

BASIC IDENTIFICATION**Site name:**

Basilica of San Fermo Maggiore

Location:

Verona (Veneto, Italy), Via San Fermo

Associated complex:

Franciscan convent of San Fermo (upper church, lower church/crypt, cloister, ancillary buildings)

Geographical context:

Southern sector of Verona, originally extra-mural near the Roman Porta Leoni, in an area occupied since antiquity by funerary structures and later by early Christian cult buildings

Chronological range (site):

Late Antiquity (5th–6th centuries) – present

Focus period for roofing systems:

Franciscan Gothic reconstruction (late 13th–early 14th centuries)



Figure 1. Verona, aerial view of the eastern sector of the Basilica of San Fermo Maggiore. (Source: A. Passuello)

1. HISTORICAL OVERVIEW

The Basilica of San Fermo Maggiore occupies a unique and pivotal position within the architectural history of medieval Italy. Its importance lies not only in the exceptional

preservation of a stratified complex spanning more than fifteen centuries, but above all in the extraordinary timber roofing system of its upper church, which constitutes one of the most ambitious and technically refined inverted ship-hull ceilings (*soffitti a carena di nave rovesciata*) ever constructed in Europe.

The site originated within a Roman necropolis located along one of the principal access routes to the city. This funerary landscape provided the setting for the establishment of an early Christian basilica between the 5th and 6th centuries, built to house the relics of the martyrs Fermo and Rustico, whose cult rapidly assumed supra-local importance. The early basilica functioned as a martyrial shrine, integrating burial, memory, and liturgy in accordance with late antique Christian practice.

A major reorganisation of the complex is traditionally associated with Bishop Annone (8th century), who formalised the relic cult through the construction of a confessio and an altar system above the tombs. From this moment onward, San Fermo developed as a monumental sacred complex deeply embedded in Verona's religious topography.

The most profound transformations occurred between the 11th and the 14th centuries, when successive monastic communities—first Benedictine, then Franciscan—redefined the architectural and structural character of the church in accordance with changing liturgical, ideological, and constructional paradigms.



Figure 2. Verona, Basilica of San Fermo Maggiore, exterior view. (Source: A. Passuello)

2. BUILDING PHASES AND CHRONOLOGY

2.1 Early Christian Basilica (5th–6th centuries)

The earliest church at San Fermo was a longitudinal basilica erected directly above the martyrial tombs. Although its superstructure has not survived, archaeological and textual evidence confirms the continuity of cult and the sacralisation of the funerary space. Roofing systems at this stage were almost certainly timber-based, following late antique traditions.

2.2 Carolingian and Pre-Romanesque Interventions (8th–10th centuries)

The Carolingian reorganisation of the complex introduced a more articulated liturgical layout, including a formalised *confessio*. These interventions likely involved maintenance and partial rebuilding of roofing structures, though no direct evidence survives.

2.3 Benedictine Romanesque Reconstruction (11th century)

A decisive rebuilding campaign began in 1065, when the Benedictines undertook the construction of a monumental Romanesque basilica. This phase established the enduring architectural core of the lower church (crypt), which remains one of the most imposing Romanesque crypts in northern Italy.

The crypt is organised into four naves and five stepped apses, adopting a *chevet échelonnée* scheme of Cluniac inspiration. It is entirely covered by groin vaults, supported by a dense forest of columns incorporating spolia and newly carved capitals. This robust vaulted substructure functioned as a massive structural podium for the upper church.

Above, the Romanesque nave likely featured a timber roof supported by transverse arches, as suggested by the external pentagonal buttresses and wall articulation.

2.4 Franciscan Gothic Transformation (late 13th–early 14th centuries)

Following the transfer of the complex to the Franciscans in 1261, San Fermo underwent one of the most radical architectural transformations of medieval Italy. The mendicant order sought to create a vast, unified preaching space capable of accommodating large congregations.

