

BASIC IDENTIFICATION**Site name:**

Basilica of San Lorenzo

Location:

Vicenza (Veneto, Italy), Piazza San Lorenzo

Associated complex:

Franciscan convent of San Lorenzo (church and conventual buildings)

Geographical context:

Peripheral area of the medieval city of Vicenza, integrated into the urban fabric during the late 13th century, near major civic and commercial routes

Chronological range (site):

Late 13th century – present

Focus period for roofing systems:

Late 13th century (c. 1280–1300), with later structural reinforcements



Figure 1. Vicenza, Basilica of San Lorenzo, exterior view. (Source: A. Passuello)

1. HISTORICAL OVERVIEW

The Basilica of San Lorenzo in Vicenza is one of the most significant expressions of Italian Gothic architecture within the mendicant context, and a pivotal monument for

understanding the interaction between roofing systems, vaulting, and light in late medieval ecclesiastical architecture.

The church was founded by the Franciscan order around 1280, on a site previously occupied by a smaller chapel belonging to the cathedral chapter. Its location, initially peripheral to the historic core of Vicenza, reflects a broader mendicant strategy of establishing religious centres in marginal or developing urban areas, where preaching activity could stimulate social and spiritual renewal.

Construction progressed rapidly and was largely completed by circa 1300, resulting in a remarkably coherent architectural organism. The Franciscans occupied the complex continuously until 1796, when Napoleonic suppression led to their expulsion. During the 19th century, the church suffered neglect, changes of use, and structural degradation, particularly affecting its vaulting systems. Only in the early 20th century did systematic restoration campaigns restore San Lorenzo to its monumental character.

Within the CaMeRoofs project, San Lorenzo represents a fully vaulted Gothic church whose roofing systems are inseparable from the orchestration of light, making it an ideal counterpart to timber-roofed basilicas such as San Fermo Maggiore.



Figure 2. Vicenza, Basilica of San Lorenzo, exterior view of the northern flank and the cloister. (Source: A. Passuello)

2. BUILDING PHASES AND CHRONOLOGY

2.1 Foundation and Construction (c. 1280–1300)

The construction of San Lorenzo unfolded within a relatively short time span, resulting in strong formal and structural unity. The church adopts a Latin cross plan, inspired by Cistercian and early Franciscan models, emphasising clarity, rhythm, and spatial legibility.

The three-nave structure terminates in polygonal apses, originally rectangular and later reshaped between the 14th and 16th centuries. Massive cylindrical stone columns rise from square bases and support pointed arches that articulate the nave arcade. Their capitals, decorated with double tiers of crochet leaves and octagonal abaci, show close affinities with those of Santa Corona, suggesting either shared workshops or itinerant sculptors active in Vicenza during the late 13th century.

2.2 Vaulting Campaign and Roofing Strategy

From the outset, San Lorenzo was conceived as a fully vaulted church, an ambitious choice within the Italian context. The central nave is covered by five quadripartite ribbed cross vaults, mirrored by narrower but equally elongated vaults in the side aisles. The transept and presbytery continue this system, creating a continuous structural and visual rhythm throughout the interior.

Above the vaults, a timber roof structure protects the extrados and defines the external profile of the church. The relationship between vaulting and roof is thus complementary rather than hierarchical, with the masonry vaults shaping interior space and the timber roof ensuring weather protection.

2.3 Later Interventions and Reinforcements

In the early 20th century, structural concerns prompted the installation of iron tie rods (1903–1909) to counteract vault thrusts. These interventions, though invasive, ensured the long-term stability of the Gothic roofing system. Subsequent restorations in the 1920s aimed to recover the medieval spatial character, re-establishing the legibility of the vaults and light openings.

3. STRUCTURAL AND TYPOLOGICAL ANALYSIS OF THE ROOFING SYSTEMS

3.1 Pointed Cross Vaults as Structural and Spatial Framework

The roofing system of San Lorenzo is dominated by its pointed ribbed cross vaults, which serve as both the primary structural system and the principal spatial organiser. The adoption of pointed arches reduces horizontal thrust compared to semicircular vaults, allowing for thinner walls and larger openings.

The ribs act as a skeletal framework, concentrating loads along defined paths and transferring them efficiently to the supporting columns and perimeter walls. The infill webs, relatively thin and lightweight, minimise overall mass while maintaining structural coherence.



