

Hendrick de Keyser and the Greek Cross church typology

A study into the impact of the treatise of Sebastiano Serlio on the design of the floorplan of the Noorderkerk by Hendrick de Keyser



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PREFACE

In this thesis, several occasions occur where buildings are compared in size. To be able to accurately do this, the measurements of the buildings have been converted, since the metric systems of different times and places are not similar. This conversion can be done in two ways. The first way is to convert the dimensions while keeping the numbers similar. This would mean that for instance a dimension of 10 Ancient Roman Palm would be converted into 10 Amsterdam Voet, or 10 Modern Braccio.

However, the early modern period, on which this thesis will focus, was an era with great scientific insights, where attention was paid to precisely conferring measurements.¹ Moreover, a lot is known today on how to convert these seventeenth-century measurements into modern metric systems. Therefore, this thesis will follow a second method of conversion. Comparing the measurements of two buildings with different metric systems will be done by making all dimensions uniform by transferring them into meters. The way the different metric systems are converted in meters is shown beneath.

Sebastiano Serlio's measurements²

Ancient Roman Palm (used for antiquities)

Composed of 48 minutes divided into 12 inches of 4 minutes

1 Ancient Roman Palm equals 222 mm

Modern/Common/Florentine Braccio (used for modern structures)

Composed of 60 minutes divided into 12 inches each of 5 minutes

1 Braccio equals 683 mm

Ancient Roman Foot (used for modern structures)

Composed of 64 minutes, divided into 16 digits of 4 minutes each

1 Roman foot equals 297 mm

Hendrick de Keyser's Metric System³

(Amsterdamse) Byghestelde Voet-Maet

Composed of 11 duimen

1 voet equals 283 mm, 1 duim is 25 mm

See appendix 1 for the scaled version of all buildings discussed in this thesis.

¹ Serlio, *Sebastiano Serlio on Architecture, Volume One, Books I-V of 'Tutte l'opere d'architettura et Prospetiva'*. This can be seen throughout the whole treatise, since Serlio pays a lot of attention to dimensions in general and their correct use. In his treatise he uses three different types of metric systems from various time periods and regions, while conforming the buildings he shows to the matching metric system. All buildings are also shown with scale bar and Serlio discusses the measurements of every object that he shows.

² Ibid., 458. See Glossary on Measures.

³ Kramer, *De Noorderkerk in Amsterdam*, 44.

TABLE OF CONTENTS

Introduction	p. 1
Chapter 1: Hendrick de Keyser's Noorderkerk	p. 11
Chapter 2: <i>Tuttle l'opere d'architettura et prospettiva</i> by Serlio	p. 17
Chapter 3: Comparing the Noorderkerk to Serlio's treatise	p. 21
Chapter 4: Architectural invention in the floorplan of the Noorderkerk	p. 29
Conclusion	p. 36
Appendices	
Appendix 1: scales and measurements	p. 38
Appendix 2: Serlio's buildings	p. 39
Appendix 3: meeting of the requirements by projects in the books of Serlio	p. 49
Credits illustrations	p. 50
Bibliography	
Primary sources	p. 52
Other sources	p. 53

INTRODUCTION

Sculptor and architect Hendrick de Keyser (1565-1621, image I.1) worked in a period of transition in architectural style. Slowly the architecture of the Italian renaissance was transferred to the Low Countries and Hendrick de Keyser was one of the first architects to carefully look at ancient architecture for his own designs.⁴ It is because of this that De Keyser's work stands central and is praised in the Dutch architectural treatise *Architectura Moderna* of Salomon de Bray (1597-1664) that appeared only 10 years after De Keyser's death in 1631.⁵ Even centuries later, De Keyser was still honoured for his work. This is excellently put into words by architect Christiaan Kramm (1797 – 1875) in his book about Dutch masters of all arts written in 1857. "Hendrick de Keyser was for our country, what a Leon Battista Alberti was for Italy, Pierre Lescot for France and Inigo Jones for England - the initiator of the improved mode of architecture, in accordance with the proportions of the ancients, as far as they were then known, and after Vitruvius, learned and adapted by Sebastian Serlio, banning the then practiced gothic manner of building."⁶ It becomes clear that De Keyser introduced the visual language inspired by antiquity into the Low Countries.

One of the architectural designs of De Keyser is the Noorderkerk (1620-1623) in Amsterdam that was built for the Protestants (image I.2). It stands out from other churches of De Keyser and from earlier religious buildings, because it was the first Greek cross shaped church to be built in the Low Countries.⁷ This implies that all the arms of the church share the same dimensions. It is in contrast to the contemporary common practice in church building that was primary



Image I.1: Jan Meyssens, *Portrait of Hendrick de Keyser*, 1662, print in book *Het gulden cabinet vande edel vry schilder const*, p. 459 (Gent, Universiteitsbibliotheek Gent, BIB.ACC.004937)

⁴ Schmidt, 'Building Artists History , Modernity and the Architect around 1630', p. 322-323.

⁵ De Bray, *Architectura Moderna Ofte Bouwingen van Onsen Tijt*. The treatise by Salomon de Bray can be seen as the first monograph on Hendrick de Keyser, on which the later ones were based.

⁶ Translation of Schmidt (as shown in op. cit. (note 4), p. 337), of 'Hendrick de Keyser is voor Holland geweest, wat Leon Baptista Alberti voor Italië, Pierre Lescot voor Frankrijk en Indigo Jones voor Engeland waren, als hebbende eene verbeterde bouwkunst, naar de proportiën der Antieken, zoover hun bekend was, ingevoerd, en naar Vitruvius, door Serlio geleerd, bewerkt, en toen in gebruik zijnde verbasterde gotische manier van bouwen verbannen.' In Kramm, *De Levens En Werken Der Hollandsche En Vlaamsche Kunstschilders, Beeldhouwers, Graveurs En Bouwmeesters, van de Vroegsten Tot Op Onzen Tijd*, p. 863

⁷ Kramer, op. cit. (note 3), p. 19–23.

Catholic, of constructing a Latin cross, where one arm is longer than the other three. The result of the introduction of this new Protestant church shape was that the Noorderkerk became a model for other later Protestant churches, like the Nieuwe Kerk in Groningen or the Nieuwe kerk in The Hague that consists of a double Greek cross shape.⁸

During the time that the Noorderkerk was built, Amsterdam was rapidly expanding. The organisation that was responsible for the new architecture in Amsterdam was the city's factory ('*Stadsfabriek*'). In the *Stadsfabriek*, Hendrick de Keyser was in charge of architectural design as the cities stonemason ('*stadssteenhouwer*').⁹ The organisation, and therefore De Keyser, had access to the sixteenth and seventeenth century architectural treatises from Italy, whose use resulted in the introduction of a visual language, inspired by antiquity, to the Low Countries. In particular, the architectural treatise *Tuttle l'opera d'architettura et prospetiva* of Sebastiano Serlio (image I.3) was influential for the architecture of the *Stadsfabriek* and thus De Keyser's buildings as well.¹⁰ The treatise, using both descriptions and elaborate images, contains an overview on how to build architecture inspired by antiquity, starting from basic geometric knowledge, to explanations on the realisation of details while following the five orders. Moreover, the book contains a large amount of floorplans of complete buildings.¹¹ The importance and thoroughness of the treatise provided De Keyser with examples on how to incorporate the orders and ornamentation of the classical visual language in his own designs.

This thesis proposes that the influence Serlio's *Tuttle L'opera d'architettura et prospetiva* on architecture had on the works of Hendrick de Keyser was of a greater magnitude than thought by previous scholarship. This will be exemplified through a study of the Noorderkerk in the Low Countries, where De Keyser's use of the Greek Cross shape, along with classical architectural language, will be shown to have been a result of its inclusion in the works of Serlio. Thus, this thesis will contribute to our understanding of Hendrick de Keyser and his inspirations, while also shedding new light on the influence of Italian architectural treatises on the architecture of the Low Countries in the first half of the seventeenth century. In doing so, it will research the origin of the Greek cross church shape closer, which is seen today as a synonym for Protestant churches in the Netherlands and knew a large succession in later church designs.



Image I.2: Hendrick de Keyser, Noorderkerk, Amsterdam, Noordermarkt, 1620-1623. Exterior view on facade from south, photo 2021.

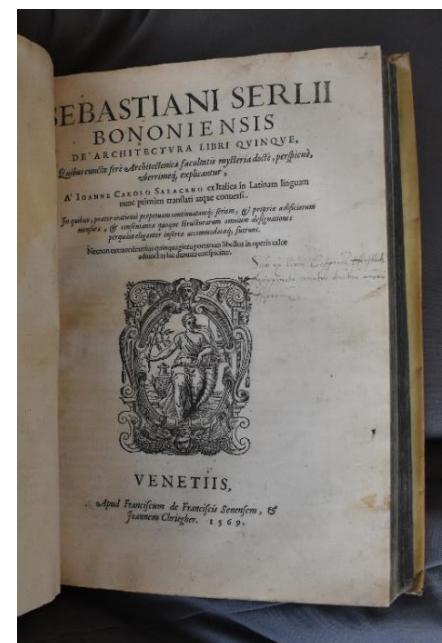


Image I.3: Sebastiano Serlio, Front page of book V, 1600, woodcut print, in-4 (Leiden, University Library Leiden, Thysia 1463)

⁸ Ibid., p. 114–17.

⁹ Ottenheim, Rosenberg, and Smit, *Hendrick de Keyser: Architectura Moderna: Moderne Bouwkunst in Amsterdam 1600-1625*, p. 14–18.

¹⁰ Kramer, op. cit. (note 3), p. 20. Authors translation of “Het Fabrieksambt kan best op de hoogte zijn geweest van de vele architectuurpublicaties uit Italië die ook in Nederland verschenen. Het was onder meer de Italiaanse architect Sebastiano Serlio die in 1537 deze publicaties verzorgde middels zijn *Architettura*. Serlio was een belangrijke bron voor veel classicistische geesten in het noorden van Europa. Hij werd veel gelezen en geciteerd.”

¹¹ Serlio, op. cit. (note 1). See the introduction.

Reader's guide

To research the extent that Hendrick de Keyser was influenced by the treatise of Serlio in his design for the floorplan of the Noorderkerk, this thesis will pursue the following setup. The remaining part of the introduction will further illustrate the origin of the research in this thesis, by first discussing previous research into the influence of Serlio's work on De Keyser and explain the context in which Serlio and De Keyser worked in. This means that the treatise of Serlio and how it arrived in the Low Countries will be discussed, with the aim to establish the reason for choosing specifically this treatise for comparing it to the floorplan of the Noorderkerk. Moreover, a closer look will be given to the setting and architectural climate that De Keyser worked in, to establish why he would have looked at the treatise of Serlio while designing the Noorderkerk.

After that, the first chapter will visually analyse the Noorderkerk and determine its characteristics, by looking closely into the most important literature on the church and by studying the floorplan. The chapter will result in a list of distinctive features of the Noorderkerk.

In the second chapter, the content of the treatise of Serlio will be analysed using the latest translation of the treatise, to determine which sections could have been influential for De Keyser in designing a Greek cross floorplan. After that, the images and descriptions of the relevant sections in Serlio's treatise will be compared to the distinctive features of the Noorderkerk in chapter three. As a result, the possible models for De Keyser within the book of Serlio are determined and similarities and differences will be highlighted.

Subsequently, chapter four will focus on the differences between the Noorderkerk and the projects of Serlio, stating that these variations can be seen as inventions of De Keyser. It will be determined if these inventions can be seen as '*licentious*', the term for Serlio to characterize architectural freedom within the boundaries of classical visual language. This will be done because research in the past connected other inventions of De Keyser in his use of the orders and ornamentation to this term as well. In this part, the concept of *licentia* will first be defined, after which it will be established up to what extent the designs of De Keyser can be seen as *licentia*. This part will be followed by the conclusion to establish up to what extent De Keyser was inspired by Serlio in the design choices for the floorplan of the Noorderkerk.

The connection between Serlio's treatise and De Keyser's architecture in previous research

The connection between the works of Hendrick de Keyser and Serlio has been recognized by other researchers in the past century and, as a result, has been analysed. These investigations, starting in the 1980's, discuss two aspects of the work of De Keyser that derived from the work of Serlio: his use of the five orders and their ornaments. The two most complete overviews that explain Serlio's influence of De Keyser's architecture can be found in the book *Unity and Discontinuity, Architectural Relations between the Southern and Northern Low Countries, 1530-1700* by Krista de Jonge and Konrad Ottenheim from 2007 and the monograph on De Keyser by Konrad Ottenheim, Paul Rosenberg and Niek Smit from 2008 named *Hendrick de Keyser Architectura Moderna, Moderne Bouwkunst in Amsterdam 1600-1625*.¹²

Hendrick de Keyser's use of the orders closely resembles the way they are shown and described in Serlio's treatise. Similarities can not only be found within the publication of Serlio, but also in later treatises about the orders that were written by Andrea Palladio (1508-1580) and Giacomo Barozzi da

¹² de Jonge and Ottenheim, *Unity and Discontinuity : Architectural Relations between the Southern and Northern Low Countries, 1530-1700*, focussing on chapter two of part two, p. 111 - 136, Ottenheim et al., op. cit. (note 9), focussing on chapter three, p. 32-43. This monograph on Hendrick de Keyser includes a reprint of the first monograph on Hendrick de Keyser by Salomon de Bray in the third part. Before these two works, the connection between Serlio and Hendrick de Keyser was suggested as well in the work of Kuyper, *Dutch Classicist Architecture : A Survey of Dutch Architecture, Gardens and Anglo-Dutch Architectural Relations from 1625 to 1700* of 1980 (focus on chapters three, four and five).

Vignola (1507-1573). These were inspired by the treatise of Serlio and appeared as copies in the Low Countries as well, as shown by De Jonge and Ottenheim.¹³ Besides these Italian books, other Dutch architectural treatises were written that were closely inspired by the treatise of Serlio. Hans Vredeman de Vries (1527-1607) published his *Architectura* and Jacques Francart (1582-1651) wrote *Premier Livre d'architecture*, which was written in Italian, French and Dutch. All these treatises concerning the use of orders were quite unanimous on their explanation of the orders, their measurements and proportions.¹⁴ Therefore, the architecture of De Keyser shows similarities in the use of orders and ornamentation with all of them.

In this process of applying the orders, De Keyser did not simply copy the visual language that was presented. He started making his own variations within the orders. Existing literature connects these inventions to the concept of *licentia*, that was presented by Serlio.¹⁵ As Ottenheim states: “Serlio speaks of *licentia*, a kind of official permission to deviate from the norm of Vitruvius, when other buildings from antiquity, especially from the Roman Emperor times, show examples of those complex compositions.”¹⁶ The concept of *licentia* is further elaborated on by Alina A. Payne in her book *The Architectural Treatise in the Italian Renaissance; Architectural Invention, Ornament and Literary Culture*, among others.¹⁷ She states that, as a result of *licentia*, Serlio makes inventive designs himself within the framework of the orders as well. These can most explicitly be seen in a set of designs of gates in his *Extraordinario Libro di Architettura* from 1551.¹⁸

The concept of *licentia* was taken over by other writers of architectural treatises and architects, also in the Low Countries, as elaborately discussed in both *Hendrick de Keyser: Architectura Moderna: Moderne Bouwkunst in Amsterdam 1600-1625* and especially in *Unity and Discontinuity: Architectural Relations between the Southern and Northern Low Countries, 1530-1700* by Ottenheim and De Jonge.¹⁹ Both books consider the architectural inventions that Vredeman de Vries and Francart show in their books on orders, but also consciously connect the term *licentia* to the details of Hendrick de Keyser. Ottenheim and De Jonge provide a clear set of examples of details that De Keyser invented himself, within the framework of the orders. Examples of De Keyser's ‘licentious’ ornamentations are his multi-staged architrave, the geniculated arch, his own improvised capitals – as visible in de Westerkerk -, and his broken fronton. This last element was closely inspired by the frontons of Michelangelo Buonarroti (1475-1564), who was regarded by Georgio Vasari (1511-1574) as one of the starters of the process of *licentia* in the architectural practice.²⁰ As a result of De Keyser's ‘licentious’ designs, he is praised in the treatise *Architectura Moderna* from 1631 by Salomon de Bray for his ‘singular ingenuity’ (‘sonderlycke vindelyckheid’) in his new ornamentation.²¹

Hendrick de Keyser's reason for using *licentia* in his designs is explained by Ottenheim by reading the same *Architectura Moderna* from De Bray. They state that De Keyser made his inventions to “adjust the antique visual language to the indigenous style tradition, and his own insight and invention were tested in this process.”²² For Serlio, one of the reasons for using the concept of *licentia* was to

¹³ de Jonge and Ottenheim, op. cit. (note 12), p. 286–88.

¹⁴ Ottenheim et al., op. cit. (note 9), p. 33. De Jonge and Ottenheim, op. cit. (note 12), p. 286.

¹⁵ Ottenheim et al., op. cit. (note 9), p. 33. De Jonge and Ottenheim, op. cit. (note 12), p. 286–288.

¹⁶ Ottenheim et al., op. cit. (note 9), p. 33 Authors translation from: “Serlio spreekt van *licentia*, een soort officiële toestemming om van de norm van Vitruvius af te wijken wanneer andere gebouwen uit de oudheid, vooral uit de Romeinse keizertijd, voorbeelden bieden van dergelijke complexe composities.”

¹⁷ Payne, *The Architectural Treatise in the Italian Renaissance: Architectural Invention, Ornament, and Literary Culture*, p. 116–43.

¹⁸ Ibid., 136. Ottenheim et al., op. cit. (note 9), p. 33; a complete overview of *licentia* in *Extraordinario Libro di Architettura* can be found in Spallone and Vitali, ‘*Geometry, Modularity and Proportion in the Extraordinario Libro by Sebastiano Serlio: 50 Portals Between Regola and Licentia*’.

¹⁹ Ottenheim et al., op. cit. (note 9), p. 33–39; De Jonge and Ottenheim, op. cit. (note 12), p. 122–35.

²⁰ Ottenheim et al., op. cit. (note 9), p. 38, 40–41; De Jonge and Ottenheim, op. cit. (note 12), p. 122–23.

²¹ Schmidt, op. cit. (note 4), p. 315, 331, 333. De Jonge and Ottenheim, op. cit. (note 12), p. 121

²² Ottenheim et al., op. cit. (note 9), p. 32. Authors translation from “...het antieke vormenrepertoire aanpassen aan de inheemse bouwtypen, en zijn eigen inzicht en inventie werden hierbij op de proef gesteld.”

adjust the visual language of antiquity to local circumstances.²³ In this way, De Keyser was permitted to alter his designs based on the ancients to his own context through the concept of *licentia* that was elaborated on by Serlio.

Although the introduction of the classic visual language in the Low Countries by Hendrick de Keyser and the creation of his new architectural elements with the idea of *licentia*, is closely connected in previous research to the treatise of Serlio, new architectural shapes on larger scales than the orders and ornamentation are not taken into account. Therefore, it becomes clear that a gap arises when the inventive Greek cross floorplan of the Noorderkerk is taken into consideration. Both de Jonge and Ottenheym do not mention any other aspect other than the orders and ornamentation of De Keyser that have been influenced by the treatise of Serlio and others. However, Serlio's treatise contains more knowledge than the explanation of the orders and shows a wide overview on architecture, by including designs on larger scales, like floorplans, elevations and sections. It is therefore important to look more closely into this specific treatise and how it was brought to the Low Countries.

Sebastiano Serlio in the Low Countries

After the rediscovery of the antique treatise of Vitruvius (ca. 85-20 B.C.) in the library of Sankt Gallen in 1416, contemporary Italian architectural theorists started to write their own treatises on architecture that were based on the work of Vitruvius. One of the most influential treatises was written by Sebastiano Serlio, named *Tutte l'opera d'architettura et prospetiva* (written between 1537 and 1549). Serlio was born in Bologna and was initially trained as a painter. Later, he received architectural education in Rome by artist and architect Baldassare Peruzzi (1481-1536), after which he moved to Venice. It was here that he started writing his treatise, which would preoccupy him his whole life and would eventually be finished in his place of death in Lyon, France.²⁴ The most recent translation of this work is the bipartite book *Sebastiano Serlio on Architecture* by Vaughan Hart and Peter Hicks.²⁵

Tutte l'opera d'architettura et prospetiva consists of seven books explaining different parts of the practice of architecture. Because of this, the complete treatise functions as an encyclopaedia.²⁶ The books are numbered from one to seven and Serlio worked on them simultaneously, although they were not published in this order.²⁷ The first to be published was book IV in 1537 in Venice. The book examines the proportions and forms of the five different orders: the Tuscan, Doric, Ionic, Corinthian and Composite order (image I.4). After that, Serlio published book III in 1540, containing an overview

²³ Serlio, op. cit. (note 1), p. 274, book IV fol. 135r.

²⁴ Ibid., p. xi–xiii.

²⁵ See Serlio, op. cit. (note 1) from 1996 and Serlio, *Sebastiano Serlio on Architecture, Volume Two, Books VI and VII of 'Tutte l'opere d'architettura et Prospetiva'* from 2001. These translators can be seen as the most influential and important experts on the work of Serlio. Therefore, their translation and other studies of the treatise will frequently be used when discussing the books of Serlio.