The Gothic reconstruction unfolded in two main stages:

- First phase (1261–late 13th century): elevation of the eastern sector, construction of the triumphal arch, insertion of lateral chapels, and raising of perimeter walls.
- Second phase (1314–c.1332): under the direction of friar Daniele Gusmari and the patronage of Guglielmo da Castelbarco, the church was lengthened westward by approximately 24 m, provided with a new polygonal apse, and—most importantly—covered by an immense timber ceiling spanning the entire nave.

This second phase defined the final spatial and structural identity of San Fermo Maggiore.



Figure 3. Verona, Basilica of San Fermo Maggiore, interior view. (Source: A. Passuello)

3. STRUCTURAL AND TYPOLOGICAL ANALYSIS OF THE ROOFING SYSTEMS

3.1 A Radically Differentiated Roofing System

San Fermo Maggiore presents an extreme and deliberate differentiation of roofing systems according to spatial hierarchy:

- masonry vaults in the crypt, presbytery, and transept;
- a monumental timber ceiling in the nave;
- a traditional timber roof structure above the ceiling, carrying environmental loads.

This stratified approach reflects both pragmatic and ideological considerations, allowing the Franciscans to combine structural efficiency, economy of materials, and overwhelming spatial unity.

3.2 The Nave Ceiling: Monumental Inverted Ship-Hull (*Soffitto a Carena di Nave Rovesciata*)

The timber ceiling of the nave is the defining architectural feature of San Fermo Maggiore and one of the largest inverted ship-hull ceilings preserved anywhere. Dating to the early

14th century, it spans approximately 54 metres in length and is supported by sixteen massive trusses constructed primarily of red larch.

Despite its evocative name, the *soffitto a carena di nave* is not derived from naval construction techniques. As demonstrated in Carlo Pulisci's comprehensive study, the term refers to formal and visual analogies rather than to technical lineage. The longitudinal central element recalls a keel, the curved profile resembles an inverted hull, and the horizontal ledges along the nave walls evoke elements known in Venetian terminology as *baccalari*. Structurally, however, the ceiling belongs entirely to the tradition of advanced medieval carpentry.

The system is composed of:

- primary timber trusses (*capriate*) supporting the pitched roof above;
- a secondary curved timber shell suspended beneath the trusses, forming the visible ceiling;
- horizontal anchoring elements resting on the nave walls, ensuring continuity and stability.

Crucially, the ceiling is not load-bearing in the sense of a masonry vault. Its lightweight nature dramatically reduces the vertical loads acting on the walls and virtually eliminates lateral thrust, making possible the exceptional height and slenderness of the nave elevations.

3.3 Structural, Environmental, and Acoustic Performance

From a structural perspective, the inverted ship-hull ceiling represents a masterful solution to the problem of covering very large spans without resorting to stone vaulting. Its advantages include:

- weight reduction, crucial for long-term stability;
- seismic resilience, particularly important in the Veronese context;
- constructional flexibility, allowing maintenance and replacement of elements.

From an environmental and acoustic standpoint, the curved timber surface enhances sound diffusion, making the space particularly suited to Franciscan preaching, while also contributing to thermal regulation within the vast interior volume.

3.4 Vaulted Counterparts: Crypt, Transept, and Presbytery

The timber nave ceiling stands in deliberate contrast to the **vaulted architecture** of the lower and eastern parts of the church. The Romanesque crypt's groin vaults express permanence and monumentality, while the Gothic cross vaults of the presbytery articulate the liturgical focus. Together, these systems create a vertical dialogue between mass and lightness, memory and innovation.