Figure 3. Vicenza, Basilica of San Lorenzo, interior view. (Source: A. Passuello)

3.2 Integration of Vaulting and Light

In San Lorenzo, vaulting and illumination are inseparable. Each bay of the central nave is pierced by a large oculus positioned just below the springing of the vault, a solution that enhances both structural clarity and luminous balance. In the side aisles, each bay combines an oculus with two tall trilobed windows, reaching nearly nine metres in height—an exceptional dimension for Italian Gothic architecture.

The apse further intensifies this strategy, with three tall windows and three oculi in the central termination and paired windows in the lateral apses. In total, the church incorporates 55 light openings, including the great rose window and façade lancets.



Figure 4. Vicenza, Basilica of San Lorenzo, quadripartite rib vaults of the central nave. (Source: A. Passuello)

3.3 The Attic Spaces and Hidden Roofing Layers

One of the most extraordinary aspects of San Lorenzo is the illumination of the attic spaces above the vaults, achieved through a continuous sequence of oculi along the upper walls. These openings illuminate the extrados of the vaults and the timber truss system supporting the roof covering.

Such attic lighting is exceedingly rare in Italy and finds closer parallels in northern European Gothic architecture, where triforium passages and roof spaces were occasionally lit. In San Lorenzo, however, this feature reflects a deliberate architectural choice, extending the logic of light beyond visible space and reinforcing the coherence of the entire roofing system.

3.4 Structural Performance and Long-Term Behaviour

The combined system of masonry vaults and timber roof has demonstrated remarkable durability. Despite later reinforcements, the original Gothic design remains structurally intelligible and effective, confirming the technical competence of late 13th-century builders in Vicenza.

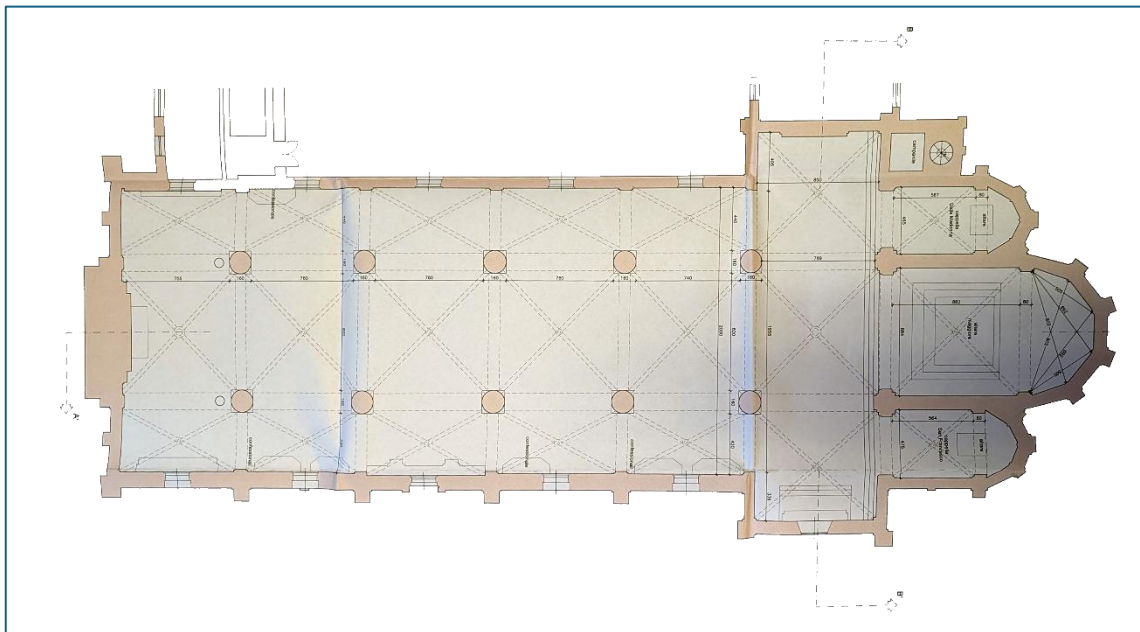


Figure 5. Vicenza, Basilica of San Lorenzo, ceiling plan showing the quadripartite rib vaults. (Source: SABAP VR–RO–VI)

4. CONTEXTUALIZATION OF THE ROOFING SYSTEMS

4.1 San Lorenzo within Mendicant Gothic Architecture

San Lorenzo stands at the forefront of Franciscan Gothic architecture in northern Italy, combining structural ambition with functional clarity. Unlike more restrained Italian Gothic churches, it embraces a luminous interior suited to preaching and communal worship.

