cousin, Federico Borromeo.

1588
Completion of the Main Building

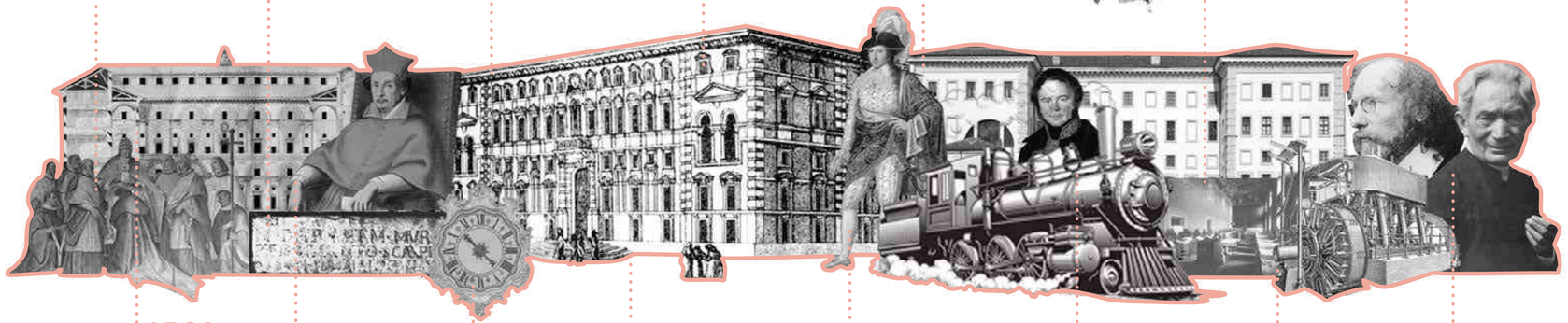
The building was completed in 1588, when it officially welcomes the first pupils.

1603
Hall Decoration

Paintings depicting the life of Saint Charles Borromeo are completed by Cesare Nebbia and Federico Zuccari.

1620s
Expansion by Francesco Richini

Adds the eastern section with a Baroque fountain and an Italian garden (hortus conclusus), completing the quadrilateral structure of the building.



18th Century
Prominent Institution

The college primarily educating jurists and clergy for roles in the Church and Milanese state. The college grow both in physical scope and reputation.

Mid-18th
Expansion and Modernization

Renato II oversees the maintenance and enhancement of Collegio's facilities, including structural repairs, architectural upgrades

1818 - 1820
Architectural Enhancements

Giuseppe Pollak Completes the river-facing side of the building, adding a new southern façade.



1816
Stendhal Visits

Notes the elegance of Collegio Borromeo's architecture in his travel memoir, Rome, Naples et Florence.

World War I
Military Hospital Transformation

The college is repurposed as a military hospital.

1900s
Technological Upgrades

Technological upgrades occure du to the installation of electrical, heating, and telephone systems.

1926-1936
Russian Poet Venceslav Ivanov Residence

Venceslav Ivanov Lives at the college, contributing to its cultural history.

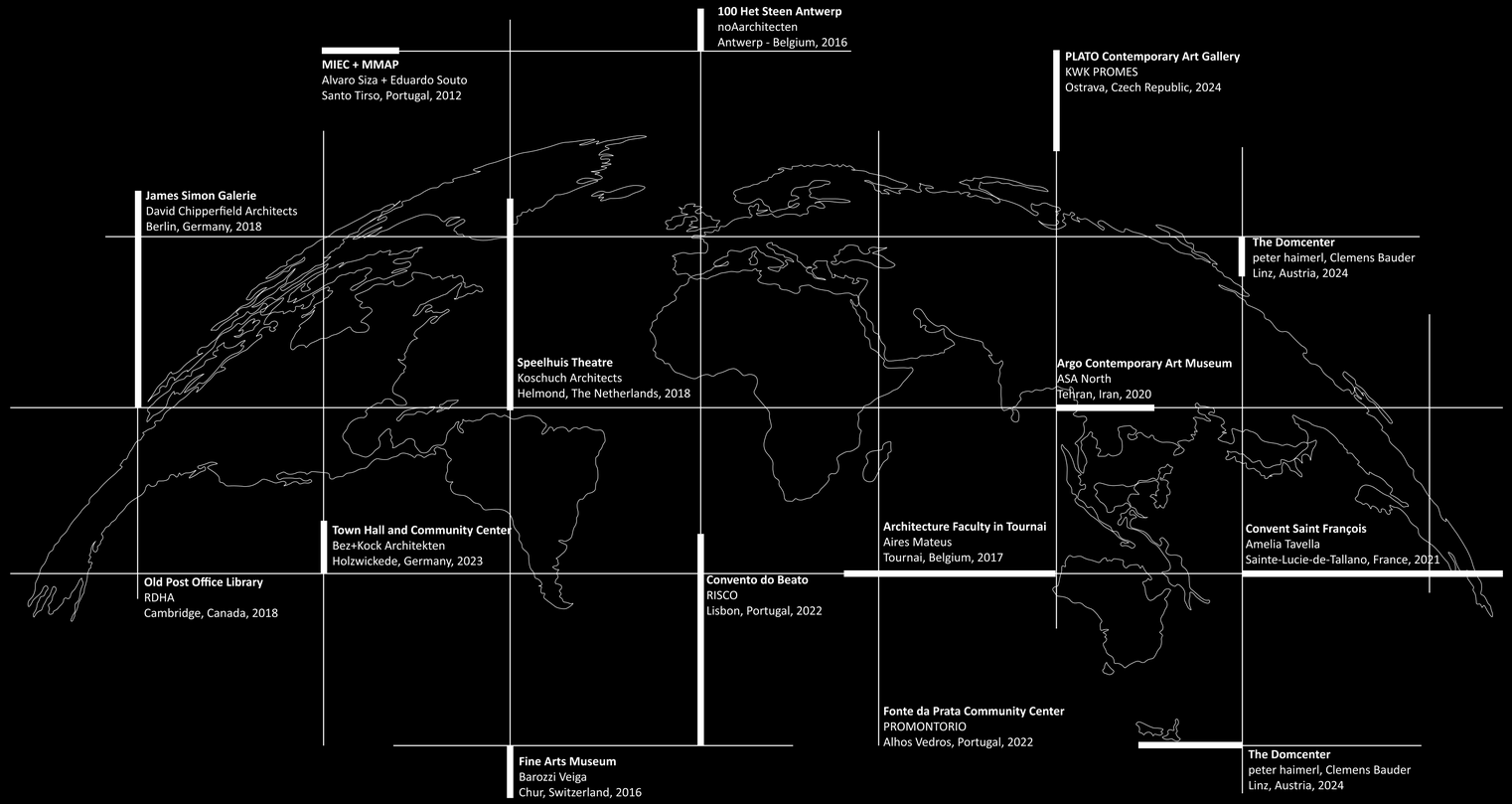
1957
Cesare Angelini

Angelini, then-rector, emphasizes the college's enduring role in Italian education.

03

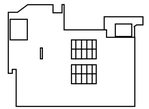
Comparative Analysis

- 100 Het Steen Antwerp
- PLATO Contemporary Art Gallery
- MIEC + MMAP
- The Domcenter
- James Simon Galerie
- Speelhuis Theatre



100 Het Steen

Antwerp, Belgium



The project developed by RISCO, for Beato Lux, includes the re-modeling of the Events Centre and the renovation/refurbishment of the remaining buildings for new uses, namely, services in the old church and housing in the old industrial buildings. The project also includes the construction of two car parks, one above ground and one underground, and various outdoor spaces.





The facades are made of brick in colours that follow the palette of the old natural stone castle wall. The dark base with the lighter stones in the upper layers are carried over into the extension, albeit with a very gradual gradient.



The brickwork is supplemented with architectural concrete for important elements in the facades. The closed nature of the new wall at quayside level fits in perfectly with the urgent protection against rising water levels.



The interiors are characterised by sober materials: brick walls, natural stone or wood floors. Generous staircases connect the whole. Traditional elements such as fireplaces and bay windows create a delicate and intimate atmosphere, which also allows for easy integration of contemporary technical installations.

Key Insights:

- Material Choice, Brick Gradient System
- Harmony with Surrounding

https://divisare.com/projects/502226-noaarchitecten-kim-zwarts-100-het-steen
https://noaarchitecten.net/projects/73/100-het-steen-antwerpen

PLATO Contemporary Art Gallery

Ostrava, Czech Republic

By saving a historic building and turning it into an art gallery, we introduced a solution that makes art more democratic. Thanks to the revolving walls, it goes outside the building in an unusual way. We transformed the space around the gallery, which was previously contaminated, into a biodiverse art park for the benefit of the residents.

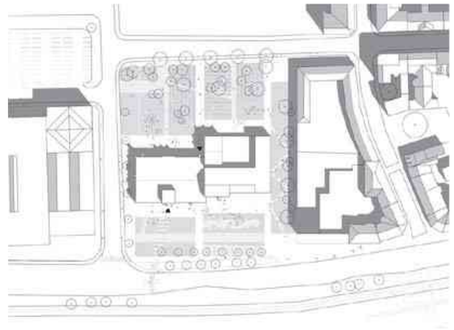




The walls of the slaughterhouse were dilapidated and battered in many places by huge holes. The sooty brickwork bore witness to the city's industrial history.



The main idea of the project is based on preserving the functionality of the openings as shortcuts connecting the building to the city.



Hence the idea that their new infills could rotate and open the exhibition halls directly to the outside. Mobility has meant that culture in the broader sense has the opportunity to become more democratic, as well as accessible to new audiences.

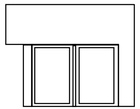
Key Insights:

- Bold Interventionof Opening
- Mobile Walls for Spatial Flexibility
- Engagement with the Urban Context

"PLATO Contemporary Art Gallery / KWK PROMES" 29 Mar 2024. ArchDaily. Accessed 11 May 2025. <https://www.archdaily.com/1015028/plato-contemporary-art-gallery-kwk-promes> ISSN 0719-8884

MIEC + MMAP

Santo Tirso, Portugal



Respecting and following the preliminary program delivered by the Municipality, the proposal is based on the construction of a new building to house the MIEC collection and renovation of the building where currently operates the MMAP. The connection between the two buildings is punctual and although functionally connects both, it allows to keep them independent in form and language.

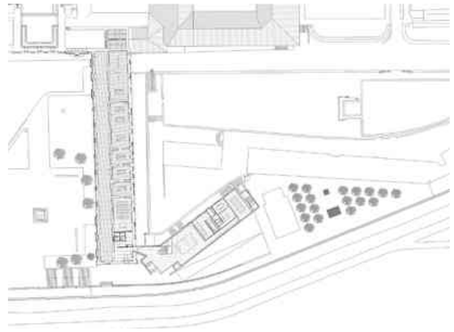




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Key Insights:

- Minimalist Material Palette
- Concrete Walls that Can Open and Close
- Architecture as Art

"MIEC + MMAP / Alvaro Siza + Eduardo Souto de Moura" 03 Jun 2016. ArchDaily. Accessed 11 May 2025. <https://www.archdaily.com/788789/miec-plus-mmap-alvaro-siza-plus-eduardo-souto-de-moura> ISSN 0719-8884

The Domcenter

Linz, Austria

The neo-Gothic cathedral in Linz is one of the largest church buildings in Austria and was constructed between 1865 and 1924. However, Catholic communities face challenges: membership numbers are declining, and the church's societal relevance is decreasing.

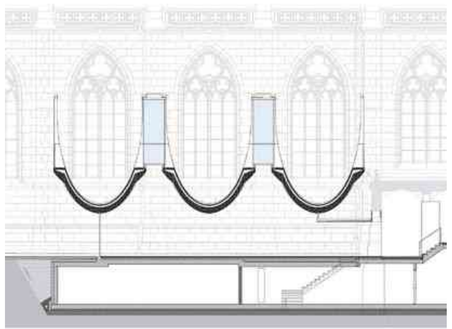




A key element of this strategy is the new Domcenter on the east side of the cathedral. It complements the existing church building with a modern, welcoming entrance for cultural institutions such as museums or concert halls.



Visitors are greeted by a bright café and a bookshop. From there, they pass through the former sacristy of the east chapel to reach the liturgically appropriate entrance of the "Wegekirche" in the north.



The Domcenter serves as the starting point for cathedral tours and offers multimedia experiences, as well as an exhibition of the cathedral treasury in the east chapel. A two-story, walkable exhibition space presents sacred, liturgical, and cultural content in both analog and digital formats.

Key Insights:

- Human-Scale Design
- Public Space Activation
- Material Restraint and Elegance

"The Domcenter / peter haimerl . architektur + Studio Clemens Bauder" 10 Apr 2025. ArchDaily. Accessed 6 May 2025. <https://www.archdaily.com/1028432/the-domcenter-perter-haimerl-architektur> ISSN 0719-8884

Convento do Beato

Lisbon, Portugal

The project developed by RISCO, for Beato Lux, includes the re-modeling of the Events Centre and the renovation/refurbishment of the remaining buildings for new uses, namely, services in the old church and housing in the old industrial buildings. The project also includes the construction of two car parks, one above ground and one underground, and various outdoor spaces.

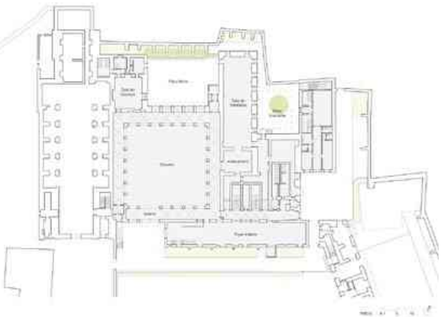




There was also a more technical side to the refurbishment, involving the replacement of the telecommunications, energy, and security systems, a restoration of the kitchen, etc. There was the more creative side to the work, design of the administrative building, the courtyards, the new sanitary facilities, walkways for the library's emergency exits.



There were also the "surgical operations" required in the library, foyer, refectory, and chapter room, to install the air-conditioning system, double the number of roof support trusses, and alter window and door spans. The most important transformation took place in the cloister, the space that hosts larger-scale events.



The design for the new ceiling resulted from a long process of technical and formal research. The solution adopted consists of a system of orthogonally arranged trusses that form a set of "honeycombs" that are lit from above by skylights. The new skylights offer thermal and acoustic insulation from the outside and open mechanically in the event of fire. The "honeycombs" have been clad with highly efficient sound absorbent material, which has greatly increased interior comfort and sound quality.

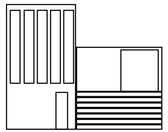
Key Insights:

- Ceiling Creative Design; Honeycombs
- Enhanced Accessibility and Infrastructure
- Cultural Continuity

"Convento do Beato Event Center / RISCO" [Centro de Eventos do Convento do Beato / RISCO] 30 Oct 2023. ArchDaily. Accessed 11 May 2025. <https://www.archdaily.com/991210/convento-do-beato-event-center-risco> ISSN 0719-8884

James Simon Galerie

Berlin, Germany



As a continuation of Friedrich August Stüler's forum architecture, the James-Simon-Galerie serves as the new entrance building for Museum Island, completing the ensemble between the Kupfergraben canal and Neues Museum. Together with the 'Archaeological Promenade', it forms the backbone of the master plan that was developed in 1999 and adopted as the basis for all further planning on Museum Island.

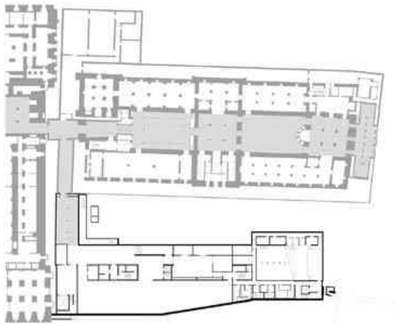




The entrance building is named after one of the city's most important patrons, James Simon, who bequeathed his art collections and excavation findings to the Berlin State Museums at the beginning of the twentieth century.



The architectural language of the James-Simon-Galerie adopts existing elements of the Museum Island, primarily from the external architecture. Three flights of wide steps, invite visitors into the building.



The materiality of the building in reconstituted stone with natural stone aggregate blends in with the rich material palette of the Museum Island with its limestone, sandstone and rendered façades, while smooth in-situ concrete dominates the interior spaces.

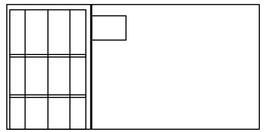
Key Insights:

- Gateway to Culture
- Integrated Circulation Strategy
- Timeless Design Philosophy

"James-Simon-Galerie / David Chipperfield Architects" 09 Oct 2019. ArchDaily. Accessed 6 May 2025. <https://www.archdaily.com/926033/james-simon-galerie-david-chipperfield-architects> ISSN 0719-8884

Town Hall and Community Center

Holzwickede, Germany



The extension of the historic town hall in Holzwickede offered the opportunity to merge the market square in terms of urban development and to give the town hall itself a new wholeness. The listed town hall, built in 1915, was preserved and recognizable as a solitary structure.





The new town hall develops around a central hall with square skylights. The hall forms the foyer of the citizens' hall, is the contact point of the citizens' service, a central place of communication in the town hall, and a museum hall in which the historic building exhibits itself.



Together with the new part of the building, it forms a functional and typological whole. From the dead-end-like short corridors of the historic town hall, a circumferential access system was created that combines simple orientation with short distances.



A small bistro to the side of the main entrance enlivens the adjacent marketplace with its outdoor catering and also caters for events in the building. The interiors of the old building were renovated in accordance with the preservation order. In this way, the atmospheric qualities of the historic town hall, which had been lost over the years, could be made perceptible again.

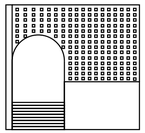
Key Insights:

- Clarity in Layout and Circulation
- Warm, Durable Material Palette
- Inviting and Transparent Public Interface

"Town Hall and Community Center / Bez+Kock Architekten" 12 Oct 2023. ArchDaily. Accessed 6 May 2025. <https://www.archdaily.com/1008123/town-hall-and-community-center-bez-plus-kock-architekten> ISSN 0719-8884

Convent Saint François

Sainte-Lucie-de-Tallano, France



Amelia Tavella has just completed the rehabilitation and extension of the Convent Saint-François, in Santa-Lucia di Tallano, Corsica. This partially ruined building from 1480, a historical monument, had been abandoned for a very long time. With his back to the cemetery, he overlooks the village he is watching. It has a front and a backstage.

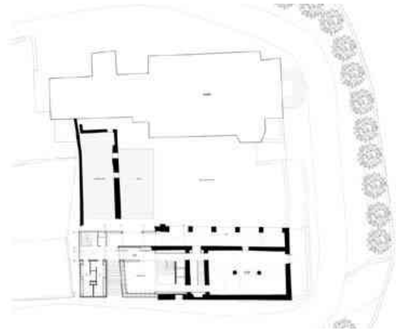




Nature has grown inside the building, Siamese nature slipped between the stones and then transformed into plant armor that protects against erosion and collapse. A fig tree is included in the facade. The wood, the roots become structural replaced the lime.



An essential component of the historic monument, we have honored this nature which will have long protected the dormant building before its resurrection. It has chosen to keep the ruins and replace the torn part, the phantom part, in copper work which will become the House of the Territory.



Like the mountain scene, Amelia Tavella retraced the blueprint, concerned with the symmetry of Beauty, nothing should strike the eye. She's haunted by the obvious. Each work is a work of love. Love of the place, of the building, of its mutation as one could say of a species which transforms itself from what it has been. The copper allowed a gesture of softness, it is feminine like stone.

Key Insights:

- Distinguishable New Elements from the Old Structures.
- Retains imperfections, textures, and gaps in the original masonry.
- Material Contrast

"Convent Saint François / Amelia Tavella" 12 Aug 2022. ArchDaily. Accessed 6 May 2025. <https://www.archdaily.com/966028/convent-saint-francois-amelia-tavella-architectes> ISSN 0719-8884

Architecture Faculty in Tournai

Tournai, Belgium

The project occupies the interior of a historical city block where buildings from different identities and periods coexist. There are two industrial buildings and a convent that has been used as a hospital. The new building is positioned in order to bond together each of these structures and to define new external spaces.

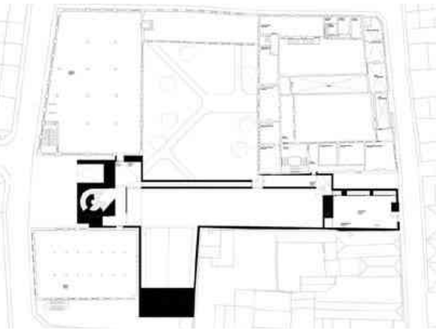




The new building is positioned in order to bond together each structures to define external spaces.



All the existing buildings are connected vertically and horizontally throughout the block.



Inside, public functions are sheltered, like the foyer and auditorium, operating not only as passage spaces and meeting places but also as a part of a new identity.

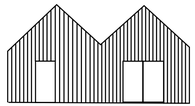
Key Insights:

- Duality of Old and New
- Open and Flexible Interior Layout
- visual connection

"Convent Saint François / Amelia Tavella" 12 Aug 2022. ArchDaily. Accessed 6 May 2025. <https://www.archdaily.com/966028/convent-saint-francois-amelia-tavella-architectes> ISSN 0719-8884

Fonte da Prata Community Center

Alhos Vedros, Portugal



Located in the Municipality of Moita, 40 km south of Lisbon, the Santa Rafaela Maria Foundation is a charity established in 1992 to oversee and develop social projects with families and children. With a focus on prevention of school drop-out, it daily assists about 70 children and teenagers with learning impairments, mostly coming from destitute families and dysfunctional environments.





In terms of the program, the master plan comprises lecture rooms and workshop space, a kitchen and canteen, the foundation's main center, a chapel, lodging for volunteers, and storage for summer camp apparel and equipment.