²⁶ Serlio, op. cit. (note 1), p. xxvi, 252 (book IV fol. iiiii). In contrast to the treatise by Vitruvius that contained 10 parts, the treatise of Serlio only has 7. Serlio chose to abbreviate from Vitruvius here, since he believed that the process of didactic revelation had seven stages, just like the amount of planets around the sun. Serlio was known to cooperate with the Neoplatonic philosopher Giulio Camillo Delminio and incorporated this number symbolism in his own treatise. The connection to cosmic knowledge and the choice for seven books is made in the introduction of the fourth book (book IV fol. iiiii).

²⁷ Ibid., p. xxi.

of buildings from antiquity.²⁸ This book was partly financed by the French King François I (1494-1547), who invited him to come to France shortly after this publication to work under his royal patronage as an architect. Serlio did neither design nor build much but continued writing his compendium on architecture. As a result of that, books I and II about geometry and perspective were published in France in 1545 written in both Italian and French. Two years later, the again bilingual book V, about religious architecture, was published.²⁹

After this publication, François I died and Serlio lost his patronage. He kept designing and writing up until his death in Lyon, but never realized his architectural designs nor finished the last two volumes of his books. He worked on the last two sections of his treatise, of which book VI discusses civic architecture (mostly houses) and book VII considers circumstances that the architect might encounter, like practical problems or the correct use of materials. Moreover, Serlio wrote two extra books, the *Extraordinario Libro di Architettura* on gate designs and a book on fortifications, that were not intended to be part of the treatise. These two were sold as manuscripts to Jacopo Strada (1515-1588), an antiquarian and art dealer, who published the parts in a eighth book after Serlio's death.³⁰

Serlio's treatise stands out from other works of the time because it is a complete and practical handbook aimed to educate all architects, written in vernacular Italian and accompanied with many illustrations.³¹ Other books that were written in the tradition of Vitruvius did not have all these characteristics. *De Re Aedificatoria* by Leon Battista Alberti (1404-1472) from 1450 follows the treatise of Vitruvius closely, but cannot be seen as a complete and practical handbook. This is because this Latin treatise was actually meant for princes and noble patrons and was therefore mainly theoretical. Moreover, it does not contain a lot of images.³² After Alberti's Latin treatise, other treatises were written in the vernacular to make the works more accessible, like Antonio di Pietro Averlino's (1400-1469, known as Filarete) *Trattato di architettura* (1460-1464). However, just like *De Re*

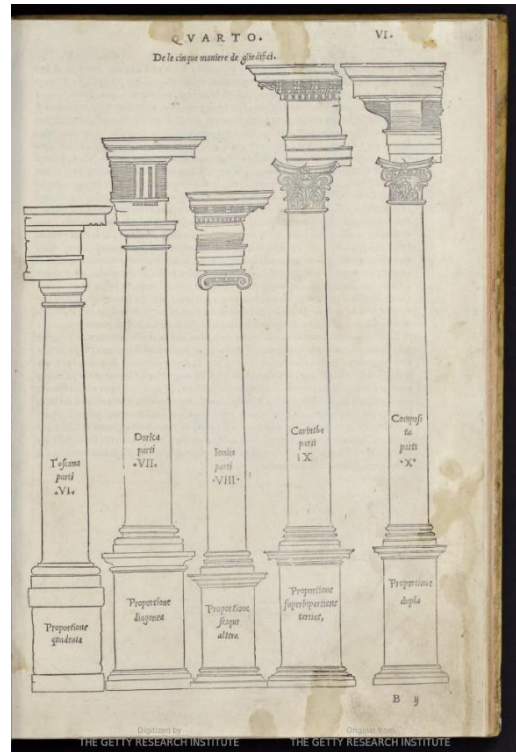


Figure 1.4: Sebastiano Serlio, *The orders*, 1537, woodcut print, 36 x ? cm, (New York, Avery Architectural and Fine Arts Library, AA520 Se621)

²⁸ Ibid., p. 95-247. In this Book III, other buildings are included that were built in the style of Antiquity like the design of the St. Peter or the Tempietto for San Pietro in Montorio built in 1510 by Donato Bramante (1444-1514) in Rome. These contemporary works were included by Serlio since he thought that they could live up to the buildings that were made in Antiquity, as he states in his own notes in the book. Serlio, op. cit. (note 1), p. xii. See also Hart and Hicks, 'On Sebastiano Serlio: Decorum and the Art of Architectural Invention', 141.

²⁹ Fontaine Verwey, 'Pieter Coecke van Aelst and the Publication of Serlio's Book on Architecture', p. 170-171

³⁰ Ibid., p. 171-172

³¹ Ibid., p. 168; Hart, 'Introduction: "Paper Palaces" from Alberti to Scamozzi', p. 12; Hart and Hicks, op. cit. (note 28), p. 140; Serlio, op. cit. (note 1), p. xvii-xx.

³² Hart, op. cit. (note 31), p. 7

Aedificatoria, this work neither contains many images, nor functions like a handbook due to its novel-inspired setup. Other influential treatises in the vernacular containing images are Giacomo Barozzi da Vignola's *Regola delli cinque ordini d'architettura* (1562), that explains the orders, Andrea Palladio's *I quattro libri dell'architettura* from 1570 and the treatise by his pupil Vincenzo Scamozzi (1548-1616) *L'idea dell'architettura universale* from 1615. All of these are published later than the works of Serlio and are clearly inspired by his treatise.³³ It appears that for these reasons precisely Sebastiano Serlio's book on architecture was, after Vitruvius' *De Architectura*, the first to be translated and republished in the Low Countries.

The translation of the books in Dutch can be accounted to Pieter Coecke van Aelst (1502-1550), who was an influential painter in Antwerp with an interest in the development of the renaissance style in Italy.³⁴ Before translating the works of Serlio, Coecke published a small but important practical summary of Vitruvius in 1539.³⁵ His later Dutch translation of book IV of Serlio, who he regarded to be the Vitruvius of the sixteenth century, was even more influential.³⁶ Coecke adjusted the book to the building practice at Antwerp of the time, which means that certain small parts of the work are lacking or adjusted.³⁷ Although the text and set-up of the book was occasionally changed by Coecke, the illustrations remained close copies to the original images in the work of Serlio.³⁸ His Dutch translation was followed by a German and a French version, after which he published a translation of Book III, concerning buildings of antiquity, in Dutch in 1546.³⁹ After Coecke's death in 1550, the remaining translations of the manuscripts of the books I, II and V of Serlio were published by his widow Mayken Verhulst (1518-1599) in 1553.⁴⁰

The translations of Coecke were of great influence: after his death many reprints were made of the books. Eventually, they were also brought to the North, where Cornelis Claesz (ca. 1546 – 1609) and his successors reprinted the books of Coecke several times in Amsterdam. Serlio's translated treatise remained the most important model for following the visual language of antiquity until the 1620's in the Low Countries.⁴¹ This is visible from the many reprints of the treatise and the mentioning of the importance of Coecke's translation in for instance the *Schilder-boek* by Karel van Mander (1548-1606) or the architectural treatise *Architectura* by Hans Vredeman de Vries.⁴² The forms of Serlio were also applied to physical architecture, first in the southern parts of the Low Countries with for instance the new guild houses on the Grote Markt of Antwerpen (1579). Later, the visual language of Serlio was

³³ Ibid., p. 1-11, Hart and Hicks, op. cit. (note 28), p. 157.

³⁴ Hart and Hicks, op. cit. (note 28), p. 156. Although Coecke van Aelst was the most important publisher of translations of Serlio's treatise, he was unauthorized to do so. Serlio was not amused by his publications of his work, and he addressed it several times in for instance Book I and II that appeared after the translations by Coecke (Serlio, op. cit. (note 1), p. 93, book II fol. 73v.). However, it is because of the unauthorized copies of Coecke, Serlio's treatise became well known all over Europe.

³⁵ de Jonge, 'Vitruvius, Alberti and Serlio: Architectural Treatises in the Low Countries, 1530-1620', 284-85.

³⁶ Ibid., 281. The translation of Book IV in 1539 by Coecke appeared only two years after the original publication of the work in Venice in 1537. This shows the importance that Coecke thought the books had.

³⁷ Fonteyne Verwey, op. cit. (note 29), p. 180. The adjustments that Coecke made are, first of all, that Serlio is not mentioned on the title page (only in the preface and colophon), that Coecke prefers the use of the Latin terms, in contrast to Serlio's Italian terms and that he refers to his own summary of Vitruvius a couple of times in the text. He also adds a Latin poem after the preface and leaves out the last parts of the book on sculptured ceilings, because this was not used in the Low Countries, and heraldic ornament, due to the fact that this was tied to strict rules in the Low Countries. Instead, Coecke includes a part concerning the art of lettering following his own designs. There can be concluded that Coecke took a lot of freedom in his translation of the book of Serlio.

³⁸ Ibid., p.192. See Hart, 'Serlio and the Representation of Architecture', p. 170-79 for an in depth discussion of the type of illustrations that are used in Serlio's treatise.

³⁹ de Jonge, 'Vitruvius, Alberti and Serlio: Architectural Treatises in the Low Countries, 1530-1620', p. 294-295. The translation of Book III remained the only model book on antiquity in the Low Countries at the time.

⁴⁰ Fontaine Verwey, op. cit. (note 29), p. 179-190. The other books that were not published during the life of Serlio (on houses, situations, fortifications and doors) were not translated by Coecke van Aelst and therefore not published in Dutch.

⁴¹ Bussels, 'Dutch Classicism in Europe', 318.

⁴² Fontaine Verwey, op. cit. (note 29), p. 191-194

brought more northly by Lieven de Key (1557/60-1627) and applied to the façade design of the Leiden town hall (1593) or the Vleeshal (meat hall) in Haarlem that was built between 1601 and 1603.

At the time of the design of the Noorderkerk, just before 1620, the treatise of Serlio was still the most important treatise on architecture inspired by antiquity in the Low Countries.⁴³ After 1620, more architectural treatises started to appear. Examples of books that gained influence around 1620 were the *Regola delli cinque ordini d'architettura* by Vignola, *Architectura* van Hans Vredeman de Vries and the *Premier livre d'architecture* by Jacques Francart from 1617. This resulted in the diminishing of the influence of Coecke's translation of Serlio, although the treatise of Serlio remained to contain the best and most complete book to show different floorplans, which is crucial when looking at possible inspirations of Hendrick de Keyser to design the first Greek cross shaped church in the Netherlands. This is because Vignola's and Vredeman de Vries' treatises contain no floorplans, but mainly the explanation of the orders and designs of gates. The treatise by Francart also mainly focusses on the orders and gates, but does contain two floorplans: one of the St. Peters in Rome and one of a round, unknown temple. In comparison to the extensive amount of floorplans in Books III and V of Serlio, Francart's work is less complete. Consequently, in terms floorplans, the translation of the work of Serlio remained the most authoritative.

Because the treatise of Serlio must have been the most accurate and accessible treatise that contained floorplans around 1620 in the Low Countries, it is necessary to take a closer look at the way Hendrick de Keyser worked, to determine why he would have consulted Serlio's the treatise while designing the Noorderkerk.

The seventeenth century architectural climate and Hendrick de Keyser

In establishing why Hendrick de Keyser would have looked at the treatise of Serlio, relevant aspects of his private and professional life will be investigated by looking primarily at his last and most complete monograph by Ottenheim, Rosenberg and Smit *Hendrick de Keyser: Architectura Moderna: Moderne Bouwkunst in Amsterdam 1600-1625*.⁴⁴ De Keyser was born in Utrecht as a son of a furniture maker. His family used to be Catholic, but turned to Protestantism during his life. De Keyser was trained as a wood worker and got his first education under Cornelis Bloemaert (died in 1593), who specialized in sculpting wood and stone, designing, inventing and being the architect of fortifications. Bloemaert moved to the rapidly expanding Amsterdam in 1591 to be engineer of the city ('*Ingenieur voor 't stads Bouw-meester*') and De Keyser joined him, after which a large part of his own family followed. He married Beyken van Wildere (1569 – 1621) from Antwerp and became a member of the stonemason guild. As already mentioned, De Keyser was appointed as the city's main stonecutter in 1595, which meant that he was in charge of the sculptural design of facades and other architectural layouts. His designs were built by the city's carpenter and mason, who together formed the city's factory ('*Stadsfabriek*').

The creation of the *Stadsfabriek* and the large expansion of Amsterdam were closely related to the political circumstances at the time. During the life of De Keyser, the seventeen provinces of the Low Countries were involved in the Eighty Years' War against Spain, where the Catholic Spaniards fought

⁴³ de Jonge, op. cit. (note 39), p. 294–96.

⁴⁴ This work is largely based on the previous monographs of the architect: De Bray, op. cit. (note 5) and Neurdenburg, *Hendrick de Keyser: Beeldhouwer En Bouwmeester van Amsterdam*. Besides that, several other sources are relevant when discussing the life of the Keyser: Weissman, 'Het Geslacht De Keyser'; Weissman, 'De Schoonzoon van Hendrick de Keyser'; Kannegieter, 'Wie Was de Bouwmeester van de Noorderkerk Te Amsterdam?'

against the Dutch Protestants, who wanted to be independent from their Spanish ruler.⁴⁵ For the development of architecture, two events during this war were of great importance. The first being the fall of Antwerp in 1585 into Spanish hands, which meant that a large amount of Protestant intellectuals fled to the northern parts of the Low Countries, taking with them all their knowledge and skills. In this way, knowledge about the new kind of architecture from Italy that was based on antiquity reached the Northern parts of the Low Countries at this time.⁴⁶ Among these refugees was Cornelis Claesz, who published the treatise of Serlio in Amsterdam for the first time.

The second important event was the Twelve Years' Truce from 1609-1621, in which the war between the Spaniards and Dutchmen was put on hold. In this period of (relative) peace, other branches of economic activities, like trade and building, flourished, because a large part of the finances could be spent on other things than warfare. As a result of that, the city of Amsterdam had the political abilities and the money to start building new neighbourhoods and thus the city grew explosively.⁴⁷ Ottenheim and De Jonge also explain the stylistic effect that this period had on the architecture that was built.

“The Twelve Years' Truce (1609-1621) most certainly led to a renewed exchange of inventions, fuelled by the new building boom. Since these rich new decorations reinforced architecture's power of expression, they could not be applied randomly, but required discernment. It was Serlio who pointed out that deviation from the classical norm was only acceptable if it conformed to the decorum required by the location.”⁴⁸

The peace of the Twelve-Years-Truce thus allowed the architect, among others De Keyser, to be inventive in their architectural designs.

Hendrick de Keyser was seen as a sculptor, of for instance the tomb of Willem of Orange in the New Church in Delft (see) image I.5), and architect. He designed several types of buildings both in and out of Amsterdam, such as towers, gates, houses and public buildings, among others the stock exchange in Amsterdam and the façade of the town city hall in Delft.⁴⁹ Besides the Noorderkerk, he was also involved in the construction of other churches in the new



Image I.5: Hendrick de Keyser, *Tomb for Willem of Orange*, Delft, Nieuwe Kerk, 1623. Front view, photo ca. 2010.



Image I.6: Hendrick de Keyser, *Westerkerk*, Amsterdam, Prinsengracht 279, 1620-1631. Exterior view, photo from 2015.

⁴⁵ Kramer, op. cit. (note 3), p. 6–15. See for a global overview of the Eighty Years War and its influence on the building practice in the Low Countries .

⁴⁶ Schmidt, op. cit. (note 4), p. 191.

⁴⁷ Ibid., p. 333.

⁴⁸ de Jonge and Ottenheim, op. cit. (note 12), p. 135.

⁴⁹ The most complete overview of all the works of Hendrick de Keyser can be found in the second part of Ottenheim et al., op. cit. (note 9), p. 46 - 123

neighbourhoods in Amsterdam. He designed the Zuiderkerk, and two years later the Westerkerk (image I.6) simultaneously with the Noorderkerk. Both the Wester- and Zuiderkerk are constructed with the traditional Latin cross, whereas the Noorderkerk, as stated, was constructed with the Greek cross shape.⁵⁰ All three churches show similarities in appearance and were built to answer the need for Protestant churches in the city of Amsterdam. Up to this moment, churches of this size were only built for the Catholics, resulting in lavishly decorated buildings with a Latin cross floorplan. Once Protestantism became a more and more important religion in Amsterdam, existing Catholic churches that were not used any more were taken over by the Protestants and the buildings were altered to fit their needs. However, at the time that the Protestants could start building their own churches, like the Noorderkerk, they seized the opportunity to alter the edifice to the specific demands of the Protestant belief. Since De Keyser designed three of these early Protestant churches, his architectural choices in these buildings can be seen as part of this search. For instance, he placed the pulpit in the centre of all three churches and left out the choir, a typical Catholic element.⁵¹

Another similarity between the three churches, together with the other projects of Hendrick de Keyser, is the use of his visual language inspired by antiquity. His architectural elements, like columns and cornices, are in the style of the orders. The political circumstances and the growing space for Protestantism allowed De Keyser to be the first to introduce this new visual language that neglected the previous Catholic tradition, but still rooted the Protestant ideas in a long historic building tradition.⁵² It is because of this that De Keyser was consciously called the ‘city’s antiquity master’ (‘stads antyc meester’).⁵³

To conclude, knowledge about the use of the classical visual language travelled to the Low Countries, mainly after the fall of Antwerp, through the medium of architectural treatises from Italy. Other than that, the Twelve-Year-Truce created space for the introduction of new architectural shapes due to the enormous building activity. Hendrick de Keyser was in charge of establishing the architectural visual language in the city. Besides, Protestantism rose and this all enabled De Keyser to change up the previous architectural styles. He did this by following the style that was shown in the contemporary Italian treatises that was based on antiquity. At the time, the translation by Coecke of Serlio’s treatise was the most influential treatise on architecture in the Low Countries and it showed all facets of the architectural practice. As a result of all of this, it becomes clear that De Keyser must have been acquainted with the works of Sebastiano Serlio.

⁵⁰ Ibid., p. 46-49

⁵¹ Kramer, op. cit. (note 3), p. 19–30.

⁵² De Jonge and Ottenheym, op. cit. (note 12), p. 297.

⁵³ Ottenheym et al., op. cit. (note 9), p. 32–33, 35–36. This is mentioned on the marriage certificate of his daughter.

CHAPTER 1

HENDRICK DE KEYSER'S NOORDERKERK

This chapter will visually analyse the floorplan of the Noorderkerk in Amsterdam designed by Hendrick de Keyser. It aims to specify the characteristics of the plan of the church. As a result, these distinctive features of the floorplan will in later chapters be sought in the treatise of Serlio, in order to find a possible model for the Noorderkerk. In this way it can be established up to what extent the floorplan of the Noorderkerk is inspired by one of the plans shown in the treatise of Serlio.

The Noorderkerk has been analysed before. Therefore, the determination of characteristics will start with the insights provided in the monograph *Hendrick de Keyser, Architectura Moderna, Moderne Bouwkunst in Amsterdam 1600-1625* by Konrad Ottenheim, Paul Rosenberg and Niek Smit and the book *De Noorderkerk in Amsterdam* that was written after the last restoration by Walter Kramer. However, the analyses in these books tend to be more general, since all components of the church are discussed. Moreover, they have not been specified to the goal of the research of this thesis, which is to find the specific features of the plan of the Noorderkerk in Serlio's treatise. Therefore, they will be supplemented by architectural analyses by the author. In this way, the defining aspects of the Noorderkerk can be visualised and formulated in a way that is comparable to Serlio's work.

Before the distinctive features of the Noorderkerk are determined, it is important to realize that the current layout does not resemble the original floorplan that was designed by De Keyser, since it changed over the centuries. The main body of the church remains almost unchanged. This is, however, in contrast to the maze of annexes that the floorplan of the church shows today. The earlier version was a balanced composition with one additional structure in every exterior corner of the main body of the church. These trapezium shaped annexes were internally divided in three supplementary rooms.⁵⁴ Ottenheim, Rosenberg and Smit specify their functions: "Two of them served as houses for the sexton and gravedigger. The other two contained the service quarters and the entrance halls for the church."⁵⁵ The two residences were located in the northeast and southeast annex, the service space and entrance in the northeast and southwest additional buildings.⁵⁶ Other than that, the current furniture was designed in 1844 by architect

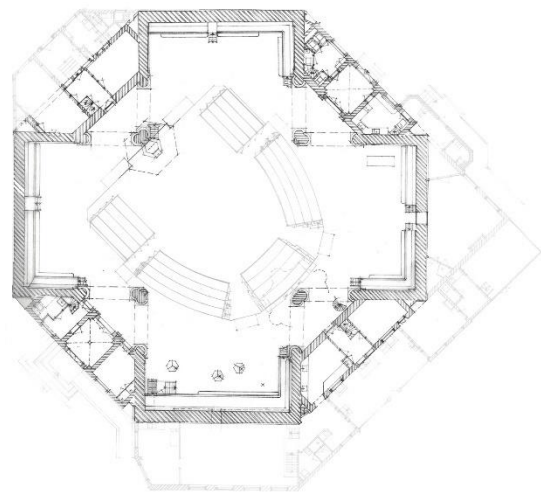


Image 1.1: The original layout (bright) of the Noorderkerk, accompanied with the new annexes and furniture (faded).

⁵⁴ Ottenheim et al., op. cit. (note 9), part III, Architectura Moderna VIII and IX.

⁵⁵ Ibid., p. 56. Authors translation from "Twee ervan dienden als woningen voor de kostyer en de grafdelver. De andere twee bevatten dienstvertrekken en de ingangsportalen van de kerk."

⁵⁶ Ibid., p. 56-57.

P.J. Hamer, and does not represent the original designed layout of the church.⁵⁷ All of this is shown in image 1.1.