4.2 Local Comparisons: Santa Corona and Santa Anastasia

In Vicenza, Santa Corona and San Lorenzo offer a meaningful comparison: although both churches share a Gothic architectural vocabulary, in both cases the interior space is defined by ribbed vaulting extending throughout the nave and presbytery. In each building, a timber truss roof is positioned above the vaults as an independent protective structure, not visible from the interior. The comparison therefore highlights not a difference in roofing typology,

but variations in proportion, spatial articulation, and construction sequence within a shared mendicant framework.

In Verona, Santa Anastasia represents a later and more monumental development of the same principles, with taller proportions and a more directional use of light focused on the choir.



Figure 6. Vicenza, Basilica of San Lorenzo, detail of the attic spaces above the central nave. (Source: A. Passuello)

4.3 Regional and European Context

San Lorenzo influenced subsequent mendicant churches such as Sant'Agostino in Padua and San Nicolò in Treviso, and ultimately contributed to the development of monumental Venetian Gothic basilicas like Santa Maria Gloriosa dei Frari and Santi Giovanni e Paolo.

Compared to French Gothic cathedrals, San Lorenzo avoids extreme verticality and dazzling luminosity, opting instead for a balanced and diffused light, adapted to Italian aesthetic and liturgical sensibilities.

4.4 Light as an Ordering Principle

As theorised by Panofsky and von Simson, light in Gothic architecture functions as a metaphysical and spatial ordering principle. San Lorenzo exemplifies this concept within an Italian framework, where structural innovation and symbolic meaning converge without abandoning regional traditions.

5. RESTORATION HISTORY AND CONSERVATION STATUS

The principal restoration campaigns affecting the roofing systems occurred between 1903 and 1909, when iron tie rods were installed to stabilise the vaults. Further interventions in the 1920s focused on restoring the church's medieval appearance and structural coherence.

Today, the vaults, roof, and attic spaces are in a stable condition. The Gothic roofing system of San Lorenzo continues to function effectively, offering scholars an exceptional opportunity to study the interplay of structure, light, and space in a mendicant context.

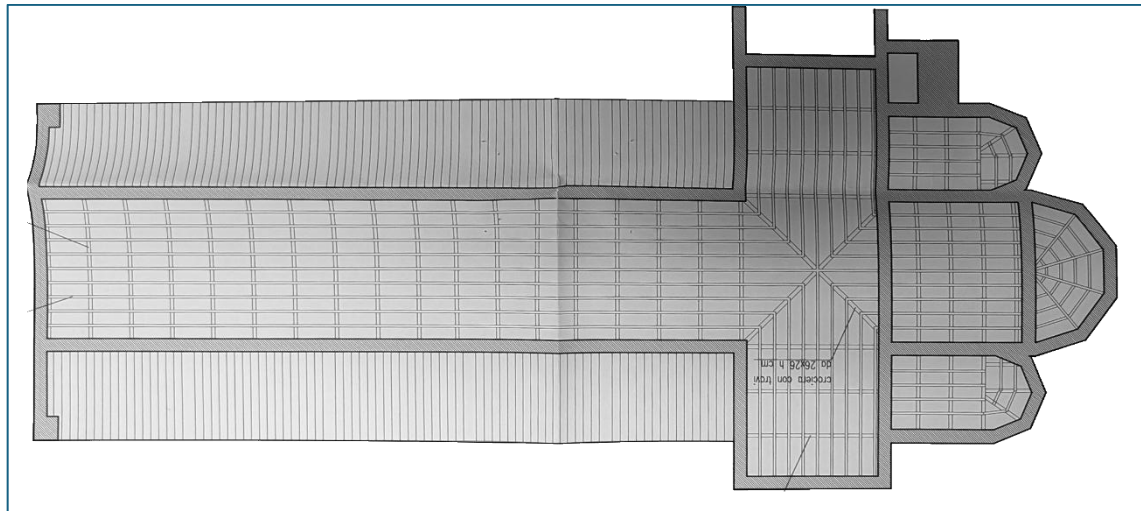


Figure 7. Vicenza, Basilica of San Lorenzo, attic plan with indication of the timber trusses. (Source: SABAP VR-RO-VI)

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