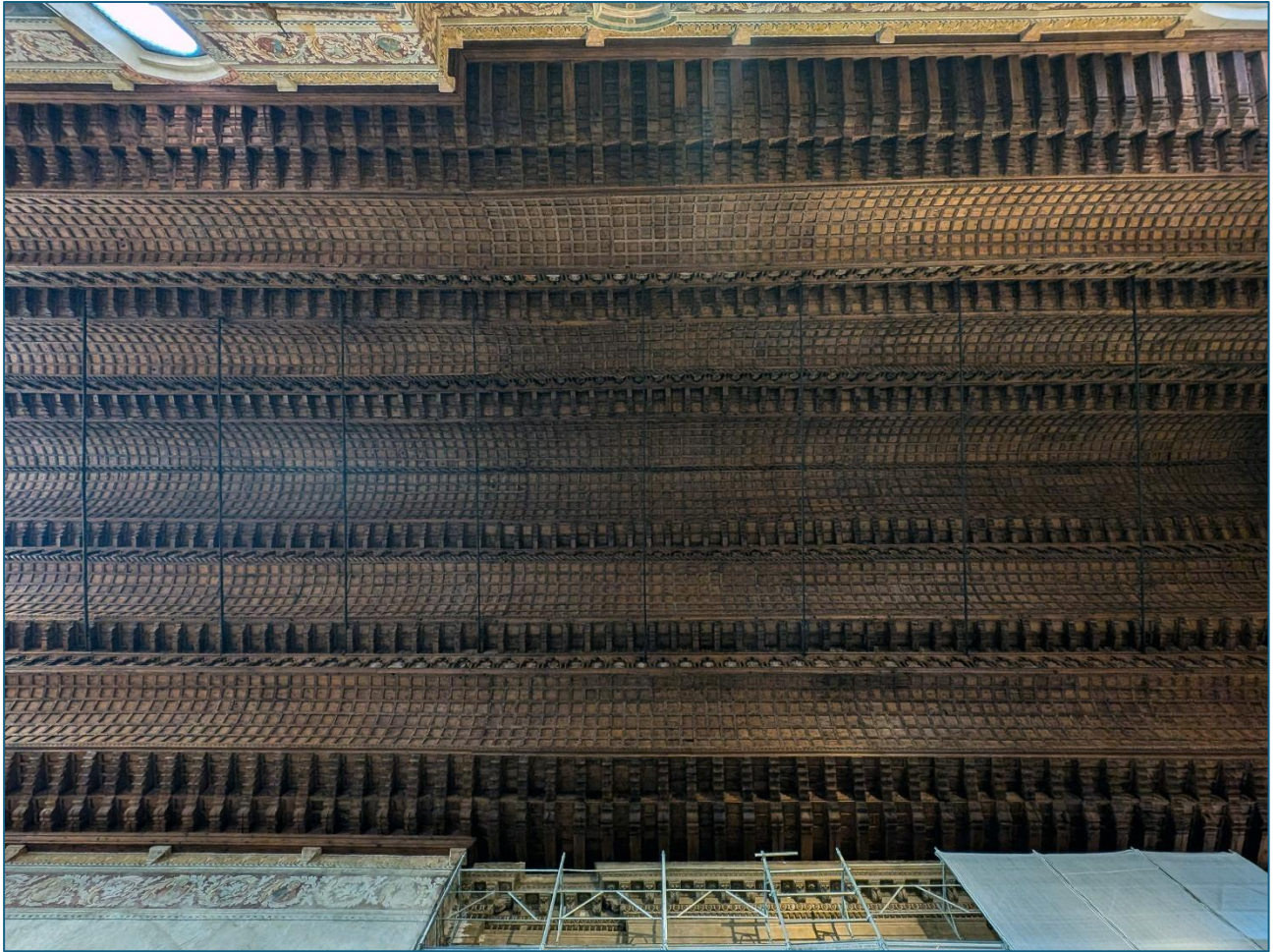


Figure 4. Verona, Basilica of San Fermo Maggiore, detail of the inverted ship-hull timber ceiling. (Source: A. Passuello)

