

**MASTER**

**The Florentine cloister**

Mulkens, Bart J.P.

*Award date:*  
2021

[Link to publication](#)

**Disclaimer**

This document contains a student thesis (bachelor's or master's), as authored by a student at Eindhoven University of Technology. Student theses are made available in the TU/e repository upon obtaining the required degree. The grade received is not published on the document as presented in the repository. The required complexity or quality of research of student theses may vary by program, and the required minimum study period may vary in duration.

**General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain

# The Florentine cloister

Graduation thesis prepared for the master's degree in architecture at the  
Eindhoven University of Technology.  
Publication in June 2021

## **Author**

B.J.P. (Bart) Mulkens

## **Graduation studio**

Florence, a room with a view  
2020-2021

## **Graduation committee**

Prof. Dipl.-Ing. C. (Christian) Rapp  
Dipl.-Ing. H. (Haike) Apelt  
ir. W. (Wouter) Hilhorst

## **Eindhoven University of Technology**

Master Architecture Design and Engineering  
Track Architectural Urban Design and Engineering  
Chair of Rational Architecture

15 ECTS + 15 ECTS international component

This thesis has been carried out in accordance with the rules of the TU/e Code  
of Scientific Integrity and public information



#### The Florentine cloister

Graduation thesis prepared for the master's degree in architecture at the Eindhoven University of Technology.  
Publication in June 2021

#### Author

B.J.P. (Bart) Mulkens

#### Graduation studio

Florence, a room with a view  
2020-2021

#### Graduation committee

Prof. Dipl.-Ing. C. (Christian) Rapp  
Dipl.-Ing. H. (Haike) Apelt  
ir. W. (Wouter) Hilhorst

Eindhoven University of Technology  
Department of Built Environment  
Chair of Rational Architecture

#### External supervisors

Prof. F. (Francesco) Collotti

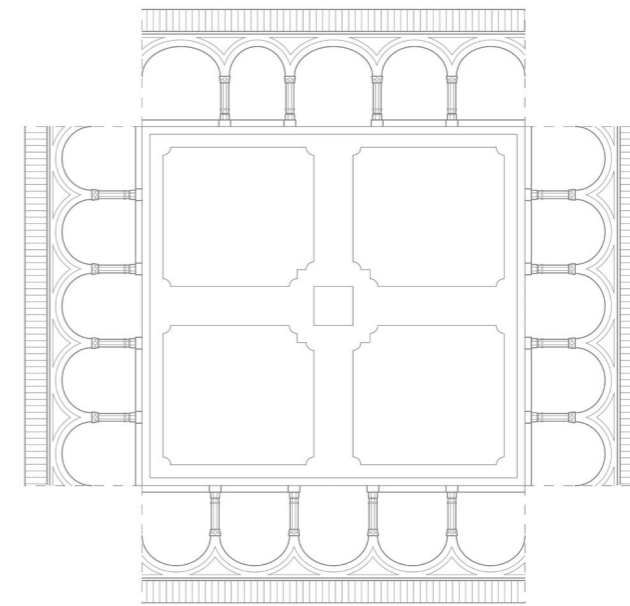
Università degli Studi di Firenze  
Dipartimento di Progettazione  
dell'Architettura

## Abstract

The monastic structures in Florence were of great importance in the formation and functioning of the various districts in the historical city centre of Florence. These monastic structures have adapted to the changing spirit of the times, even after the social influence of the mendicant orders in the city declined. This characteristic and the different layers of development are also recognizable in the monastic structure of Santa Verdiana in Florence. This structure has served as a monastery for centuries it was later used as a prison in and the 20th century it regained public function as part of the university of Florence. This research examines the Florentine inner-city monasteries, in which the focus is placed on the cloister. This element has a central role in the organization and functioning of the monastic structures and at the same time is a place with an exceptional atmosphere of seclusion and relaxation in the middle of the dynamic city of Florence. Following the results of the research, a design was made for a new layer for the monastery structure of Santa Verdiana, based on the current public function.