While partially using its foundations and part of its perimeter walls, the footprint and the double-gable roof of the existing building were largely maintained, with one volume used as a multifunctional space, and the other as five lecture rooms.



n stark contrast with the palace, the lecture hall building is fully clad wall-to-roof in an insulated sandwich panel of aluminum and polyurethane, tinted with a graphite ash pigment. This particular choice of material was led by both budget and maintenance costs, as well as the prevention of vandalism and intrusion.

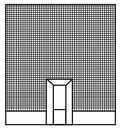
Key Insights:

- Affordable and Accessible Materials
- Covered Outdoor Areas
- Transparency, Informality, and Human Scale

"Fonte da Prata Community Center / PROMONTORIO" [Centro Comunitário Fonte da Prata / PROMONTORIO] 08 Oct 2023. ArchDaily. Accessed 11 May 2025. <https://www.archdaily.com/1007385/fonte-da-prata-community-center-promontorio> ISSN 0719-8884

Fine Arts Museum

Chur, Switzerland



The extension of the Villa Planta, which will accommodate the Bündner Kunstmuseum, is an exercise of integration within an urban ensemble. Despite the stringent limitations of the plot, the design strives to minimize its exterior volume by inverting the program's logical order. Hence, a new public space is generated that incorporates the garden that surrounds the Villa and is integrated with the gardens of the nearby buildings.

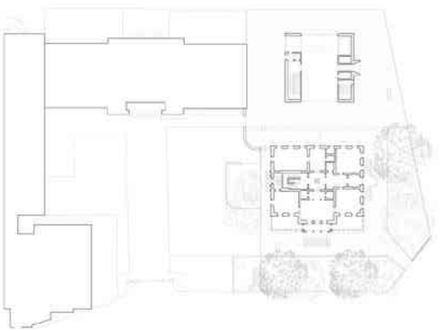




This programmatic reversal consists of situating the exhibition spaces below ground level, in such a way that the emerging volume, above street level, contains only the public access spaces.



The volume's reduced footprint makes it possible to extend the existing garden and improves the cohesion of the ensemble. Each building displays its own identity, based on common principles, to reinforce the idea of a whole.



The process of the purging of super uous elements which began with the designs for Piloña and Lausanne reaches a point of maturity in the Bündner Museum. Here, the design strips away everything that is not structure, construction and programmatic division, all united in a single whole.

Key Insights:

- Monolithic Concrete Volume
- Rhythm, Refinement, and Material Depth
- Silent yet Powerful, Timeless Architecture

"Fine Arts Museum / Estudio Barozzi Veiga" 03 Aug 2016. ArchDaily. Accessed 11 May 2025. <https://www.archdaily.com/792507/fine-arts-museum-barozzi-veiga> ISSN 0719-8884

Idea Exchange Old Post Office Library

Cambridge, Canada



Canada's first "bookless" library dedicated to Makerspaces, the Idea Exchange Old Post Office offers Cambridge residents free access to an array of spaces for learning and creativity, and a new, central hub for meeting and socializing. Anchored on the bank of the Grand River, the project reignites a landmark

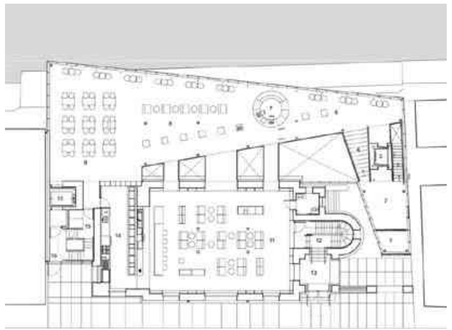




The multidimensional architecture communicates from all sides, exuding intelligence and practicality as it deftly merges old and new. The forms using customized off the-shelf materials, maximizing utility, appearance and economy.



The Idea Exchange Old Post Office is an emblem of civic pride, of advances in communication technologies, and of the corresponding transformation of the Cambridge library system, which in 2015 rebranded itself as the Idea Exchange.



The openings in the floor allow natural light from skylights to reach the lower level, and also connect the activities below to the heart of the building. There is care and efficiency in the details, stone patterns on the façade of the heritage building inspired a custom ceramic frit pattern on the glazing that reduces solar heat gain.

Key Insights:

- Blending Past and Future
- Architectural Transparency and Lightness
- Concrete, Steel, and High-performance Glazing

"Idea Exchange Old Post Office Library / RDHA" 06 Jun 2019. ArchDaily. Accessed 11 May 2025. <https://www.archdaily.com/918530/idea-exchange-old-post-office-community-center-rdha> ISSN 0719-8884

Speelhuis Theatre

Helmond, The Netherlands

When the old Speelhuis Theatre from structuralist architect Piet Blom (1977) burned down, the theatre found refuge in a mostly vacant Catholic church. In this period the church turned out to be a perfect backdrop for a whole range of activities and performances. It was then decided that the theatre should stay in the church permanently with some necessary extensions and improvements.

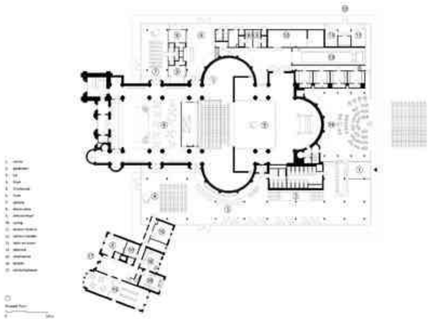




Now, a transparent and modestly sized pavilion embraces the existing Catholic church. The transparent, horizontal character of the new low building allows for the visibility of the historic buildings and the church.



The exterior of the church will become the interior of the new building, strengthening the cohesion and ambiance of the space. It is a creative interplay between exterior and interior, openness, transparency, and a distinct architectural form.



Careful integration within the urban environment strengthens the connections to the surrounding buildings and the city center as well as enhancing the public route around the building. The main entrance of the theatre will front a new cultural square, giving the building a fitting position within the city.

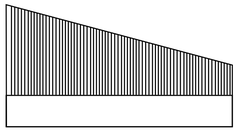
Key Insights:

- Light, Modular Structures
- Verticality, Arches, and Vaulted Ceilings
- Symbol of Cultural Resilience

"Speelhuis Theatre / Frits van Dongen Architecten en Planners + Koschuch Architects" 16 Jul 2019. ArchDaily. Accessed 11 May 2025. <https://www.archdaily.com/921033/speelhuis-theatre-frits-van-dongen-architecten-en-planners-plus-koschuch-architects> ISSN 0719-8884

Waihinga Martinborough Community Centre

Martinborough, New Zealand



The Martinborough Town Hall is the realization of a bold new vision that brings its multiple community groups together in a warm embrace. Identity matters within any community project; to understand this, you must understand the people who live, work and engage in that environment. The overall inspiration for the community center came from the unique landscape of the Wairarapa region, the heroic town founders and the vibrant local community.

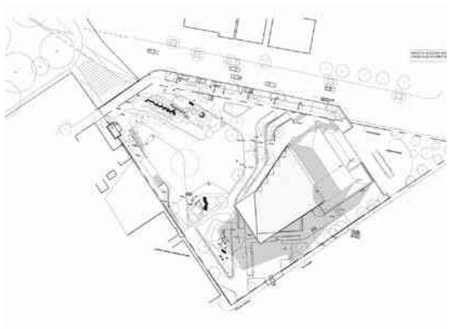




The new facility is home to a library, café, back-of-house support spaces, visitor center, and Plunket – a not-for-profit national health service providing support services for the development, health, and wellbeing of children .



The design response upgrades the much-loved and enduring Town Hall by seismically strengthening the building in a sympathetic and unobtrusive manner while retaining existing heritage qualities by refining the entry sequence.



The new extension relates to the heritage building by expression of scale, juxtaposing the lightweight timber and steel, transparent and open structure against the robust form of the Town Hall. A glazed seismic separation fixes the veranda-like extension to the existing Town Hall, acknowledging the old and new.

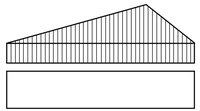
Key Insights:

- Local Timber Construction
- Intergenerational and Cross-functional Space
- Simple, Generous, and Clear

"Waihinga Martinborough Community Centre / Warren and Mahoney" 21 Aug 2019. ArchDaily. Accessed 11 May 2025. <https://www.archdaily.com/923368/waihinga-martinborough-community-centre-warren-and-mahoney> ISSN 0719-8884

Argo Contemporary Art Museum & Cultural Centre

Tehran, Iran



Argo Contemporary Art Museum & Cultural Centre is a former 1920s beer distillery in the heart of Tehran that converted into a contemporary arts center, equipped with six distinct gallery spaces & the permanent collection, library, artist residency, event spaces, private studio apartment, art-shop, observation deck, offices and a non-alcoholic bar serving re-issued Argo draft beers.

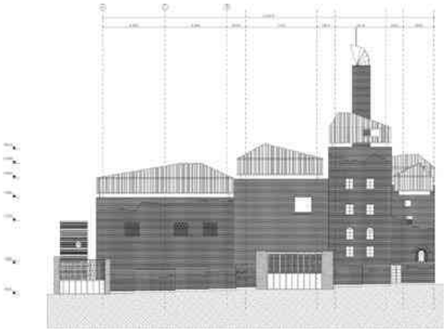




The design began with inserting new structural foundations, while retaining the expressive exposed brick load bearing walls. Five pitched concrete roof structures, shaped in the historic vernacular of neighboring roofs, float 50 cm above the existing walls, creating architectural “hats” for climate controlled galleries over the formerly exposed upper level.



Diffused sunlight is let in through the split between old and new, illuminating expansive 8.5 meter high galleries. The design taps into the DNA of traditional local metal roofs and rewrites them as five performative floating roofs: each considering an unrepeated lighting atmosphere, for the cultural program underneath it.



Argo Factory is the first private contemporary art museum to be built in Tehran since the 1979 Iranian Revolution and is also one of the first venues to present more flexible spatial opportunities for artists, with more diverse ceiling heights of up to 15 meters. Argo Factory has become one of the main cultural hubs of the city and an attractor for international visitors as well and it has been cited as a catalyst for the renovation of neighboring structures, spurring cultural revitalization in Tehran.

Key Insights:

- Highlighting Rather than Hiding
- Floating Volumes, Light Wells, and Ramps
- Strategic Skylights and Vertical Shafts

“Argo Contemporary Art Museum & Cultural Centre / Ahmadreza Schricker Architecture North - ASA North” 29 Mar 2022. ArchDaily. Accessed 11 May 2025. <https://www.archdaily.com/979255/argo-contemporary-art-museum-and-cultural-centre-ahmadreza-schricker-architecture-north-asa-north> ISSN 0719-8884

Comparative Analysis of Competition-Winning Projects

YAC, Almo Collegio Borromeo



Detached Extensions
economical and minimal

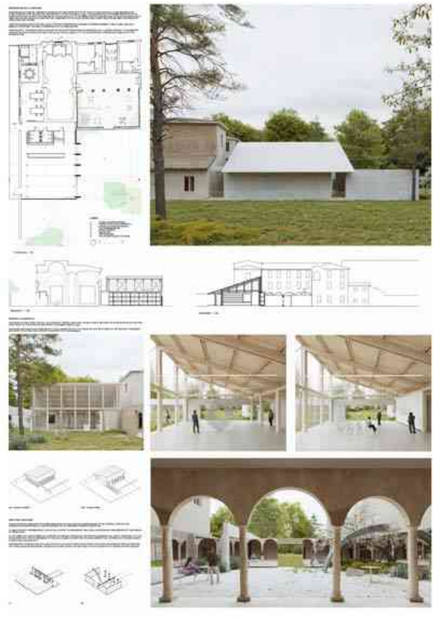


Material Contrast and Spatial Reflection
continuing arches in east side



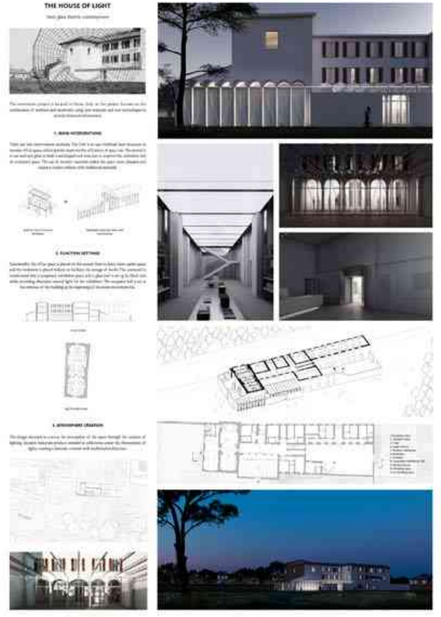
Comparative Analysis of Competition-Winning Projects

YAC, Almo Collegio Borromeo

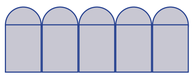


Creative Moveable Openings



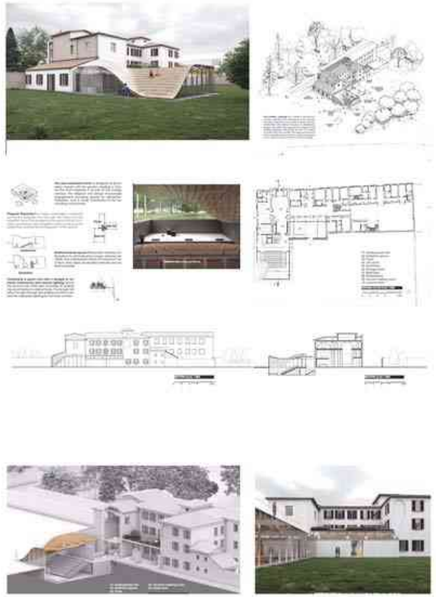


maximum space usage, double floor in the church



Comparative Analysis of Competition-Winning Projects

YAC, Almo Collegio Borromeo



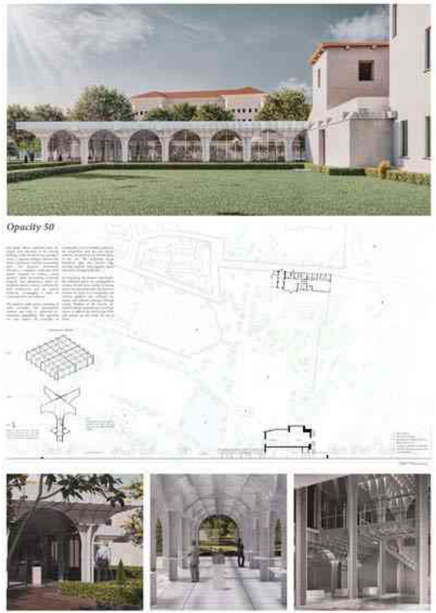
Roof as a Landscape, creating sightseeing space



Turning the space into the pool and creating basement

Comparative Analysis of Competition-Winning Projects

YAC, Almo Collegio Borromeo



Arches in the facade and using
Prefabricated module in structure and interior

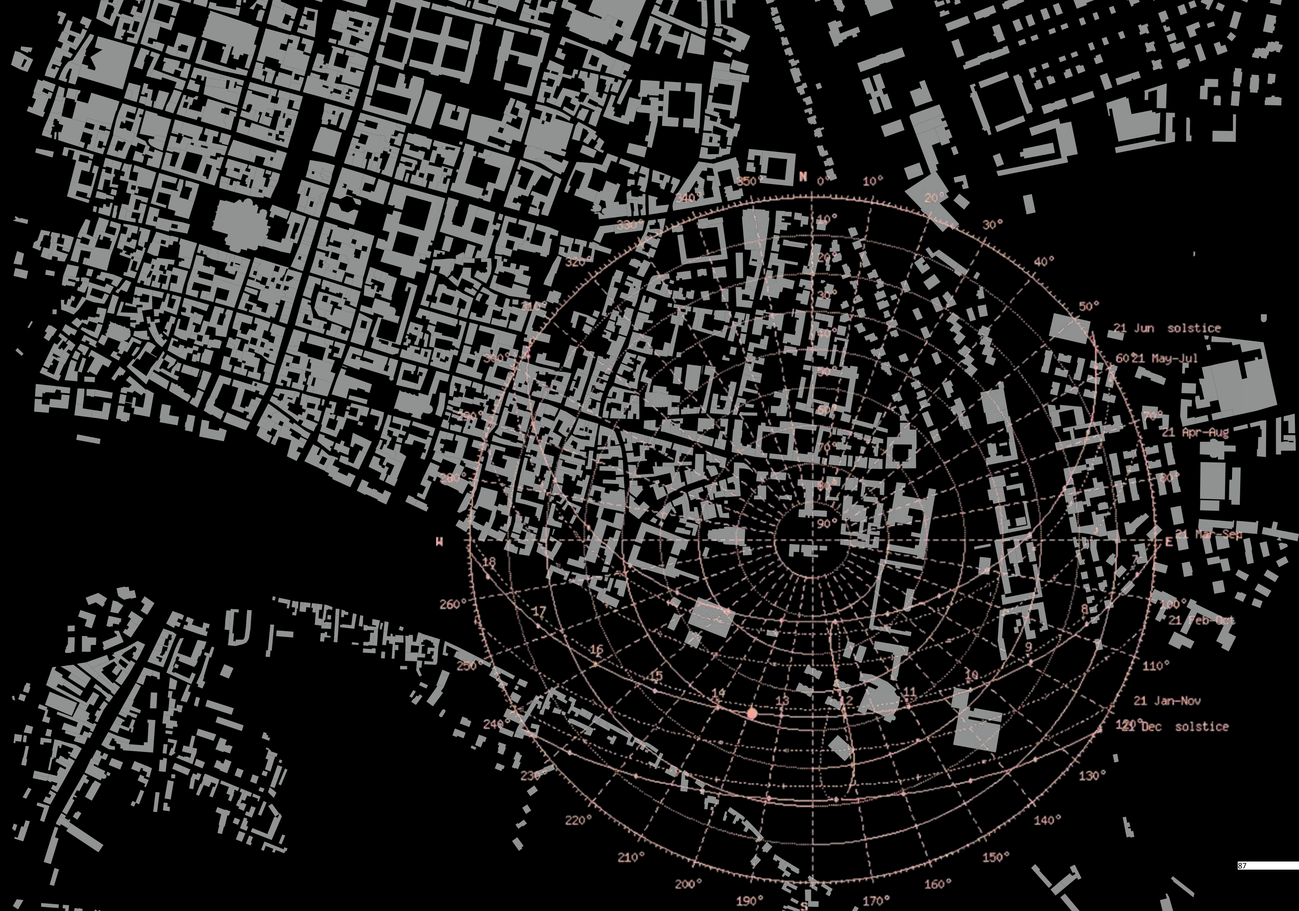


Using the Parametric arches and in the facade and glazing area in the roof and facade.

04

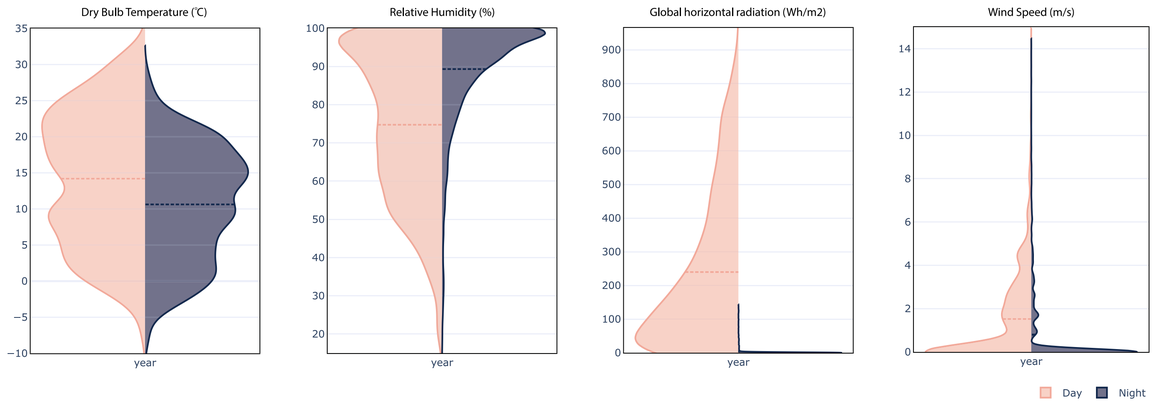
Climate Analysis

- Climate Profile
- Heat Map Chart
- Dry Bulb Temperature
- Relative Humidity
- Wind and Sun
- Wind Analysis
- Psychometric Chart
- Shadow Analysis



Climate Profile

City of the Pavia

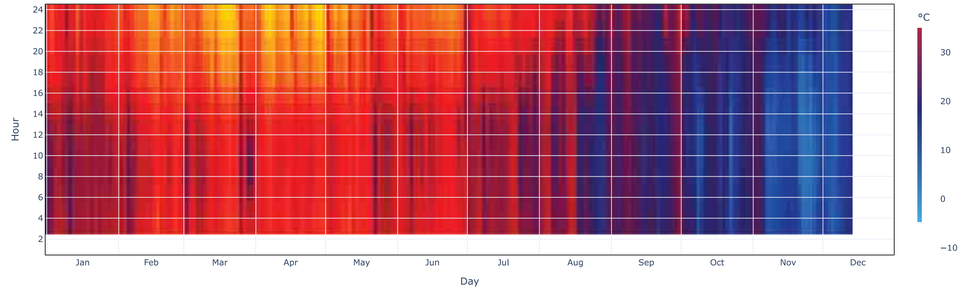


In Pavia, the summers are warm, humid, and mostly clear and the winters are very cold and partly cloudy. Over the course of the year, the temperature typically varies from 31°F to 87°F and is rarely below 23°F or above 93°F. The hot season lasts for 3.2 months, from June 5 to September 13, with an average daily high temperature above 78°F. The hottest month of the year in Pavia is July, with an average high of 86°F and low of 66°F. The cold season lasts for 3.2 months, from November 19 to February 26, with an average daily high temperature below 52°F. The coldest month of the year in Pavia is January, with an average low of 31°F and high of 44°F.