The first and most general characteristic of the Noorderkerk is that the floorplan is centralized. This entails that the whole church is focussed on the middle of the building. First of all, the centralizing effect of the church can be seen in the floorplan (image 1.1). The layout is constructed from one central point, below the crossing of the church.⁵⁸ Other than its visibility in the floorplan, the original interior, as drawn by Jan Goeree (1670-1731) after the original design by De Keyser, shows that the centredness could also be experienced within the building (image 1.2), because the Noorderkerk used to be a relatively open space with low furniture. The attention of the visitor is focussed on the centre of the church, below the crossing, because this is the highest and lightest part of the church, due to the contribution of light from all the four arms. The spatial centredness is accentuated with low furniture in between the corner pillars that does not disturb the visual flow towards the centre. Ottenheym and Kramer contribute that one could walk via the open lowered corners of the arms of the church around the furniture surrounding the crossing.⁵⁹ As a result, a circular flow around the crossing arises and the centredness of the church is articulated once again.

The fact that the church is built with a centralized floorplan results in symmetry. Ottenheym and Kramer do not specify the precise type of symmetry, but it can be stated that the church is 90 degree rotationally symmetric. As a result, the church has two axes of symmetry (image 1.3). Each quarter of the church consists of one arm with an annex that is copied four times around the middle point of the church every 90 degrees (yellow dotted arrow). Because this part is copied four times, two symmetry axes (yellow axes) can be constructed besides the rotational symmetry.

Another highly fundamental, yet obvious, characteristic of the Noorderkerk is that it is built to serve a religious purpose of the Protestant service. This has consequences for the layout of the church: one large space is created to house the religious service and this is the main space of the building. In addition, smaller rooms are created to house supportive functions, like the house of the gravedigger and sexton in respectively the northwest and southeast corners or the entrances in the other two annexes. Since the religious purpose of the building dictates the floorplan, it is a fundamental characteristic.



Image 1.2: Jan Goeree, *Interieur van de Noorderkerk gezien van zuid naar noord*, ca. 1700, print (Amsterdam, Gemeente archief Amsterdam, Collectie Atlas Dreesman 10094)

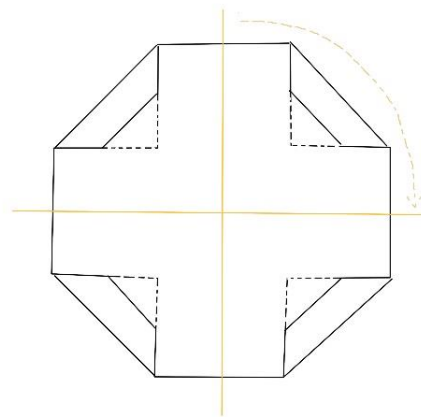


Image 1.3: 90 degree rotational symmetry (dotted yellow) in the Noorderkerk with two symmetry axes (yellow). Image by author

⁵⁷ Kramer, op. cit. (note 3), p. 41,48.

⁵⁸ Ibid., p. 24-26; Ottenheym et al., op. cit. (note 9), p. 55

⁵⁹ Kramer, op. cit. (note 3), p. 25; Ottenheym et al., op. cit. (note 9), p. 55

The shape and size of the church

The main space of the Noorderkerk, the centre of the religious purpose of the building, is shaped in a Greek cross form. This means that the church's floorplan consists of an even cross, of which all four arms have a similar length (image 1.4, yellow cross). All four arms are centred around the crossing of the church. Since the largest room of the church, and consequently the Greek cross shape, is the most important component of this building, the even cross is also the most dominant shape on the exterior. This is because of the height differences, as Kramer explains. "The appearance of the façade of the Noorderkerk consists, so to say, of a 'lower part' (annex), an elevated part (façade) and again a 'lower part' (annex)."⁶⁰ The emphasis on the Greek cross due to the height differences in elevation can also be seen in the aerial view of the church (image 1.5).

Yet, the even cross shape of the main body of the church is not the only shape that can be found in the floorplan, since De Keyser combines shapes. Ottenheim states the reason of the addition of an extra shape on the interior clearly. "Because narrow, high passages, covered with a masonry vault, were made behind these pillars, the cross-shaped floorplan became chamfered and a round procession around the square middle of the church arose."⁶¹ In this way, the original walls of the Greek cross were replaced by columns and beams. However, Ottenheim did not state the result of this design choice. It becomes clear from architectural analysis that these bevelled corners create an octagon on the interior of the church, that follows the round route around the crossing (image 1.4, brown octagon). This octagon is not regular, since the edges in the chamfered corners of the Greek cross are shorter than the sides in the four arms. Moreover, neither Ottenheim nor Kramer mention the conscious placement of the interior octagon, which becomes clear after architectural analysis: if two imaginary circles are constructed in both the crossing of the church and the end of the four arms of the Greek cross, another imaginary circle can be drawn exactly in the middle. On this exact placement, the bevelling of the corners starts which results in the interior octagon (image 1.6).

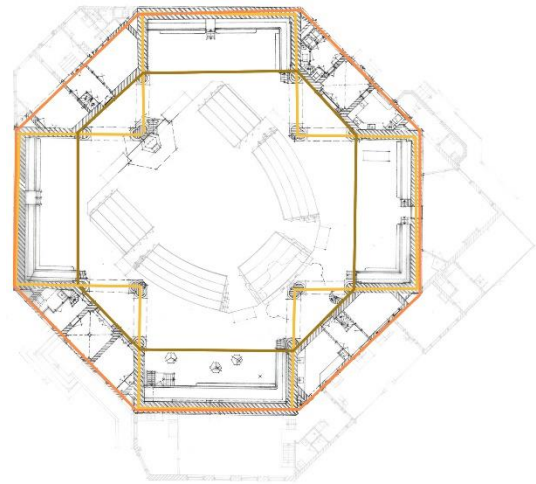


Image 1.4: Combination of shapes in the Noorderkerk, highlighted Greek cross (yellow), interior octagon (brown) and exterior octagon (orange).



Image 1.5: Hendrick de Keyser, *Noorderkerk*, Amsterdam, Noordermarkt, 1620-1623. Exterior aerial view, photo from 2015.

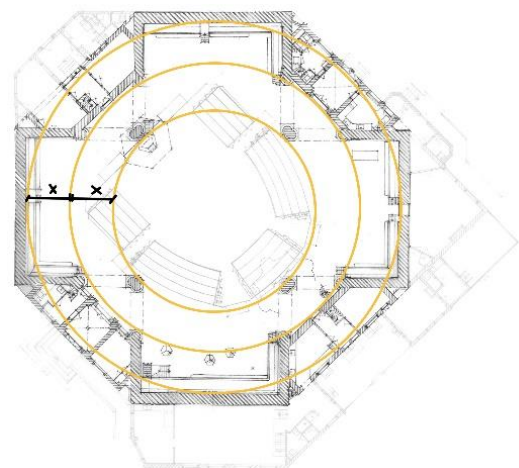


Image 1.6: floorplan Noorderkerk, highlighted circles to determine placement of octagon.

⁶⁰ Kramer, op. cit. (note 3), p. 29. Authors translation of "De Noorderkerk bestaat in dit [gevel]beeld als het ware uit een 'lager deel' (aanbouw), een verhoogd deel (gevel) en een 'lager deel' (aanbouw)".

⁶¹ Ottenheim et al., op. cit. (note 9), p. 55. Authors translation of "Door smalle, hoge doorgangen te maken achter deze pijlers, gedekt door een gemetseld gewelf, werd de kruisvormige plattegrond afgeschuind en ontstond een omgang om het vierkante middengedeelte van de kerk."

The interior octagon is not the only eight-sided shape that can be found in the floorplan of the Noorderkerk. The outside contour of the floorplan of the church is octagonal as well, as Ottenheym and Kramer also discuss, due to the additions of the trapezium shaped annexes (image 1.4, orange octagon).⁶² These extensions are placed against the walls of the interior octagon that originates after chamfering the Greek cross. These annexes house complementary space for the church. As a result of the less important function, the additional buildings are lower than the main body of the church. Therefore, the exterior octagon as visible on the floorplan does not disturb the pure Greek cross shape that dominates the exterior (image 1.5).⁶³

It becomes clear that the Noorderkerk is not constructed with the use of only one shape. Even though Ottenheym and Kramer acknowledge that De Keyser changed up the pure Greek cross shape, they do not fully emphasize that the church is a thoughtfully balanced composition of three clear forms. A combination arises of a Greek cross and two octagons, of which the interior one is irregular in shape and created by the chamfering of the interior corners of the Greek cross. The second octagon, which can be found on the exterior, is regular and emerges from the addition of trapezium shaped annexes (image 1.4).

Besides the determination of the shape of the church, its measurements are also relevant for characterizing the Noorderkerk. Kramer explains the metric system that was used at the time that the Noorderkerk was built and how to convert them into meters:

“The Noorderkerk was built according to the ‘byghestelde Voet-maet’. As a result of this, the total length (width) of the building is 130 voet. This dimension is indicated on the design etch of Simon de Braij from 1631. The Amsterdam voet is 0,283 meter (28,3 cm). One voet is 11 duim, one duim rounds up to 2,5 cm.”⁶⁴

In this way, the dimensions of the Noorderkerk can be established.⁶⁵ The interior length of the church, that is to say the combination of two arms and the crossing is ca. $11,25 + 13,0 + 11,25 = 35,5$ meter. The measurements of the crossing of 13 by 13 meters is the same as the width of all the arms. The chamfering of the interior corners of the Greek cross commences at the middle of the arms at ca. 5 meters from both sides.

Internal division of space

The most important goal in the interior of the Noorderkerk is the creation of a religious space. Research in the creation of this has elaborately been done by Ottenheym and Kramer, who describe the placement of pulpit and furniture over the centuries in great detail.⁶⁶ Since the church is built for the Protestant service, the interior is kept relatively sober. This means that there is no imagery and that no altars can be found. Within the Protestant church, the word of God stands central and is spoken from the pulpit. For these reasons, both Ottenheym and Kramer emphasize that the



Image 1.7: pulpit placed against northwest column in Noorderkerk.

⁶² Ibid., p. 56; Kramer, op. cit. (note 3), p. 28.

⁶³ Ibid., p. 29.

⁶⁴ Ibid., 44. Authors translation from: “De Noorderkerk werd gebouwd volgens de ‘byghestelde Voet-maet’. Zo is de totale lengte (breedte) van het gebouw 130 voet. Deze maat is aangegeven op de ontwerpgravure van Simon de Braij uit 1631. Een Amsterdamse voet is 0,283 meter (28,3 cm). Een voet is 11 duim, een duim is, afgerond 2,5 cm.”

⁶⁵ Since I was not able to measure the Noorderkerk myself, the dimensions are derived from scaling architectural drawings in the book of Kramer and calculating the current measurements in meters from the indicated lengths in Amsterdamse voet, also elaborated on by Kramer.

⁶⁶ Ottenheym et al., op. cit. (note 9), p. 57; Kramer, op. cit. (note 3), p. 24–27, 64–68.

placement of this element is the most important in the church.

Moreover, the positioning of the pulpit is done in a rather clever way.⁶⁷ It is located against the pillar of the chamfered northwest corner (image 1.7). Besides, it is elevated with seven steps. As a result, Ottenheym states that "... the pastor was both visible and audible from nearly all places in the church."⁶⁸ This can even be said for nearly all of the corners of the arms.⁶⁹ The space around the pulpit was furnished to be used in the Protestant service, as Kramer explains. "We can assume that the space in front of the pulpit was equipped after several years with a simple baptismal garden and baptismal fence."⁷⁰ It becomes clear that the space around the pulpit was designed to be focussed on.

Other than that, the religious space is created by the arrangement of seating (image 1.8). Ottenheym, Rosenberg and Smit state that "Opposite the pulpit, against the three other pillars, fixed benches for the board of the city and churchwarden were placed."⁷¹ These seats were slightly elevated and had awning. In between these columns, fixed benches were located for the wealthy visitors of the church. At the time, visitors had to pay to be able to use these benches or the additional chairs that could be placed in between the fixed seating. Because less fortunate people could not afford to buy these places, it was decided that benches had to be built for the poor in the arms of the church ('armenbanken'). These places were further away from the pulpit and therefore less appealing for the upper-class.⁷²

The internal division of the Noorderkerk is, besides the creation of religious space, highly influenced by the placement of the entrances. The four entrances of the Noorderkerk are all placed in the annexes that are built in between the arms of the Greek cross, which means that the church is entered in one of the sides of the interior octagon (image 1.9). In this way, the space in the arms of the Greek cross can be used to provide seating and to arrange large windows that bring light in the church. Moreover, the way the entries are placed impacts the centredness of the space,

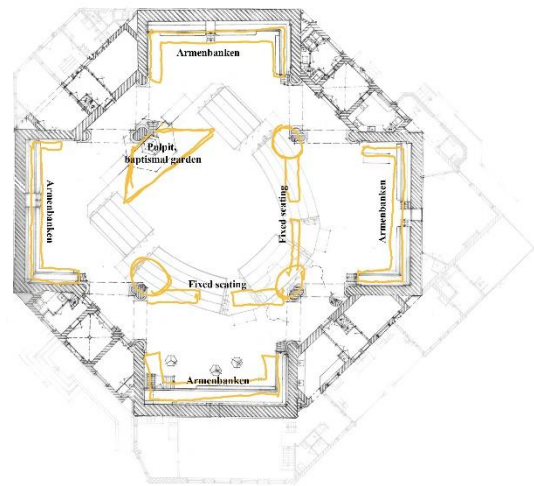


Image 1.8: placement of furniture and the effect on the usage of the church.

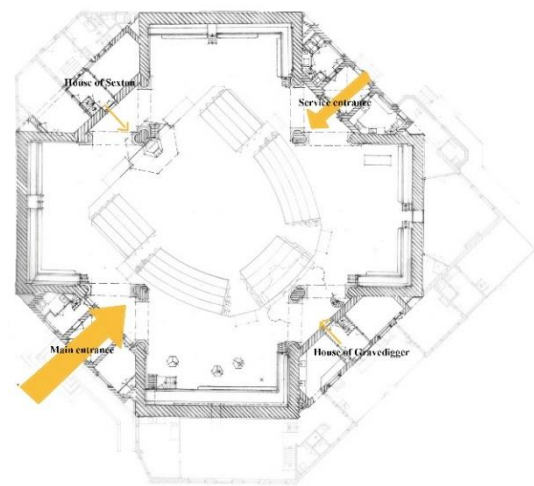


Image 1.9: entrances of the Noorderkerk.

⁶⁷ Ottenheym et al., op. cit. (note 9), p. 57; Kramer, op. cit. (note 3), p. 64.

⁶⁸ Ottenheym et al., op. cit. (note 9), p. 57. Authors translation from: "Hiermee was de voorganger van nagenoeg alle plaatsen in de kerk zichtbaar en hoorbaar."

⁶⁹ Kramer, op. cit. (note 3), p. 64–65.

⁷⁰ Ibid., 65. Authors translation from "We mogen aannemen dat er voor de kansel na enige jaren een eenvoudige dooptuin met een doophek stond."

⁷¹ Ottenheym et al., op. cit. (note 9), p. 57.

⁷² Kramer, op. cit. (note 3), p. 65–68.

as Ottenheym states. “The spatial impact is enhanced because the visitor of the church enters the church diagonally, in the portal behind the pillar.”⁷³ The main entrance can be found in the southwest annex. The other larger entrance can be found in the northeast. Both entryways have two rooms that are used as service space on each side. The entrances on the northwest and southeast in the houses of the sexton and gravedigger are smaller, because of their private character.

The combination of placement of pulpit, baptismal garden, furniture for both the wealthy and the poor and the distinct placement of entrances in the trapezium shaped annexes adjoined to the interior octagon emphasizes the centredness of the church. It creates a circular routing around the crossing, where the service takes place, and it follows the interior octagon. In this way, the interior design emphasizes the focus on God’s word.⁷⁴

Combining the characteristics of the Noorderkerk with the treatise of Serlio

This chapter searched for the distinct characteristics of the Noorderkerk, by taking the surveys of Ottenheym and Kramer as a starting point. Their insights were supplemented with an architectural analysis, to be able to precisely formulate distinctive features of the Noorderkerk, that will be sought in the treatise of Serlio. As a result of this analysis, this chapter brings these characteristics: the Noorderkerk has a centralized floorplan, that is 90 degree rotational symmetric and has a religious function. This describes the church in a more general way. The most important characteristic, however, is the Greek cross form, that is combined with two octagons on interior and exterior. Besides, the measurements have been stated, just like the placement of the pulpit and entrances.

The relevance of stating distinct characteristics of the Noorderkerk becomes clear in the next chapters, where these features are sought in the projects in the treatise of Serlio. In this search, it is important to look at both the Noorderkerk and the building of Serlio in great detail, to determine a possible model for the Noorderkerk. In fact, close similarities can prove that De Keyser inspired his design of the first Greek cross church in the Low Counties on one of the projects of Serlio.

⁷³ Ottenheym et al., op. cit. (note 9), p. 55. Authors translation from “Het ruimtelijke effect wordt versterkt doordat de kerkgang diagonaal binnenkomt, in de doorgang achter de pijler.”

⁷⁴ Ibid., 55.

CHAPTER 2

TUTTLE L'OPERE D'ARCHITETTURA ET PROSPETTIVA BY SERLIO

The treatise *Tutte l'opera d'architettura et prospetiva* of Sebastiano Serlio should be seen as a large compendium about the complete architectural practice. Information can be found on how to construct buildings in the broadest sense, ranging from basic geometric principles to instructions on detailed ornamentation. In the labyrinth of images and descriptions, the distinctive features of the Noorderkerk, that have been stated in the previous chapter, will be sought.

Because of the large volume of the treatise, this chapter will investigate how the treatise of Serlio is organized and which sections of the treatise display buildings that can show the characteristics of the Noorderkerk. Some more general remarks on the treatise have already been made in the introduction, but this chapter will analyse the distinctive parts in more depth. Eventually, this exploration of the treatise of Serlio will be done to determine which sections of the complete book contain projects that can be compared to the Noorderkerk. After finding the relevant segments of the treatise and comparing it to the Noorderkerk in the next chapter, it can be established what impact the treatise of Serlio had on the development of the design of the church.

First, it is important to mention which versions and translations are used to analyse the treatise of Serlio. The images that are examined in this thesis are from a Dutch version of the treatise that can now be found in Library of the University of Utrecht. It was translated by Pieter Coecke van Aelst and published by Cornelis Claesz in Amsterdam in 1604. From all existing versions, this Dutch translation is chosen, because it is most likely that it duplicates the variant that De Keyser saw the closest.⁷⁵ The text of Serlio is analysed with the use of the book *Sebastiano Serlio on Architecture* by experts Vaughan Hart and Peter Hicks from 1996.⁷⁶ It contains a translation and explanatory comments by the authors on Serlio's complete treatise.

Relevant sections in Serlio's *Tuttle L'opera d'architettura et prospetiva*

From the complete seven-parted treatise, book III and book V are the most relevant for finding projects that share the distinctive features of the Noorderkerk. Both books contain a large variety of complete buildings, accompanied with floorplans, elevation and section. Moreover, detailed descriptions on the method of construction of these buildings are included. In the most general way, the scale that both books use, that is to say the scale of the complete building, is compatible to the scale that is needed when projects will be compared to the Noorderkerk (image 2.1).

⁷⁵ The books that are currently held in Utrecht are the Dutch translations of respectively two times book V and book III, see Serlio, *Den Vijfsten Boeck van Architecturen Sebastiani Serlii, in Den Welcken van Diversche Formen Der Tempelen Getracteert Wordt*; Serlio, *Den Vijfsten Boeck van Architecturen Sebastiani Serlii, in Den Welcken van Diversche Formen Der Tempelen Getracteert Wort Na de Maniere van Den Antijken Ende Oock Dienende Voor de Kerstenen*; Serlio, *Die Alder Vermaertste Antique Edificien van Tempelen, Theatren, Amphiteatren, Paleysen, Thermen, Obilischen, Bruggen, Archen-Triumphal Etc.: Beschreven Ende Gefigureert Met Haren Gronden Ende Maten, Ook de Plaetsen Daerse Staen, Ende Wiese Dede Maken*;

⁷⁶ Serlio, op. cit. (note 1); Serlio, op. cit. (note 25).