## Table of contents

	Introduction	6
	Methodology	8
<b>1</b>	<b>The cloister</b>	<b>10</b>
<b>2</b>	<b>Florentine monasteries</b>	<b>18</b>
<b>3</b>	<b>Case study research</b>	<b>32</b>
3.1	Santa Maria Novella	36
3.2	Santa Croce	50
3.3	San Lorenzo	64
3.4	San Marco	74
<b>4</b>	<b>Florentine monastic type</b>	<b>88</b>
4.1	Urban configuration	92
4.2	Composition	94
4.3	Organisation	96
4.4	Cloister	98
<b>5</b>	<b>Santa Verdiana</b>	<b>104</b>
5.1	Urban development	108
5.2	Urban situation	112
5.3	Transformation periods	116
5.4	Current situation	126
5.5	Cloister	136
<b>6</b>	<b>Design</b>	<b>140</b>
6.1	Specification design assignment	142
6.2	Design principles	146
6.3	Building volumes	158
6.4	Configuration of the extension	170
6.5	Design drawings	174
6.6	Cloisters	186
<b>7</b>	<b>Reflection</b>	<b>196</b>
8.1	Bibliography	198
8.2	Image references	200



## Introduction

This thesis is the result of the graduation studio 'Florence, a room with a view' started in September 2020, as part of the so-called 'city series'. The graduation assignment consists of two parts; a collective research and an individual part consisting of research and design. The aim of the collective research is to explore the systems of Florence that created the city, focusing on urban, fragment and building scale. The collective research resulted in the Atlas 'Florence, a room with a view'. Monasteries play a central role in the development and functioning of the historic core of Florence. Over the years, the mendicant orders have left their mark on city life and the monastic structures have influenced the formation of most of the city centre.

The structures of the mendicant orders can be considered as multifunctional buildings, where both religious and civic functions were present. They were not closed spaces in relation to the city, but rather they were connected and integrated into the urban context. With the almost complete disappearance of the mendicant orders, this property of the structures has been somewhat lost today. Within the monastery, the cloister plays a central role in the organization and functioning of the structure. Ultimately the cloister was the multi-purpose place for the community. The atmosphere in the cloisters was one of the things that impressed me during my short stay in the city. It is a place within the monastic enclosure, protected and turned inwards around an enclosed garden with a perspective of heavenly perfection located in the busy city of Florence. "A

place through which to pass but also in which to stay, for silent reading at certain times of the day or to talk at other times; a place that was home to many of the small jobs of daily life. Yet it was also a place where the atmosphere of liturgical ritual, the backdrop of medieval monastic life, always came first"<sup>1</sup>.

In this research, the inner-city cloister is investigated with a specific focus on the role and elements of the cloister by working from the main question: How can the relation between the Florentine monastic inner-city structure and its cloister be used as a basis for a design?

The aim of the research is to learn from the literary research and historical examples. The knowledge will then be used in a design assignment, in which a new layer will be added to the monastic structure of Santa Verdiana, which currently serves as a faculty building for the university of Florence. The new layer on the building has been created in a harmonious way connected to that what has already been build. When designing the buildings the focus is on keeping with what has been done before and creating a spirit of continuity.

1. Davril, 2003

## Methodology

The research is divided into six chapters. In the first four chapters the inner-city monasteries in Florence are investigated. The last two chapters focus on a design for an extension of the monastic structure of Santa Verdiana.

In the first chapter of the report, the typological series of the convent and cloister are interpreted as a branch connected to a single trunk and root. Within this metaphor, it is important to understand the origin of the monastic buildings and its cloister in the development and the impact of different functions on the composition of these elements.

The monastic structures have been expanded and adapted over the years, strongly dependent on the zeitgeist in a period. To understand the monastic structures, it is important to understand the historical perspective and to understand the role of these structures in the development of the city. Using literature research, the second chapter examines the development of the city in connection to the monastic structures.

In the third chapter, four monastic structures are examined in order to get a grip on the organization and implementation of the elements. By drawing and describing these case studies through a predetermined method, it is possible to investigate how the monastic type manifests itself in Florence. The choice of the investigated structures is based on the dimensions of the structures and the regional importance of the function of the monasteries.

In the fourth chapter a reflection on the previous

chapters with the addition of literature research can be found in an attempt to understand the type of the inner-city monastic structure. The characteristics of the original type, the implementation of monastic structures in Florence, the results of the four case studies and further literary research allow statements to be made about the type of monastic structures located in Florence. This causes for a better understanding of the limits, boundaries, possibilities and implementations of this specific type.

The monastic structure of Santa Verdiana, which is the design location, is analyzed in chapter five, also added are the results of the research to understand the composition as a whole. The historical development and the current state of the situation have been examined to gain an understanding of the external influences that have shaped and transformed the building. The transformations that the building has undergone have been analyzed and described. The current condition has been analyzed with special focus on the existing cloister.