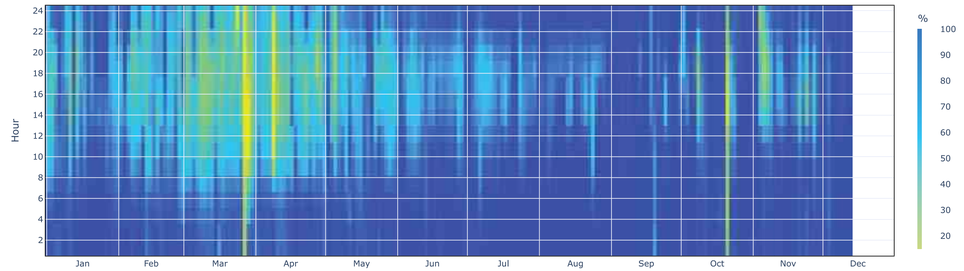
Heat Map Chart

Dry Bulb Temperature and Relative Humidity

Dry Bulb Temperature



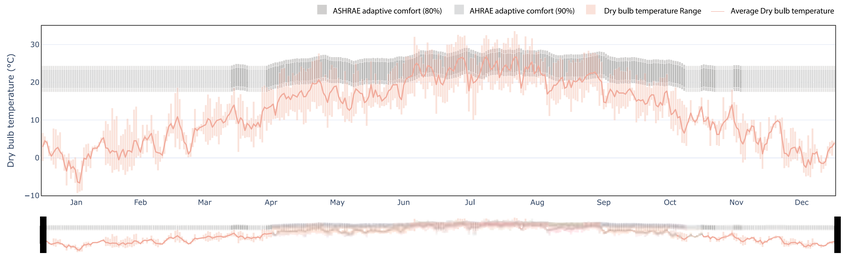
Relative Humidity



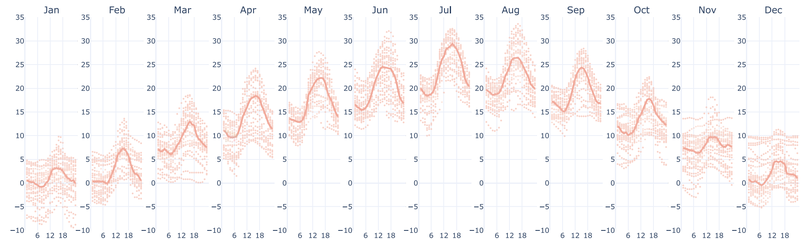
Dry Bulb Temperature

Yearly and Daily

Yearly Chart



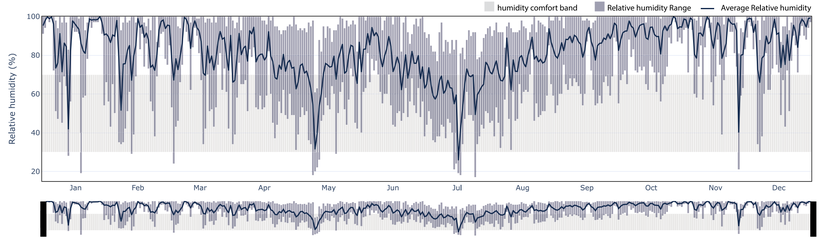
Daily Chart



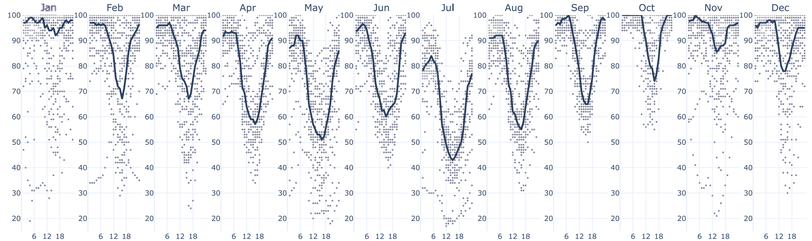
Relative Humidity

Yearly and Daily

Yearly Chart

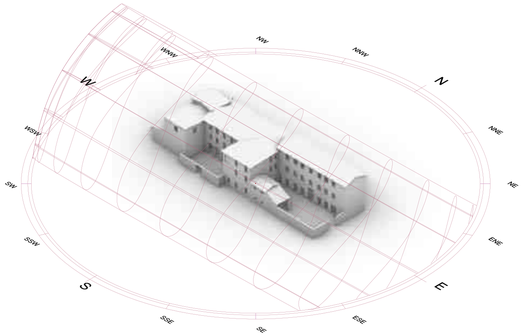


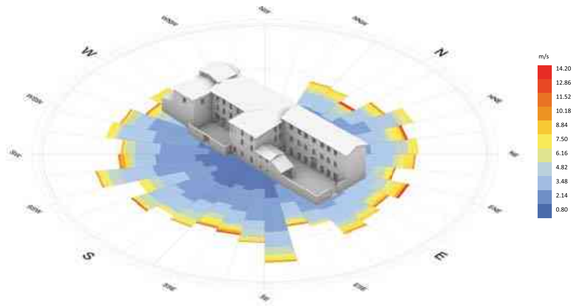
Daily Chart



Wind And Sun

Building and Surrounding





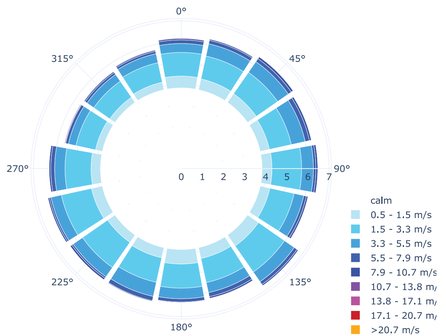
The sun path in Pavia, located at approximately 45 degrees latitude, plays a crucial role in the design and orientation of buildings to maximize natural light and energy efficiency. In winter, the sun's path is lower in the sky, resulting in shorter daylight hours and longer shadows. To make the most of sunlight during this season, buildings in Pavia are often positioned to capture the lower-angle sunlight, especially on south-facing façades. This orientation helps to warm interiors naturally, reducing the need for artificial heating. During summer, when the sun travels higher and the days are longer, well-positioned buildings can utilize shading devices such as overhangs, louvers, or even strategic tree planting to block high-angle sunlight, keeping interiors cooler. Understanding Pavia's sun path is essential for architectural planning to optimize passive solar heating in winter and minimize heat gain in summer, contributing to energy-efficient design.

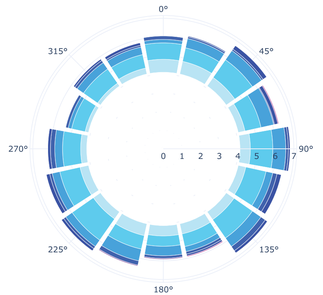
The wind rose analysis for Pavia indicates dominant wind directions, which is invaluable for building orientation and design. With prevailing winds coming from the northwest and southeast, buildings in Pavia are often oriented or shaped to either take advantage of these natural breezes or shield against them, depending on the season and wind intensity. Incorporating operable windows or ventilation openings along the building's northwest and southeast façades can enhance cross-ventilation, improving indoor air quality and reducing the need for mechanical cooling. On the other hand, structural elements such as windbreaks, courtyards, or landscaping can be positioned to protect against cold winter winds, minimizing heat loss and enhancing occupant comfort. By leveraging the wind rose data, architects and planners in Pavia can design buildings that are better adapted to local wind conditions, creating more comfortable, energy-efficient, and resilient structures.

Wind Analysis

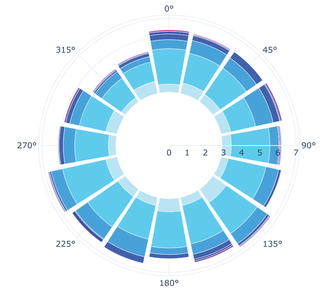
Wind Rose Annually and Seasonally

In Pavia, which lies in the fertile and industrially significant Po Valley in northern Italy, wind patterns are shaped by regional geography and atmospheric conditions, especially given the valley's influence on air circulation. Prevailing winds often come from the northwest and southeast, with seasonal fluctuations impacted by mountain breezes from the Alps and Apennines to the north and south, respectively. These wind flows are relatively moderate due to the valley's topography but can intensify during transitional seasons like spring and autumn, when temperature differentials between land and air masses are more pronounced. The Po Valley can also experience temperature inversions, particularly in winter, where stagnant air can settle, leading to low wind speeds and trapping pollutants.

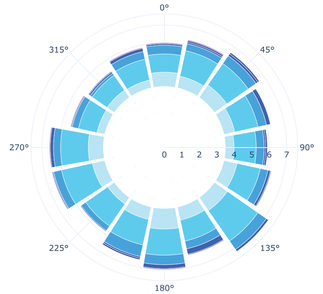




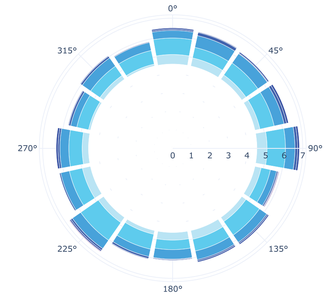
Observations between the months of Dec and Feb between 01:00 hours and 24:00 hours. Selected observations 2160 of 8760, or 24 %. 1421 observations have calm winds.



Observations between the months of Mar and May between 01:00 hours and 24:00 hours. Selected observations 2208 of 8760, or 25 %. 1037 observations have calm winds.



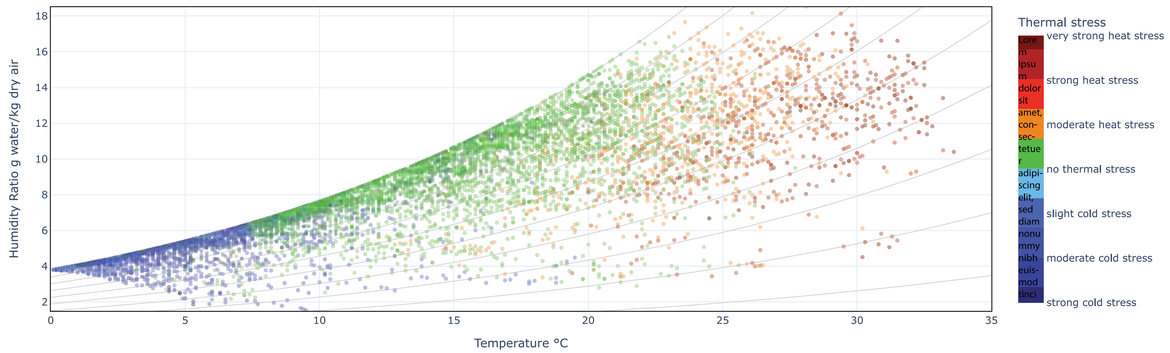
Observations between the months of Jun and Aug between 01:00 hours and 24:00 hours. Selected observations 2208 of 8760, or 25 %. 1234 observations have calm winds.



Observations between the months of Sep and Dec between 01:00 hours and 24:00 hours. Selected observations 2928 of 8760, or 33 %. 2124 observations have calm winds.

Psychometric Chart

Temperature



A psychrometric chart for Pavia provides a detailed visualization of the city's climate in terms of temperature, humidity, and air comfort levels, offering valuable insights for HVAC design, energy efficiency, and occupant comfort. Pavia experiences a humid subtropical climate, with warm summers and cooler, wetter winters. On the psychrometric chart, summer conditions appear in the warmer, higher humidity regions, often near the upper right side, indicating a mix of high temperatures and significant moisture in the air. This combination can lead to discomfort due to heat stress, making air conditioning or dehumidification desirable during peak summer months. Winter conditions, meanwhile, fall toward the cooler, lower-temperature region of the chart. While winter air in Pavia is often moist due to precipitation, the cooler temperatures create a need for heating rather than dehumidification. The psychrometric chart thus highlights seasonal needs in Pavia, such as the importance of cooling and moisture control in summer and heating in winter, helping architects and engineers design HVAC systems tailored to local climatic demands.

Shadow Analysis

Building and Surrounding

June 1st, 9:00 a.m



June 1st, 12:00 p.m



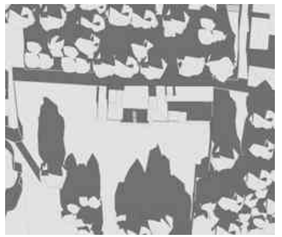
June 1st, 15:00 p.m



December 1st, 9:00 a.m



December 1st, 12:00 p.m



December 1st, 15:00 p.m



05

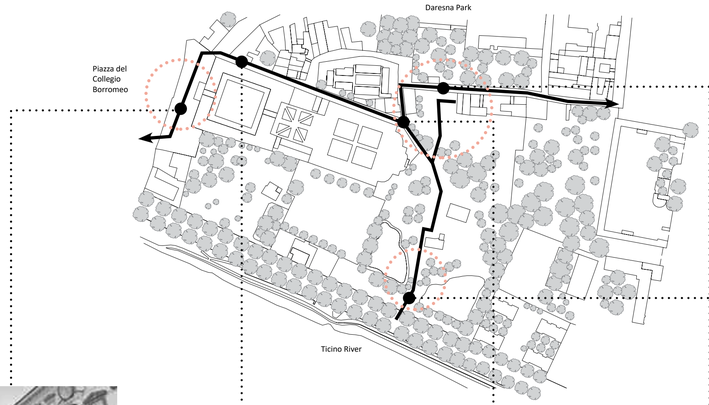
Survey Analysis

- Visitor Experience
- For What? For Whom?
- Population, Target Group
- The Program
- Photographic Survey
- Architectural Drawings



Visitor Experience

Reaching The Site





Piazza del Collegio Borromeo
Entrance to Almo Collegio Borromeo and Piazza which dedicated to parking lot, with a tower view.



Via Cardinale Tosi
Narrow Street with cable stone flooring and Almo Collegio Borromeo on the right side.



Entrance to Horti Park
End of the walls of the yard of ALmo Collegio Borromeo, an entrance to Horti park from Tosi street.



Via Galileo Vercesi
the street with cable stone flooring, Almo Collegio Borromeo alumni section and Ex-chiesa saint'Antonio on the right and Daresna park on the left with brick wall.



Via Lungi Ticino Sforza
Two way street with side trees and parking lots, on the left the entrance to the Horti park and right Ticino river.

For What?

For Whom?

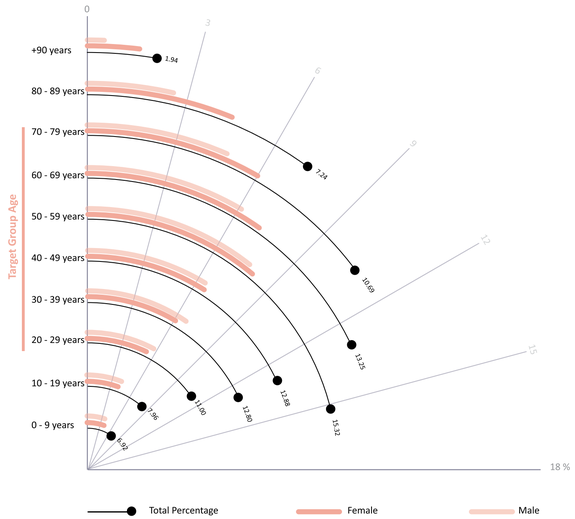




The adaptive reuse of Almo Collegio Borromeo is designed to breathe new life into this historic landmark, making it a vibrant space that serves both the university and the wider community. Students, faculty, and researchers will benefit from a dynamic "Knowledge Garden" for learning, exhibitions, and events, while local residents and business owners will enjoy new cultural and economic opportunities. Tourists, historians, and artists will find inspiration in its rich heritage, while policymakers and urban planners can view it as a model for sustainable development. By blending tradition with innovation, this transformation will create an inclusive, educational, and culturally rich hub that strengthens Pavia's identity and economic growth.

Population

Age Distribution



The population of Pavia shows a slightly higher proportion of females (51.97%) compared to males (48.03%). The gender distribution varies across age groups, with women significantly outnumbering men in older age categories, particularly in the 90+ years group, where females make up 1.45% of the total population and males only 0.49%. This trend reflects higher female life expectancy. In younger age groups, the distribution is more balanced, with a slight male majority in the 30-39 and 20-29 age ranges.

Source: CityPopulation



According to the demographic data, the city has a nearly equal gender distribution, with 52% females and 48% males . The majority of the population falls within the working-age group, accounting for 60.8% , while 26% are aged 65 and above, indicating a significant elderly population. Meanwhile, 13.2% are aged 0–17 years, showing a smaller proportion of young residents.

Source: CityPopulation

ALMO COLLEGIO BORROMEO

Garden of Knowledge

YAC launches a competition in collaboration with Almo Collegio Borromeo to add the contemporary piece to a mosaic that has been growing and renewing for nearly 500 years.

The Program

Adaptive Reuse and Expansion

The Almo Collegio Borromeo is a unique place in the world for spiritual, artistic, and cultural values, which has fulfilled its mission to support the education of young professionals in all fields. Over the last years, as demonstrated by the Horti initiative, the Collegio has been trying to strengthen its interactions with the city of Pavia, in order to involve the community within the numerous activities it offers to the public, with the clear mission to offer an all-around and cutting-edge cultural proposal including art, nature, culture, and beauty, ethical science. With the aim of supporting these new initiatives, the Collegio needs to expand and transform some of its areas.

Specifically, to accommodate a set of new functions such as:

• reception; a space used as an entrance foyer to the exhibition space,
including a desk, a checkroom area, and adequate accessible sanitary facilities (men's, women's, and a bathroom for the disabled).

• exhibition spaces; these interventions shall ensure adequate lighting and space flexibility to create easily movable set-ups and dynamic spaces, should it be necessary to host larger events, such as meetings or philan thropic events.

• bookshop; aimed at selling books and exhibition catalogs, equipped with a front desk and a space for the storage of objects and books, as well as a bathroom for the exclusive use of employees.

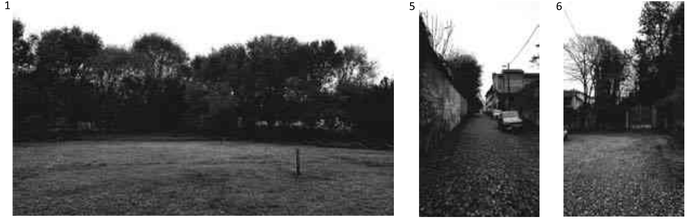
• working spaces for the management; the Horti project and the cultural activities of the Collegio are organized by a Board and a scientific committee that need seven workstations, a common workplace for more informal meetings, and a hall for the more formal meetings.

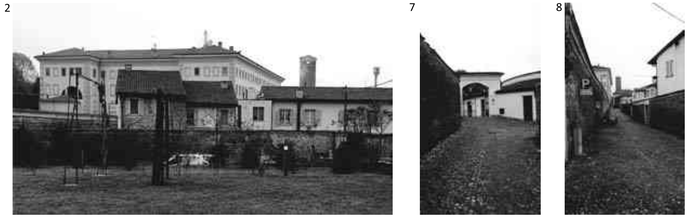


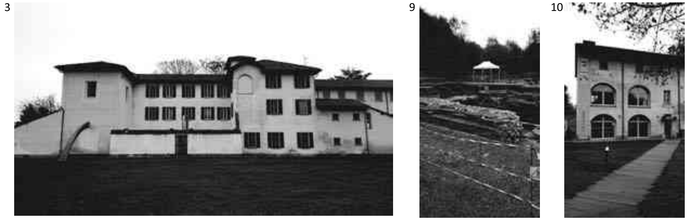
Photographic Survey

Horti Park and Almo Collegio Borromeo











Site Considerations

The Church of San Marco in Horti Park



Archaeological Excavations

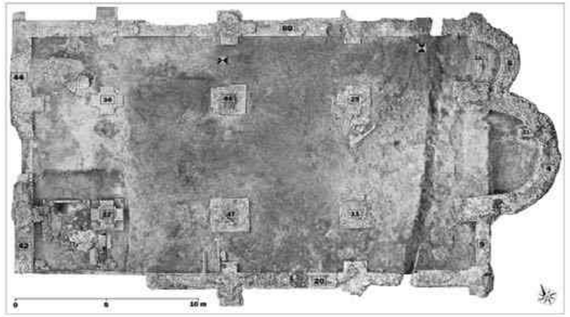
The Church of San Marco in Horti Park

The archaeological excavations at the church of San Marco in Monte Bertone in Pavia, Horti Borromaici; Initial geophysical surveys in 2017 using ground-penetrating radar and magnetometers revealed the footprint of the church and its surrounding anthropic activity. Excavations in 2019 and 2021 uncovered the remains of an east-west oriented, three-nave structure, including its absidal zone and perimetric walls. The site showcases construction phases ranging from the 12th to the 17th century, illustrating a continuous historical layering. Material finds such as ceramics and glass date to the 18th and 19th centuries, while structural elements reflect techniques typical of Romanesque architecture in the region, including the use of river pebbles and bricks in foundation and wall construction.

Bibliography

Ferraiuolo, D. (2022). Primi dati sulla chiesa di San Marco in Monte Bertone (Pavia, Horti Borromaici) alla luce delle indagini archeologiche. In *IX Congresso Nazionale di Archeologia Medievale* (pp. 216-220). All'Insegna del Giglio.

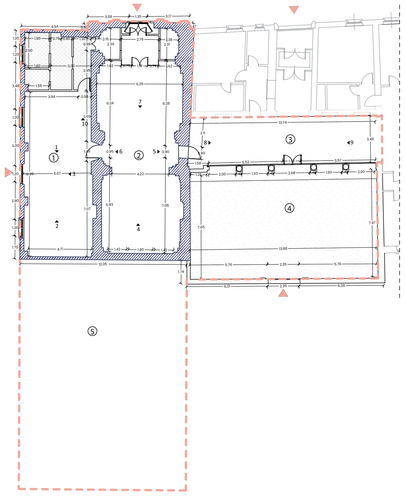






Photographic Survey

Exsisiting Entrance and Reception



1 Reception
2 Exhibition
3 Foyer
4 Courtyard
5 Expansion

Stone floor
Ceramic
Cobblestone
Expoxy

150 cm

Design Area
Entrance

1.