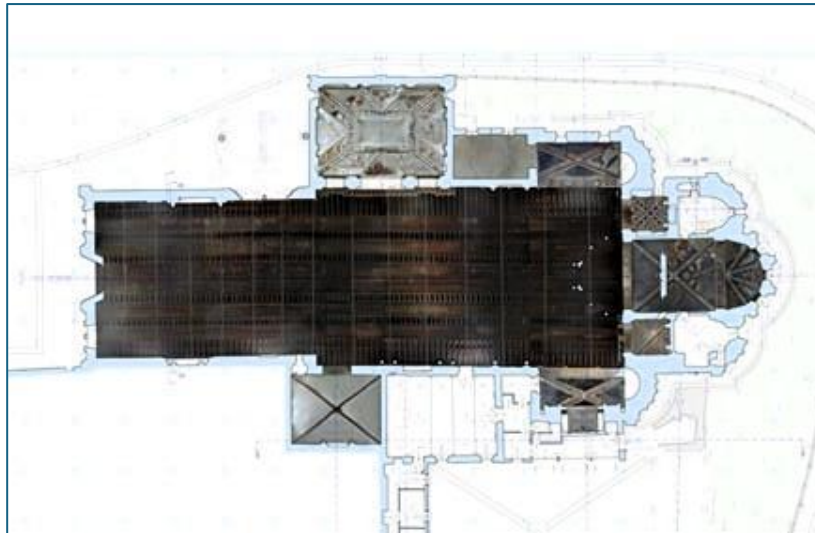


Figure 5. Verona, Basilica of San Fermo Maggiore, plan of the inverted ship-hull roof structure. (Source: [Geogra](#))

4. CONTEXTUALIZATION OF THE ROOFING SYSTEMS

4.1 San Fermo within Franciscan Architectural Culture

San Fermo Maggiore embodies a Franciscan reinterpretation of Gothic architecture. While many mendicant churches adopted stone vaulting inspired by transalpine models,

San Fermo pursued a radically different path, exploiting timber engineering to achieve an unparalleled sense of spatial unity.

4.2 Comparison with San Zeno Maggiore (Verona)

The most immediate comparison is with San Zeno Maggiore, where a smaller but highly refined inverted ship-hull ceiling was introduced in the late 14th century. San Fermo represents the culmination of this typology: earlier, larger, and more structurally ambitious.

4.3 Italian and European Parallels

Other examples of *carena di nave* ceilings—such as San Giacomo dall’Orio in Venice—demonstrate that the typology was widespread, yet none approaches the scale or technical audacity of San Fermo. In contrast, northern European Gothic architecture overwhelmingly favoured stone vaulting, underscoring a distinct Mediterranean–Venetian constructional identity.

4.4 Symbolic and Ideological Dimensions

While the ship metaphor evokes the *navis Ecclesiae*, in San Fermo symbolism is inseparable from constructional logic. The ceiling embodies Franciscan values: humility of materials, technical ingenuity, and the creation of a communal space defined not by structural mass but by spatial generosity.