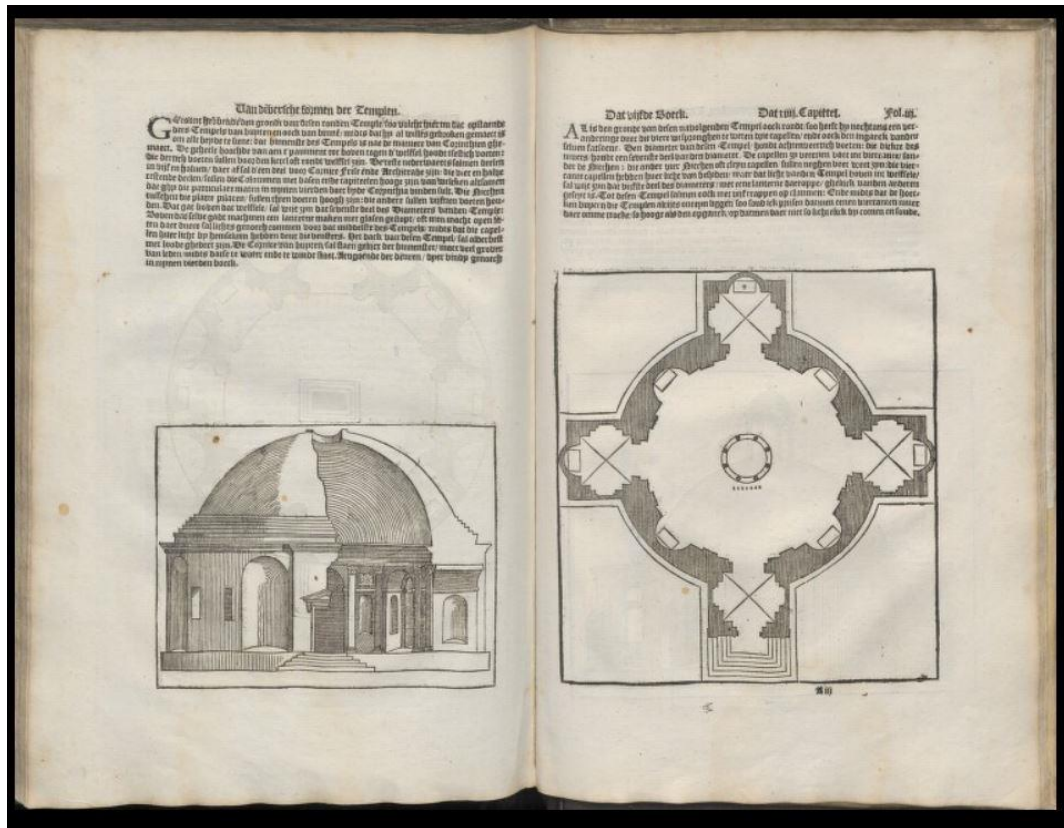


Image 2.1: Sebastiano Serlio, *An example of a page of book V*, that shows an elevation/section and floorplan of a church accompanied with descriptions, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. III)

Besides these general indications, book III also offers specific reasons for being useful in the comparison to the Noorderkerk. Since De Keyser was one of the first architects to build using the style based on antiquity in the Low Countries, he was undoubtedly interested to see examples of ancient buildings. This was provided by Serlio and also one of the intentions for composing book III.

“Therefore, in addition to my other labours on architecture, I decided to put in one volume, if not all, then at least a majority of those antiquities so that any person who enjoyed architecture could, wherever they find themselves, take this book to hand and see all the marvellous ruins of those Roman buildings.”⁷⁷

By showing ancient buildings, Serlio intends to provide models for other architects who want to build in the style of antiquity. In this way, De Keyser was encouraged to look at the antique projects in his third book, and inspire his own projects on what he saw. “I gave my opinion strongly in order to instruct those who know nothing, so that, if they wished to make use of ancient objects, they would know how to select the perfect and well-conceived.”⁷⁸

The characteristics of the Noorderkerk can be sought in book III within a wide range of different projects. To give an overview: the book contains plates and notes on many temples, theatres, obelisks, gates, amphitheatres, villas, ports, bridges, baths and triumphal arches, mostly located on Italian grounds, although antiquities from Jerusalem, Egypt and Greece as part of the Roman empire are also included. Besides, contemporary examples of buildings that use the style of antiquity are incorporated.⁷⁹ All of these buildings are discussed at least on the scale of the total building with elevational views and floorplans. Therefore, they can all be compared to the floorplan of the Noorderkerk.

Besides book III, book V about temples presents multiple relevant buildings for the comparison

⁷⁷ Serlio, op. cit. (note 1), p. 97, book III fol. III.

⁷⁸ Ibid., p. 247, book III fol. CLVI.

⁷⁹ Ibid., p. xxviii–xxix, 95–247.

between Serlio's work and the Noorderkerk. In this book V, Serlio consistently speaks of 'temples', whereas nowadays these buildings would consciously be called churches to avoid our pagan associations to the word temple. Was this also the case for Serlio? From his own writings it becomes clear that the correlations between pagan worship and the word 'temple' was not relevant at the time and that the models of the ancients were interwoven in the Christian building tradition. At the beginning of book V, Serlio states that "... many diverse forms of ancient and modern temples can be seen in every part of Christendom..."⁸⁰ It seems that Serlio even uses the word temple consciously, to place his own Christian temples in the antique tradition. This is also emphasized by Hart and Hicks in their introduction of book V, who state that Serlio created "twelve temple designs in the 'antique manner'".⁸¹

The case of the Protestant Noorderkerk by Hendrick de Keyser adds an extra layer to this discussion, since it can be questioned if the Protestant De Keyser could simply copy the designs of the Catholic Serlio. Ottenheym and de Jonge show that both men tried to place their architecture in line with the antique tradition.

"Protestant and Catholic patrons alike felt the need to establish their religious architecture within a long tradition, ..., in order to justify the foundation of their beliefs. Both also wished to give their churches perfect and ideal forms that would express the important nature of the buildings. To this end, Protestants and Roman Catholics both made use of the same antique and biblical models."⁸²

Since Serlio based his designs on antiquity and made this clear in his work with for instance the use of the word 'temple' for his church designs, De Keyser could use the treatise of Serlio for inspiration. It becomes clear that our current moral struggle between 'temple', 'Catholic church' and 'Protestant church' was less relevant in the sixteenth and seventeenth century. All of these buildings were simply seen as religious structures and both Catholics and Protestants followed the same models to show the important nature of their constructions.

Now that it is clear that De Keyser could use the temples of book V as a model for the Noorderkerk, book V can be closer examined. In addition to the inclusion of large amount of floorplans and sections of buildings just like in book III, this book is especially suitable for finding models since it focusses on the religious building. Serlio highlights the importance of this type of buildings in his introduction.

"Nevertheless material temples are also needed for divine worship because they are arranged as a representation of the house of God – he whose delight it is that certain places be dedicated so that we may humble ourselves before His divinity and communicate with Him in prayer."⁸³

Since the Noorderkerk is also a religious building, this section of the treatise automatically would have spoken to De Keyser and provided him with possible models. The book discusses twelve possible designs for religious buildings. They are designed in all possible forms and shapes: for example round, oval, hexagonal buildings and churches with different types of crosses are included. These designs of Serlio are not actually realized but are intended to inspire and educate builders in constructing new religious edifices.⁸⁴ All designs are presented with a description, containing measurements and images of floorplan, elevation and section. Other than that, all buildings are kept relatively small (see also appendix 1 for scaled versions of the plans) as Serlio describes, "so that they can be brought to completion with the least expense and greatest brevity."⁸⁵

⁸⁰ Ibid., p. 396, book V fol. 2v.

⁸¹ Ibid., p. xxxi.

⁸² De Jonge and Ottenheym, op. cit. (note 12), p. 297.

⁸³ Serlio, op. cit. (note 1), p. 395, book V fol 1v.

⁸⁴ Ibid., p. 395, book V fol. 1v-2r.

⁸⁵ Ibid., p. 396, book V fol. 2v.

Irrelevant sections

Other than the relevant book III and V, the other sections of the treatise of Serlio are not relevant for determining a possible model for the shape of the Noorderkerk's floorplan. The first two books on geometry and perspective can be seen as chapters on elementary knowledge for the architect and both sections do not show relevant floorplans. The most famous book IV, that was published first, focusses on architectural elements and their details by commenting on how the use of the five orders (the Tuscan, Doric, Ionic, Corinthian and Composite). The book lacks complete floorplans of buildings and focusses on individual elements, resulting in the section being irrelevant for the development of the floorplan of the Noorderkerk.

Lastly, book VI and VII about houses and different situations that an architect can encounter cannot be used for searching models for the Noorderkerk. Both books, as well as the two extra books on fortifications and gates, were not translated by Pieter Coecke van Aelst and brought to the Low Countries at the time that the Noorderkerk was built.⁸⁶ As a result, they were never included in contemporary complete publications of all his other books and De Keyser could not have seen these sections.

It becomes clear that the comparison between the distinctive features of the Noorderkerk and the treatise of Serlio only has to focus on the projects that are shown in book III on antiquities and book V on religious buildings. These ancient (religious) buildings and Catholic churches that were based on antiquity can be compared with the Protestant Noorderkerk, since the reference would highlight the importance of the building by rooting the church in a long tradition. So, up to what extent does the Protestant Noorderkerk show similarities to the models shown by Serlio?

⁸⁶ Serlio, op. cit. (note 25), p. liv. Hart and Hicks were in 2001 the first to translate the books VI, VII and the extraordinary book on doors into any other language than the original Italian and French.

CHAPTER 3

COMPARING THE NOORDERKERK TO SERLIO'S PROJECTS

This chapter will define which characteristics of the floorplan of the Noorderkerk, as elaborated on in the first chapter, can be found in the floorplans and descriptions in the treatise of Serlio. This search will focus on the projects and their floorplans shown in book III and V that are relevant for the question in this thesis, as discussed in the second chapter. In order to highlight the similarities and differences clearly, this chapter will be descriptive in nature. To determine whether De Keyser was indeed inspired by Serlio, the descriptive comparison of this chapter will need to be placed into the contemporary context, which will be done in chapter four.

By finding characteristics of the floorplan of the Noorderkerk in the floorplans and descriptions in the treatise of Serlio, it can be established in what way the books of Serlio had an impact on the development of the first Greek cross church in the Low Countries. Multiple matches between characteristics of the church and projects in the treatise of Serlio can indicate that De Keyser was inspired by Serlio's books.

Book III and V combined show a large number of projects that De Keyser could consult in the design process of the Noorderkerk. While browsing through the pages of the two sections, it becomes clear that not all of these projects are relevant when they are compared to the floorplan of the Noorderkerk. However, one building in particular shows the greatest similarities: the Greek cross church of Serlio that is included in book V (image 3.1).⁸⁷ The church is one of Serlio's own designs and is not actually realized, just like all other twelve churches shown in this part. After all, book V is intended to inspire other architects to design new religious buildings which Serlio wants to achieve by showing his own varied church designs.

Although the Greek cross church shares the most characteristics with the Noorderkerk, it is not the only building with similar features (see appendix 2 and 3).⁸⁸ The

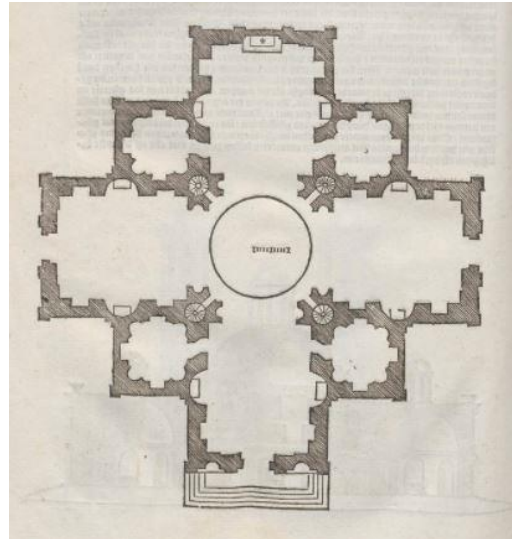


Image 3.1: Sebastiano Serlio, *Book V: Floorplan of a temple with Greek cross shape*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. XII)

⁸⁷ Serlio, op. cit. (note 1), p. 416–19, Book V fol. 21v–24v.

⁸⁸ See appendix 2 for images of these projects, see appendix 3 for a table showing the meeting of the requirements by the projects in the books of Serlio.

most general characteristics of the Noorderkerk, that is to say its centralized floorplan, the rotational symmetry over 90 degrees and the religious function of the building, are visible in a lot of other projects besides the Greek cross church in the books. A total of 19 buildings are included that are centralized, of which almost all of them are used as religious structures.⁸⁹ The high amount of religious centralized buildings makes it understandable for Hendrick de Keyser to go for a centralized floorplan.⁹⁰ Moreover, all of these 19 centralized buildings are symmetrical. 13 of these are symmetrical in a similar way to the Noorderkerk, that is to say rotationally symmetrical over 90 degrees.⁹¹ The Greek cross church of Serlio is one of these. It becomes clear that these broad characteristics of the Noorderkerk are widely shared with the projects shown by Serlio, but also with the Greek cross church of book V.

The immediately distinctive similarity of the Greek cross shape between the Noorderkerk and the Greek cross church of Serlio is also detectable in more examples, although less apparent. This is because the Greek cross shape is presented mostly in an indistinct way, and only occasionally in pure form. The indistinct Greek cross emerges when chapels and entrances are placed strategically onto for instance a round or octagonally shaped temple. It can be found in 10 of the 19 centralized churches.⁹² This differs from the intentional and pure Greek cross, where the arms have the same width as the rest of the church and they are therefore undoubtedly part of the building (image 3.2). Only three

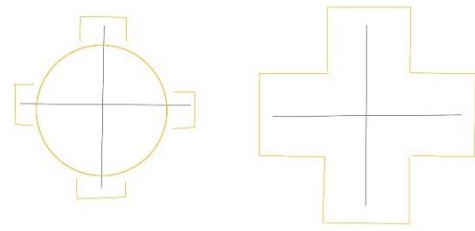


Image 3.2: indistinct Greek cross (left) and full Greek cross (right). Image by author

⁸⁹ The buildings in Book III and V that are centralized in ground plan are shown in appendix 2. Of these, only the Mausoleum of Romulus (app. 2.1.4, Book III fol. 69r) and the Villa Poggio Reale in Naples (2.1.9, Book III fol. 121r-122r) do not have a religious function.

⁹⁰ Only six more religious buildings besides all stated examples in appendix 2 are included in Serlio's treatise. These (mostly ancient) temples are decentralized, and fall out of the scope of this research. If this amount of 6 decentralized religious buildings is compared to the 19 centralized versions, it becomes clear that the treatise of Serlio contains a high amount of religious buildings with centralized floorplan.

⁹¹ The other six centralized buildings show a different form of symmetry. Three buildings are linear symmetrical over one symmetry axis: the Temple of Tivoli (app. 2.1.3, Book III fol. 60v-61r), the Temple of Peace (app. 2.1.6, Book III fol. 58-59r) and the unidentified temple (app. 2.1.7, Book III fol. 61v-62r). The other three examples are also linear symmetrical, but have three or more axis of symmetry, in contrast to the two axes of symmetry in the Noorderkerk. It concerns the hexagonal Sepulchre of the Calvenzi (app. 2.1.8, Book III fol. 63r) and the hexagonal temple (app. 2.2.4, Book V fol. 11r-13r) with three axes of symmetry and the pentagonal temple (app. 2.2.3, Book V fol. 9r-10v) with no less than five symmetry axes.

⁹² The buildings with a indistinct Greek cross are the round Pantheon (App. 2.1.1., Book III fol. 50r-55v), Temple of Bacchus (App. 2.1.2., Book III fol. 56v-57v), Mausoleum of Romulus (App. 2.1.4., Book III fol. 69r), the Tempietto (App. 2.1.5., Book III fol. 67r-68v), the square Temple of Peace (App. 2.1.6., Book III fol. 58-59r) and the oddly shaped unidentified temple (App. 2.1.7., Book III fol. 61v-62r). All of these can be found in book III. Book V also contains churches with an indistinct Greek cross: the round church (App. 2.2.1., Book V fol. 2v-4v), the round church with chapels (App. 2.2.2., Book V fol. 5r-6v), the octagonal temple within square (App. 2.2.6., Book V fol. 16v-18v) and the square temple with circular chapels (App. 2.2.7., Book V fol. 19r-21v). All of these temples have larger additional chapels and entrances, placed on the exterior 90 degrees from another.

clear examples of the pure Greek cross can be found in the books of Serlio.⁹³ In contrast to the small chapel Sepulchre de Cercenni and the large St. Peter cathedral, the averagely sized Greek cross church in book V is spatially arranged in a similar way to the Noorderkerk due to its similarity in size (see appendix 1).

Before the Greek cross church of Serlio is compared even more closely to the Noorderkerk, it is essential to study the images and descriptions of Serlio about the church thoroughly. This ninth church design in book V of Serlio has four arms that are even in length, or as Serlio states “truly in the form of a cross.”⁹⁴ Serlio starts by giving a clear description how the church should be constructed by identifying the characteristics of one of the four arm, since this arm can be copied to the other four arms. “Concerning this we shall first discuss its principle entrance, which will stand for all of the parts, in that they are the same form and measurements. Its width should be XXX feet and its length XXXVII. In the middle of the sides there are to be two niches whose width should be X feet – inside them there should be altars.”⁹⁵ He continues stating measurements for different elements (walls, doors, pillars) of the church, so that following architects know how the church should be constructed.

To make extra support for the dome on top of the crossing, as well as to create extra space for chapels, Serlio adds four extra structures on the exterior side of the corners of the Greek cross. “So that the pillars will be sounder and stronger to support the dome, IIII chapels with VIII faces should be built in the four corners. Their diameter is to be XVIII feet; their niches, windows and the entrance are to be V feet in width. The thickness of the walls should be IIII feet, and the spiral staircases for climbing to the top are to be built inside the pillars.”⁹⁶

After this, Serlio focusses on more details concerning the main church building again. He elaborates on the entrance, which should be decorated with flat columns. In the arm opposite to the main entrance, the main altar should be placed. Serlio also determines the placement of service space by lifting the edifice. “By raising the building up, many commodities could also be built below ground, in fact as many of these places below as above – the four spiral staircases would serve them.”⁹⁷ As a result of that, the main church will have to be placed a little higher, which is why stairs have to be placed at the main entrance of the church. This detailed explanation of the floorplan is followed by a similar description on how to design the exterior and interior elevation of the church.⁹⁸

Comparing the Greek cross church of Serlio and the Noorderkerk

The clear floorplan and the distinct descriptions by Serlio allows to make a detailed comparison between this church and the Noorderkerk. The more general characteristics that are visible in both the Noorderkerk and the Greek cross church, that are also shared with many other projects in the books, have already been discussed. It became clear that no other example than the Greek cross church of book V can be found that resembles the Noorderkerk in all general features in a similar way.

The most important similarity between the two buildings, the Greek cross shape, results in a similar arrangement of the space of the church. The main church space of the medium sized Greek cross church of Serlio is not internally subdivided with walls and pillars as in the St. Peter, which is similar to the situation in the Noorderkerk. Furthermore, the Greek cross church of Serlio has four additional square rooms on the outside of the corners, that are closed off from the main church area by a door and wall. These annexes are lower than the Greek cross shaped main body of the church, as becomes visible

⁹³ These three examples are the Sepulchre of Cercenni (app. 2.1.10, Book III fol. 63r), St. Peter by Bramante (app. 2.1.11, Book III fol. 65v) and of course, the Greek cross church in book V (app. 2.2.8, Book V fol. 21v-24v)

⁹⁴ Serlio, op. cit. (note 1), p. 416, Book V fol. 21v.

⁹⁵ Ibid., p. 416, book V fol. 21v.

⁹⁶ Ibid., p. 416, book V fol. 21v.

⁹⁷ Ibid., p.417, book V fol. 22r.

⁹⁸ Ibid., p.418–19, book V fol. 23r-24v. The commentary on the interior and exterior elevation is done in a similar way to the explanation of the floorplan. These descriptions, that mostly discuss heights, ornamentation and shapes of the roofs, are not elaborately discussed here, as they fall outside the scope of this research.

from the elevational drawings.⁹⁹ All of these characteristics, the open space in the main body of the church, combined with annexes in the corners that are lower than the main Greek cross shape of the building, are also visible in the Noorderkerk. Therefore, the Greek cross as the main shape for the church is interpreted in the same way in both religious buildings.

Besides similarities in shape and scale, the Noorderkerk also mirrors the dimensions of the Greek cross church closely.¹⁰⁰ The interior length of the Noorderkerk is 35,5 meters, while the arms of the Greek cross church have a total length 37,5 meters.¹⁰¹ These differences in length are caused by conscious changes in De Keyser's design and therefore its measurements. As can be seen on image 3.3, the length and width of the arms differ slightly, but this is done in a regular way. The width of the arms of the Noorderkerk is 13 meters and is wider with regards to the 11 meter wide church by Serlio by exactly two times the thickness of the ca. 1 meter wide wall. The length of the arms of 35,5 meter in the Noorderkerk, however, is slightly shorter than the 37,5 meter length of the Greek cross church of Serlio. These changes are caused again by taking away the exact thickness of the exterior wall of 1 meter on both sides. The conscious widening and narrowing of the arms of the Noorderkerk compared to the Greek cross church cause the measurements of the crossing to be different: 13 by 13 meters for the Noorderkerk and 11 by 11 meters for the church of Serlio. The intentional change of dimensions shows that De Keyser took the measurements of the Greek cross from Serlio as a starting point, but altered the measurements slightly in a sensible way because this fitted his own church better.