2.

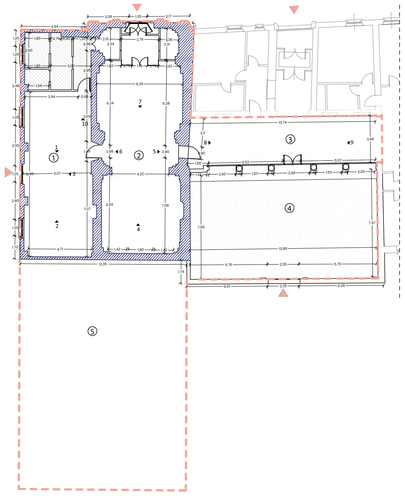


3.



Photographic Survey

Exsisiting Entrance and Reception





Design Area

Entrance

1 Reception
2 Exhibition
3 Foyer
4 Courtyard
5 Expansion

Stone floor

Ceramic

Cobblestone

Expoxy

4.



5.





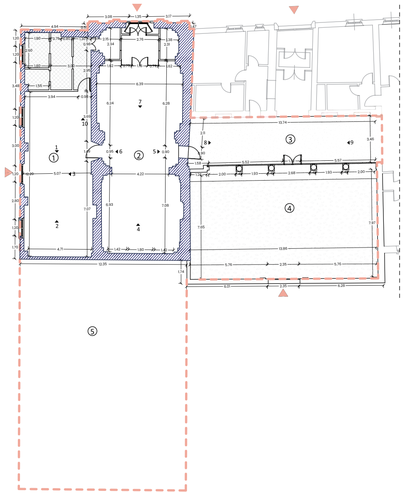
6.



7.

Photographic Survey

Foyer and Bathroom



1 Reception
2 Exhibition
3 Foyer
4 Courtyard
5 Expansion

Stone floor
Ceramic
Cobblestone
Expoxy

150 cm

Design Area
Entrance

8.



9.

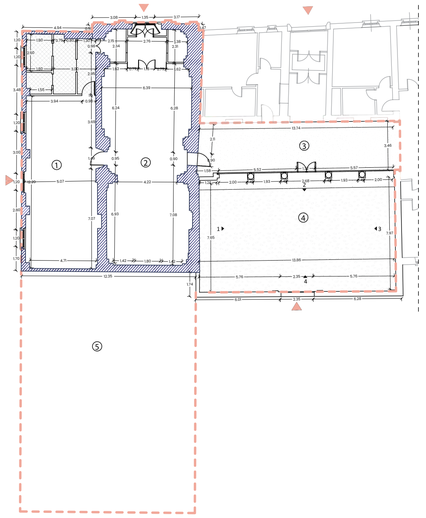


10.



Photographic Survey

Courtyard





Design Area

Entrance

1 Reception
2 Exhibition
3 Foyer
4 Courtyard
5 Expansion

Stone floor

Ceramic

Cobblestone

Expoxy

1.



2.



3.



4.



Photographic Survey
Art Instalation

The Building located in Horti Park, face the Ticino River, where many art instaliation can be find both inside of the building, and outside, served as exhibition in ex church building as an wall paintings and open air exhibition.



TRIADE

Arnaldo Pomodoro
1997



MOVIMENTO DI CROLLO

Arnaldo Pomodoro
1970 - 1971



UGUALE-CONTRARIO

Mauro Staccioli
2003

Photographic Survey
Ceiling



Entrance

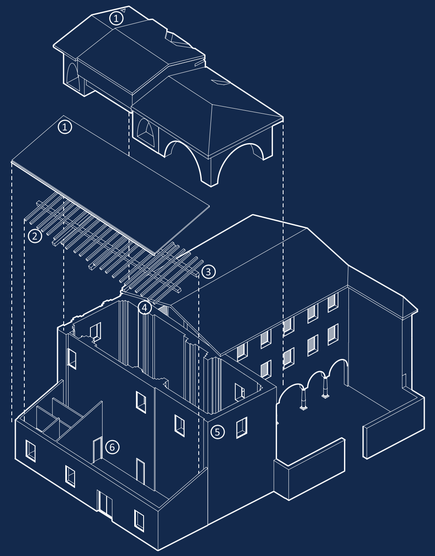


Ex Church



Foyer

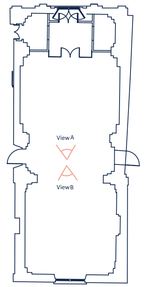
Exploded Model
Current Situation

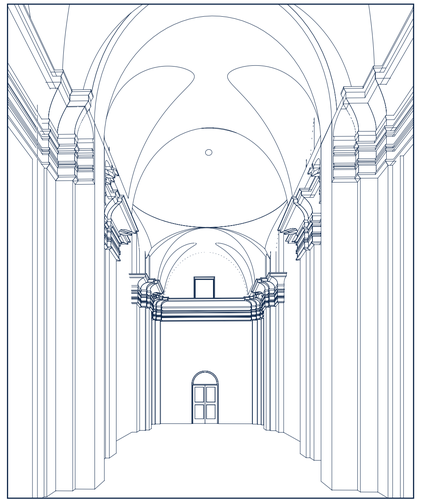


1. Clay Tile Roof
2. Wooden Beam
3. Exposed Rafter
4. Structural Wall
5. Cement Plaster
6. Interior Drywall

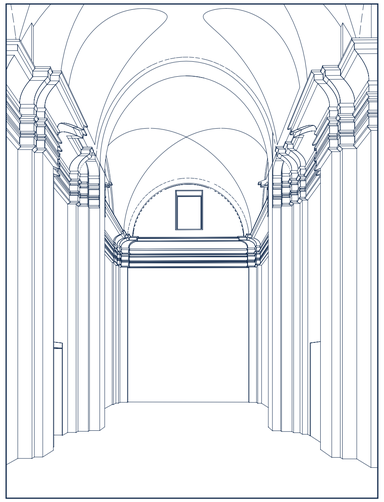
The building now used for the entrance and reception was added to the main building—formerly the Church of Sant'Antonio di Padova. For this reason, the materials and construction techniques used are different. The entrance area features exposed wooden beams, which remain visible inside, adding warmth and a sense of historical continuity. In contrast, the former church retains its structural masonry walls, emphasizing its solidity and traditional construction methods. This contrast between materials reflects the layered architectural evolution of the site

Inside of the Church
Current Situation





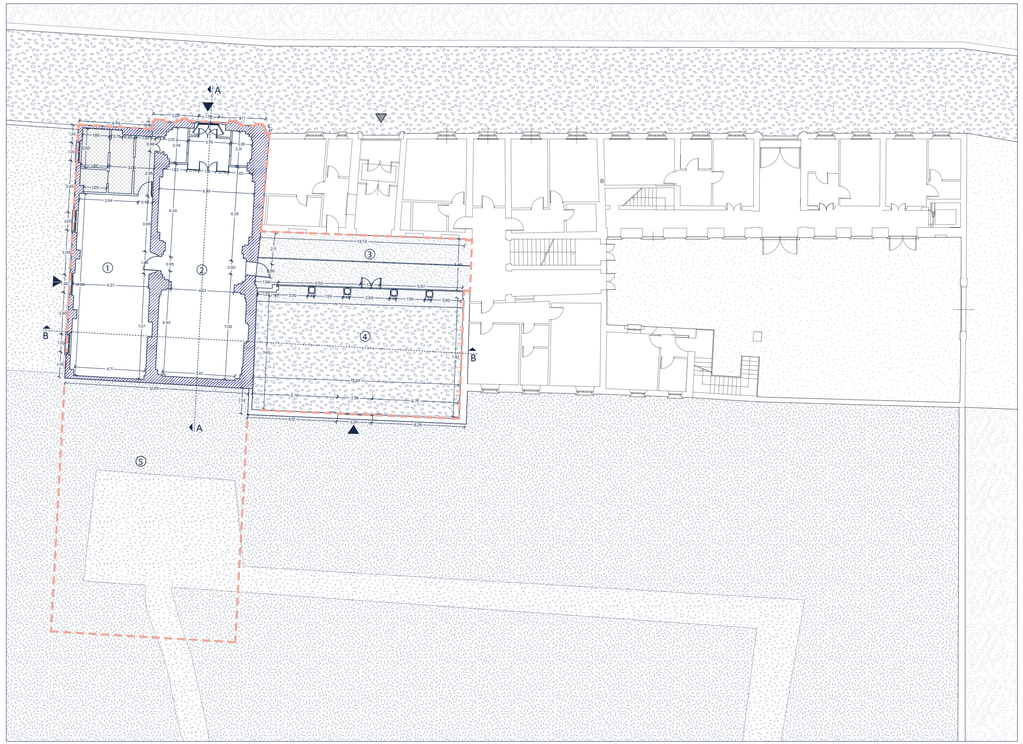
View A



View B

Ground Floor Plan

Current Situation



Design Area

Entrance

Spaces

1 Reception
2 Exhibition
3 Foyer
4 Courtyard
5 Expansion

Floor and Plan

Stone floor
Ceramic
Cobblestone
Self-Leveling Epoxy
Wall

Paved Surface

Earthen Ground
Paved External Surface

Land Use

Lawn Surface
Dense Vegetation

0 3 9m

Exploded Model

Current Situation

Historical Hall
Potential: Exhibition and events
Current situation: Exhibition
Consideration: Three valuable wall paintings
Damaged details on the wall
Limited natural light

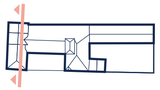
Entrance
Potential: Reception Desk, Checkroom, sanitary facilities
Current situation: Entrance, Workspace, Reception
Consideration: Existing Toilets
Emergency Exit
low high Cieling

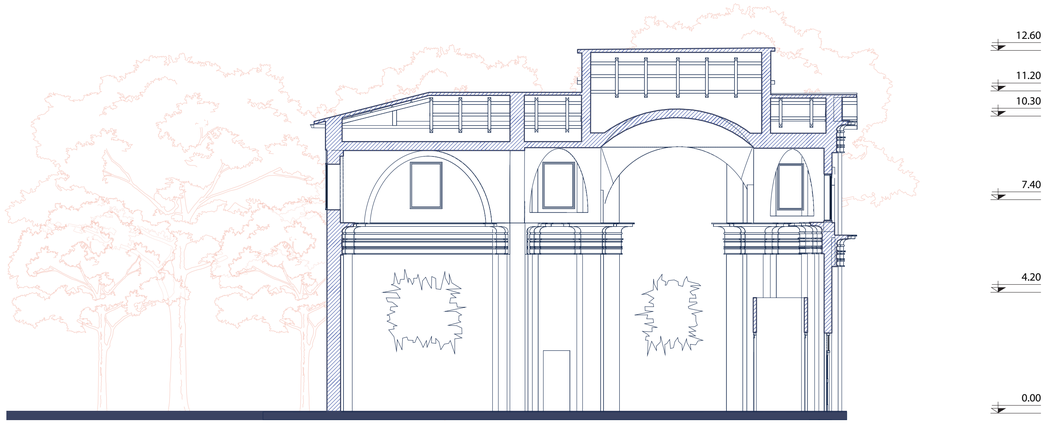
Court Yard
Potential: Open Exhibition
Current situation: Art Instalation
Consideration: Cobblestone
3 cm Step
Damaged Walls

Foyer
Potential: Showcase Timeline History
Current situation: Circulation
Consideration: Damaged walls

Section A-A

Current Situation



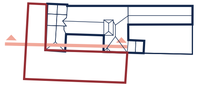


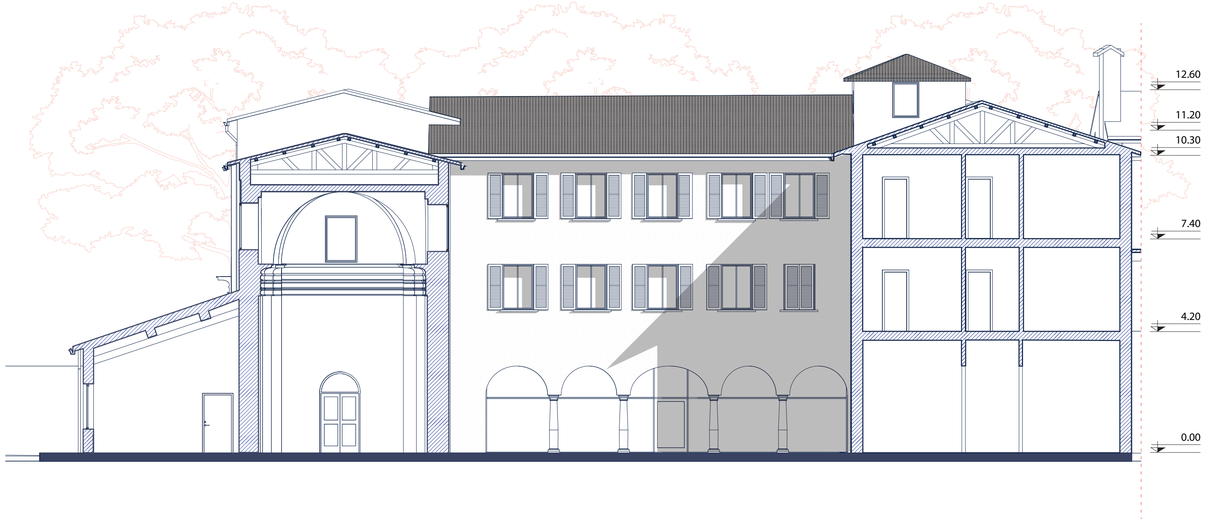
Scale 1:100

0 3 9 15

Section B-B

Current Situation





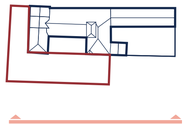
Scale 1:100

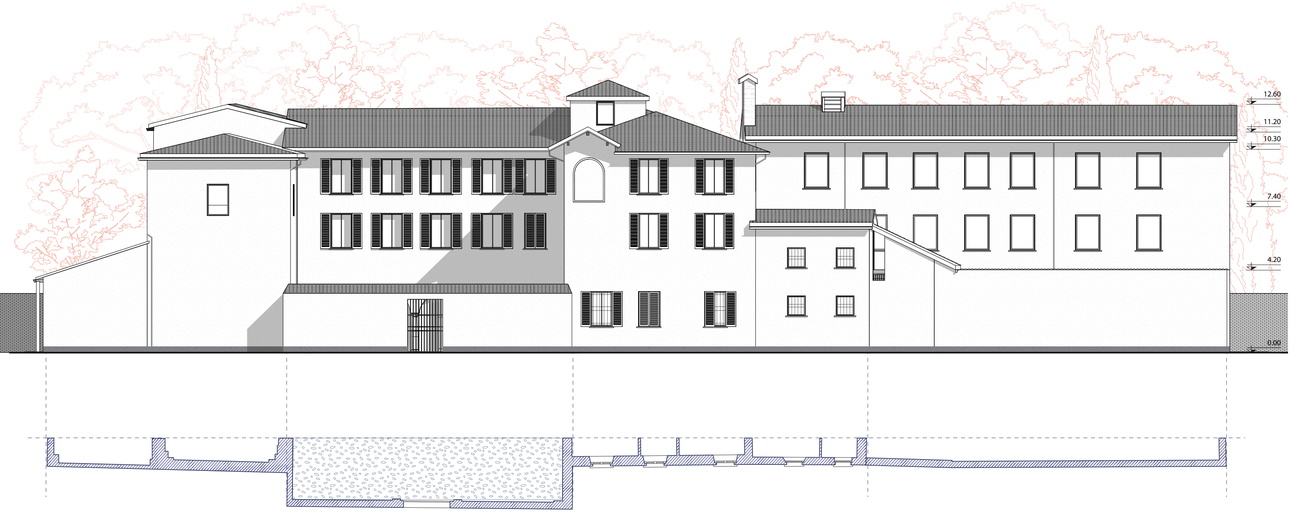
Shadows: 1st July, 10 am

0 1 3 5m

North Elevation

Current Situation





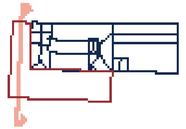
Scale 1:200

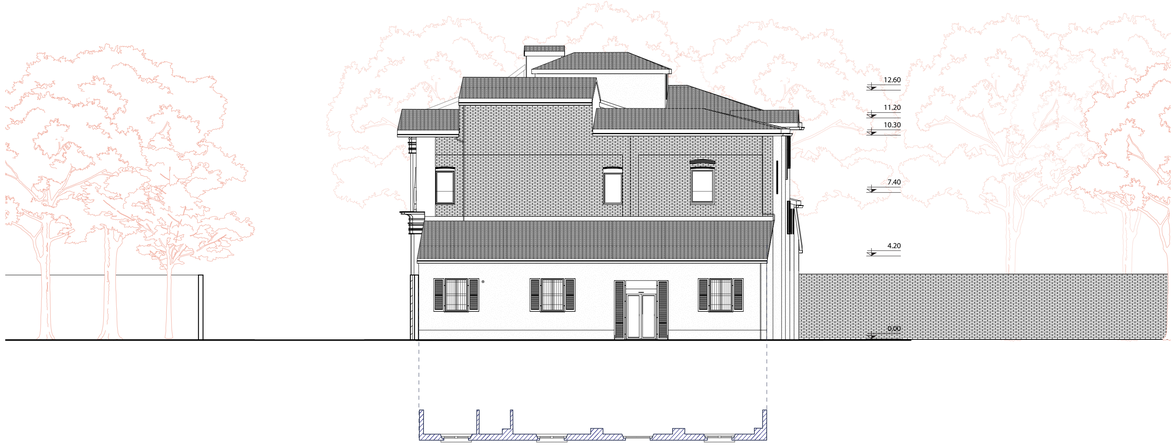
Shadows: 1st July, 10 am

0 3 9 15

East Elevation

Current Situation





[illegible]

0 4 8 12

06

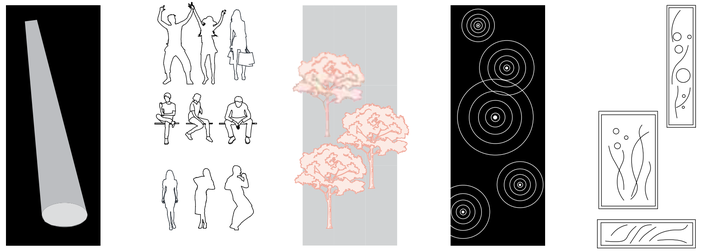
Design

- Design Strategies
- Site Plan
- Programe Diagram
- Propossed Plan
- Extension Design
- Detailed Drawings



Design Strategies

Potential and Areas for Improvement



Light | Contact | Nature | Sound | Art

Site Plan

Landscape



2 Playing Park
3 Horti Park
4 Ecvacation Site
5 Horti Bistrot
6 Almo Collegio Borremeo
7 Ticino River
8 Botanical Garden
9 Open Air Cinema/ Events
10 Open Air Workspace
11 Aromathic Plants
12 Lake, Pond and Stream

Paved Surface

- Asphalt Road
- Earthen Ground
- Paved External Surface

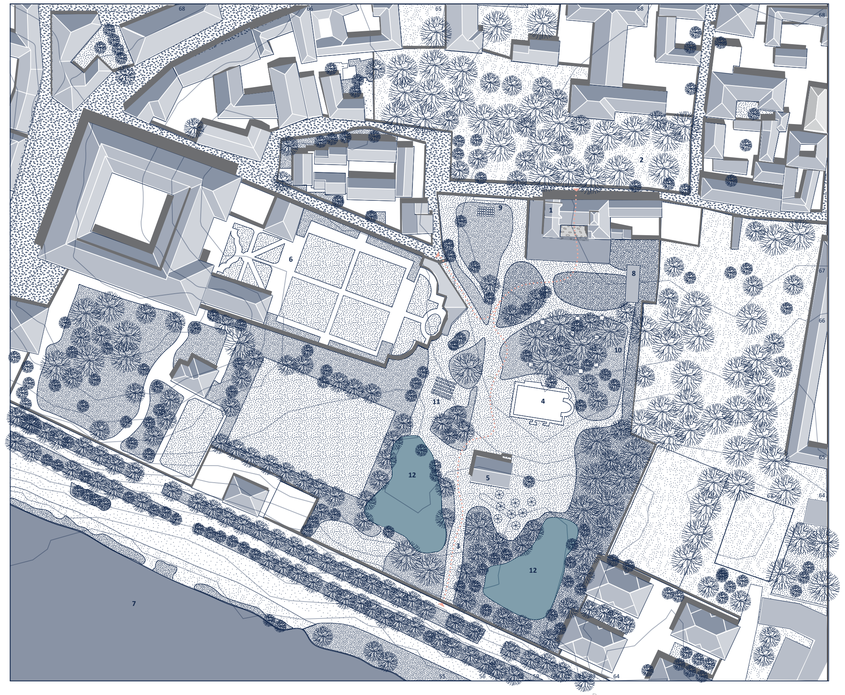
Land Use

- Lawn Surface
- Dense Vegetation
- Water Body
- Entrance
- Visitor's Route

Elevation unit: meter
Every contour line is equal to 1 unit.
Topography from: contourmapcreator