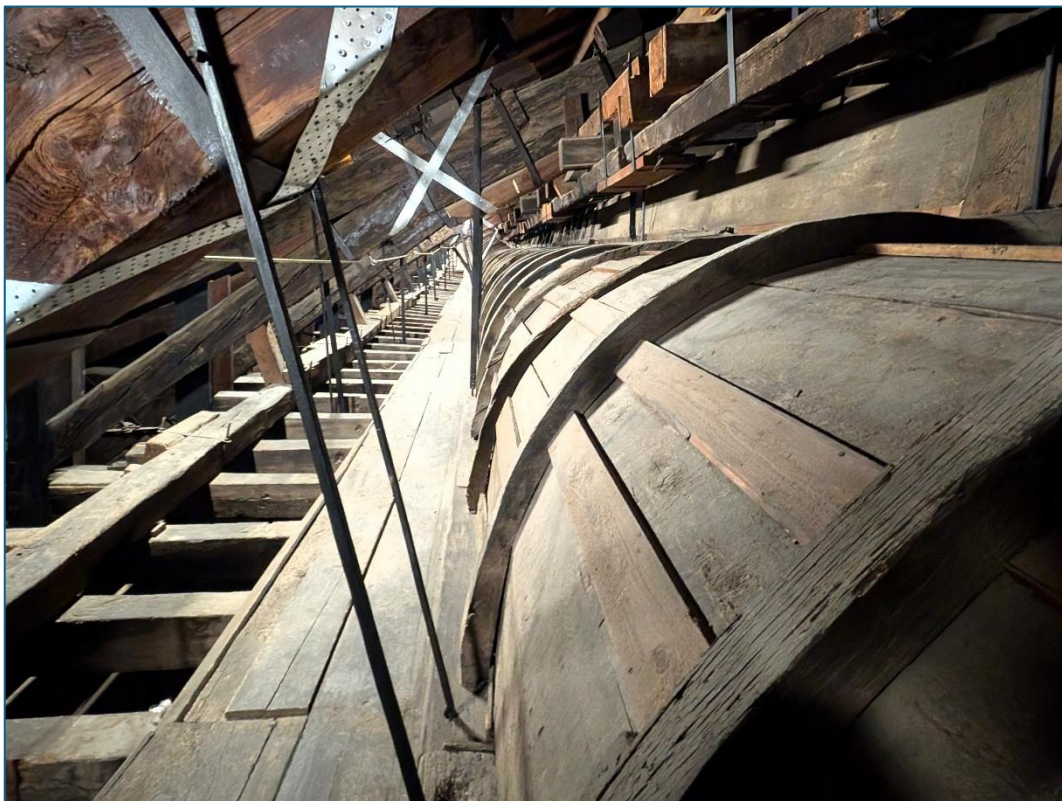


Figure 6. Verona, Basilica of San Fermo Maggiore, attic spaces. (Source: A. Passuello)

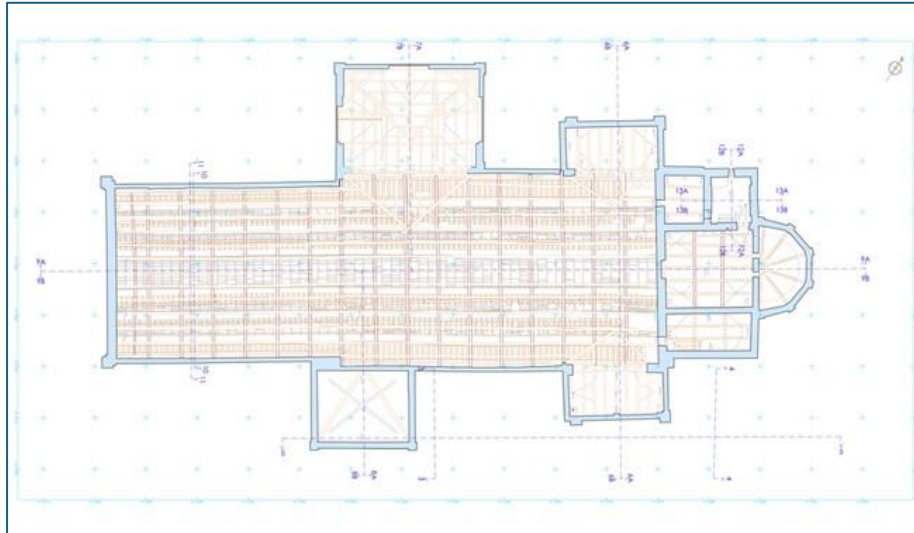


Figure 7. Verona, Basilica of San Fermo Maggiore, plan of the attic spaces. (Source: [Geogra](#))

5. RESTORATION HISTORY AND CONSERVATION STATUS

The timber ceiling of San Fermo Maggiore has been the focus of intensive study and conservation. Major restoration campaigns in the late 20th and early 21st centuries included diagnostic surveys, dendrochronological analysis, and 3D laser-scanner documentation, which clarified the original construction sequence and state of preservation.

Recent interventions (2016–2018) consolidated the timber elements, improved environmental control, and enhanced public understanding of the structure's exceptional nature. Today, the ceiling is in a stable condition and represents one of the most significant survivals of medieval timber architecture in Europe.

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