The starting point for the design of a new layer with extension is based on the organization around the cloister, through which various functions can be organized and in which a place can be created of seclusion and interaction. . The addition for Santa Verdiana will be strongly linked to the existing structure and will be constructed following the principles of the monastic typology. The design assignment attempts to create a new whole with the additional structure, which has its own identity and program that connects to the existing building.

# 1 The cloister

*Origin of the cloister and development of the type*



### Summary

The Florentine monastic structures are part of a long history of Christian monasteries in Europe; the monastic tradition in Florence does not stand on its own. In order to understand the specific situation of Florence, it is important to put monastic orders and Christian monastic architecture in a broader perspective and indicate the characteristics and origins.

In this chapter, the typological series of the convent and cloister is interpreted as a branch connected to a single trunk and root. Following this metaphor, it is important to understand the origin of the monastic buildings and its cloister and to investigate the development and the effect of different functions on the composition of these elements.

The first monastic communities arose from an organization of individuals who separated themselves from society. These started to organize themselves and a tradition of rituals and customs arose. From the reign of Charlemagne in the 9th century, a tradition for the composition of the monastic structure developed. Before this time, the various functions took place in designated spaces and associated volumes, but the composition of these volumes was not fixed in an organizational

system for the monastic structures. That changed during Charlemagne's reign, where a system arose which was disseminated and implemented as the basis for the construction of new structures. From this moment onwards, the element of cloister is also applied, which is a place of seclusion and around which the important elements of the structure are organized. The cloister plays a central function in the organization of the structure and the community, a place of passage, silence, meeting and residence.



1-1 Cloister Santa Maria Novella

# 1 Origin of the cloister and development of the type

## First religious institutions

The first religious communities were formed as individuals who separated themselves from society organized themselves around a simple, pure life in isolated places where it was possible to pray and pay attention to one's own spirituality. The search for a spiritual dimension that can free the individual from worries and material urgencies to lead to reflect on the universe and the mystery of life led to a growth of religious communities. The early Christian monasteries of the 4th century began to organize life through rules. There were regulations for the life of the monk and the community as a whole. Main themes are living in a closed community, dedication and seclusion. Rules of conduct were laid down, but no regulations were mentioned for the manner of building. The absence of building regulations for the Orders favored the spread of the communities, in which buildings were adapted to the specific geographical and climatic conditions<sup>1</sup>. This resulted in a wide range of possible configurations and locations of the structures. These compositions could consist of separated cells and communal functions surrounded by a wall or dynamically grown multi-functional structures.

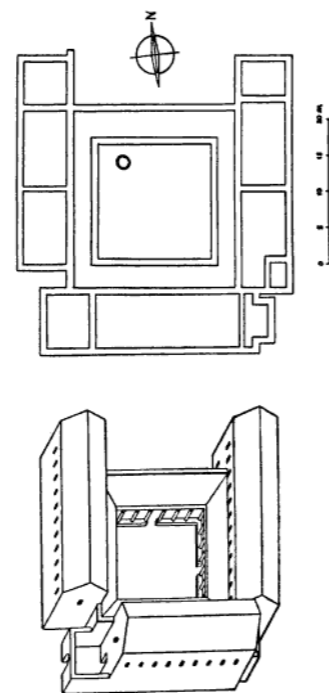
The fall of the Roman Empire and the relative weakening of political power favor the establishment of monasteries. These were now not only religious centers but also economic centers, autonomous productive units equipped with an efficient organizational system. In the centuries that followed, the monastic communities strengthened their position.

1. Lavoratti, 2019  
2. Horn, 1973

1-2 Monastery of Abbot Gundeland, Lorsch

## Origin of the cloister

Administrative and religious reforms followed one another during the Middle Ages, which eventually brought new orders to life, adapted to local conditions. It was not until the Carolingian rule at the beginning of the 9th century that the rules of conduct and the forms of settlement of religious communities standardized in Aachen, including the precise design of the spaces according to a distribution scheme. The plan of St. Gall, made in the early 9th century, is a fundamental testimony to the original structure of a complex monastery from this time.



The plan of St. Gall consists of several parts organized around a central cloister. The configuration represented in this ideal model of the monastic structures is considered an invention of this time. No square-shaped cloister before this period is known. The origin of the cloister is considered to be found in the Roman villa Rustica. The first monastery known for having a square cloister is the monastery of Lorch, in the late 8th century. This building was not newly built, but was a transformation of a Frankish nobleman's villa built in the tradition of a Roman villa Rustica. There is a close conceptual relationship between the new monastic tradition and the farmhouse built in the tradition of Roman villa Rustica. In that time, it happened more often that monastic communities settled in these type of buildings.