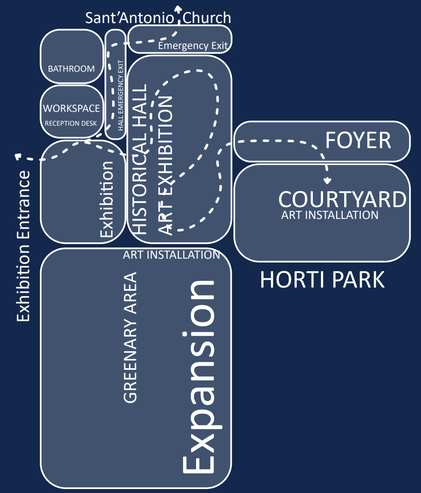
Shadows: First of July 12 pm

0 20 60 100m

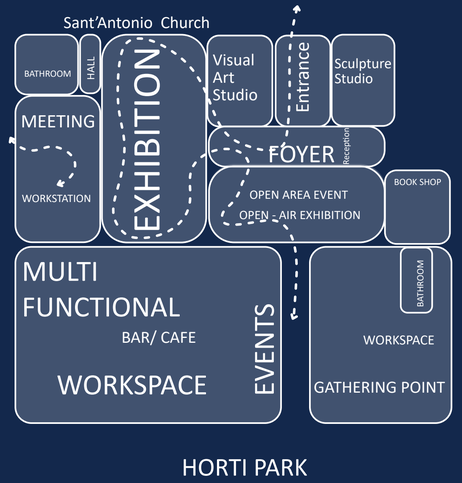


Function Diagram and User Circulation

Current Situation and Proposal



Future Functions



Ground Floor Plan

Proposed Design

Spaces

1 Reception
2 Foyer
3 Studio
4 Exhibition
5 Bathroom
6 Bookshop
7 Library Nook
8 Outdoor Exhibition
9 Workstations
10 Meeting Room
11 Multi Functional Area/ Event
12 Work Space
13 Bar/ Cafe
14 Gathering Point

Paved Surface

Cobblestone
Earthen Ground
Paved External Surface

Floor and Plan

Stone floor
Ceramic
Self-Leveling Epoxy

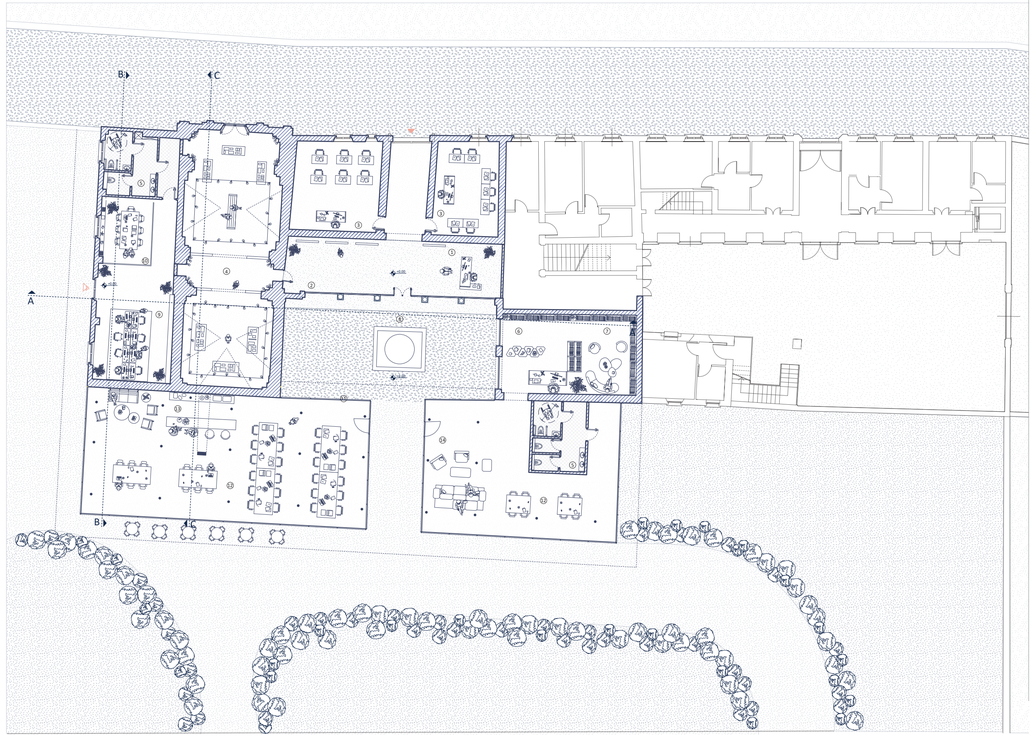
Land Use

Lawn Surface
Dense Vegetation

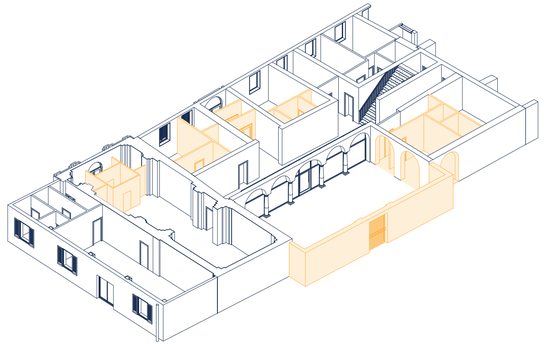
Main Entrance
Staff Entrance
Visitors' Route

Scale 1:200

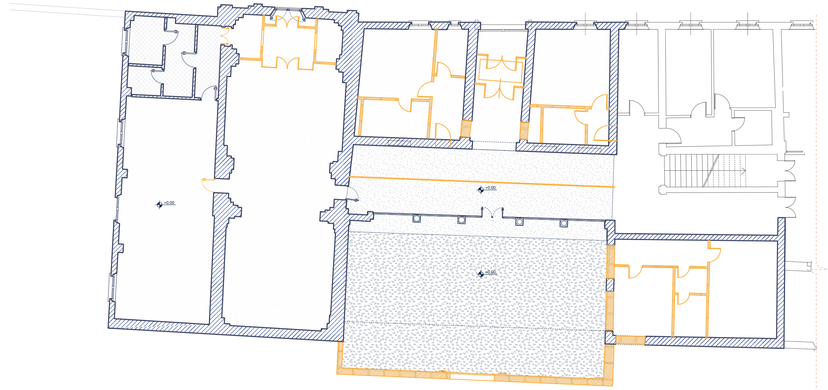
0 3 9m



Demolition
Ground Floor Axonometry



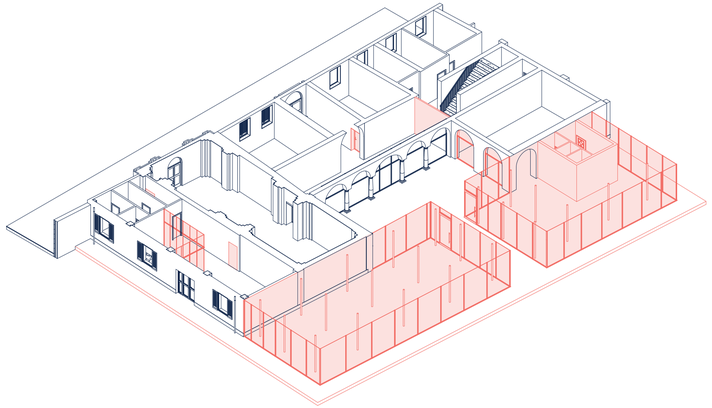
Demolition
Ground Floor Plan



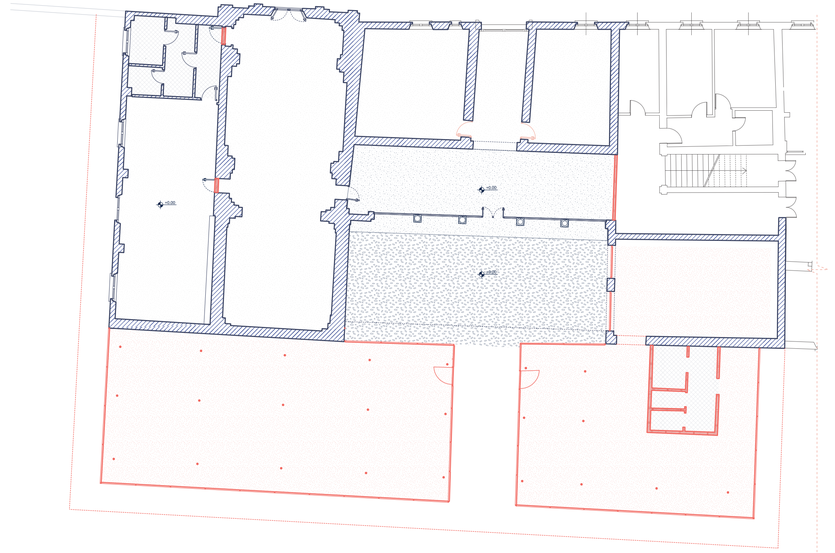
Scale 1:200

0 3 9 12m

Construction
Ground Floor Axonometry



Construction
Ground Floor Plan

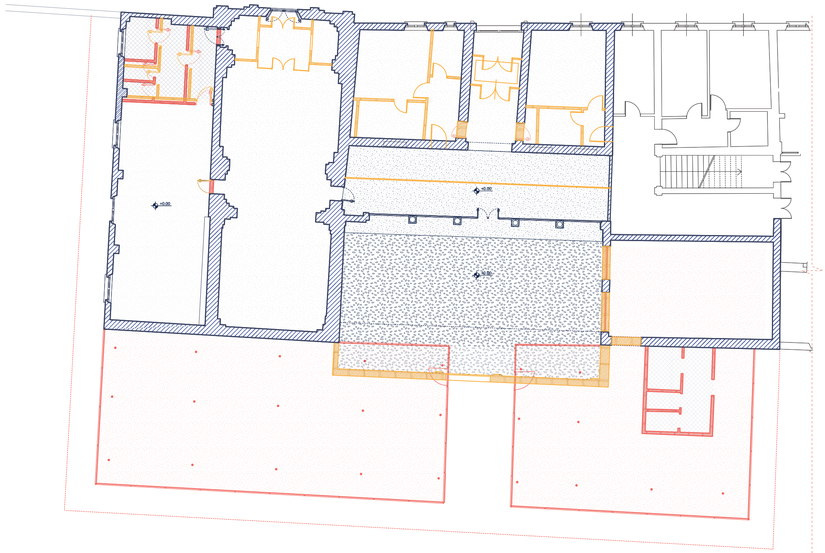


Scale 1:200

0 3 9 12m

Construction & Demolition

Ground Floor Plan

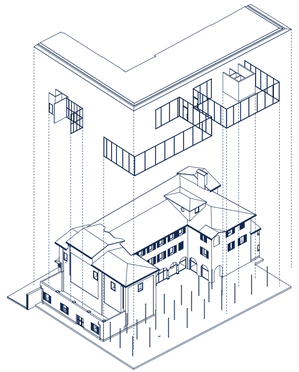


Scale 1:200

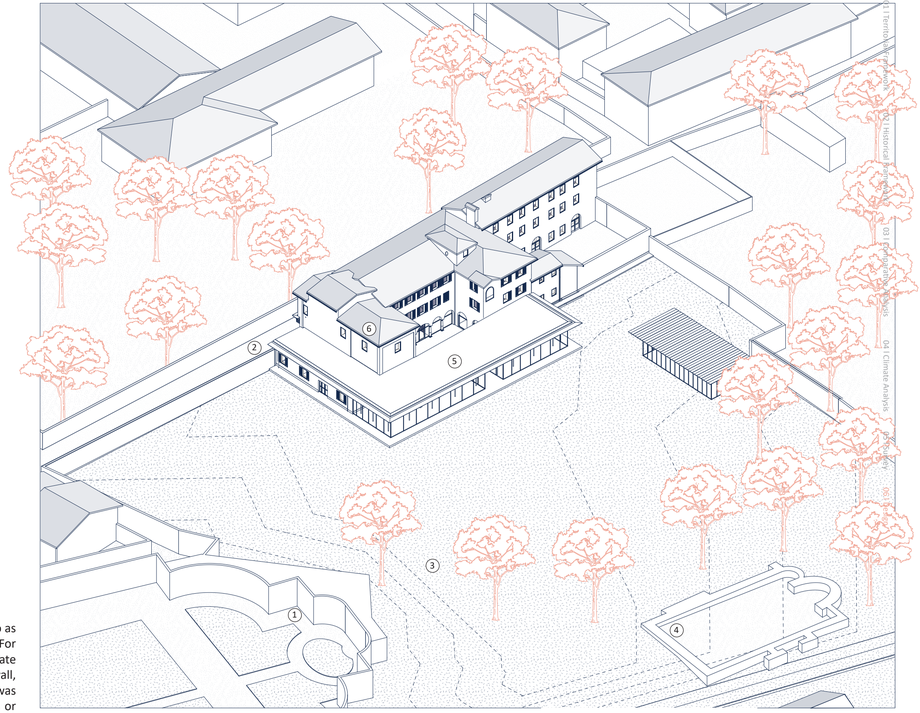
0 3 9 12m

Axonometry

Exploded Axo



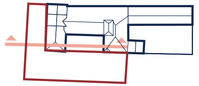
The design of the addition was intentionally kept light so as not to overshadow the church or the existing building. For this reason, the entire façade is made of glass to create transparency. With the demolition of the courtyard wall, visitors can now see the arches behind it. The ceiling was designed to be thin in order to avoid creating a heavy or dominant volume.



1 Almo Collegio Borromeo Garden 2. Galileo Vercesi Street 3. Horti Park 4. Archaeological Excavations of San Marco Church 5. Expansion Area 6. Ex-Church Sant'Antonio di Padova

Section A-A

Proposed design





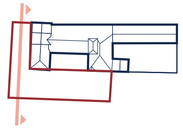


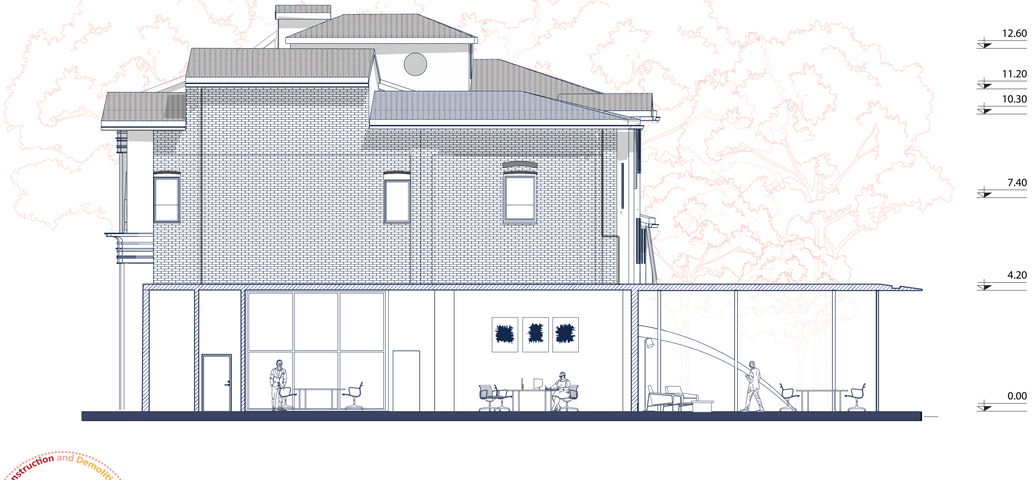
Scale 1:100
Shadows: 1st July, 10 am

0 1 3 5m

Section B-B

Proposed design





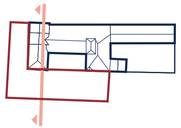


Scale 1:100
Shadows: 1st July, 3 pm

0 3 9 15

Section C-C

Propossed design





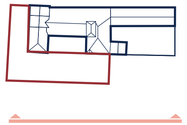


Scale 1:100

0 3 9 15

South Elevation

Propossed design







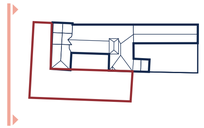
Scale 1:200

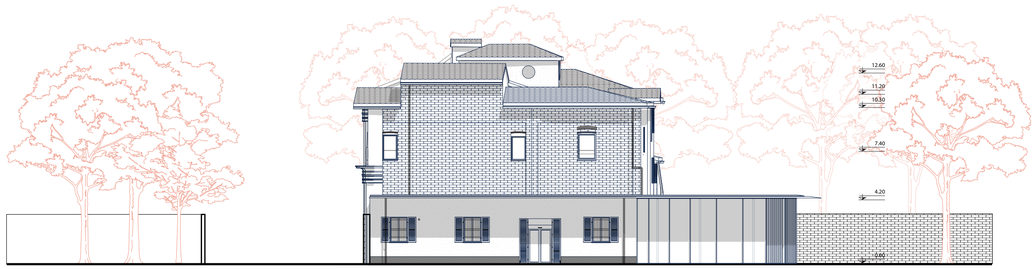
Shadows: 1st July, 10 am

0 3 9 15

West Elevation

Proposed design





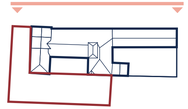


Scale 1:200
Shadows: 1st July, 3 pm

0 3 9 15

North Elevation

Proposed design



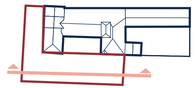


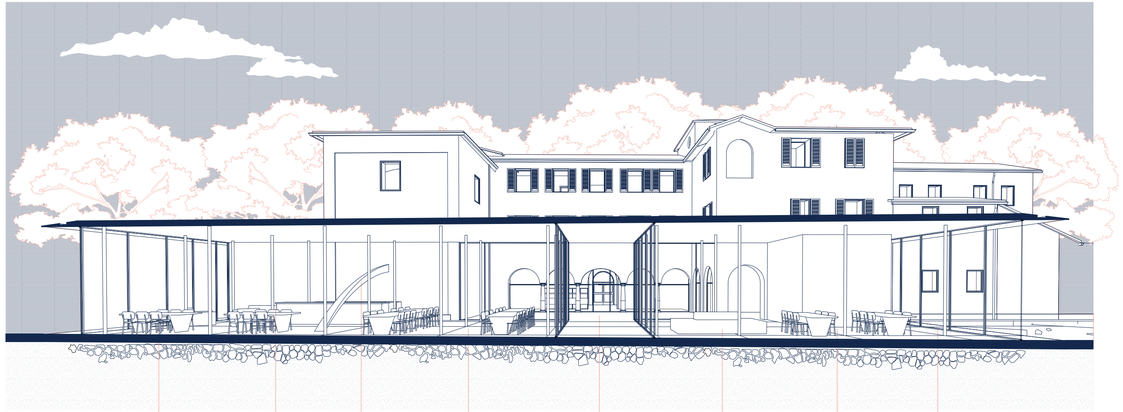


Scale 1:200
Shadows: 1st July, 6 am

0 3 9 15

Section Perspective
Proposed design





Work Space
Max: 12 person
Social Table

Mini Bar
Max: 4 person
serving cafe

Art Installation
UGLIALE-CONTRARIO
Mauro Staccioli- 2003

Multi Purpose Area
Events/ Gathering
University Collaboration

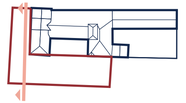
Courtyard
Open-air Exhibition
Art Installation

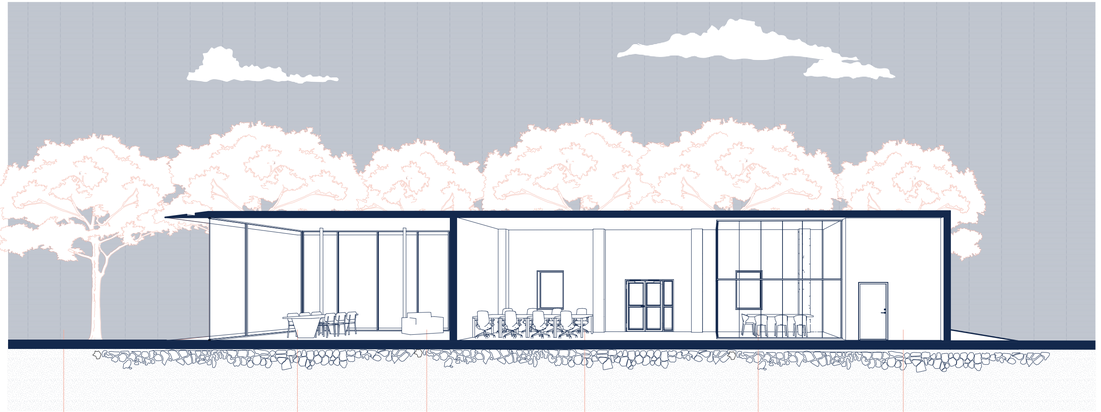
Gathering Point
Rest Area
With Garden View

Bathroom
Men's, Women's
Disable Bathroom

Work Space
Max: 8 Person
Meeting and Events

Section Perspective
Proposed design





Horti Park
Open-air Workspace
Collegio Borromeo Garden

Work Space
Max: 12 person
Social Table

Rest Area
Max: 6 Person
Gathering Point and Cafe

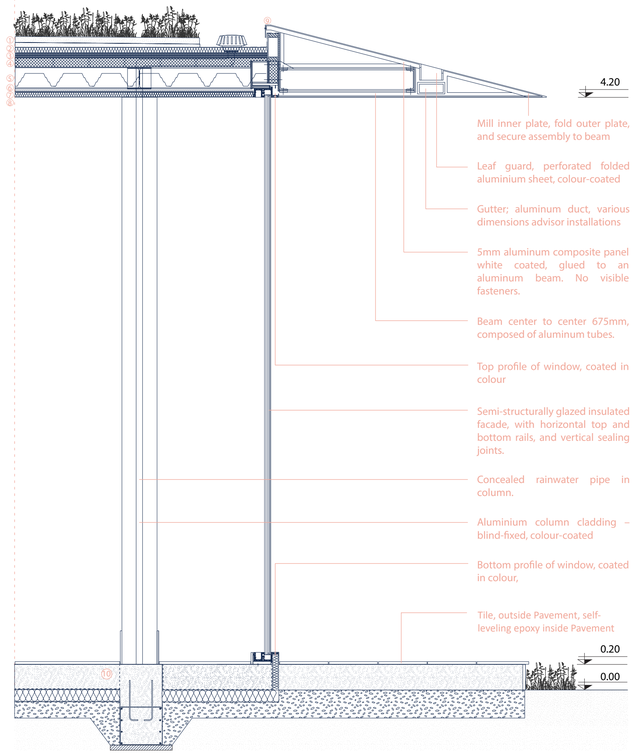
Work Stations
Max: 8 person
Horti Management

Formal Meeting
Max: 8 person
Horti Management

Staff Bathroom
Max: 8 person
Horti Management

Wall Section

Addition Pavilion



① Lightweight moss-sedum green roof system on slope Insulation for flat roofs, minimum slope of 16 mm per meter for drainage

② 50 mm mineral wool (thermal and acoustic insulation)

③ Two layers of 18 mm Fermacell boards (gypsum fibreboard, strong, fire-resistant).

