



Armonia Mundi and San Francesco della Vigna in Venice

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Abstract

This essay deals with the construction of the church of San Francesco della Vigna in Venice. This church is an interesting case of proportions applied to architecture. The author analyzes the design, verifies the proportions, virtually reconstructs the unrealized facade by Jacopo Sansovino and compares it with the one built by Andrea Palladio.

Keywords Design theory · Renaissance · Francesco Zorzi · Venice · Harmonic proportions

Introduction

The events related to the design and construction of the church of San Francesco della Vigna in Venice constitute an occasion more unique than rare to examine the question of proportions applied to architecture. Indeed, it does not happen very often that contemporary scholars can consult a Renaissance original document regarding the application of mathematics to architecture and the mystical and religious meanings associated with it. The memorandum written in (1535) by Francesco Zorzi for the design of the church of San Francesco della Vigna offers a unique opportunity to reconstruct symbols and geometries of this building, extending this analysis to the three dimensions of a virtual space. It is even possible to use Zorzi's precepts, cross-referencing his information with the only image of Sansovino's unbuilt façade, to reconstruct the original design of the church. The idea of all the protagonists of this architectural story is that the beauty of the city is strategic, it is a political manifesto, it is an expression of prestige and power. So, the architecture of San Francesco della Vigna becomes language and instrument to show the solidity and harmony of the Republic (Tafari 1985: 161).

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The Research

Although doge Andrea Gritti respected the traditional Venetian architecture that established the image of Venice in the world throughout the centuries, he promoted the construction of innovative buildings following the Ancients' principles. He assigned this task to the architect Jacopo Sansovino, who settled in Venice after the sack of Rome in 1527. In this renovation of the *imago urbis*, the ideas of the Francesco Zorzi, whose success must be attributed to his ability to reconcile Christianity, Judaism, and ancient philosophy, found their place. His best-known work, *De harmonia mundi totius cantica tria* (Venice 1525), established a dialogue between the dogmas of the church and the mystical, hermetic, and kabalistic trends of the time. Zorzi's harmonic theories, based on number 3, found their practical application in the reconstruction of San Francesco della Vigna church in Venice. The doge in 1534 supported the reconstruction of this Gothic church but, because doubts had arisen about its design, he asked Zorzi to point Sansovino in the right direction so that the building would respect the *harmonia mundi*, i.e., mystical, musical and proportional harmony (Foscari and Tafuri 1983: 53). Zorzi drafted a memorandum in 1535 that proposed building the church according to the proportions indicated in Plato's *Timaeus* for the construction of the world, so San Francesco della Vigna would have followed a divine thought of harmony. Since the memorandum also recalled the precepts of Vitruvius (Williams 2019), Sansovino adopted Zorzi's indications, and the whole building was realized according to a mystical numerology.

Proportions Inside San Francesco Della Vigna

Zorzi's harmonic theories are based on number 3, and Sansovino too built the whole church on the basis of the number 3, the ratios of 1:2 (double ratio, or *diapason* in music), 2:3 (sesquialtera, or *diapente*) and 3:4 (sesquitertia, or *diatessaron*). The ratio between the width and length of the nave (9:27) can be considered in the 9:18:27 progression. The altar at the end of the nave is 9 feet long and 6 wide, in the ratio of 2:3. The ratio of 2:3 has also been applied to the width and length of the altar, and to the choir, behind the altar (Fig. 1). The entire length of the church is five times 9, a quintuple ratio (Fig. 2). The chapels at the two sides of the nave are 3 feet wide, or one-third the width of the nave (3:9). The width and length of each side chapel are in the ratio 3:4 (Fig. 3). The ratio of the minor chapel's width to that of the altar is 1:2, while the ratio of the width of the transept to that of the chapels is 3:4. Considering now the section of the building, we can conclude that the heights respect proportions quite similar to those of the widths. The nave has a height equal to five times 3, or 15 feet, and thus is again a quintuple ratio. The same proportional homogeneity of width-height and width-length is also found in the side chapels in the ratio of 3:4.