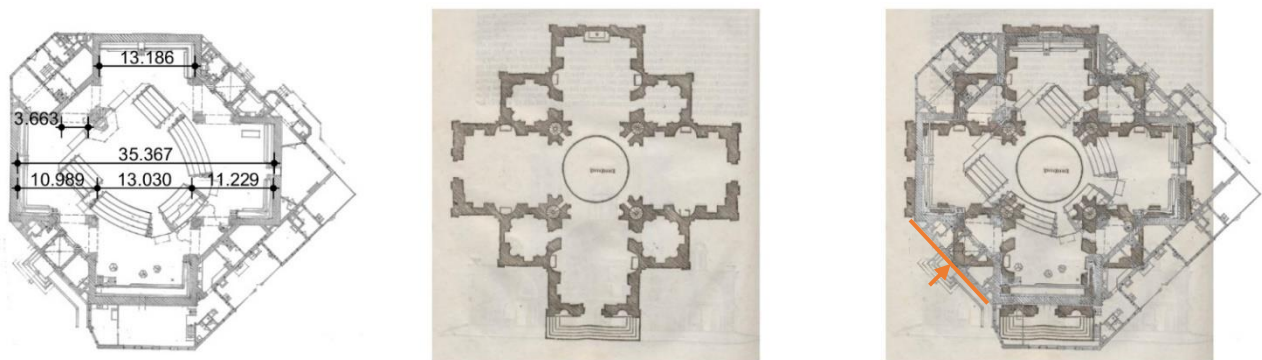


Image 3.3 A, B and C: comparing the Noorderkerk and the Greek cross church of Serlio in size

A: The shape and measurements of the Noorderkerk by De Keyser on scale

B: Serlio's Greek cross church on scale

C: Noorderkerk and Serlio's Greek cross church placed on top of each other

Another similarity in the measurements of the Noorderkerk and the Greek cross church of Serlio is the placement of the additional shapes onto the exterior corners of the Greek cross. Both the interior octagon in the Noorderkerk and the chapels in the exterior corners in the church of Serlio are located on the same position: at ca. 5 meters from the four columns around the crossing and exactly in the middle of the arms of the Greek cross. Furthermore, the depth of the additional structures is similar in both buildings. The exterior corner of the chapel (image 3.3, orange arrow) of Serlio lines up to the outside contour of the annex of De Keyser (image 3.3, orange line). As a result of this, the layout and

⁹⁹ Ibid., p. 418-19, book V fol. 23r-24v.

¹⁰⁰ Two more examples can be found within the book of Serlio that have a similar scale: the Pantheon (App. 2.1.1., Book III fol. 50r-55v), the Unidentified temple (App. 2.1.7., Book III fol. 61v-62r) and the square church with circular chapels (App. 2.2.7., Book V fol. 19r-21v). Even though these churches have the same size as the Noorderkerk, they cannot easily be compared due to their difference in shape with the Amsterdam church. The fact that the Greek cross is both similar in size and shape makes that the Greek cross church is the best example to compare the Noorderkerk to.

¹⁰¹ Since I was not able to measure the Noorderkerk precisely and both images are scaled from previous drawings of both projects, the measurements might not be exactly correct.

measurements of the churches are even more similar.

Even though the placement of these additional shapes is similar, their shape is very different. Due to the inclusion of the interior octagon and the creation of an exterior octagon in floorplan because of the additional buildings, the annexes of the Noorderkerk are trapezium shaped. This differs from the Greek cross church of Serlio, where square shaped annexes are placed in the middle of the arms of the Greek cross. These annexes do not create a distinct exterior shape and are different in function to the additions of the Noorderkerk. In this way, the combination of shapes that is created in the church of De Keyser with the inclusion of the two octagons does not emerge in the church of Serlio.

Possible other projects in the books of Serlio that show the combination of a pure Greek cross and octagon on exterior and interior cannot strictly be found. However, multiple examples are shown of the idea to combine different shapes within the same building in both book III and V. For example, book III shows the unidentified temple, the Sepulchre of the Calvenzi and the design for the St. Peter by Bramante.¹⁰² Book V discusses two examples of temples where different shapes are combined, of which the octagonal within a square temple is most compatible to the Noorderkerk, due to the indistinct Greek cross shape that is created by the chapels.¹⁰³ Serlio states the reason to combine shapes in the text that accompanies the images of the church:

“Since on the octagonal shape above none of the chapels is of a decent size, because they are solely within the thickness of the wall, I wanted here to make a figure of another form, octagonal inside but square on the outside, so as to find space for four large chapels which are in proportion to the temple”.¹⁰⁴

The idea to combine multiple shapes to create extra space in the church is used by Serlio in other churches as well, like the church with circular chapels.¹⁰⁵ It can be said that the same principle is used in the Noorderkerk, where the octagon and Greek cross are combined to create extra interior space for the main body of the church, even though the specific combination of Greek cross and double octagon as is visible in the floorplan of the Noorderkerk cannot directly be found in the floorplan of the Greek cross church of Serlio.

The octagonal within square church shows that the octagon is also a shape that occurs individually in the treatise of Serlio, although not in combination with the Greek cross church in book V. The octagonal within square church is an enlarged version of the other pure octagonal church in book V.¹⁰⁶ Because of this pure shape, the church only has one room. It becomes clear that neither of the two examples includes the octagon in similar way as the Noorderkerk. De Keyser used the Greek cross instead of the octagon as principal shape for both interior and exterior, as is done in the simple eight-sided church shown by Serlio. Although the other eight-sided church, the octagonal within square temple, shows an indistinct Greek cross due to the placement of chapels and entrances, the octagon remains the main shape of the interior and does not emerge from the chamfering of the interior corners of the Greek cross as done in the Noorderkerk. Thus, both churches do not combine a pure Greek cross shape with an octagon in the same way as De Keyser did in the Noorderkerk.

¹⁰² Some examples of buildings that show a combination of shapes are for instance the unidentified temple (app. 2.1.7., 121, book III fol. 61v-62r). In this example, a main round shape is combined with additional square and round chapels to create an octagonal feeling. Another is the Sepulchre of Calvenzi (app. 2.1.8., 125, book III fol. 63r), that shows the combination of a round shape that, due to chapels, functions as a hectagon as well is shown. Another is the St. Peter (app. 2.1.11., 128, book III fol. 65v) includes squares, small Greek crosses and circles in the main Greek cross shape due to the addition of annexes, walls and columns.

¹⁰³ Serlio, op. cit. (note 1), p. 410–13, Book V fol. 16v-18v., app. 2.2.6

¹⁰⁴ Ibid., p. 410, Book V fol. 16v.

¹⁰⁵ Ibid., p. 414–16, book V fol. 19r-21v., app. 2.2.7. Hart and Hicks state that this particular design is also found in the drawings of Leonardo da Vinci and that Serlio was thus influenced by his drawings.

¹⁰⁶ Ibid., p. 408–10, book V fol. 13v-16r., app. 2.2.5

Creating a physical place of worship and the placement of entrances

The way that Serlio deals with creating a physical place of worship in the interior in his Greek cross church differs highly from the situation in the Noorderkerk. In the Greek cross church, the altar is placed in the arm opposite the main entrance. This is in line with his other projects, where Serlio always places the altar either in one of the arms of the church, or in the middle below the crossing. In this way, the placement is symmetrical and balanced. The placement of chapels in the Greek cross church of Serlio is done in two different ways that also corresponds with the inclusion of chapels in his other projects. Most chapels are placed inside the thick walls of the building. The wall is made thinner on multiple locations and in this way a chapel is included. Place for larger chapels is created by the additional buildings in the exterior corners of the Greek cross.

The creation of a physical place of worship is done completely different in the Noorderkerk. The altar, or in the case of the Noorderkerk the pulpit, is placed onto one of the columns in the corners of the Greek cross and not in one of the arms or underneath the crossing as is shown in Serlio's Greek cross church.¹⁰⁷ Kramer praises the ingenuity of the placement of the pulpit and explains why De Keyser chose to incorporate the pulpit in this way:

“The pulpit is not placed against one of the walls of the arms in the Noorderkerk, but against one of the main columns, so to say on a diagonal line. A great discovery in my opinion! One could even call it a brilliant discovery, because the pulpit, which it is all about, is visible from almost all sides. There is no better solution possible than this placement of the pulpit what has been achieved in the Noorderkerk, a complete aiming at and gathering around the pulpit and therefore the Word.”¹⁰⁸

Kramer explains that this placement of the pulpit against one of the pillars of the chamfered corners of the Greek cross is a discovery that stands in strong contrast to the previous Catholic central placement of the altar in the Low Countries in general. Besides, the placement of the pulpit also contradicts the placement of the altars in the Greek cross church of Serlio as well as all the other churches in his treatise. So, to elaborate on Kramer, the placement of the pulpit in the Noorderkerk cannot only be seen as an invention with regards to the Catholic faith, but also in comparison to the placement of altars in the treatise of Serlio.

The other spatial element of worship that Serlio uses in the Greek cross church and all other churches in his treatise, in the form of chapels, is simply absent in the Noorderkerk. This results in a smooth surface of the walls, in contrast to the walls of the Greek cross church of Serlio that have many cavities to locate the chapels. It becomes clear that the Noorderkerk deviates strongly from the Greek cross church in Serlio's treatise in terms of the creation of a religious physical space.

The last characteristic of the Noorderkerk that highly deviates from the Greek cross church of Serlio concerns the inclusion of entrances. The entrances of the Noorderkerk are situated in two of the four annexes in the exterior of the corners of the chamfered Greek cross. In this way, the church is entered in the bevelled interior corners of the Greek cross, in one of the sides of the interior octagon.

This specific situation cannot be found in any of the Greek cross church and other projects that are shown in the books of Serlio and is therefore unique for the Noorderkerk. The three entrances of the Greek cross church of Serlio are located in the arms, of which the main entrance is positioned opposite the fourth closed-off arm that houses the main altar. The importance of this distribution is strengthened by the dictating tone of the accompanying description of Serlio: “This temple should have III doors, and

¹⁰⁷ Although the altar and pulpit are not the same, they have the same spatial consequence: they represent the place where the visitors of the church turn to.

¹⁰⁸ Kramer, op. cit. (note 3), p.64. Authors translation from: “In de Noorderkerk is de preekstoel niet tegen een wand in een van de zijarmen, maar tegen een van de hoofdpijlers geplaatst, als het ware op een diagonale lijn. Naar mijn mening een absolute vondst! Zelfs een geniale vondst omdat de kansel, waar het toch om ging, nagenoeg van alle kanten zichtbaar is. Er is geen betere oplossing denkbaar dan wat in de Noorderkerk toen is bereikt, een volledig richten op, en scharen rond de kansel en dus het woord.”

opposite the principal door is to be built the principle altar.”¹⁰⁹ The placement of three entries in the arms of the church is also visible in other churches, like the design for the St. Peter or the square temple with circular chapels.¹¹⁰ Other more simple religious buildings only have one entrance, that is situated in one of the arms of the church.¹¹¹ In these cases, the doorway often faces the main chapel or altar of the temple.

The different placement of the entries results in three other distinctions between De Keyser’s and Serlio’s church. First of all, the fact that the entrances of the Greek cross church are situated in the church’s arms, and in this way in the main body of the church, results in a variation in use of the annexes in comparison to the Noorderkerk. As stated, two of the four additional buildings in between the arms of the Greek cross in the Noorderkerk are used as entryways, the other two house the sexton and gravedigger and some service space. The annexes of the Greek cross church of Serlio are used as chapels. Moreover, Serlio includes stairs in his annexes that lead to the subjacent service space of the church. This service space is not located on the ground floor and therefore not part of the main floorplan of the church. In the church of De Keyser, this is not the case since the service space is also included on the main floor.

Another result of the placement of the entryways of the Noorderkerk in the annexes is, in contrast to Serlio’s solution of placing them in the arms of the church, the difference in spatial experience in the entryway. This is described by Kramer when he discusses the spatial qualities of the church.

“One enters the interior of the church through the south-west entry and the portal with groined-cross vault. One bumps, so to speak, into one of the large columns, depriving the visitor from a direct sight on the complete interior. The scope of the place is not directly experienced.”¹¹²

Yet, the spatial experience of the entry of the Greek cross church of Serlio is completely different: by entering the Greek cross church via one of the arms, one has an immediate overview of the church as a whole. If this spatial experience is compared to the cut-off view that the visitor of the Noorderkerk immediately experiences, it becomes clear that the different placement of entrances is of great influence to the spatial experience of the entrance.

The last consequence emerges when the visitor enters the building and experiences the main space of the church. Kramer also explains how the main area of the Noorderkerk is experienced, once the visitor passes the column.

“Of grand architecture is that, because of the chamfered corners, one experiences the building behind the four tall columns as an octagon. This image is of vital significance for the spatial experience of the interior.”¹¹³

It shows that the Noorderkerk is experienced as a hybrid between Greek cross and octagon, which is among others due to the positioning of the entrances. This is in sharp contrast to the relatively simple experience of the complete space in the Greek cross church of Serlio. Because of the placement of the entries, one experiences the shape of the Greek cross in a straightforward way.

¹⁰⁹ Serlio, op. cit. (note 1), p. 416, book V fol. 21v.

¹¹⁰ See appendix 2. Examples are the St. Peter (app. 2.1.11, book III fol. 65v) and the square temple with circular chapels (app. 2.2.7., book V fol. 19r-21v).

¹¹¹ See appendix 2.

¹¹² Kramer, op. cit. (note 3), p. 41. Authors translation from “Door de zuidwestelijke entree en het portaal met het graat-kruisgewelf komt men in het interieur van de kerk. Maar men botst als het waren tegen een van de grote kolommen aan waardoor het directe zicht op het totale interieur wordt ontnomen. De totale ruimte ervaart men niet direct.”

¹¹³ Ibid., p. 41. Authors translation from: “Van grootse architectuur is daarbij dat door de afgeschuinde hoeken achter de vier rijzige kolommen men het gebouw ervaart als een achthoek. Dit beeld is van onmisbare waarde voor de ruimtebeleving van het interieur.”

Conclusion

From this comparing chapter it became clear that the Noorderkerk is the most similar to the Greek cross church of Serlio. This can be seen from many aspects: both churches have a centralized floorplan that is rotationally symmetrical over 90 degrees and they are both built for a religious purpose. Especially the layout of the church shows strong similarities, since both churches' main shape is the Greek cross. This form is realized in both cases by using almost the same dimensions, a strong indication to proving that the Noorderkerk was inspired by the Greek cross church of Serlio.

However, the Greek cross of Serlio was not directly copied by De Keyser. In contrast to the layout of the Noorderkerk, the Greek cross in the church of Serlio is not combined with an octagon, although this shape is included independently in his treatise. Other more detailed differences that can be found, concerning altars, chapels and the placement of entrances, indicate that De Keyser did neither exactly follow the Greek cross church of Serlio, nor the treatise of Serlio as a whole, since similar design choices cannot be found in any other project. Therefore, they can be described as inventions in the Noorderkerk.

Whilst the Noorderkerk is clearly inspired by the Greek cross church of Serlio in Book V, the two buildings do not share all characteristics. It is evident that De Keyser looked at the Greek cross of Serlio, but changed up certain aspects by combining the Greek cross church with other projects and his own knowledge. What were the reasons of De Keyser for not following the model of the Greek cross church by Serlio completely? And can these diverging elements be seen as De Keyser's inventions?

CHAPTER 4

ARCHITECTURAL INVENTION IN THE FLOORPLAN OF THE NOORDERKERK

From the comparison between the Noorderkerk and the Greek cross church shown in book V of Serlio, it became clear that strong similarities can be found. Especially the corresponding Greek cross shape of the two churches and its matching dimensions stand out. However, not all the characteristics of the Noorderkerk are shown in the Greek cross church, neither does another example exist in the treatise of Serlio where all the characteristics come together. So, in comparison to the treatise of Serlio, these diverging elements show that Hendrick de Keyser did not follow Serlio completely and that he made inventions. In his treatise, Serlio also discusses the topic of invention, which he calls *licentia*, and the way how to achieve this.

Therefore, this chapter will investigate up to what extent the new elements or inventions in the floorplan of the Noorderkerk can be characterized as similar to Serlio's concept of invention in architectural design (*licentia*), which is first described in the fourth book of Serlio. If the inventions of De Keyser in the Noorderkerk are achieved in a similar way as described by Serlio when he explains the concept *licentia*, the impact that the work of Serlio had on De Keyser can be extended beyond the idea of simply copying elements of the images and descriptions in the treatise.

In order to establish if the new elements in the floorplan of the Noorderkerk are the result of *licentia*, the concept will first be explained, following Serlio's writings about it in Book IV, and placed in the broader artistic context of invention in renaissance architecture. After that, *licentia* or invention in De Keyser's work in general and the Noorderkerk will be discussed.

The concept of *licentia*

Serlio's concept of *licentia* was derived after he precisely analysed the incoherent remainders of architecture from antiquity. In this research, he noticed that several ancient buildings deviated from the Vitruvian models.¹¹⁴ This is also elaborated on by Alina A. Payne.

“For the architects this predicament was enhanced by the fact that imitating antiquity proved to be an utopian enterprise. Not only were the great buildings of ancient Rome laying broken up at their feet, but the smaller units – entablatures, cornices, pedestals, bases – varied greatly from ruin to ruin and gave few clues to their optimum composition.”¹¹⁵

Serlio called these variations ‘licentious’, defining it as a way to make new inventions that derive from the existing classic rules, while these are still respected.¹¹⁶ Ottenheym adds to that that *licentia* can be seen as an official permission to depart from the classic rules in contemporary architectural design, so that freedom in design can be achieved.¹¹⁷ Eventually, Serlio uses the idea of *licentia* to achieve architectural creativity, as Payne shows.¹¹⁸

¹¹⁴ Hart and Hicks, op. cit. (note 28), p. 147.

¹¹⁵ Payne, ‘Architectural Theories of Imitatio and the Literary Debates on Language and Style’, p. 120–30.

¹¹⁶ Hart and Hicks, op. cit. (note 28), p. 146–48.

¹¹⁷ Ottenheym et al., op. cit. (note 9), p. 32.

¹¹⁸ Payne, ‘Creativity and Bricolage in Architectural Literature of the Renaissance’, p. 33.

In the treatise of Serlio, *licentia* is a recurring theme, especially when speaking of the orders. In the summary of Payne of Book IV, it becomes clear how important *licentia* is.

“For each succeeding *maniera* [order] Serlio first treats the ‘standard’ Vitruvian order from, base to cornice; this is followed with illustrations and a commentary on variants to be found among the ruins; finally, follow his own inventions of gates, doors, altars, interior, and exterior wall units, facades, and fireplaces that address contemporary needs and absorb into new formats the virtual rules that the orders impose.”¹¹⁹

Evidently, Serlio first states the model he is departing from, after which his own varieties are included in his treatise. By showing the reader how he deviates from the model himself, which happens quite often, he demonstrates how other architects are allowed to do the same.

Moreover, Serlio does not only show the principles of *licentia* in his images, but he also explains his choices in the accompanying text. Serlio points out the moment he starts deviating from the basic rules in a generalized way, to both justify his choices and to encourage other architects to do the same. This can be seen, for example, in his comments on a design of a gate in book IV, as he states that “it is a fine thing for the architect to be full of ideas to cope with the diversity of situations that occur when building.”¹²⁰ When *licentia* is used in the right way, Serlio states that the edifice can get appreciated just as much as buildings that strictly follow the basic rules, as he states when speaking of a design of a church in book IV: “On the other hand, those things that are unusual, provided they are made according to theory and well proportioned, will not only be praised by the majority of people, but admired as well.”¹²¹

Besides clearly stating that the architect is allowed to be ‘licentious’, Serlio also illustrates how the architect should achieve these inventions. This is clearly put into words by Payne: “As Serlio defines it, the *mescolanza* involves changing the nature of a *maniera* by mixing it with one or several others into a new hybrid.”¹²² Thus, invention is achieved, among others, by mixing several elements (*mescolanza*) of the basic rules that Serlio starts with. In this way, Payne states that “To *licentia*/invention, which addresses artistic behaviour in more general terms, Serlio then adds the *mescolanza* and *composto* as his answer to the question of how to assemble forms.”¹²³

***Licentia* in the wider architectural debate on invention**

The definition of *licentia* matches the meaning of other terms of architectural invention that were used in Italian architectural literature of the time. For instance, Serlio’s ideas about *licentia* are closely connected to previous ideas of for instance *imitatio* (imitation of classic models) and *aemulatio* (surpassing these models) of Alberti, as Payne has shown.¹²⁴ These terms on architectural invention were part of a larger discussion on how to imitate the incoherent ancient models that were found by the treatise writers. The chaos in models resulted in the need to find structure through the use of certain vocabulary by connecting terms to justify the differences. As Payne states “At the root of the discussion lay the issue of how pure an imitation to seek, or in other words, how much licence a writer might claim, how far on the road to *aemulatio* he might tread vis-à-vis time-honoured tradition.”¹²⁵ Therefore, the terms that were used for architectural invention within the structure of the orders became a matter of linguistics.

Serlio’s term for architectural invention *licentia* is also part of this larger literary debate on how to correctly deviate from the models of antiquity. Payne discusses the similarity of Serlio’s term *licentia* and the general debate on *imitatio* in architecture.

¹¹⁹ Payne, op. cit. (note 17), p. 116. Addition in brackets by author.

¹²⁰ Serlio, op. cit. (note 1), p. 274, book IV fol. 135r.

¹²¹ Ibid., p. 358, book IV fol. 179r.

¹²² Payne, op. cit. (note 17), p. 131.

¹²³ Ibid., p. 133.

¹²⁴ Ibid., p. 138–40; and in the complete article of Payne, op. cit. (note 115)

¹²⁵ Payne, op. cit. (note 17), p. 122.