④ Insulated aluminium roof panel with thermal resistance RC ≈ 6.5 m^2-K/W, U-value ≈ 0.15 W/m^2-K airtight and vapor-tight

⑤ Roof metal deck, Trapezoidal sheet, metal-stud profiles, Suspended from roof plate

⑥ Plasterboard, flat finished

⑦ Acoustic ceiling system, smooth sanded, aw min 0.90 (absorbs about 90% of incident sound energy)

⑧ airtight and vapor-tight layer

⑨ aluminium composite plate, mechanically fasten to the beam.

⑩ Foundation, Concrete Slab, Vapour Barrier, Insulation, Gravel

Scale 1:20

0 0.5 1.5 2.5m

Facade

Addition Pavilion





Interior

Ex-Church; Today's Exhibition



The exhibition is structured around modular stands, specially designed for flexibility and adaptability. Each stand measures 2.5 meters in height and 1.2 meters in length, making them easy to integrate into a variety of configurations. Thanks to their modular nature, the stands can be rearranged into linear, island, or cluster layouts, depending on the needs of the exhibition and the artworks displayed.

An essential aspect of the design is that the stands are moveable and removable. This ensures that the space can quickly shift between exhibition settings and moments of openness. When removed, the church interior is restored to its uninterrupted, original architectural character, allowing the building itself to be experienced in its pure form.



Extended Area
Pavilion and Courtyard



Courtyard
View from Entance and Reception

After years of abandonment and a partial renovation in 1978, this former church entered a new chapter in 2020, when Almo Collegio Borromeo launched an ambitious plan to redevelop the entire area. In September 2022, the site was officially reopened to the public, no longer as a place of worship, but as a space for dialogue between history and contemporary creativity.

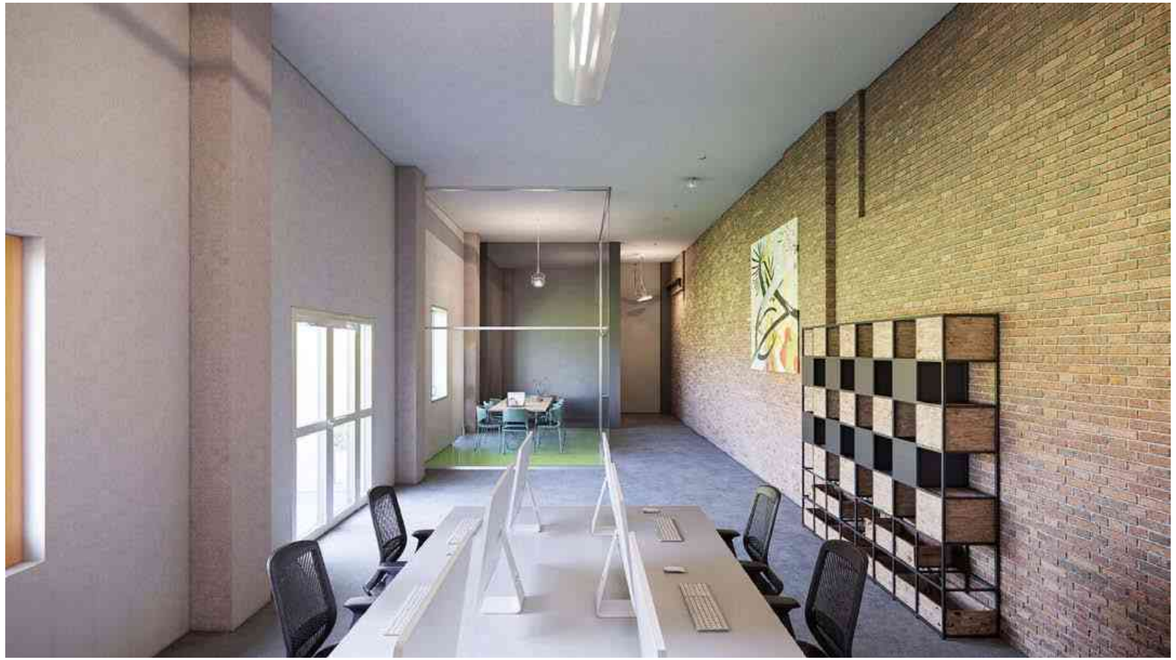
The ex-church now hosts a permanent contemporary art exhibition, designed to respect the building's heritage while offering a versatile setting for present-day artistic practices. One of the central challenges of this transformation was the balance between lighting and flexibility of display—a dual requirement we carefully addressed in our design proposal.



Interior
Pavilion, Multi-Functional Area, Events



Interior
Workspace, Workstations and Meeting Room



Conclusion
Future Intervention

In conclusion, Adaptive reuse gives new life to old buildings while keeping the memories of the past alive, enabling them to continue to be a part of people's daily lives. Implementing an adaptive reuse strategy for cultural heritage requires a close understanding of the building and its surroundings.

The old Sant'Antonio di Padova church in Pavia's Horti Park, the Almo Collegio Borromeo alumni section, has been sensitively and carefully redesigned in this project. By converting the church into an exhibition area and adding a transparent pavilion for events, the plan expands the church's cultural significance. It creates new chances for the neighborhood to come together, exchange ideas, and learn.

The first phase involved surveying the building's inherent potential, which serves as the foundation for determining the most suitable new function. The design focuses on creating a welcoming and easy-to-navigate space. To make the journey more pleasant and transparent, the visitors' paths and entry have been redesigned. Within the exhibition, the lights have been improved, and flexible layouts enable a wide variety of displays, making the space adaptable to evolving needs over time.

Functional components, such as personnel and office working spaces, are incorporated subtly along with the exhibition so that the building is still functional to daily needs without hiding its public nature. Two art studios have been introduced, and a bookshop with direct access to the new pavilion and the courtyard strengthens the cultural atmosphere and creates a lively, accessible hub for visitors.

The new pavilion is the focal point of the plan, light, modest, and transparent, softly encircles the old structure, framing it rather than competing with it. The contrast between the solid historic wall and the transparent form of a new structure creates a dialogue between past and now, old and new, permanence and change. The exterior of the existing building will become the interior of the new building, strengthening the cohesion and ambiance of the space. It is a creative interplay between exterior and interior, openness, transparency, and a distinct architectural form.

The new design strengthens the site's role within the city and enriches the public experience of the Horti Park. The roof is constructed as thinly as possible and has a maximum distance of crossing, seeming like a weightless element, floating around the old building. With an acoustic system in the roof, which minimizes the noise and its distribution for residents on the other side of the building.

For future intervention, through new cultural programs and expanded educational activities, the design provides a resilient framework that can grow without compromising the historic character of the site. In this way, the reuse of the former church and the addition of a multipurpose area for events and workspace not only addresses today's demands but also anticipates the needs of future generations, ensuring that the space remains meaningful, relevant, and built to last.

In the end, the project demonstrates how adaptive reuse can extend a historic building's life in a way that feels alive. Through the integration of legacy and innovation, transparency and solidity, memory and openness, the design not only preserves a monument but also establishes a gathering place that honors Pavia's cultural past and future.

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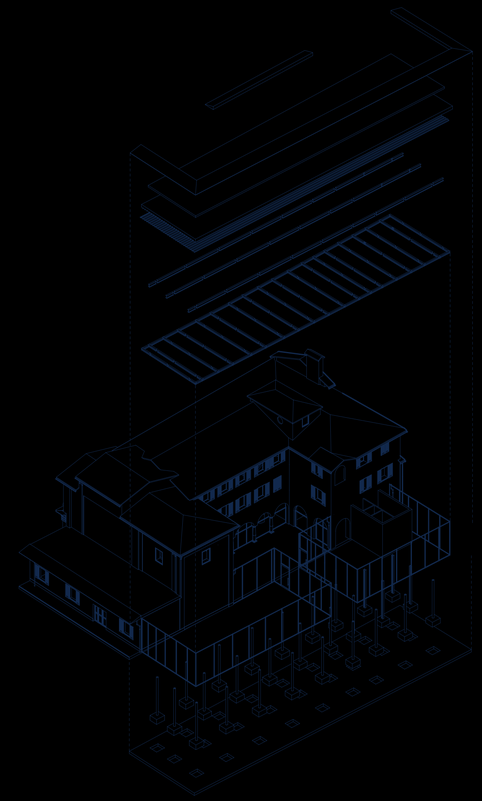
PART 2
INDIVIDUAL PROJECT

07

Technical Detailing

- Research of Examples and Market Solution
- Detailed Drawings

This part of thesis represents my independent research and technical development, specifically focusing on structural resolution, market references, and construction details, prepared for the July 2026 graduation session.



(BIPV) Canopy

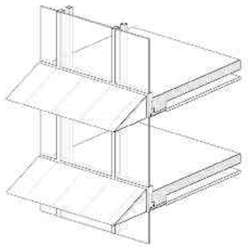


Figure 01 – canopy system

Source: Bellerivestrasse 36, Zürich – C.F. Møller Architects, ArchDaily

The construction design integrates a building-integrated photovoltaic (BIPV) canopy that combines renewable energy generation with passive shading, utilizing the specialized SYNAGE Suncol Tile solar system.

The top active layer consists of 8 mm photovoltaic panel. This configuration includes a 3.2 mm textured front solar glass and a 3.2 mm black back glass, maximizing solar energy collection while maintaining a seamless exterior appearance. To ensure optimal seasonal energy performance, the system requires a minimum installation pitch of 15°.

The underside of the canopy is finished with durable anodized aluminum sheet profiles (4 mm BWB Colinal), which fully conceal internal services while contributing to a clean and refined architectural appearance.

The entire canopy assembly is structurally supported by a framework of hot-dip galvanized steel tubes (80 × 40 × 4 mm, S235 steel). These members are rigidly interconnected and securely anchored to the main concrete slab using heavy-duty corrosion-resistant DIN 976A threaded rods embedded deep into the concrete, ensuring the safe transfer of cantilever, wind, and other dynamic environmental loads.



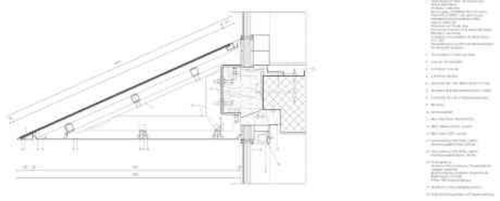


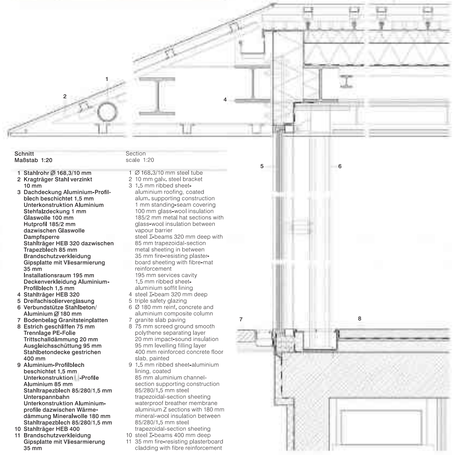
Figure 02 – canopy system.

Source: Bellerivestrasse 36, Zürich – C.F. Møller Architects, ArchDaily



Der neue Pavillon bietet nicht nur viel Platz für Ausstellungen und Veranstaltungen, sondern schafft auch eine direkte Verbindung zwischen den beiden Gebäudeflügeln.

The new pavilion provides not just a great deal of space for exhibitions and other events. It also forms a direct link between the two wings of the building.



Schnitt
Maßstab 1:20

1 Stahlrohr Ø 168,3/10 mm
2 Kragträger Stahl verzinkt 10 mm
3 Dachdeckung Aluminium-Profilblech beschichtet 1,5 mm
Unterkonstruktion Aluminium
Stehfalzdeckung 1 mm
Glaswolle 100 mm
Hutprofil 180/2 mm
Zwischenlage Glaswolle
Dampfsperre
Stahlträger HEB 320 dazwischen
Trapezblech 85 mm
Brandschutzverkleidung
Gipsplatte mit Vliesarmierung 35 mm
Installationsraum 195 mm
Deckenverkleidung Aluminium-Profilblech 1,5 mm
4 Stahlträger HEB 320
5 Brandschutzverkleidung
6 Verbundstütze Stahlbeton/Aluminium Ø 180 mm
7 Bodenbelag Granitsteinplatten
8 Estrich geschäftten 75 mm
Trennlage PE-Folie
Trittschalldämmung 20 mm
Ausgleichsschüttung 95 mm
Stahlbetondecke gestrichen 400 mm
9 Aluminium-Profilblech beschichtet 1,5 mm
Unterkonstruktion U-Profile Aluminium 85 mm
Stahltrapezblech 85/280/1,5 mm
Unterspannbahn
Unterkonstruktion Aluminiumprofile dazwischen Wärmedämmung Mineralwolle 180 mm
Stahltrapezblech 85/280/1,5 mm
10 Stahlträger HEB 400
11 Brandschutzverkleidung
Gipsplatte mit Vliesarmierung 35 mm

Section
scale 1:20

1 Ø 168,3/10 mm steel tube
2 10 mm galv. steel bracket
3 1,5 mm ribbed sheet+ aluminium roofing, coated alum. supporting construction
1 mm standing+seam covering
100 mm glass+wool insulation
180/2 mm metal hat sections with glass+wool insulation between
vapour barrier
steel I+beams 320 mm deep with 85 mm trapezoidal+section metal sheeting in between
35 mm fire+existing plaster+ board sheeting with fibre+mat reinforcement
195 mm services cavity
1,5 mm ribbed sheet+ aluminium soffit lining
4 steel I+beam 320 mm deep
5 fire+rated cladding
6 Ø 180 mm reinf. concrete and aluminium composite column
7 granite slab paving
8 75 mm screed ground smooth polythene separating layer
20 mm impact+sound insulation
95 mm levelling filling layer
400 mm reinforced concrete floor slab, painted
9 1,5 mm ribbed sheet+aluminium roofing, coated
85 mm aluminium channel+section supporting construction
85/280/1,5 mm steel trapezoidal+section sheeting
waterproof breather membrane
aluminium Z sections with 180 mm mineral+wool insulation between
85/280/1,5 mm steel trapezoidal+section sheeting
10 steel I+beams 400 mm deep
11 35 mm fire+resisting plasterboard cladding with fibre reinforcement

Figure 03– canopy system + glass façade connection to slab.

Source: published in DETAIL magazine, 2019

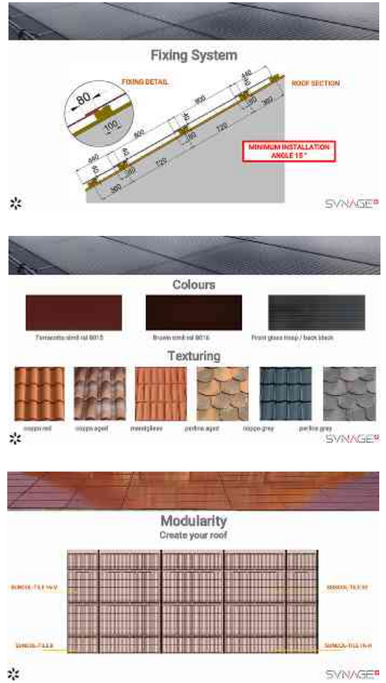


Figure 04– roof integrated photovoltaic system .

Source: SVNAGE website

Roof Stracture

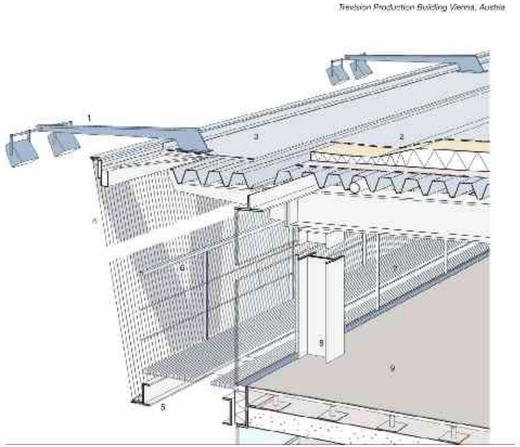


Figure 05 – metal deck upstand .

Source: Graham Bizley, Architecture in Detail II

The roof structure consists of a robust reinforced concrete composite deck (175 mm thick) supported by a heavy-duty white-coated galvanized steel beam grid (HEB 300 profiles). This structural system was selected for its high load-bearing capacity, excellent durability, and ability to achieve long spans with reduced overall self-weight compared to conventional concrete slabs. The corrugated (profiled) metal sheeting acts as permanent formwork during construction and as tensile reinforcement for the concrete topping, significantly accelerating the construction process while reducing temporary support requirements. Together, these components create a high-capacity structural slab with enhanced stiffness, efficient load distribution, and long-term resistance to corrosion and environmental exposure.

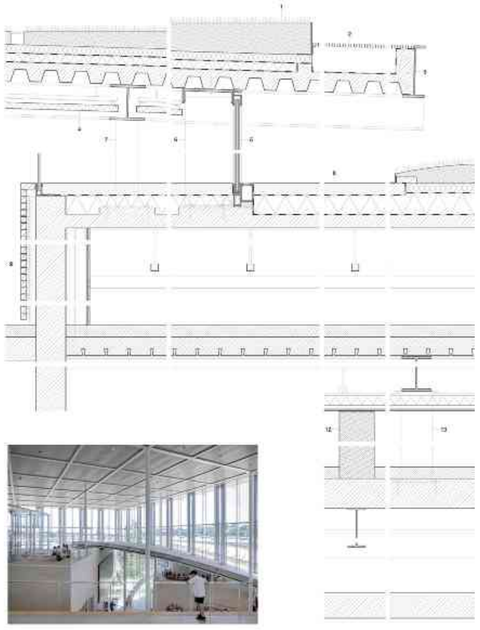


Figure 06 – reinforced concrete upstand .
Source: published in DETAIL Magazine, 2023





1 4,650/240 (475, 330)/100/3 mm galvanized sheet-steel planks painted white with embossed perforations
2 180/400 mm steel I-section girder
3 polyester sealing layer 80 mm rock-wool insulation 80 mm trapezoidal metal sheeting steel I-sections 100/200 mm
4 180/180 mm steel I-column
5 15 mm fibre-cement board 12.5 mm gypsum plasterboard polystyrene thermal insulation 100 mm rigid-foam slab post-and-rail partition with 2× 12.5 mm gypsum plasterboard, painted white
6 Ø 200 mm diagonal galvanized steel tube, painted white
7 sliding window in aluminium frame: 2× 6 mm toughened glass + 12 mm cavity
8 floor construction: carpet composite floor: trapezoidal sheet metal with 130 mm concrete topping 60/140 mm steel channels 180/400 mm steel I-beam grid
9 2× 12.5 mm gypsum plasterboard, painted black 40 mm thermal insulation 2× 12.5 mm gypsum plasterboard, painted black inbuilt furnishings
10 80 mm galvanized sheet-steel plank with embossed perforations 100/50 mm steel channel spacers
11 2× 6 mm laminated safety glass
12 fluorescent tube

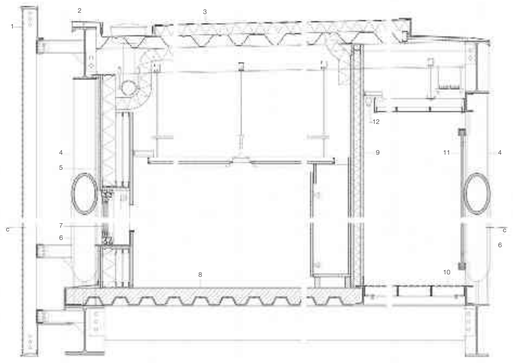


Figure 07– steel framework connection to slab.
Source: Sandra Hofmeister. School Buildings.

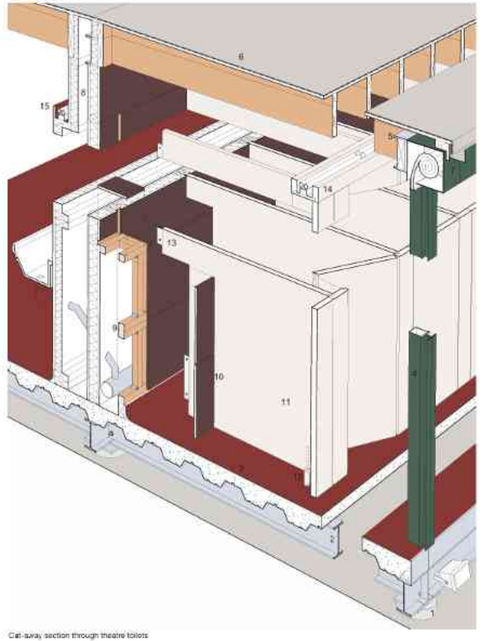


Figure 08 – reinforced concrete upstand .