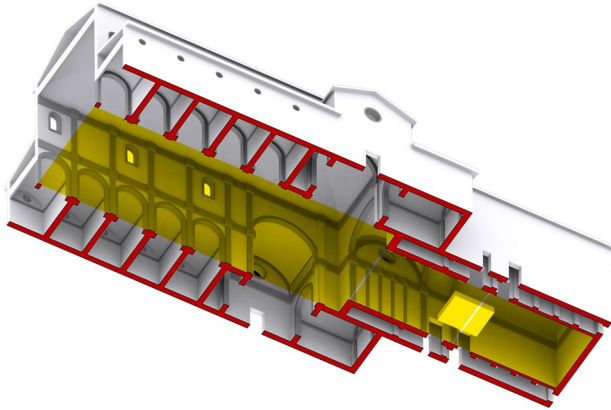


Fig. 1 Spaces with proportion 2:3 (sesquialtera, or diapente). Image: author

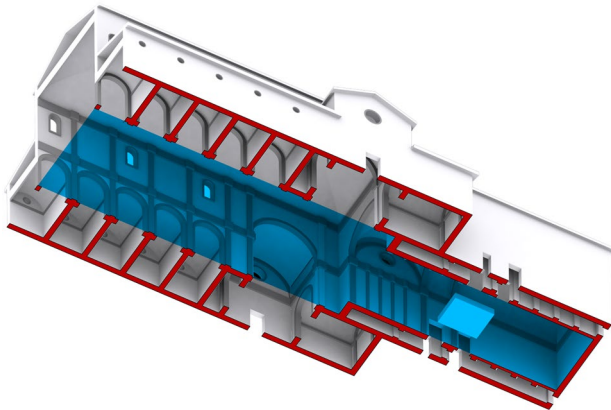


Fig. 2 Space of quintuple ratio. Image: author

Jacopo Sansovino's Unrealized Façade

Zorzi concluded his memorandum with the wish that the divine proportions of the plan could be carried over to the façade as well:

[...] *Resta ultimamenti a parlare del frontale, il qual desiderio sii nullo modo quadro, ma corrisponent' alla fabbrica dentro. Et che per esso si puosi comprendere la forma della fabbrica, et le sue proporzioni. Acciò che di dentro, et di fuori sii tutta proporzionata* (Foscari and Tafuri 1983: 210).

On 15 August 1534, the ceremony of laying the foundation stone took place in the presence of the doge Andrea Gritti and two medals were made for the occasion. One was more modest, but the other was made by the engraver Andrea Spinelli and is a work of extraordinary refinement and iconographic impact, both

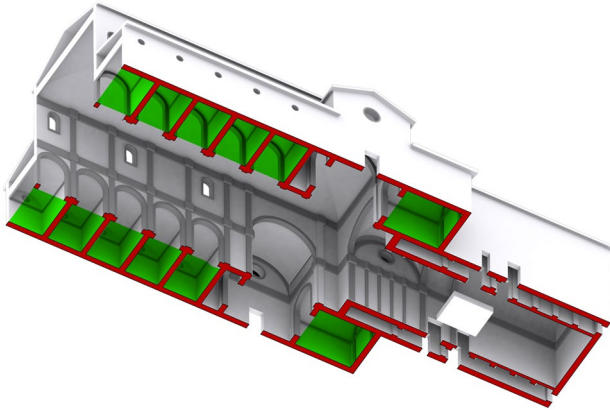


Fig. 3 Spaces with proportion 3:4 (sesquiertia, or *diatessaron*). Image: author

for the bust of doge Andrea Gritti, on the obverse, and, on the reverse, for the precision of the unrealized elevation by Jacopo Sansovino originally designed for San Francesco della Vigna (Modesti 2016: 442–443) (Fig. 4). Thanks to Zorzi's memorandum and Spinelli's medal, it is possible to virtually reconstruct Sansovino's façade. The façade reveals the presence of the nave, which is higher, and the side chapels, which are lower. We can distinguish three heights: that of the side chapels; that of the molding of the nave; and that of the triangular pediment. Since plausibly these three heights should have matched the interior measurements we have analyzed in section, we infer that the proportions between widths and heights of Sansovino's façade for the side chapels, nave, and total height correspond to 1:2, 3:4, and 1:5 (Fig. 5).



Fig. 4 Andrea Spinelli's medal. Image: Museo Correr



Fig. 5 Proportions of Sansovino's façade, 1:2 (magenta) and 3:4 (yellow). Image: author

Andrea Palladio's Façade

Today the higher pediment of the church has the inscription *renovabitur*, symbolizing the renewal that took place in Venice, but also the global reconstruction of the *Ecclesia* in which Zorzi firmly believed (Tafari 1985: 93). Palladio was certainly aware of the memorandum written by Francesco Zorzi, and considering that 27 is also his favourite number for the harmonious arrangement of his architecture, it was not difficult for him to take the measurements of the plan and apply them to the Istrian stone façade (Wittkower 1952: 94). Palladio's façade proportions also respect musical harmonies. A comparison of the designs of Sansovino and Palladio makes clear a great difference. In Palladio's façade lies a grandiose classicism that contrasts with the lucid simplicity and austerity of Sansovino's design (Fig. 6). Moreover, Palladio's use of corresponding pediments over the nave and side chapels allowed him to resolve their difference in scale but also to make visible the hierarchy of the different parts with one classical architectural motif. This invention by Andrea Palladio was to play a decisive part in the later church façades of San Giorgio Maggiore and Il Redentore.

Conclusion

In the 16th century Venice contrasted its frustration for military failures with a cultural policy that promoted a new image of the city. The doge Andrea Gritti wished to bring science and knowledge to every manifestation of Venetian power, including the urban image. Sansovino's design for the church of San Francesco della Vigna is

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