“The very structure of his argument, its focus on licence/invention, and the *imitation* theory he develops import the principal ingredients of the then current literary debates into architecture. Moreover, Serlio’s conception of the combinatory potential of ornament as well as his emphasis on the *mescolanza* shows direct links to the ancient and renaissance theory of rhetoric and poetics.”¹²⁶

The close connection to the general debate on architectural invention is also emphasized by the fact that Serlio uses different terms for the idea of *licentia* in his own treatise, although not all at once. Serlio uses two types of terms. The first is to describe the artistic behaviour of the architect, with terms like *modestia*, *piacere* and *servar il decoro*. The second group of words is used in a more practical context, like *mescolanza* and *composto*. It shows that the concept *licentia* of Serlio is a collective term for all things concerning architectural invention.¹²⁷

The use of *licentia*

In their studies on *licentia* by Serlio, both Payne and Hart and Hicks focus on the architectural invention with regards to the use of the orders and their ornamentation. In these areas, *licentia* is most clearly visible, since variations in small aspects are easily comparable and Serlio includes multiple of his own designs while elaborately discussing them. Moreover, the *Extraordinario Libro di architettura* on gate designs can be seen as a book that is completely filled with inventions of Serlio, where he mostly varies in his use of the orders.

In the wider debate on architectural invention by other authors like Alberti, the focus is also on invention in the orders and their ornamentation. However, Payne shows that these terms that were made up for these inventions, like *licentia* and *aemulatio*, were not exclusively used in these areas and were therefore quite fluid. “Terms employed in one context and laden with specific theoretical connotations travelled to another with great ease and inseminated it while they themselves mutated.”¹²⁸ Payne indicates with this that these terms could also be used in contexts like literature or poetry.

Since the concept of architectural invention is fluid for multiple contexts, this notion can also be extended to other aspects than the orders and ornamentation in architecture. In fact, from Serlio’s own introduction of book V it becomes clear that *licentia* can also be applied to other elements than the orders and their ornamentation. Serlio defines the complete book V as ‘licentious’, since it includes his own invented designs. Moreover, he encourages other architects to see his book as inspiration and to use the principles of *licentia* to create their own designs:

“With this consideration in mind, I set about creating up to twelve types of **different inventions and figures** so as **to encourage people** with a mind to posterity **to build new temples** once again, when old age, the devourer of all earthly things, will have subjected the buildings which can be seen today to her laws, and through her offices they begin to collapse.”¹²⁹

The fact that *licentia*/invention does not only apply to orders and their ornamentation, as Payne and Serlio himself show, is not only derived from this introduction of book V: Serlio never states in other parts of his books that discuss *licentia* that the concept can only be applied to the orders and ornamentation. However, *licentia* is mostly combined with the orders and ornamentation in past research, since invention is shown most emphasized and evidently in book IV. Because of the fact that *licentia* does not only have to be associated to the orders and ornamentation, Serlio stimulated other architects to invent their own floorplans and elevations for buildings as well, while staying true to the principles of antiquity, as he also shows in his own designs in Book V.

¹²⁶ Payne, op. cit. (note 17), p. 139.

¹²⁷ Ibid., p. 119.

¹²⁸ Payne, op. cit. (note 115), p. 120.

¹²⁹ Serlio, op. cit. (note 1), p. 395, Book V fol. 1v. Emphasis by author.

Hendrick de Keyser and architectural invention in the Noorderkerk

As stated in the introduction, Ottenheym and De Jonge defined inventions in orders and ornamentation of De Keyser as *licentia*.¹³⁰ This reasoning can easily be extended with regards to the floorplan of the Noorderkerk for three separate reasons. First of all, De Keyser could have used *licentia* because he knew about the concept. This derives from the fact that he closely followed the Greek cross church from book V in shape and dimensions in his design for the Noorderkerk, as shown in the third chapter. This close resemblance between the floorplan of the Noorderkerk and the Greek cross church in book V shows that De Keyser was familiar with this part of the treatise of Serlio. As a result, De Keyser would have read Serlio's introduction to the book, so he was known with the idea behind it: to inspire other architects to invent their own church designs.

Secondly, the inventions that De Keyser shows in his floorplan of the Noorderkerk are an excellent example of *mescolanza* of two different shapes, both shown in the treatise but not combined by Serlio, to create a new 'licentious' design. The Noorderkerk is not an exact copy of the Greek cross church in Book V, since the important octagon on both interior and the exterior is not shown in the treatise of Serlio. However, the missing octagon is shown twice individually in the treatise. He followed the given method of mixing elements (*mescolanza*), as stated by Serlio, to achieve an inventive building, one of the goals of the use of *licentia*. Moreover, the way of achieving invention via *mescolanza* was already done in one of the octagonal churches, where a square exterior shape is merged with an octagonal interior. This could have served as the starter of the idea to combine forms in the Noorderkerk.

Lastly, the floorplan design of the Noorderkerk can be seen as *licentia* since this concept was also used to create freedom for the architect to make designs for specific locations and circumstances.¹³¹ One of those specific circumstances for De Keyser could have been the difference that arose between the traditional practice of Christianity - what we now call Catholicism - and Protestantism. The Noorderkerk was one of the first large churches to be built for the Protestants. In the fifteenth and sixteenth century, an ideological difference between the church and Maarten Luther (1483-1546) arose. Luther published a list of 95 Theses, in which he numbered all the reasons why he did not agree with the traditional practice of Christianity. The Christian faith should be focussed on the Bible again, Luther stated, without all the extra's that were added over the centuries. Among these ideas were also notions against the built church, like the tradition of lavishly decorating the religious buildings. This disagreement led to the segregation of the Protestant Christians from the traditional Catholic church.¹³²

After this separation, the Protestants searched for other ways to construct their places of worship. They rejected the Latin cross, that was usual in the practice of Catholic church building, but that did not fit the Protestant beliefs. They saw the inclusion of the heightened choir in the Latin cross church, from which the word of God was preached in Latin, as a way to create distorted power relations between priest and believers. In fact, the Protestant believers wanted to actively participate with the word of God, and the shape of the Latin cross did not allow this. As a result, the Protestants started searching for new shapes that allowed the Protestant to take part in the religious service.

This search started in 1566 with an octagonal shaped church that was built in Ghent. Later, similar buildings were made in Antwerp, Haarlem, Gorcum and Leiden, but all of them were destroyed before the Catholic Spanish army arrived in 1567 for the beginning of the Eighty Years' War. The octagonal shape was chosen because it fitted the Protestant ideal of centralizing the people the pastor from equal distance, which made the word of God central in the church.¹³³ A still existing example of

¹³⁰ De Jonge and Ottenheym, op. cit. (note 12), p. 286; Ottenheym et al., op. cit. (note 9), p. 33.

¹³¹ Serlio, op. cit. (note 1), p. 274, book IV fol. 135r, Schmidt, op. cit. (note 4), p. 320-22.

¹³² De Jonge and Ottenheym, op. cit. (note 12), p. 251-252

¹³³ Ibid., p. 253-254

an early Protestant octagonal church can still be found in Willemstad and was built from 1596 to 1607, (image 4.1). This church is of specific interest because it was financed by Prince Maurits of Orange (1567-1625), who was highly interested in mathematics, science and modern Italian architectural ideas on church building. Other than that, he possessed, among others, the treatise of Serlio.¹³⁴ The combination of his knowledge on contemporary architectural ideas inspired by antiquity and the connotation to Protestantism that the octagonal shaped church had, resulted in Maurits insisting on the use of the octagonal floorplan for the church in Willemstad.¹³⁵ When this church is compared in size to the octagonal church in the treatise of Serlio, the two almost match exactly (image 4.2).¹³⁶

Although it seems paradoxical for De Keyser to look at the churches designed by the Catholic Serlio within this whole debate in architectural language and the need to differentiate the Protestant shape from the Catholic one, this was not the case since both men wanted to base their design on antiquity (see the second chapter). Both Protestants and Catholics wanted to place their religious architecture in the long antique tradition that was similar all Christians, to emphasize the importance of the building.¹³⁷ The examples that the Catholic Serlio showed in his treatise were all based on the antique visual language and could therefore be used in the Protestant context as well.

The use of *licentia* to adjust a design to the specific Protestant situation in the Low Countries is practically translated in three different spatial aspects of the early Protestant Noorderkerk. First of all, in its shape of the floorplan, where the Greek cross and octagons are combined. As shown, the octagonal shape had a strong connotation to the Protestant building tradition at the time. With this building tradition of Protestant churches in mind, De Keyser could have made the choice to use the octagon out of historical and associative perspective, while at the same time combining it with the Greek cross to create more space. The Greek cross is a logical choice in this situation, because it is centralized, just like the



Image 4.1: Coenraat Norenburgh, *Koepelkerk*, Willemstad, Kerkring 19, 1597-1607. Exterior view of the church, photo of 2013

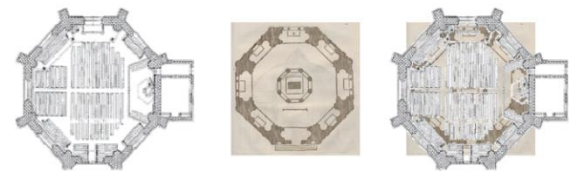


Image 4.2: comparing the church in Willemstad and the octagonal church of Serlio in size.

¹³⁴ Ibid., p. 187-188. This becomes clear from his personal collection of books from Vitruvius, Alberti, Serlio, L'Orme and Hans Vredeman de Vries.

¹³⁵ Ibid., p.255

¹³⁶ A further comparison between the octagonal church of Serlio and the Willemskerk falls outside the scope of this research. However, it could be an interesting starting point of further research into the influence of the treatise of Serlio in the Low Countries.

¹³⁷ De Jonge and Ottenheim, op. cit. (note 12), p. 297. See also chapter 2.

octagon, and the whole church would be still recognizable as a church due to its subtle reference to the common churches of the time with the Latin cross.

Secondly, the use of *licentia* to adjust the design to specific circumstances can also be seen in the creation of a physical religious space. The Noorderkerk does not include an altar, as shown in the examples of Serlio, but a pulpit. Because the function of the altar differs from the role of the pulpit, it seems only logical to rethink its positioning to be able to make the word of God central in the church. Placing the pulpit in the middle of the church would make it impossible for the pastor to direct his word in all the directions immediately, since he would turn his back to a large amount of his audience. Moreover, the pulpit would not have a structural element to be built against. The other option, to place the pulpit in one of the arms, would also be unsatisfactory, since this means that it would not have been visible and audible from everywhere in the church. Because of these reasons, De Keyser choose to place the pulpit on a new location in the Noorderkerk, which was not shown in any of the examples of Serlio. In this way, De Keyser used *licentia* again to adjust his design to the local needs.

Lastly, *licentia* to alter the design to the Protestant context can also be seen in the absence of chapels in the Noorderkerk. The Protestant belief does not use chapels as place of worship in their religious practice, which is why no chapels can be found. This is in contrast to all churches and chapels in the book of Serlio, that show the inclusion of chapels inside walls and in annexes. De Keyser still designed additional buildings in the exterior corners of the Greek cross, as Serlio also does, but could use them for a different purpose: the entries and houses.

Is it *licentia*?

The previous section shows that all inventions of Hendrick de Keyser with regards to the Greek cross of Serlio can be defined as *licentia*. However, one needs to bear in mind that this term is collective and broad in nature, as also shown previously. Most of the adjustments that De Keyser made can just be seen as necessary changes to the design of Serlio too, to make a building that fitted the needs of the Protestants and people in the Low Countries, as shown above. In that way, the adjustments are not specifically ‘licentious’. To name two examples: due to the cultural differences between Protestantism and Catholicism, the term *licentia* is not needed to explain the fact that De Keyser did not take over characterizing elements of the Catholic church as shown by Serlio, like the chapels and the placement of the altar/pulpit, in his Protestant church. Other than that, this is also emphasized by De Keyser’s choice to combine the Greek cross with the octagon. In his design for a large Protestant church, it makes more sense for De Keyser to include the octagon out of Protestant historic connotations, instead of just combining the two shapes for the sake of invention. This inclusion of Protestant meaning with the octagon fits the idea of adjusting the design to the local situation without the need to interfere with the concept *licentia*.

This idea is verified in the *Architectura Moderna* of Salomon de Bray from 1631, that discussed the works of De Keyser only ten years after the Noorderkerk was finished. In his introduction, he wrote about adjusting antique models to the specific situation in the Low Countries. He stated that an architect should not copy antique buildings or structures that are inspired by antiquity without any thought, since *architectura antica* would be created in this case.¹³⁸ This would not fit the Low Countries, because the circumstances in the Netherlands were different to the Italian situations. To start, the nature of the people in de Low Countries is more economical (“suynige arbeytsaemheyd”¹³⁹) in comparison to the Italian. This results in the fact that lavish buildings of antiquity would end up without use in the Low Countries. Other than that, the climate in Holland is unlike the Italian, which means that the elements like the portico are not convenient in use. Moreover, the Low Countries do not possess the rich possibilities of stone supply of the Italians and the grounds are too weak to carry the weight of all this heavy stone.¹⁴⁰

¹³⁸ Ottenheym et al., op. cit. (note 9), p. 32.

¹³⁹ De Bray, op. cit. (note 5), p. 11.

¹⁴⁰ Ibid., p. 11.

The last thing that De Bray highlights, and for this research the most important one, is the difference in religious culture between the Low countries and Italy, by stating that the Dutch religious practice is more simple (“d’eenvoudigheyd van onse Christelijcke Leere”¹⁴¹). Because of this, De Bray stated that the Dutch architect should take over the elements that referred to antiquity from the contemporary treatises, but that the elements that are specific to the catholic faith of the Italian treatise writers added should be left out. “Voor ons, wy kunnen de Formen der Ouden tot ciereat en welstandt recht ende wel, en oock met goede redenen gebruycken, maer haer in alle hare soorten van Gebouwen te volgen is, als geseyd is, voor ons ondoenlijck (...).”¹⁴² In this way, the designs would be fitted to the simpler religious practice in the Low Countries.

Although Ottenheym and De Jonge stated that both the Protestants and Catholics used the same ancient models without having problems with the different religious origins of the buildings, the comments of De Bray show the practical discrepancies of doing so.¹⁴³ Literal copying from buildings that originated in another religions implies that, when they are used as models for a new building of a different religion, elements of the church have to be adjusted to fit the needs. In this way, all religions used the models as a starting point for their own architecture, but had to change up certain aspects along the way. This is clearly visible in the floorplan of De Keyser’s Noorderkerk and consciously recognised by the comment on copying from a different religion by De Bray.

This same problem of taking inspiration from buildings that originated in a different religion is also visible in Serlio’s Catholic orientated treatise, although this is not as consciously highlighted in his texts as the explanations of De Bray. Serlio needs his term *licentia* to justify the inventions or alterations in his temples that cannot be seen in his models, the ancient examples. This is especially visible in book V, where Serlio makes his own churches that are inspired by the temples of antiquity.

It becomes clear that the ideological idea of taking over from the ancients suited both Protestants and Catholics, but the practical application of this resulted in differences in designs. Ottenheym and De Jonge do not mention these practical consequences of choosing a model from another religion in a different church building. However, both the treatise of Serlio and the Noorderkerk by De Keyser show the practical discrepancies. The treatise of Serlio shows this unconsciously with regards to taking over ancient models in a Catholic context. An extra layer is added in the case of the Noorderkerk, which shows that De Keyser could not literally copy the Catholic examples that were based on ancient examples, because of the differences between these three religions. The Noorderkerk is a perfect example of how a different religious context can spark inventions to adjust the original model to the circumstances in the Low Countries.

¹⁴¹ Ibid., p. 11.

¹⁴² Ibid., p. 11.

¹⁴³ De Jonge and Ottenheym, op. cit. (note 12), p. 297.

CONCLUSION

This thesis explored the impact of the architectural treatise *Tuttle l'opera d'architettura et prospettiva* written by Sebastiano Serlio on the development of the unique Greek cross floorplan design of the Noorderkerk by Hendrick de Keyser. As a result of the determination of characteristics of the Noorderkerk and the comparison between these distinctive features and the projects of Serlio, the plan of the Greek cross church shown in book V of *Tuttle l'opere d'architettura et prospettiva* clearly matches the floorplan of the Noorderkerk. In a more general way, both religious buildings have a centralized floorplan that is 90 degree rotationally symmetric. However, the most important shared characteristics are both the similar main shape of the Greek cross and the correlating measurements. Only small deviations in length and width of the arms can be found, but these differences are all consciously proportioned by the same dimensions. Especially the close similarities in dimensions of the two similarly shaped churches show that the Greek cross church of Serlio must have been a model for De Keyser in his design for the Noorderkerk.

Although these strong indications of Serlio's impact can be found, the floorplans of both churches are not similar. De Keyser changes and adds elements to his floorplans that cannot be found in any example of Serlio, like the interior and exterior octagon, the placement of pulpit and the positioning of the entrances. All of these alterations also cannot be found in a similar way in other projects of Serlio. Because of this, they can be interpreted as inventions by De Keyser. In previous research by mainly Ottenheim and De Jonge, De Keyser's other inventions with regards to his architectural visual language were connected to the concept of *licentia*, Serlio's term for architectural freedom within the orders to invent new shapes or to adjust the architecture to specific local needs. Following Ottenheim and De Jonge's reasoning, the inventions in the floorplan of the Noorderkerk could also be interpreted as *licentia*.

However, this thesis proves that it makes more sense to classify the inventions of De Keyser in the floorplan of the Noorderkerk as his way to adjust the design shown by Serlio to the circumstances in the Low Countries. The nature of the term *licentia* is broad and it is interchangeable with other contemporary labels for architectural invention, like *aemulatio*. Other than that, this argument is supported by De Bray, who does not mention the concept *licentia* and attributes the De Keyser's changes to the different conditions in the Low Countries.

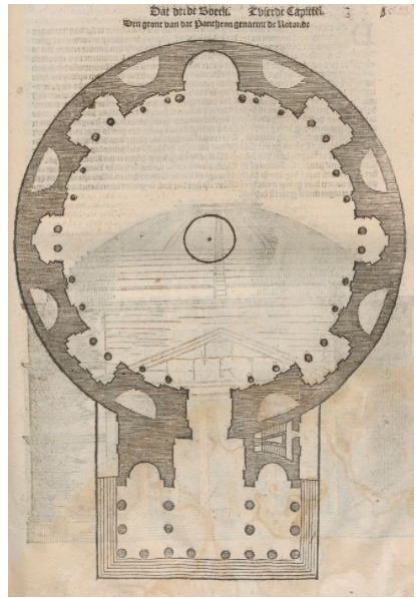
The most important reason for fitting Serlio's design to the local needs is the different religious context between Serlio's Catholic model and the Protestant Noorderkerk. The Greek cross church of Serlio is designed for Catholic purpose, but also possessed many characteristics of a building based on antiquity. De Keyser would also have wanted to place his Protestant church design in the long religious building tradition that started in antiquity to emphasize the importance of his architecture, as Ottenheim and De Jonge show. By taking the church of Serlio as an example, practical problems started to appear in taking a building as a model that was constructed under a different religious paradigm. This implied that De Keyser took over elements that were inspired by antiquity from Serlio, like the Greek cross shape and the architectural visual language. However, because of the historic connotations in the Protestant history of building and its practicality for the Protestant service, De Keyser included two octagons on interior and exterior. Moreover, he changed the typical Catholic features of Serlio's design,

like the altars and entrances. It shows that both Protestants and Catholics started with the same models, but that discrepancies arose with regards to the practical adjustment of these models.

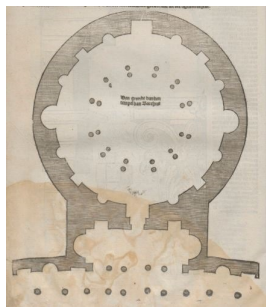
It becomes clear that De Keyser used the images and descriptions of specifically the Greek cross church floorplan of book V to construct the Noorderkerk, the first Greek cross church in the Low Countries. In this process, he carefully adjusted Serlio's design to the specific Protestant circumstances of the place. In the end, this thesis reveals that the impact of the treatise of Serlio on Hendrick de Keyser reaches beyond his similar use of Serlio's orders and the ornamentation, as shown in previous scholarship, and that the impact of Serlio's work is also visible on the larger scale of the floorplan of a building.