Source: Graham Bizley, Architecture in Detail II

Green Roof

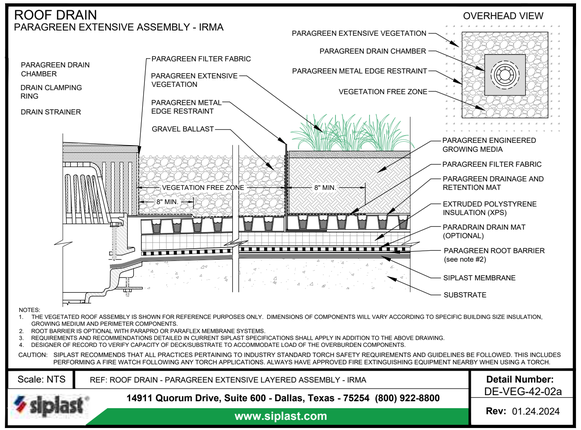


Figure 09 – Green roof canopia vegetapis vegetation-free zone and drain.

Source: Siplast website/technical documentation.

Above the slab, the green roof assembly is constructed using the Siplast system, selected for its high waterproofing reliability, root resistance, and long-term durability in vegetated roof applications. The layered build-up consists of a vapor barrier, 70 mm thermal insulation, a waterproofing membrane, a 70 mm drainage layer, and a 50 mm soil substrate supporting vegetation. This integrated system was chosen to enhance the building's environmental performance by improving thermal insulation, reducing stormwater runoff, and mitigating the urban heat island effect while supporting on-site biodiversity.. The entire assembly is enclosed by a steel edge beam with integrated drainage, ensuring controlled rainwater collection and discharge.

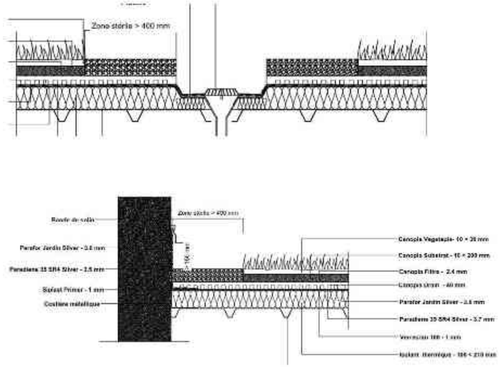


Figure 10 – Green roof canopia vegetapis vegetation-free zone and drain.
Source: Siplast website/technical documentation.

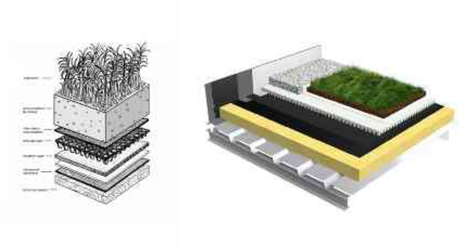


Figure 11 – Green roof canopia vegetapis.

Source: Siplast website/technical documentation.

Building Structure

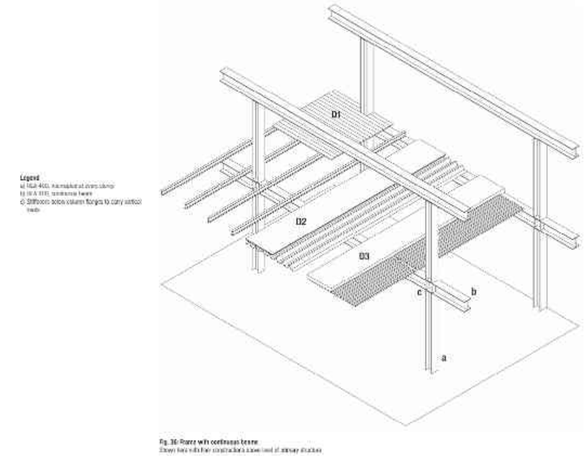


Figure 12 – Frame with continuous columns.
Source : Andrea Deplazes, Constructing Architecture: Materials, Processes.

The construction features a highly efficient bolted steel framework that integrates the floor structure. This structural system was selected for its high strength-to-weight ratio, long-span capability, and fast on-site assembly, while also reducing overall structural load.
The roof system is built upon a grid of main steel I-beams (180/400 mm), which support secondary steel channels (60/140 mm) laid perpendicular to them. These primary and secondary members are rigidly interconnected using heavy-duty structural bolts to ensure optimal load transfer and structural stability.
Directly above this framework, a trapezoidal metal sheet deck is installed, serving as permanent formwork for a 130 mm concrete topping to create a rigid composite floor assembly.

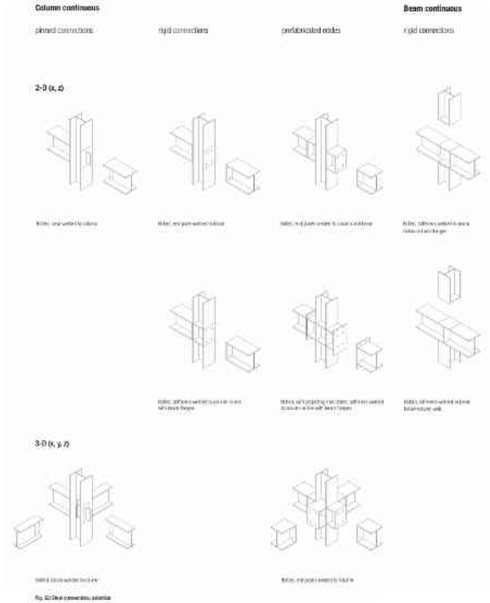


Figure 13 – Frame with continuous columns.
Source : Andrea Deplazes, Constructing Architecture: Materials, Processes.



Figure 14 – Steel structure.
Source: Graham Bizley, Architecture in Detail II

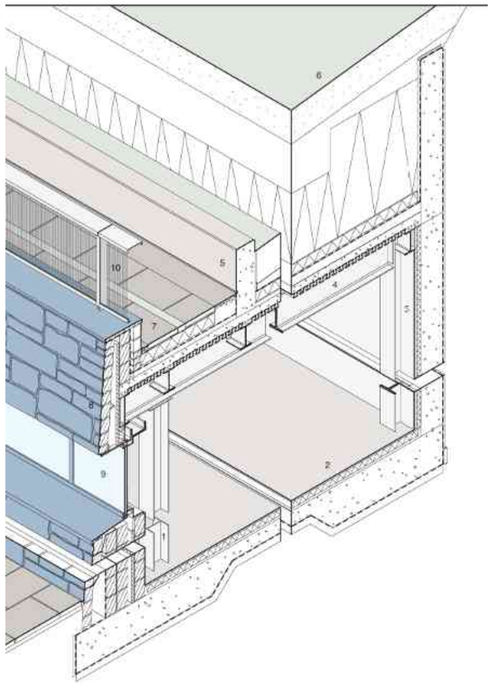


Figure 15 – Steel structure.
Source: Graham Bizley, Architecture in Detail I

Floor and Foundation

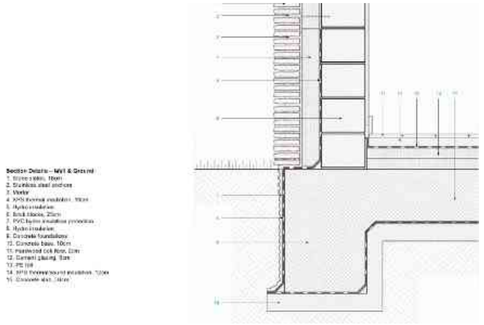


Figure 16 – foundation and floor slab.
Source: design media publishing limited, residential skin & details 2013

The ground floor consists of a 150 mm reinforced concrete slab over a prepared sub-base and foundation. This system was selected for its high load-bearing capacity, durability, and thermal mass, which enhances structural stability and improves indoor thermal performance.
The floor build-up includes 80 mm thermal insulation and a 100 mm polished screed, ensuring thermal efficiency and long-term durability. Steel columns are anchored to the concrete foundation using base plates and anchor bolts to safely transfer structural loads, while perimeter insulation minimizes thermal bridging.

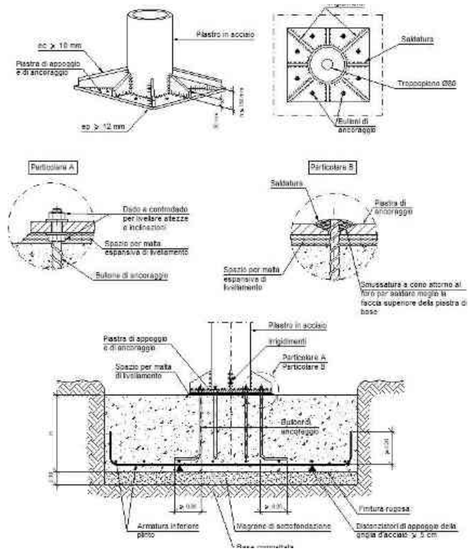


Figure 17 – foundation and column conection
Source: forums.Autodesk website

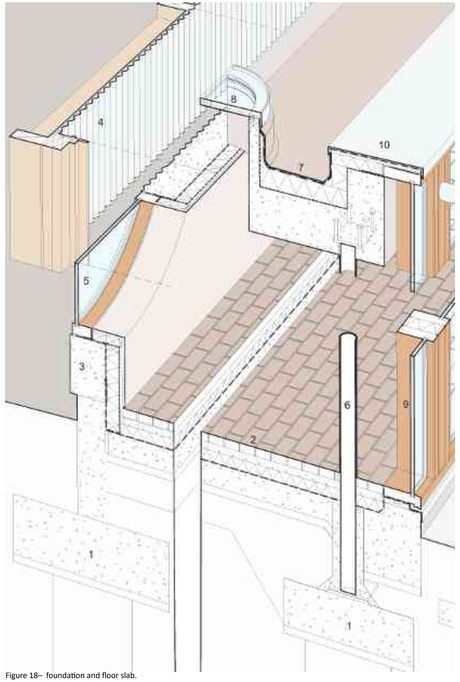


Figure 18– foundation and floor slab.
Source : Graham Bizley, Architecture in Detail I.



Photo: Rainer Retzlaff, Waltenhofen

Bruttorauminhalt:
768 m³ + 119 m³ Garage
Baukosten:
205.000 €
Baukosten/m² Nutzfläche:
1080 € (inkl. Keller)
Bauzeit:
14 Monate

Gross volume:
768 m³ + garage: 119 m³
Construction costs:
€205,000
Costs per m² floor area:
€1,080 (inc. basement)
Construction period:
14 months

Lageplan
Maßstab 1:2000

Schnitt + Grundrisse
Maßstab 1:250

1 Küche
2 Essen
3 Wohnen
4 Hauswirtschaft
5 WC
6 Diele/Garderobe
7 Garage
8 Kind
9 Schlafen
10 Ankleide
11 Bad

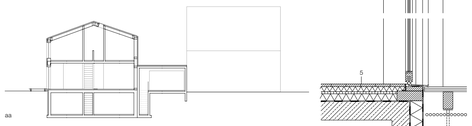
Site plan
scale 1:2000

Floor plans + Section
scale 1:250

1 Kitchen
2 Dining room
3 Living room
4 Utilities room
5 WC
6 Hall/Cloakroom
7 Garage
8 Child's room
9 Bedroom
10 Dressing room
11 Bathroom

Schnitte
Maßstab 1:20

Sections
scale 1:20



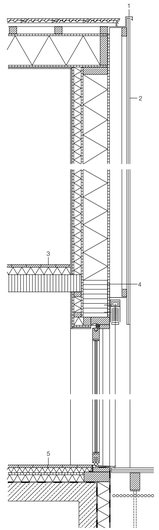


Figure 19– foundation and floor slab.
Source : published in DETAIL Magazine, 2006.

Facade

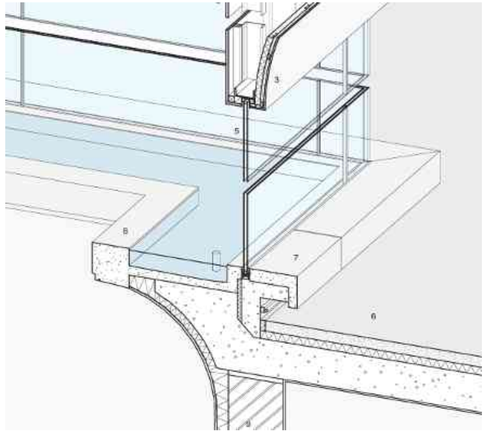


Figure 20 – curtain wall system
Source: Graham Bizley, Architecture in Detail I

The façade consists of a high-performance aluminium curtain wall system with integrated sliding glass openings. This system was selected for its lightweight yet durable structure, ability to achieve large transparent spans, and long-term corrosion resistance while maximizing natural daylight and visual connectivity.
PPC aluminium mullions and transoms form the main structural grid, anchored to the primary steel frame through steel support plates for efficient wind-load transfer. Double-glazed units provide thermal insulation and safety. Sliding glass panels run on recessed rails integrated into the roof and floor structure, creating a flush, barrier-free transition while maintaining thermal insulation and minimizing thermal bridging.

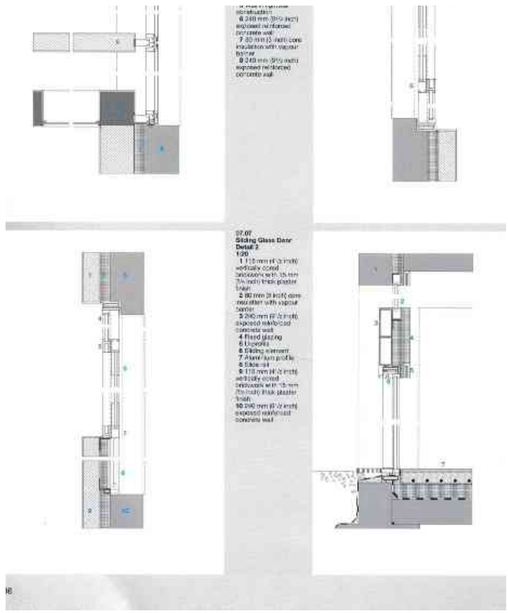


Figure 21– curtain wall glass system + thermal insulation
Source: Virginia McLeod, Detail in Contemporary Residential Architecture.

Vertikalschnitt Horizontalschnitt Maßstab 1:20	Vertical section Horizontal section scale 1:20
1 Abdichtung Bitumenbahn zweilagig Gefälledämmung Steinwolle 100–200 mm Wärmedämmung Steinwolle 300 mm Dampfbremse Trapezblech Aluminium 130 mm Stahlprofil IPE 400 Abhängung	1 two-ply bituminous sealing layer 100–200 mm stone-wool insulation to falls; 300 mm stone-wool insulation; vapour retarding layer 130 mm aluminium trapezoidal sheeting IPE 400 steel beam 50 mm suspended acoustic insulation
akustische Dämmung 50 mm Aluminiumblech gelocht 2 mm 2 Aluminiumblech eloxiert 2 mm Trennlage Sperrholz 18 mm 3 Kanthölz 45/120 mm 4 Brettschichtholz 140/480 mm 5 Dreifachverglasung 6 Fußbodenheizung 7 Estrich geschliffen 150 mm mit Fußbodenheizung	2 mm perforated aluminium sheet 2 mm anodised aluminium sheet separation layer 18 mm plywood 3 45/120 mm timber section 4 140/480 mm glulam 5 triple glazing in aluminium frame 6 150 mm sanded cement screed; underfloor heating 100 mm thermal insulation
Wärmedämmung 100 mm Kunststofffolie Betonfertigdecke 300 mm kapillarbrechende Schicht 200 mm Geotextil; Perimeterdämmung 80 mm 7 Aluminiumblech 2 mm; Trapezblech Aluminium 18 mm Dampfbremse Bitumen zweilagig Sperrholz 18 mm Kanthölz	plastic membrane 300 mm reinforced concrete floor slab 200 mm broken stone; capillary layer; geotextile 80 mm perimeter insulation 7 2 mm aluminium sheet 18 mm aluminium trapezoidal sheeting two-ply bituminous vapour barrier 18 mm plywood 190 mm stonewool thermal insulation

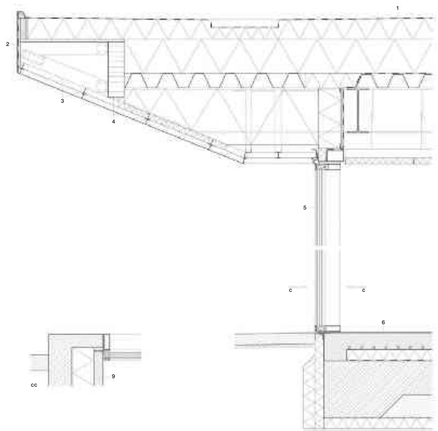


Figure 22 – glass facade .

Source : published in DETAIL Magazine, 2021 .

Hinter der transluzenten Polycarbonatsäule ist ein leichter textiler Vorhang zu erkennen. Im geschlossenen Zustand schirmt er die Außenbereiche vom Straßenraum ab.

A light textile curtain is located behind the translucent polycarbonate column. When the curtains are drawn, they shield off the outdoor areas from the streetscape.

Schnitt Maßstab 1:20	Section scale 1:20
1 Polycarbonatplatte transluzent 2 mm 2 Stahlprofil I 200/200/8/12 mm Wärmedämmung PUR-Ortschaum 40 mm 3 Abdichtung PVC 2 mm Betonplatte zementgebunden 18 mm Unterkonstruktion Holz im Gefälle Trapezblech Stahl 50 mm Wärmedämmung PUR-Ortschaum 40 mm + Glaswolle 150 mm abgeh. Decke Gipskartonplatten gestrichen 12,5 mm 4 Stahlblech verzinkt 0,35 mm Lattung 45/15 mm Konterlattung 45/15 mm Fassadenbahn diffusionsoffen Gipskartonplatte 9,5 mm 5 Zweifachverglasung in Aluminiumrahmen 6 Weißblech Stahl verzinkt 0,35 mm Lattung 45/15 mm Konterlattung 45/15 mm Fassadenbahn diffusionsoffen Gipskartonplatte feuchtebeständig 9,5 mm Kanthölz dazwischen Wärmedämmung Glaswolle 150 mm Gipskartonplatte gestrichen 12,5 mm 7 Geländerpfosten/ Handlauf Stahlrohr Ø 21 mm Füllung Textilnetz 8 Parkett Eiche 15 mm Sperrholzplatte 12 mm Lattung 60 mm Trapezblech Stahl 25 mm Wärmedämmung PUR-Ortschaum 40 mm + Glaswolle 150 mm abgehängte Decke Kalziumsilikatplatte gestrichen 6 mm 9 Tatami-Matte 50 mm	1 2 mm translucent polycarbonate panel 2 200/200/8/12 mm steel I-beam 40 mm PUR spray foam thermal insulation 3 2 mm PVC sealant 18 mm cement bonded particle board wood framing to falls 50 mm corrugated sheet steel 40 mm PUR spray foam + 150 mm glass wool thermal insulation 12.5 mm gypsum board suspended ceiling 4 0.35 mm galvanised sheet steel 12 mm fire resistant gypsum board framing: 45/15 mm battens 45/15 mm counter-battens diffusion open facade membrane 9.5 mm gypsum board 5 double glazing in aluminium frame 6 0.35 mm galvanised corrugated sheet metal; 45/15 mm battens; 45/15 mm counterbattens diffusion open facade membrane 9.5 mm moisture resistant gypsum board 150 mm wood blocking inlaid glass wool thermal insulation 12.5 mm gypsum board, painted finish 7 Ø 21 mm steel CHS post/handrail textile mesh fall protection 8 15 mm oak parquet 12 mm plywood panel; 60 mm battens 25 mm corrugated sheet steel 40 mm PUR spray foam + 150 mm glass wool thermal insulation 6 mm calcium silicate suspended ceiling panel, painted finish 9 50 mm tatami mat

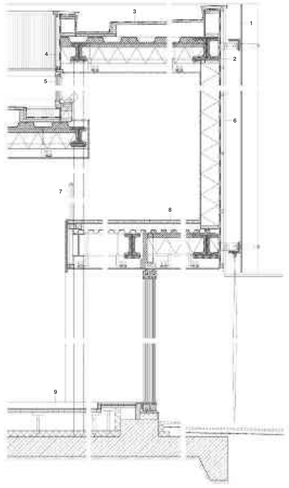


Figure 23 – glass facade .

Source : published in DETAIL Magazine, 2009.

Fotos der Baustelle
Photos of the construction site
ca. 30.06.
12-2022-kach

Curtain wall and Sliding Door

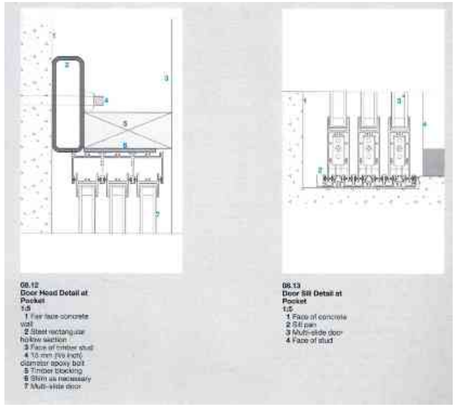


Figure 24 – sliding door connections

Source: Virginia McLeod, Detail in Contemporary Residential Architecture.

The building envelope features an integrated glazing strategy utilizing ETEM for the curtain wall and Reynaers Aluminium for the sliding doors. The facade relies on the ETEM E85 curtain wall system, which is securely anchored to the building's concrete structure using heavy-duty ETEM fixing brackets and high-strength M12 anchors to efficiently manage wind loads. Blending into this envelope are the Reynaers CP 130 Functional sliding doors, featuring a high-insulation monorail system (CP 130 HI) with specialized thermal breaks and glazing gaskets. This combination ensures maximum structural stability, smooth sliding operation, and excellent thermal performance across the entire glass facade.