Around the year 800 there were a number of structures that had a colonnade with volumes attached. A well-known example of this is the abbey of St. Riquier, which had a colonnade in the shape of a triangle. This colonnade connected three churches, protecting the community's many movements and processions from place to place. It is believed that the galleried porches were built against the outer walls of the structure and the houses of the monks were positioned in the open space inside. The use of galleried porches occurred more often during this period, but had no established composition and application. From this period, structures are also known in which a galleried porches courtyard is positioned at the front of the church<sup>2</sup>.



### St. Gall.

The period that followed played a crucial role in the evolution of monastic architecture. The plan of St. Gall is a clear depiction of the original structure of a complex monastery from this era. The plan of St. Gall is not an elaboration of a specific monastery, but a statement of policy of the leading bishop and abbots of the empire of Louis the Pious. It is an elaboration of an ideal composition of a structure from that time, shown in detailed drawing and description.

Centrally located in the structure are the church, cloister and community volumes adjacent to the cloister made of stone. Surrounding this are separate wooden volumes. These houses various functions: buildings for novices and the infirm on the east side; cemetery, farmyard and kitchen garden on the north-east side; industrial buildings such as a mill, forge, bakery and a brewery to the south; the agricultural buildings, stables and grange to the south east; accommodation for guests in the west.

A square cloister with rounded arches marks the center of the monastic structure. In the center of the structure, the square cloister is surrounded by colonnades, linking the church, refectory, chapter house and dormitory. The cloister is only accessible to the monks and nuns, not to the workers of the abbey. The church is accessed from the cloister, through the side of the building. In this configuration, the church is accessible to other visitors via the central axis<sup>3</sup>.

The cloister is one of the most significant contributions of this era to the architecture of these structures. The concept represented in this survived the fall of the Carolingian Empire and became the foundation for the monasteries that followed. (origin)