APPENDICES

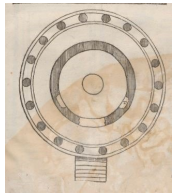
Appendix 1: scaled projects of Serlio and Hendrick de Keyser



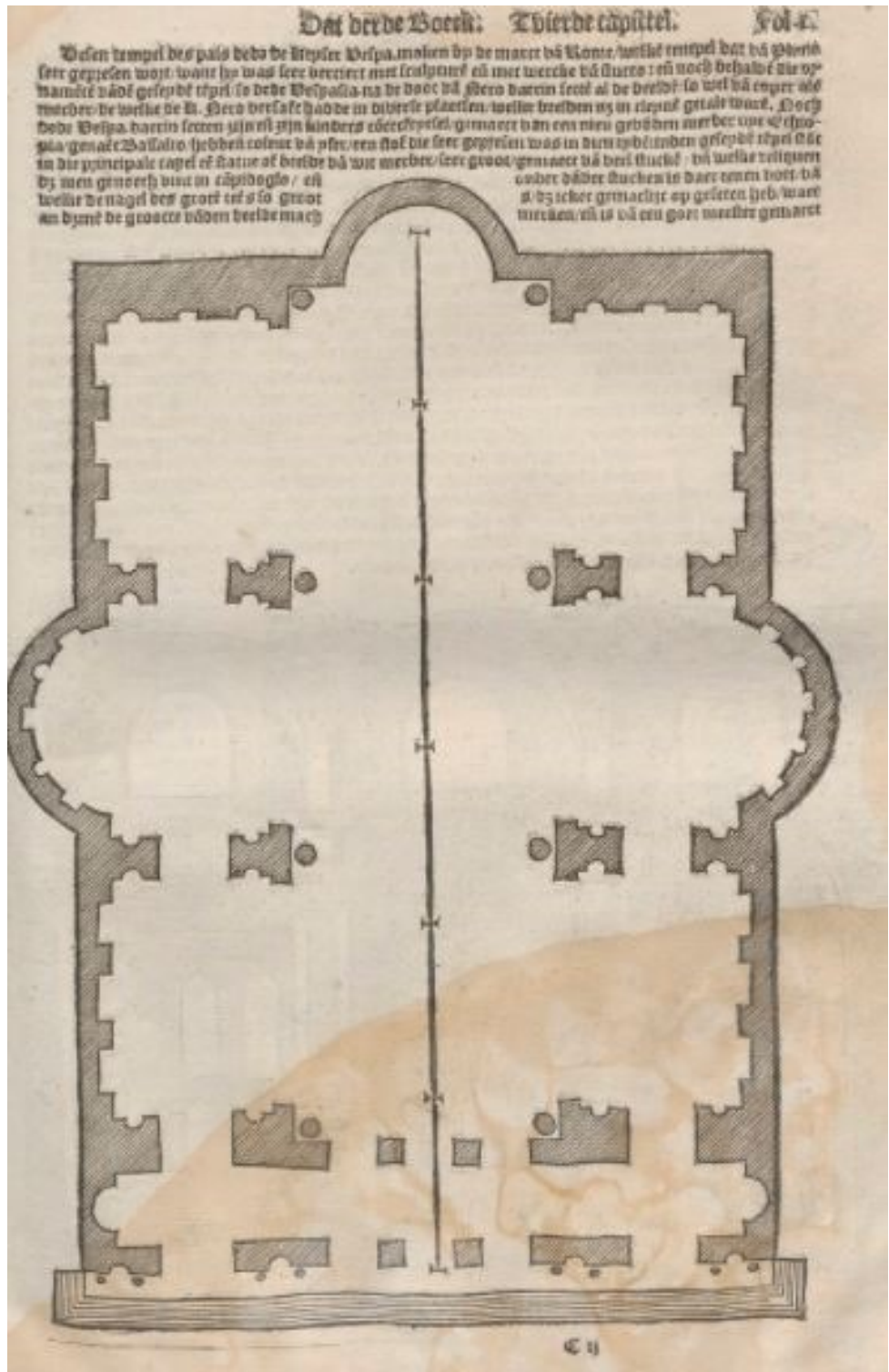
2.1.1 Pantheon



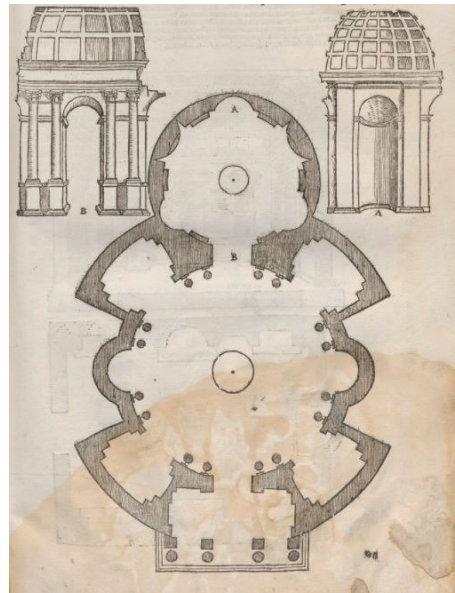
2.1.2 Temple of Bacchus



2.1.3 Temple of Tivoli



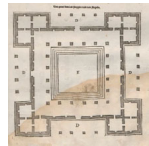
2.1.6 Temple of peace



2.1.7 Unidentified



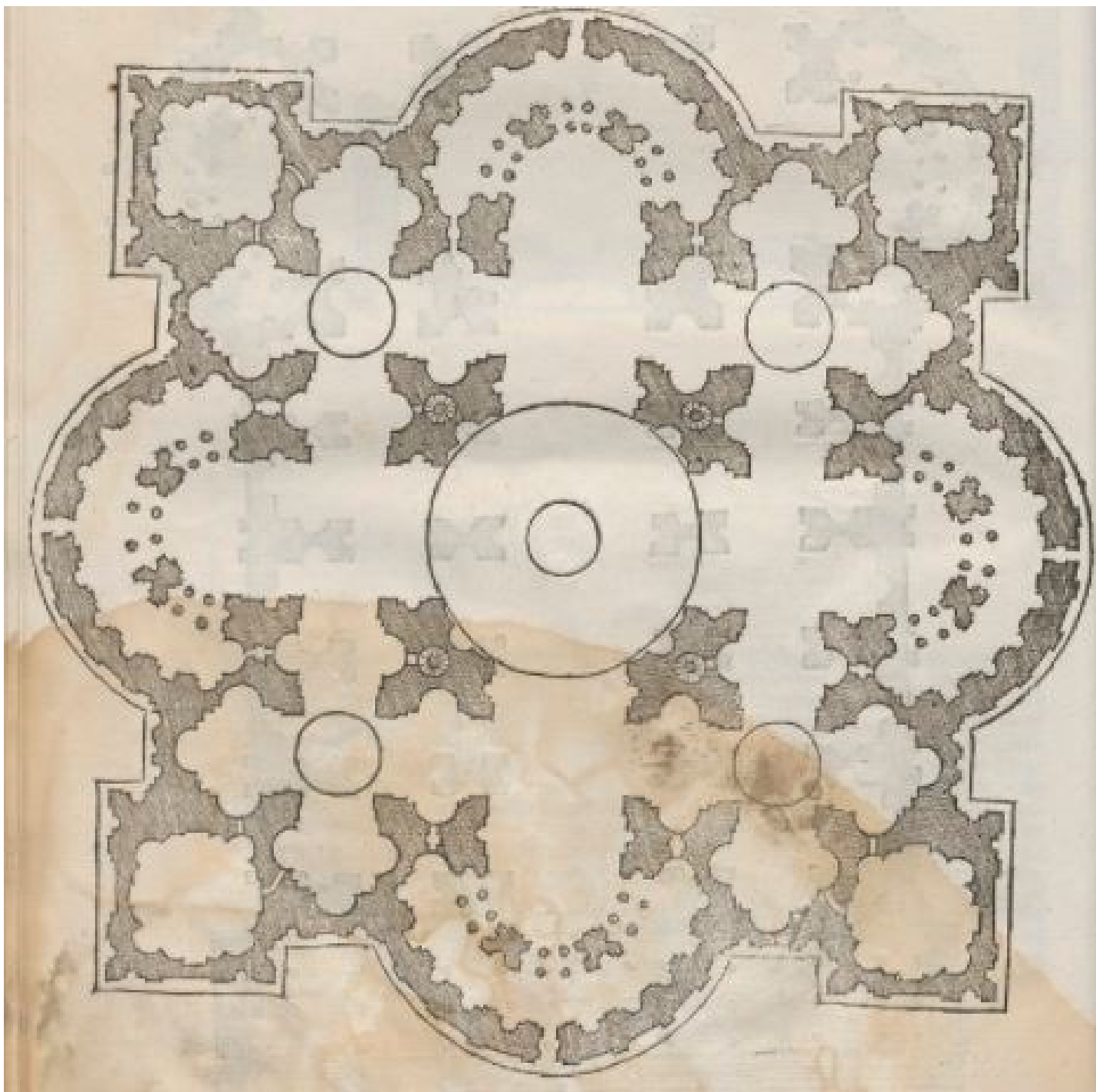
2.1.8 Sepulchre of the Calvenzi



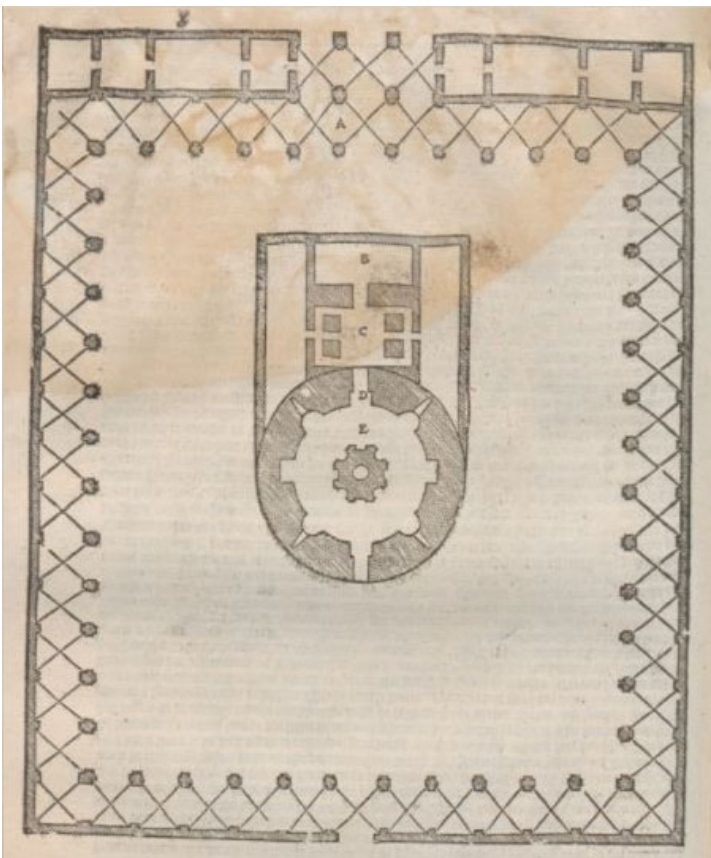
2.1.9 Villa Poggio Reale in Naples



2.1.10 Sepulchre of the Cercenni



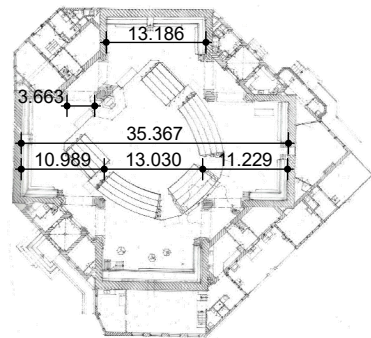
2.1.11 St. Peter design by Bramante



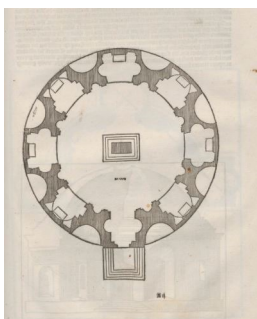
2.1.4 Mausoleum of Romulus



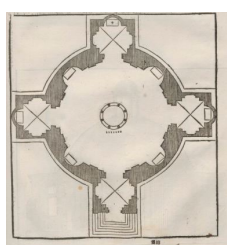
2.1.5 Tempietto



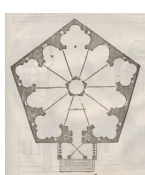
NOORDERKERK BY HENDRICK DE KEYSER



2.2.1 Round temple



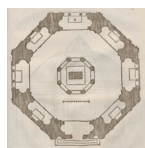
2.2.2 Round temple with chapels



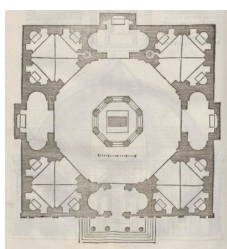
2.2.3 Pentagonal temple



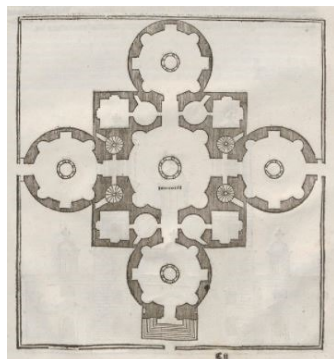
2.2.4 Hexagonal temple



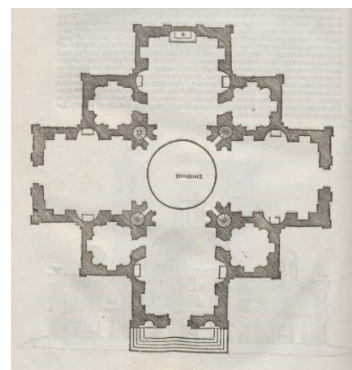
2.2.5 Octagonal temple



2.2.6 Octagonal temple in square



2.2.7 Square temple with round chapels



2.2.8 Greek cross temple

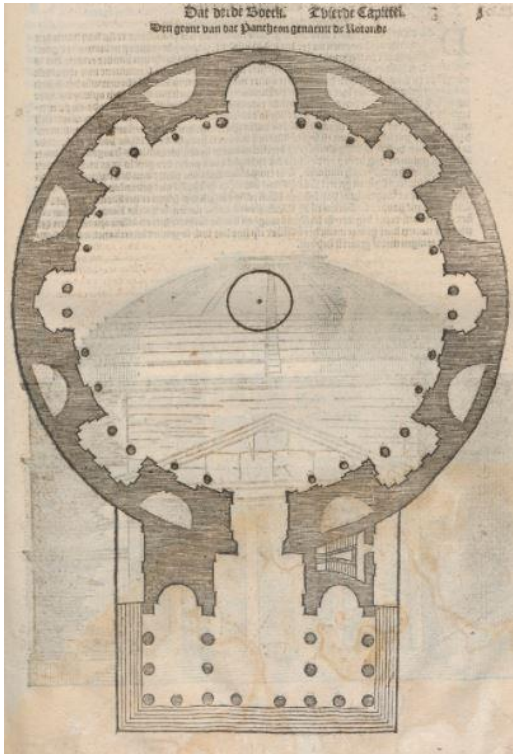
Scale 1:1000

APPENDICES

Appendix 2: images from Serlio

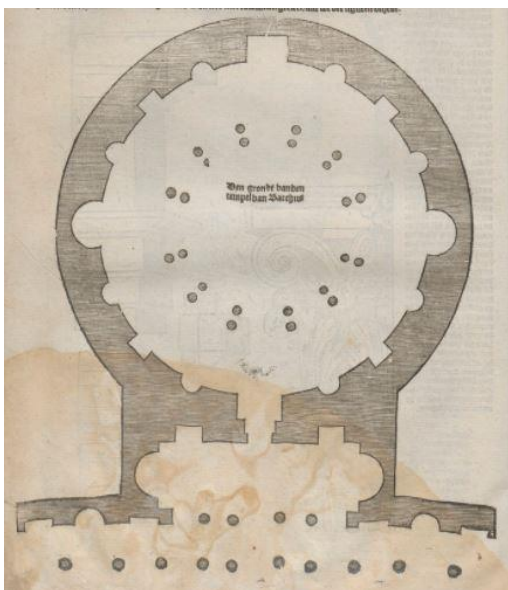
2.1 BOOK III On Antiquities

2.1.1 Pantheon, Rome



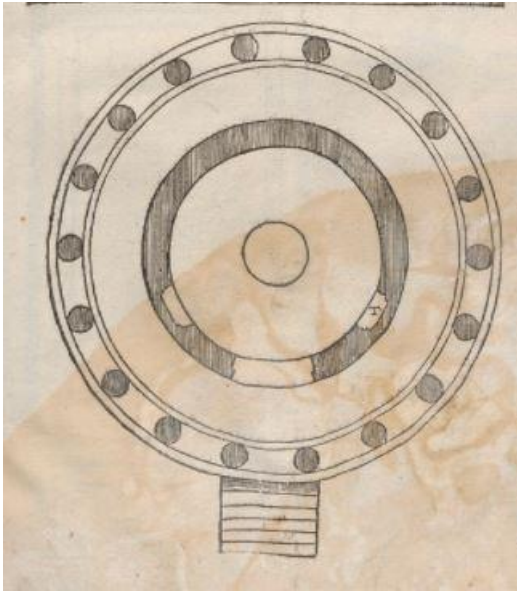
Sebastiano Serlio, *Book III: Floorplan of Pantheon in Rome*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. III)

2.1.2 Temple of Bacchus



Sebastiano Serlio, *Book III: Floorplan of Temple of Bacchus*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. IX)

2.1.3 Temple of Tivoli



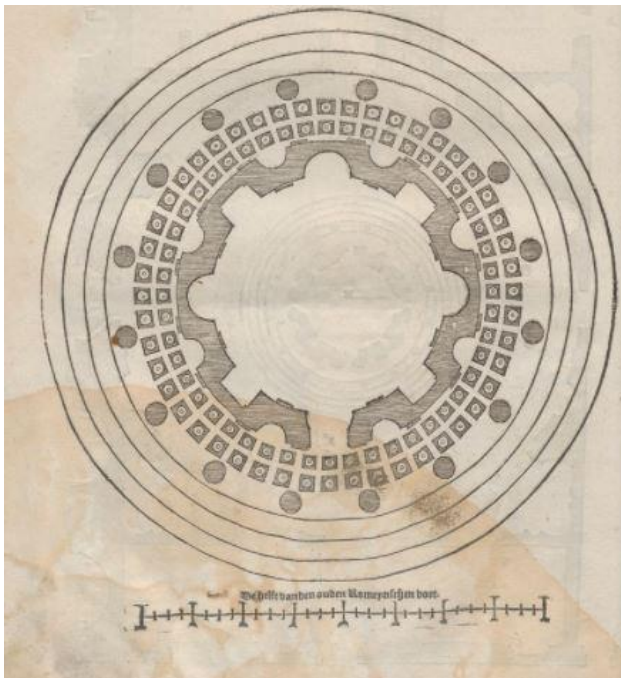
Sebastiano Serlio, *Book III: Floorplan of Temple of Tivoli*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. XII)

2.1.4 Mausoleum of Romulus



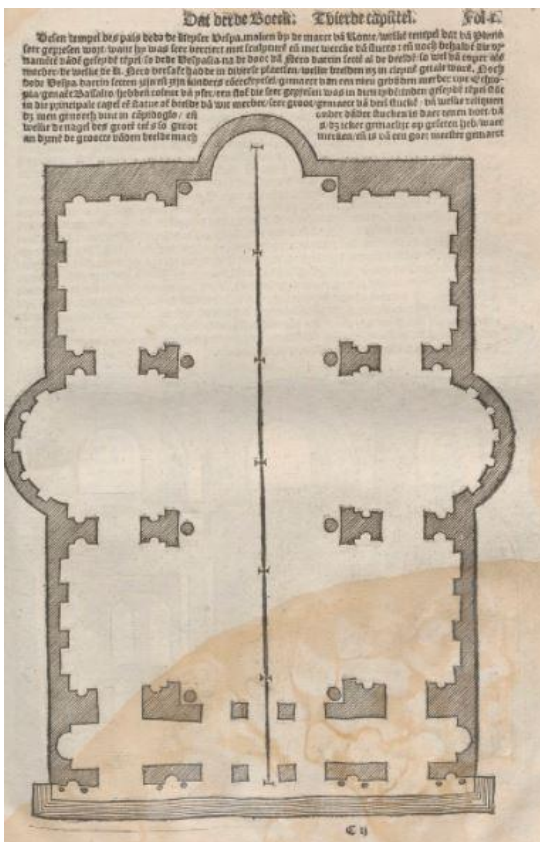
Sebastiano Serlio, *Book III: Floorplan of Mausoleum of Romulus*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. XXII)

2.1.5 Tempietto from Bramante



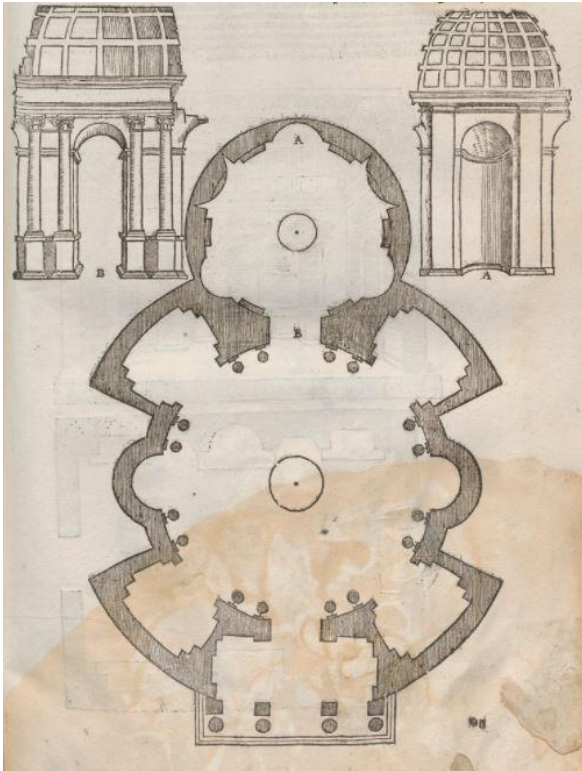
Sebastiano Serlio, *Book III: Floorplan of Tempietto by Bramante*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. XX)

2.1.6 Temple of Peace



Sebastiano Serlio, *Book III: Floorplan of Temple of Peace*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. X)

2.1.7 Unidentified building outside Rome



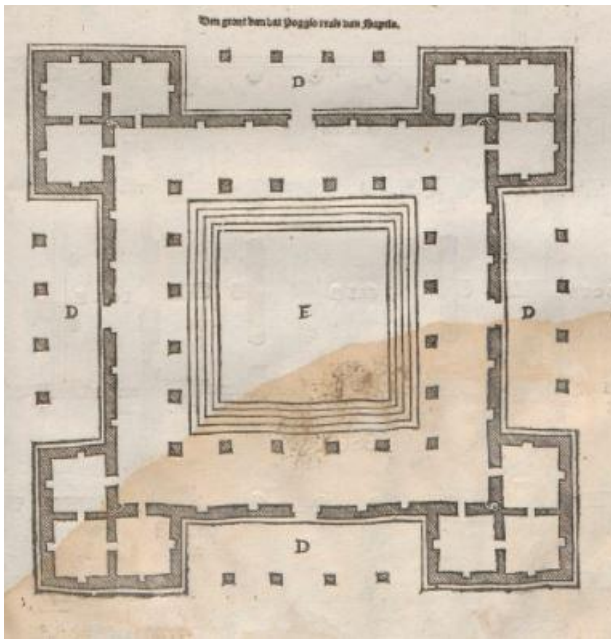
Sebastiano Serlio, *Book III: Floorplan of unidentified building*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. XIV)