CP 130 Functional

CP 130
CP 130
CP 130
CP 130

Reynaers Aluminium

	L	#
068.7750.00		2
068.7832.00		2
068.7952.00		2
068.8175.00		1
060.8723.--		7
069.6565.04		3
062.7978.04		0.5
062.7976.04		0.5
068.8731.00		1
069.8422.04		4
071.6554.SY		1
069.8703.01		5
080.9126.SY		1086 mm
080.9114.SY		1086 mm
080.9815.SY		550 mm
081.9123.04		2500 mm
052.5302.--		6
052.5305.--		3
052.5310.--		4
052.5317.--		2
053.5403.--		2
080.9625.07		1100 MM
084.9412.07		500 MM
080.9231.07		380 MM

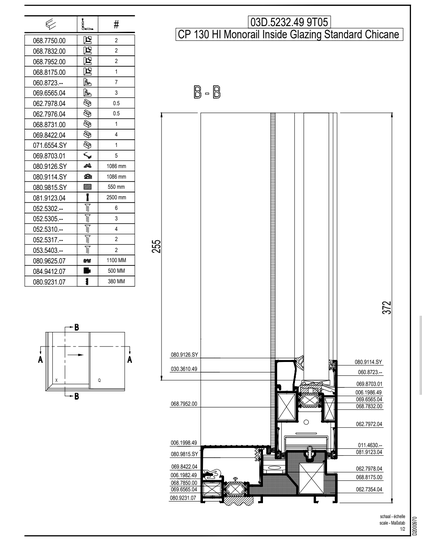


Figure 25- HiFinity glazing SlidingDoor
Source: Reynaers Aluminum website

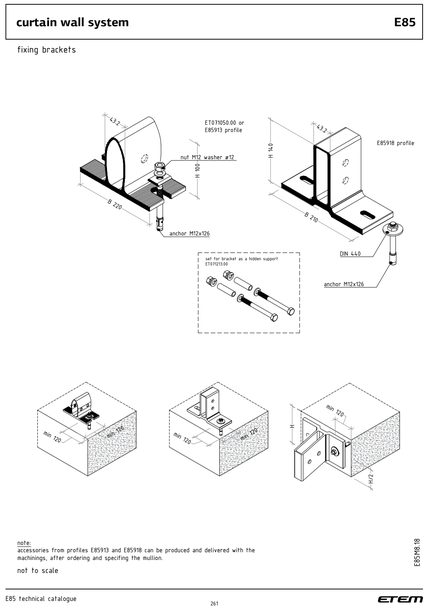


Figure 26- ETEM Curtain wall conection

Source: ETEM website

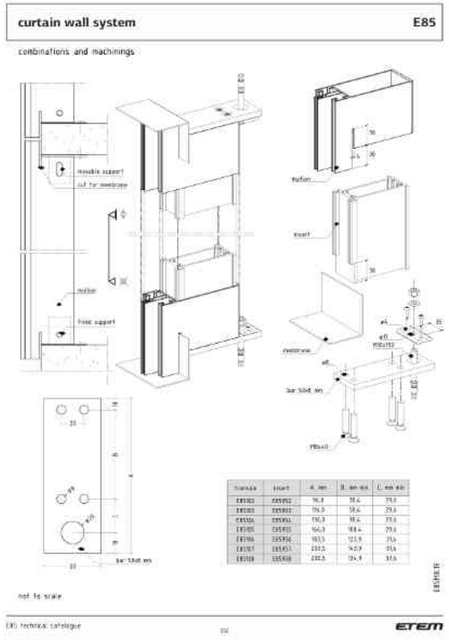


Figure 27- ETEM Curtain wall conection

Source: ETEM website

Connections and Details

The canopy is rigidly anchored to the concrete roof slab through steel brackets that efficiently transfer dynamic loads. This connection system was chosen for its structural stability and ability to resist cantilever forces. A structural gap separates the new roof from the historic church wall, preventing load transfer and preserving the masonry. A flexible expansion joint with flashing ensures waterproofing while allowing independent movement. The canopy is cantilevered from the main steel frame, with forces transferred directly to the steel I-beams and columns for a stable connection.

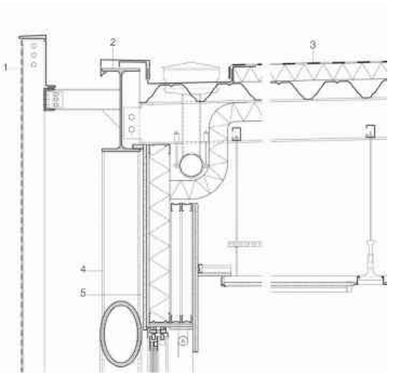


Figure 28– canopy structure connection to beam.

Source: published in Passive House Design, 2011

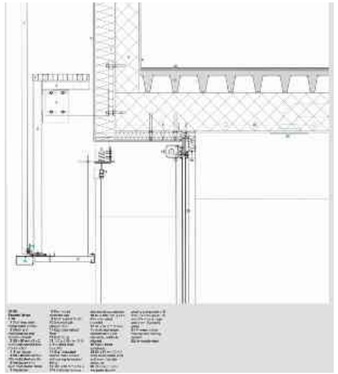


Figure 29– canopy structure connection to slab.

Source: Detail in Contemporary Glass Architecture

The suspended soffit is attached to the profiled steel deck using steel hangers and a secondary metal frame. This system was selected for its lightweight construction, ease of installation, and ability to create a concealed service zone for MEP integration. Finished with gypsum plasterboard, it provides a clean interior appearance while accommodating building services and additional insulation.

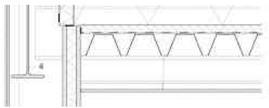


Figure 30– plaster ceilings to steel deck connection.

Source: published in DETAIL Magazine, 2024

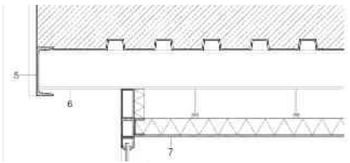


Figure 31– suspended soffit.

Source: Christian Schittich , Cost-Effective_Building

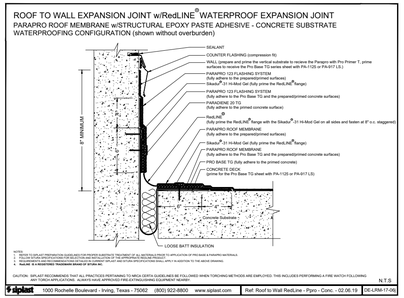


Figure 32– gap separation .

Source: Siplast website

A structural gap separates the new roof from the existing church wall to prevent load transfer and protect the historic masonry from additional stress. This separation allows independent thermal and structural movement of both systems, reducing the risk of cracking or material deterioration. A flexible expansion joint with flashing ensures waterproofing while accommodating movement between the two structures.

A continuous drainage channel is positioned along the entrance threshold at the base of the façade to collect rainwater runoff. This system was selected to ensure efficient surface water management and prevent water accumulation in high-traffic areas. The linear gutter captures runoff along the full length of the entrance and directs it into the drainage system, protecting the doorway and interior from water ingress.

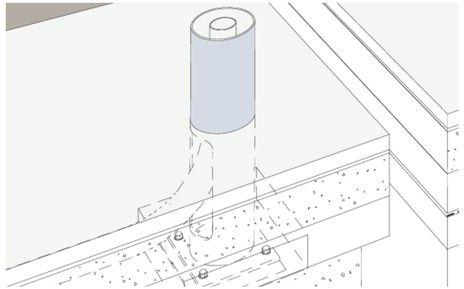


Figure 33– rainwater drainage in the structural columns.

Source: Graham Bizley, Architecture in Detail II

The rainwater drainage system is integrated within the structural columns, concealing the downpipes for a clean architectural appearance while protecting them from external damage. This solution improves visual integration and reduces exposed service elements. On the south side, rainwater is drained through pipes embedded inside the columns, while on the north side it is directed through the roof toward the existing building wall for discharge. Thermal and acoustic insulation minimizes thermal bridging and noise transmission.

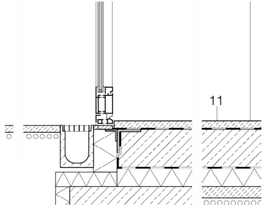


Figure 34– floor drain with grate.

Source:published in DETAIL magazine, 2012

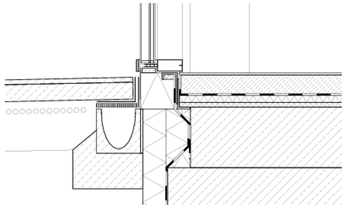
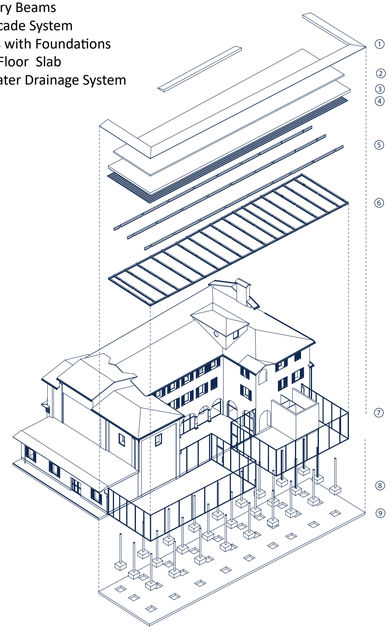


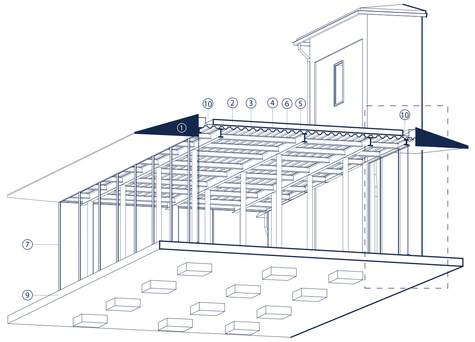
Figure 35– floor drain with grate.

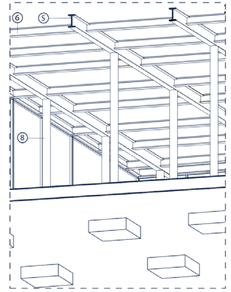
Source:published in DETAIL magazine, 2019

Exploded Construction System Diagram

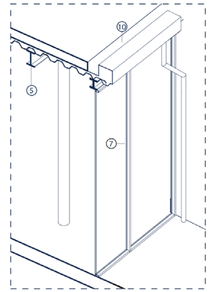
1.BIPV Canopy
2.Green Roof
3.Composite Concrete Slab
4.Steel Deck Sheets
5.Primary Beams
6.Secondary Beams
7.Glass Facade System
8.Columns with Foundations
9.Ground Floor Slab
10. Rainwater Drainage System







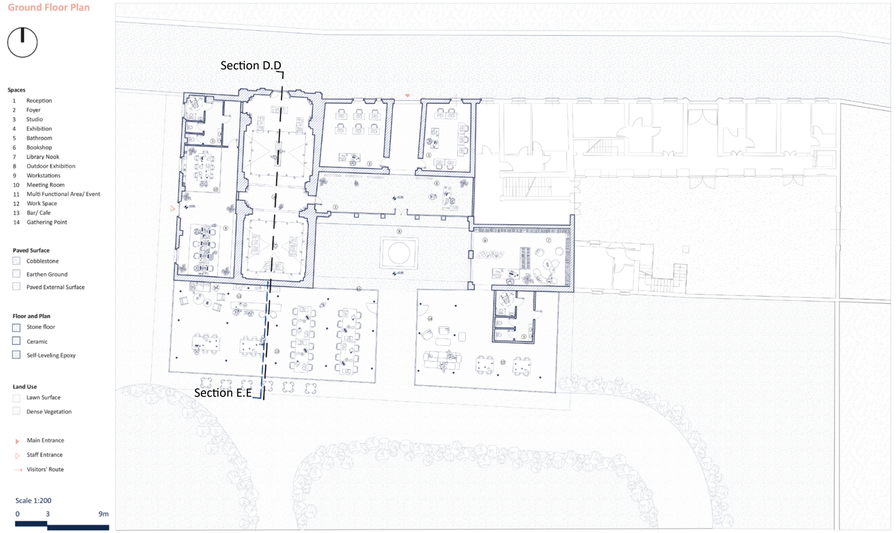
Steel structure



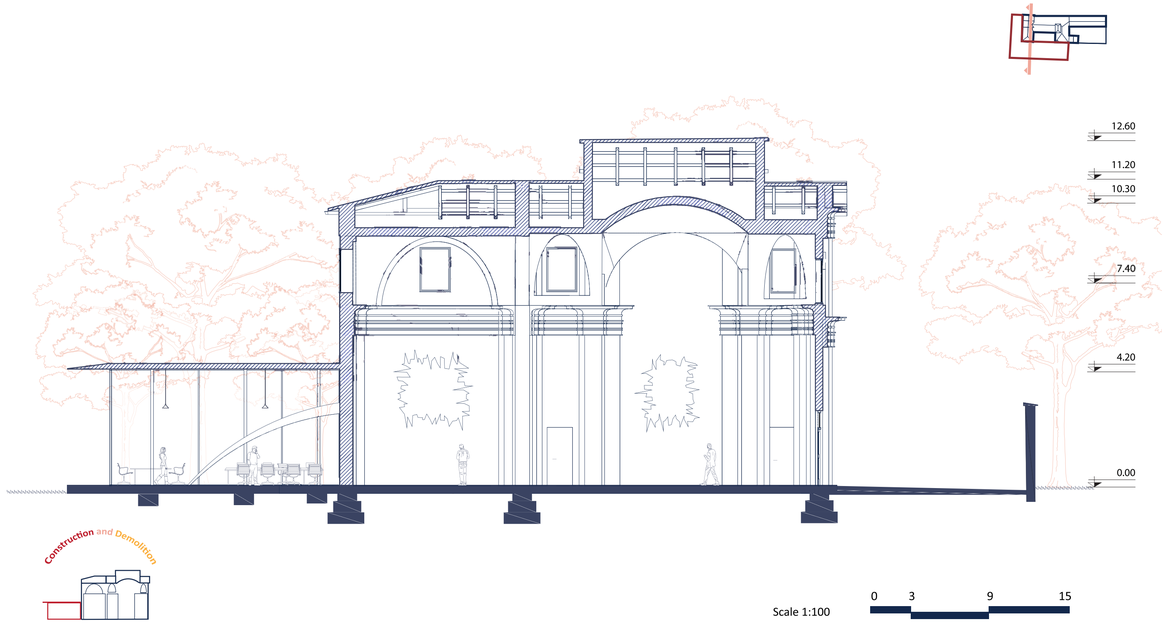
Rainwater Drainage

Sections

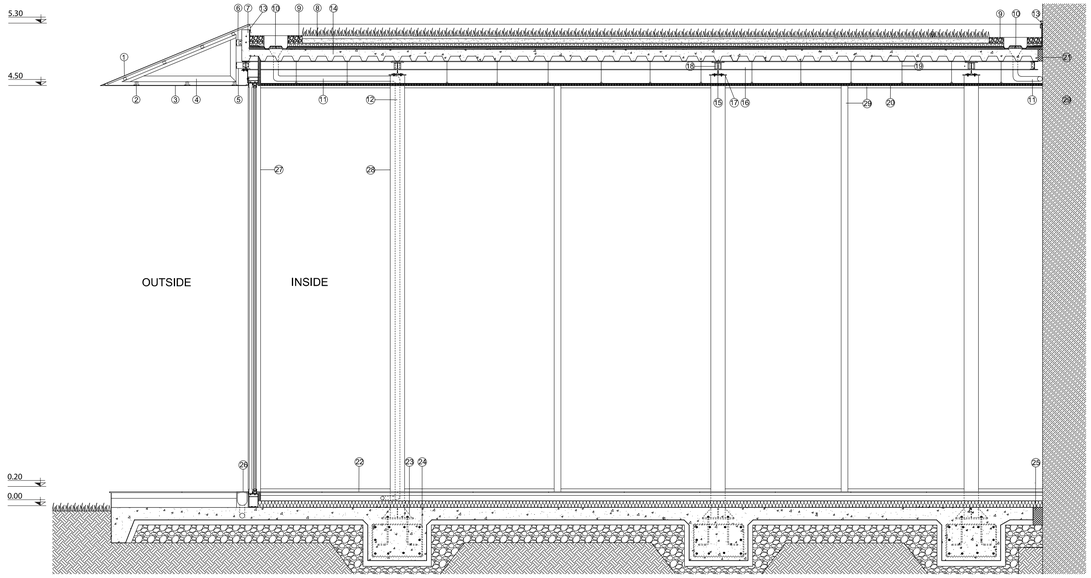
Ground Floor Plan



Section D.D



Section E.E



SCALE: 1.20 0 0.25m 0.75m 1.75m

BIPV CANOPY(Building-Integrated Photovoltaic Canopy)
1.PV module with a matte anti-reflective texture, aluminium soffit system, integrated maintenane rail **2**. 50×50×5 mm aluminium L-profile fixed with blind / locking rivets **3**. 2 mm perforated aluminium sheet **4.**rectangular steel tube canopy frame, RHS 80×40×4 mm **5**. 10 mm thick bolted steel bracket connecting the canopy frame to the secondary I-beam **6.** 20 mm thick bolted steel base plate fixed to a 15 mm embedded steel anchor plate with rebar tails within the RC upstand **7.**reinforced concrete upstand for canopy anchoring.

GREEN ROOF
8.green roof build-up with 30 mm vegetation mat, 15 mm extensive substrate, filter fleece, 40 mm drainage layer, waterproofing membrane, separator layer, and 40 mm tapered thermal insulation forming min. 2% fall toward roof drains **9.** 40mm vegetation-free zone **10**. drain strainer, drain flange **11.**rainwater drainage pipe **12.**concealed rainwater downpipe integrated within column casing and connected to below-slab drainage **13**. 1.5 mm aluminium flashing strip.

COMPOSITE STEEL DECK SLAB
14.composite steel deck slab with 55 mm profiled steel deck and 120 mm concrete topping **15.**primary steel I-beam, indicatively IPE 300 **16.**secondary steel I-beam, indicatively IPE 200 **17**. 15 mm thick steel bearing plate supporting the primary beam on top of the column **18.**bolted splice-plate shear connection between primary and secondary steel I-beams, with 10 mm thick splice plates and M16 bolts **19.**adjustable Ø8 mm steel hanger rods supporting the suspended ceiling grid from the steel deck **20.**suspended plasterboard ceiling system with smooth painted finish **21.**roof expansion joint against existing masonry wall.

INSULATED GROUND FLOOR SLAB
22. 15mm interior floor finish tiles, 30mm cement screed, 80mm lightweight foam concrete, 100mm rigid insulation (xps), waterproofing membrance (dpm), 200mm reinforced concrete slab, 60mm blinding concrete, 300mm compacted gravel **23.**circular steel column base connection with 20 mm thick base plate and M20 anchor bolts fixed to the RC footing **24.**column base footing **25.**floor slab expansion joint / movement joint **26.** floor drain with grate**.**

FULL-HEIGHT GLASS FAÇADE
27.sliding glass door system fixed with a bottom aluminium base shoe anchored to the concrete slab and a 6 mm thick top steel angle bracket bolted to the beam profile **28.**circular steel column, CHS Ø139.7×6.3 mm, connected to the RC footing below with a bolted base plate and to the primary steel I-beam above with a top cap/bearing plate **29.**existing masonry wall **30.**full-height curtain wall glazing fixed to slab and roof beam with a bottom aluminium base channel and 6 mm thick top steel angle bracket, similar to the sliding door fixing detail.

Conclusion

Technical Feasibility and Constructive Resolution

The primary objective of this individual research was to bridge the gap between architectural conceptualization and technical feasibility. By developing the project at a 1:20 scale, the abstract design was translated into a realistic, buildable structure.

A critical aspect of this phase was resolving the structural knots and defining the complex relationship between the existing historical masonry and the new lightweight intervention. Through detailed cross-sections and construction sequence analysis, the structural behavior of the continuous steel framing and its connection to both the foundation and the composite roof was clarified.

Furthermore, the integration of extensive market research played a fundamental role in validating the design. By selecting and applying real-world, standardized market products; such as certified curtain wall systems, lightweight green roof assemblies, and specific metallic fascias; the project guarantees compliance with contemporary thermal, acoustic, and structural performance standards.

Ultimately, this technical detailing process demonstrates that the architectural vision is not only aesthetically coherent but also structurally sound, sustainable, and fully prepared for real-world execution.

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SVNAGE. BIPV Solar Systems and Integrated Tile Specifications.

Acknowledgement

The completion of this thesis is the result of a collaborative effort and the support of individuals whose contributions have greatly enhanced this academic project.

First and foremost, I would like to express my sincere gratitude to Professor Matteo Robiglio, whose invaluable guidance, unwavering support, and insightful feedback have shaped this work from the very beginning. His expertise and dedication have been a constant source of inspiration, and I am truly fortunate to have learned so much under his supervision.

I am equally thankful to my co-advisor, Elena Guidetti, for her patience, encouragement, and constructive criticism throughout the process. Her perspective and attention to detail have been instrumental in refining both the research and the outcome of this thesis.

I would also like to thank the YAC Association for organizing this architectural competition, providing essential documents, and supporting the project framework. My appreciation extends to the staff of the Horti, whose assistance during multiple site surveys greatly facilitated the development of the proposal.

I am deeply grateful to all those who, directly or indirectly, contributed their time, knowledge, and encouragement. My beloved wife, for their support and company. My group mate, Melika Soheili, whose presence has not only been a source of strength but has also made this journey unforgettable.

Beyond academic support, this journey would not have been possible without the sacrifices and love of my parents. As an immigrant student, I am deeply aware of the challenges and efforts they endured to allow me to pursue my education abroad. Their encouragement and belief in me have been the foundation of everything I have achieved.

Master of Science in
Architecture for Sustainability

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Degree Thesis
July 2026