3. Coomans, 2018

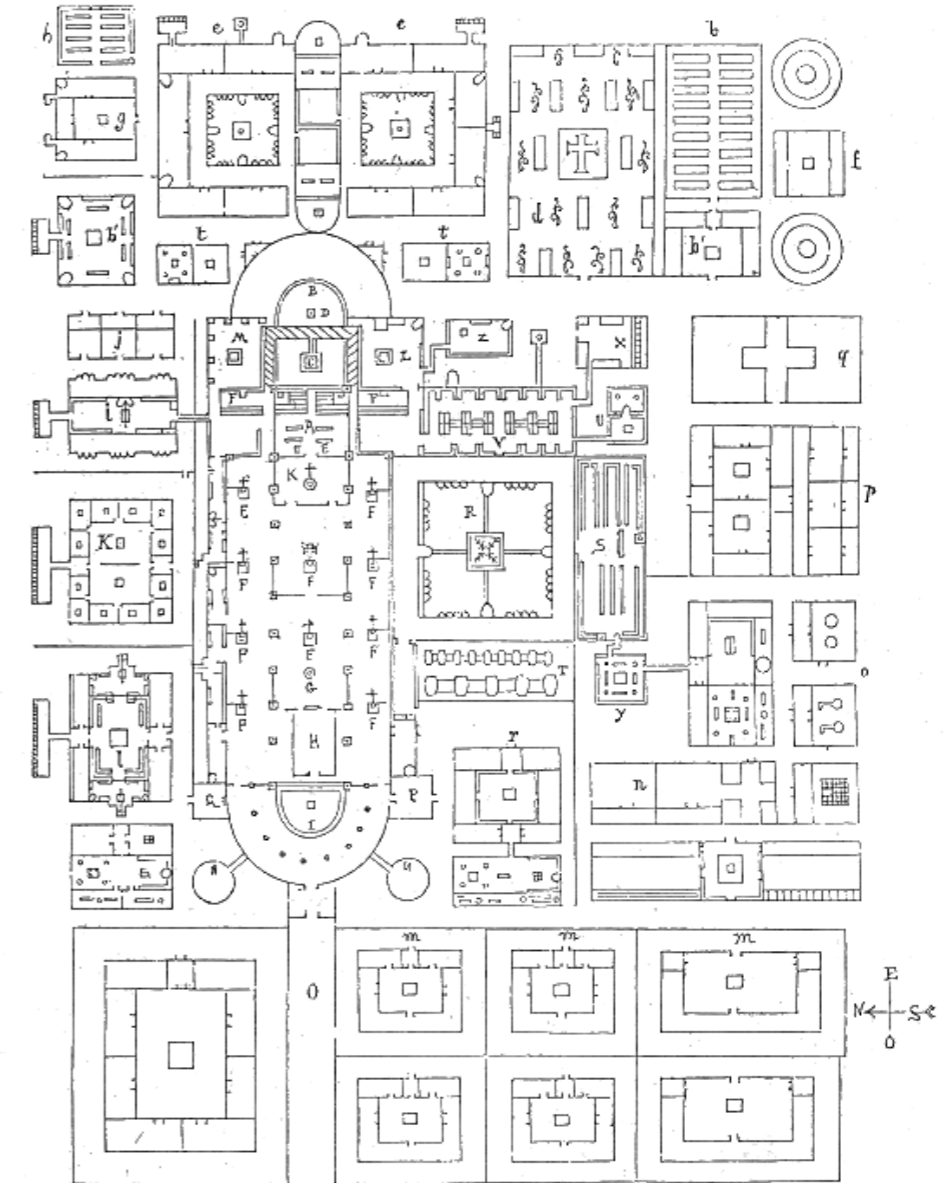
4. Horn, 1973

5. Coomans, 2018

### The cloister

The cloister is closed off, with only a vertical opening towards the sky. In addition to its functional use, the cloister also has a symbolic meaning. The medieval monastic structure was experienced and designed as a quest for perfection in the chaos of the world. Protective and turned inward, the cloister metaphorically symbolizes paradise. The cloister is functionally and spiritually the center of the community. It was a versatile place, of passage, silence, meeting and residence. An open space of freedom within the rigid framework of ecclesiastical institutions<sup>4</sup>.

There is a wide variety of religious institutes and orders, male and female, mendicants, military, hospital friars, missionaries, teachers, etc. These have emerged and developed over the years in response to the needs of society at a particular point in history. Many of these orders also disappeared later on, because they were unable to adapt well to developments in society. The ability to adapt to changes in society without losing identity has always been a major challenge. These institutions had different characteristics, traditions and needs resulting in specific configurations of religious structures. The great diversity of religious communities has resulted in a wide variety of monastic types<sup>5</sup>.





## 2 Florentine monasteries

*History of inner-city monastic structure in Florence*

### Summary

Currently, a large number of monastic structures are located in Florence. These structures have had a major influence on the development of the city. The social and urban situation of the city also had a major influence on the monastic structures. When analyzing the monastic structures of Florence, it is important to understand the connection with the innumerable historical phases of formation and growth, from its origin to its current state, which have shaped the structures. These transformations are the result of changing needs which are highly dependent on the zeitgeist in a historical period.

The history and development of the monastic structures in Florence has been studied in relation to the general developments of the city.

The first monastic structures were founded around the year 200. In the early middle ages, the church began to play an active role in the economy and social life in the city, such as handcraft and hospices for travelers and the poor.

The newly emerging mendicant orders anticipated on the new social situation in Florence in the 12th century and settled in the city. What makes the mendicant orders unique is the connection with city life, to which the monastic typology also adapted. In the beginning, the mendicant orders followed a lifestyle of apostolic poverty, they criticized authorities, wealth and power, which is reflected in simple buildings. In a later phase the orders began to establish relations with both the old powers and the new merchant class, with whom they shared the

heavy dependence on the city and its people. Not only religious activities took place in these monastic structures, there were also economic, social and political activities. The structures functioned as centers of gravity during urban development, and became important focal points in the districts. During the following years, new monastic structures occurred and existing structures were enlarged and transformed. The development was also influenced by wealthy families, especially the Medici, who funded artistic and architectural works to be added to the structures.

In the 18th century Leopold heralded the first suppressed the monastic orders. Numerous monastic structures lost their religious function and were occupied with new functions of residence and government agency. This trend continued in the years that followed and was reinforced in the late 19th century when Florence was named as the capital of the new Italy. The new functions of the buildings were often not connected to society, as a result of this most of the structures lost their importance in the function of the city. To enable this change in function, the structures often underwent a transformation, but the structures are still recognizable and sometimes still play a role in the organization of the city.