2.1.8 Sepulchre de Calvenzi



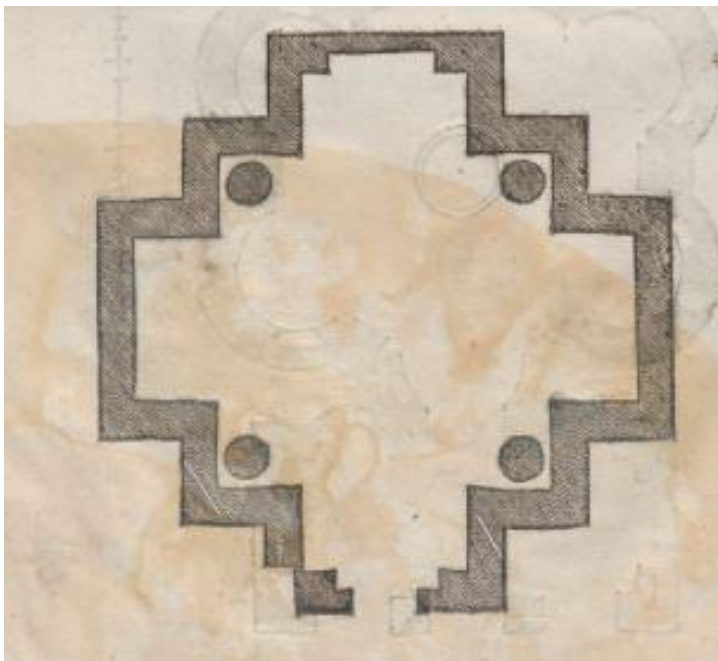
Sebastiano Serlio, *Book III: Floorplan of Sepulchre of the Calvenzi*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. XVI)

2.1.9 Villa Poggio Reale in Naples



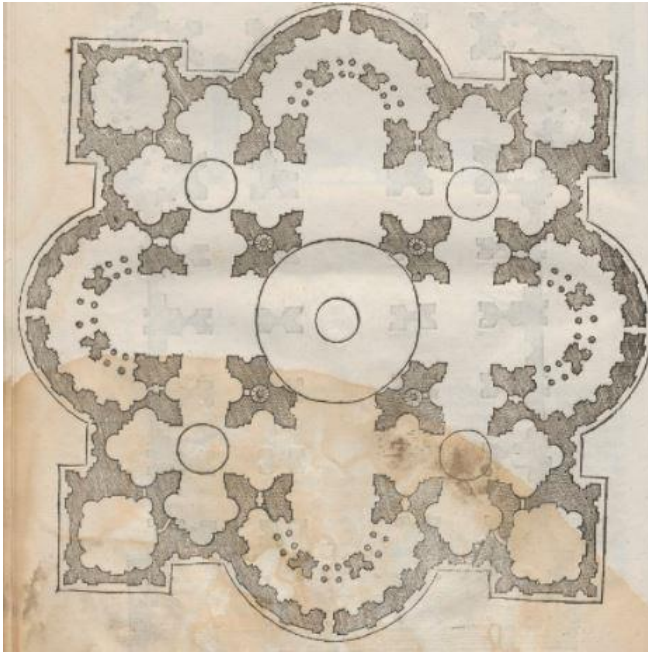
Sebastiano Serlio, *Book III: Floorplan of a destroyed villa in Naples*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. LXXII)

2.1.10 Sepulchre of the Cercenni



Sebastiano Serlio, *Book III: Floorplan of Sepulchre of the Cercenni*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. XVI)

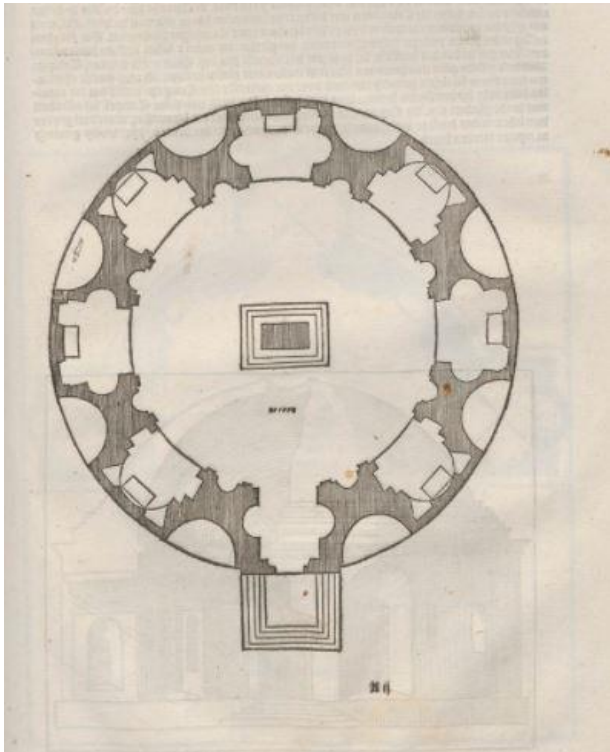
2.1.11 St. Peter design by Bramante



Sebastiano Serlio, *Book III: Floorplan of Bramante's design for St. Peter*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. XVIII)

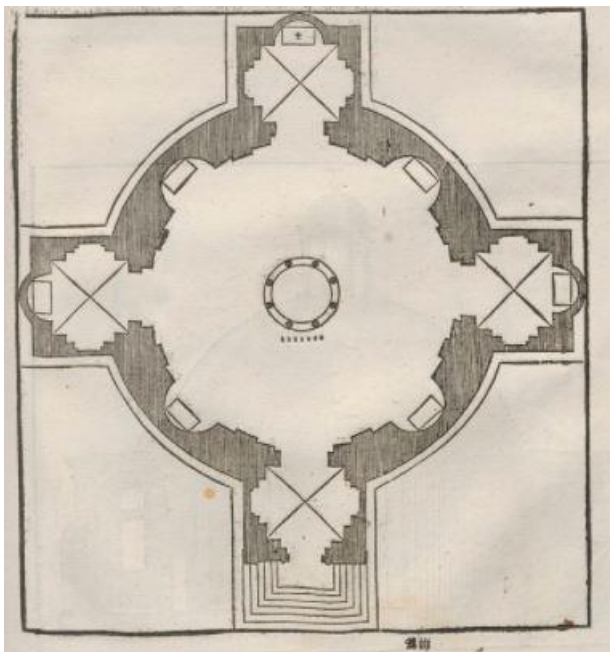
2.2 Book V: on Temples

2.2.1 Round temple



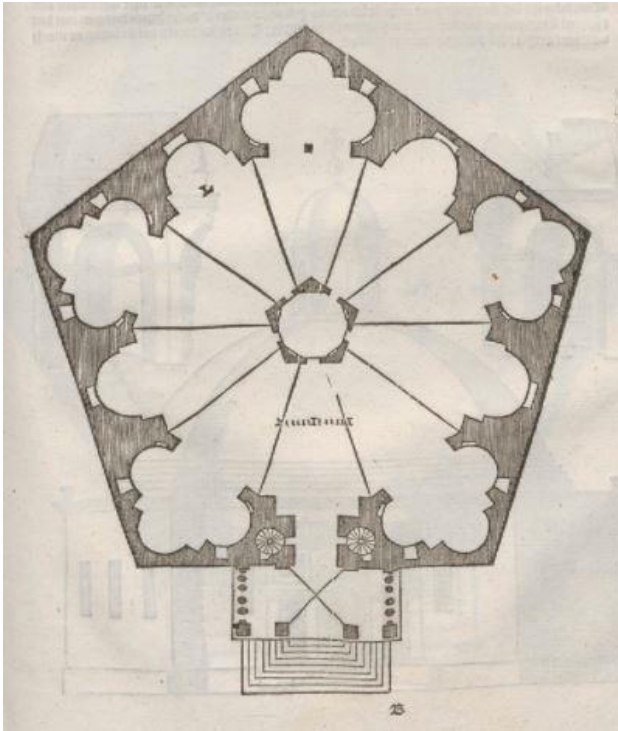
Sebastiano Serlio, *Book V: Floorplan of a round temple*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. II)

2.2.2. Round temple with chapels



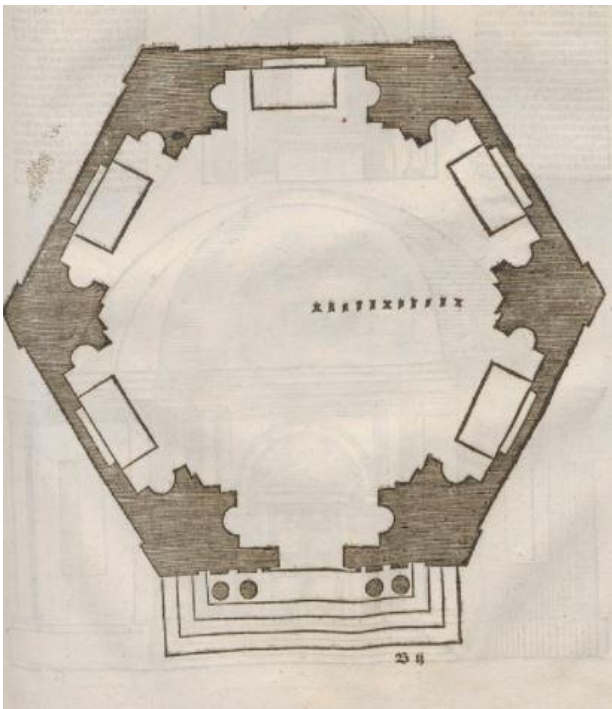
Sebastiano Serlio, *Book V: Floorplan of a round temple with chapels*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. III)

2.2.3 Pentagonal temple



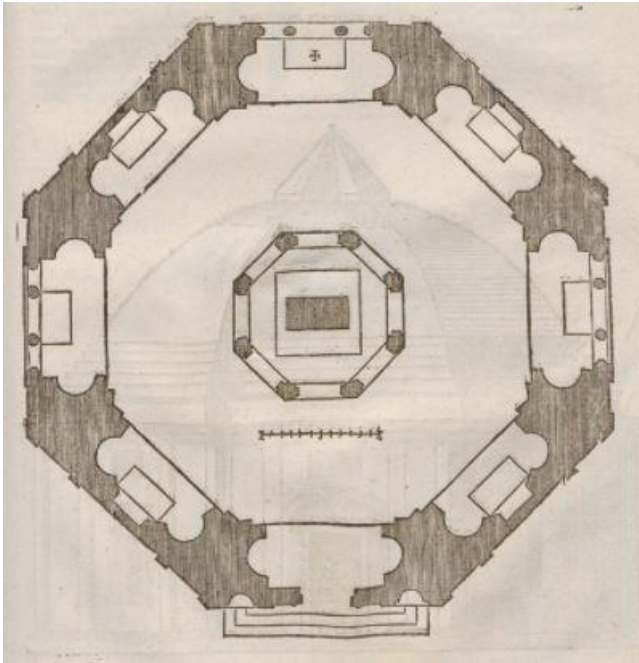
Sebastiano Serlio, *Book V: Floorplan of a pentagonal temple*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. V)

2.2.4 Hexagonal temple



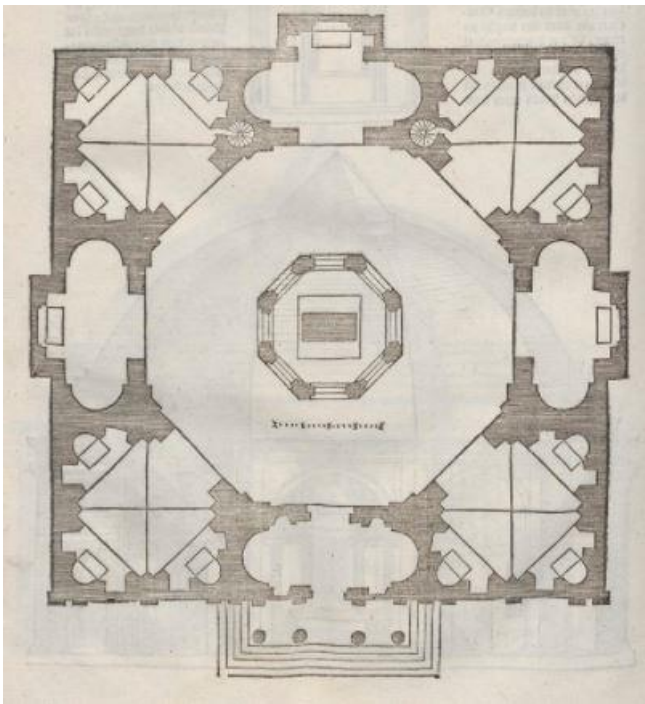
Sebastiano Serlio, *Book V: Floorplan of a hexagonal temple*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. VI)

2.2.5 Octagonal temple



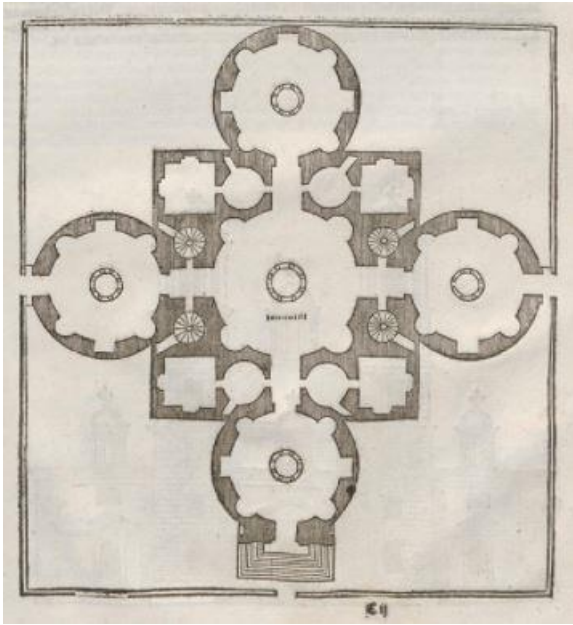
Sebastiano Serlio, *Book V: Floorplan of an octagonal temple*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. VII)

2.2.6 Octagonal within square temple



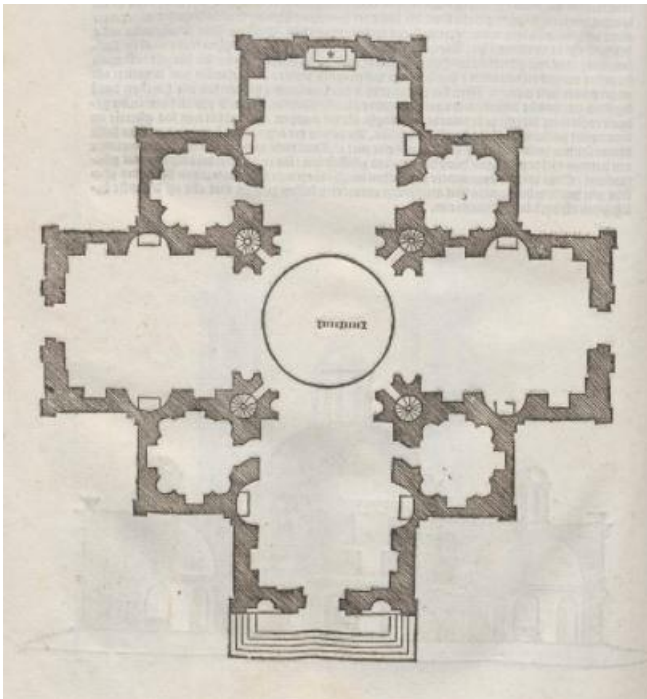
Sebastiano Serlio, *Book V: Floorplan of an octagonal temple within a square*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. IX)

2.2.7 Larger temple with round chapels



Sebastiano Serlio, *Book V: Floorplan of a larger temple with round chapels*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. X)

2.2.8 Greek cross temple



Sebastiano Serlio, *Book V: Floorplan of a temple with Greek cross shape*, 1606, woodcut print, in-2, (Utrecht, Utrecht University Library, 68839926 fol. XII)

APPENDICES

Appendix 3: meeting of the requirements by case studies in the books of Serlio

Book	Case	3.1 Centralized church	3.2 90 Degree rotational symmetry	3.3 Religious function	3.4 Greek cross	3.5 Interior and/or exterior octagonal	3.6 Combination of shapes	3.7 Scale and sizes	3.8 Place of worship: internal division	3.9 Entrances
III	Pantheon, Rome (app. 2.1.1)	X	X	X	X			X		
	Temple of Bacchus, Rome (app. 2.1.2)	X	X	X	X					
	Temple of Tivoli (app. 2.1.3)	X		X						
	Mausoleum of Romulus (app. 2.1.4)	X	X		X					
	Tempietto by Bramante (app. 2.1.5)	X	X	X	X					
	Temple of Peace (app. 2.1.6)	X		X	X					
	Unidentified ruined temple outside Rome (app. 2.1.7)	X		X	X		X	X		
	Sepulchre of the Calvenzi (app. 2.1.8)	X		X			X			
	Villa Poggio Reale in Naples (2.1.9)	X	X							
	Sepulchre of the Cercenni (app. 2.1.10)	X	X	X	X					
	St. Peter design by Bramante (app. 2.1.11)	X	X	X	X		X			
V	Round temple (app. 2.2.1)	X	X	X	X					
	Round with chapels (app. 2.2.2)	X	X	X	X					
	Pentagonal temple (app. 2.2.3)	X		X						
	Hexagonal temple (app. 2.2.4)	X		X						
	Octagonal (app. 2.2.5)	X	X	X		X				
	Octagon within square (app. 2.2.6)	X	X	X	X	X	X			
	Square with circular chapels (app. 2.2.7)	X	X	X	X		X	X		
	Greek cross (app. 2.2.8)	X	X	X	X			X		

X: fully present in the case study

X-X: Partly present in the case study

CREDITS ILLUSTRATIONS

Front page

Image by author

Introduction

Image I.1: Gent, Universiteitsbibliotheek Gent, BIB.ACC.004937

Image I.2: By author

Image I.3: Leiden, University Library Leiden, Thysia 1463, photo by author.

Image I.4: New York, Avery Architectural and Fine Arts Library, AA520 Se621

Image I.5: <https://historiek.net/vreemde-vlekken-op-praalgraf-willem-van-oranje/20439/>

Image I.6:

[https://nl.wikipedia.org/wiki/Westerkerk_\(Amsterdam\)#/media/Bestand:Amsterdam_\(NL\),_Westerkerk_--_2015_--_7186.jpg](https://nl.wikipedia.org/wiki/Westerkerk_(Amsterdam)#/media/Bestand:Amsterdam_(NL),_Westerkerk_--_2015_--_7186.jpg)

Chapter 1

Image 1.1: *De Noorderkerk in Amsterdam* by Walter Kramer, p. 53. Altered by the author to highlight old situation

Image 1.2: https://archieff.amsterdam/beeldbank/detail/0aac8d06-b02f-bc8b-6e0b-fd221a68c2cc/media/381b649c-afcc-05b6-8a20-aad493412b3d?mode=detail&view=horizontal&q=noorderkerk%20interieur&rows=1&page=3&fq%5B%5D=search_i_sk_date:%5B1400%20TO%201785%5D

Image 1.3 : image by author

Image 1.4 : image by author, based on *De Noorderkerk in Amsterdam* by Walter Kramer, p. 53.

Image 1.5: <https://www.hollandluchtfoto.nl/media/767be8ad-122b-4e35-8ff8-71fa9bfd0439-amsterdam-luchtfoto-noorderkerk>

Image 1.6: image by author, based on *De Noorderkerk in Amsterdam* by Walter Kramer, p. 53.

Image 1.7: image by author

Image 1.8 : image by author, based on *De Noorderkerk in Amsterdam* by Walter Kramer, p. 53.

Image 1.9 : image by author, based on *De Noorderkerk in Amsterdam* by Walter Kramer, p. 53.

Chapter 2

Image 2.1: Utrecht, Universiteitsbibliotheek Utrecht, AA fol 9

Chapter 3

Image 3.1: Utrecht, Universiteitsbibliotheek Utrecht, AA fol 12

Image 3.2: image by author

Image 3.3: Noorderkerk (*De Noorderkerk in Amsterdam* by Walter Kramer, p. 53, with measurement additions by author) and Greek cross church (Utrecht, Universiteitsbibliotheek Utrecht, AA fol 12)

Chapter 4

Image 4.1: <https://nl.pinterest.com/pin/497014508868035232/>

Image 4.2 : floorplan of Koepelkerk Willemstad

(https://www.dbnl.org/tekst/_jaa030199001_01/_jaa030199001_01_0007.php) and floorplan of Serlio's octagonal church (Utrecht, Universiteitsbibliotheek Utrecht, AA fol 6)

Appendices

All images of the treatise of Serlio: Utrecht, Universiteitsbibliotheek Utrecht, AA fol 9

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Serlio, Sebastiano. *Den Vijfsten Boeck van Architecturen Sebastiani Serlii, in Den Welcken van Diversche Formen Der Tempelen Getracteert Wordt,* 1553.

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