2-1 Historic layers visible in facade of Santa Maria Novella





## 2 History of inner-city monastic structure in Florence

### First religious structures in Florence

During the prosperous Roman period of Florence, the first Christian buildings were erected around the city. At that time, Christian life was not fully accepted by the Roman Empire, so the churches were not placed in the city center. The first churches, those of Santa Felicita and San Lorenzo, were founded outside the wall circle, along the important trade route. After the acceptance of Christianity by the Roman Empire, a new rise of churches occurred<sup>1</sup>.

The fall of the Roman Empire in 476 had a major impact on the city of Florence. The city lost its defenses and stability and people moved away, resulting in a 90% decline in the population and the cessation of constructive developments in the city. From the 8th and 9th centuries, the city of Florence began to increase in population again and acquired more regional importance over time. The city became part of the Carolingian Empire, which heralded a period of stability and prosperity. Various building activities took place, including the construction of a new city wall which partly followed the old Roman outline. The development of the city was also marked by the renovation of existing buildings and the emergence of public buildings, hospitals and religious buildings. In the Carolingian Empire, the Catholic faith was the main religion. The population growth also increased the number of religious institutions. In addition to its function as a religious institution, the church also began to play an active role in the economy of Florence. These monasteries performed various other functions in addition to their religious function.

They performed handcraft activities, for example in the church of San Salvatore, where wool processing took place. The monasteries also regularly fulfilled the function of hospices for travelers and the poor<sup>2</sup>.

Despite the many different rulers of the city in the following decades, the position of the Catholic faith in the city remained stable. This resulted, among other things, in the expansion of the San Reparata, which was the main church, located in the center of the city.

In the 12th century the city was growing economically and demographically. The guilds of Florence specialized in the trade and craftsmanship of skins, fabrics, natural coloring and seasoning, resulting in great economic progress. The 5th wall ring was built to enclose the population of 30,000 inhabitants. However, due to the great growth, various urban developments took place outside the wall in the form of ribbon development. Economic progress was strengthened in the 13th century when the population continued to increase, as in several other European cities. During this time agricultural production increased, which left room for development of other activities, such as trade in fabrics and spices. The city of Florence became of international economic importance.

1. Fanelli, 1985  
2. Bellandi, 2013

### The rise of mendicant Orders

In the second half of the middle ages in Europe, a new society emerged to which the church had to adapt. The centers of gravity of feudal, rural and agricultural societies was changed to the city and a new economy based on trade, industry and crafts. The great increase in urban life created a new urban society, with a new bourgeois, working-class and poor social classes. The cities were a place with more freedom, which resulted in higher infidelity to the church. The new cities also created problems in the lower layer of the society, where poverty, epidemics and prostitution were more prevalent. The existing rural religious institutions were unable to respond to this new situation. New religious groups took advantage of this new social situation, preaching in the cities and helping in hospitals. Most claimed apostolic poverty and criticized the authorities, wealth and power. This switch was spontaneous and in different ways. There are different founders for the new communities, which resulted in different kinds of orders that were also built up from different groups. The most famous four of these are the Franciscans, Dominicans, Carmelites and Hermits of Saint Augustine.<sup>3</sup>

### The mendicant Orders in Florence

As in the other places in Europe, the mendicant orders settled in the big city as a reaction to the changed social situation. In the years that followed, a wide range of mendicant orders settled in the city, including the four most important mentioned before. Initially, the mendicant orders followed a lifestyle of

apostolic poverty, criticizing authorities, wealth and power. In the early years, the groups had no capital of their own and lived on donations from believers. The friars preached in cathedrals, focused on their spirituality and lived in makeshift buildings or spaces donated by benevolent families.

Later however, the orders began to establish relations with both the old powers and the new merchant class, with whom they shared the heavy dependence on the city and its people. The new orders are characterized by their relationship with the urban community. Instead of seclusion, they sought a relationship with society. New churches



3. Coomans, 2018

2-2 Old church of San Lorenzo

and monasteries were built, using sober layout and finishing, based on the principle of poverty, which is part of the identity of the orders<sup>4</sup>. In these religious structures religious activities, but also functional activities took place. This marked a turning point in the urban development of the city. Until then, the city had a homogeneous fabric within the walls and urban developments outside the walls had been developed as ribbon development along the trade routes. The new urban areas became a combination of the organization along the important roads and the organization around the new monastic structures which functioned as centers of gravity. Located at the churches and monasteries, large squares were made for preaching around which the community of the neighborhood was organized<sup>5</sup>.

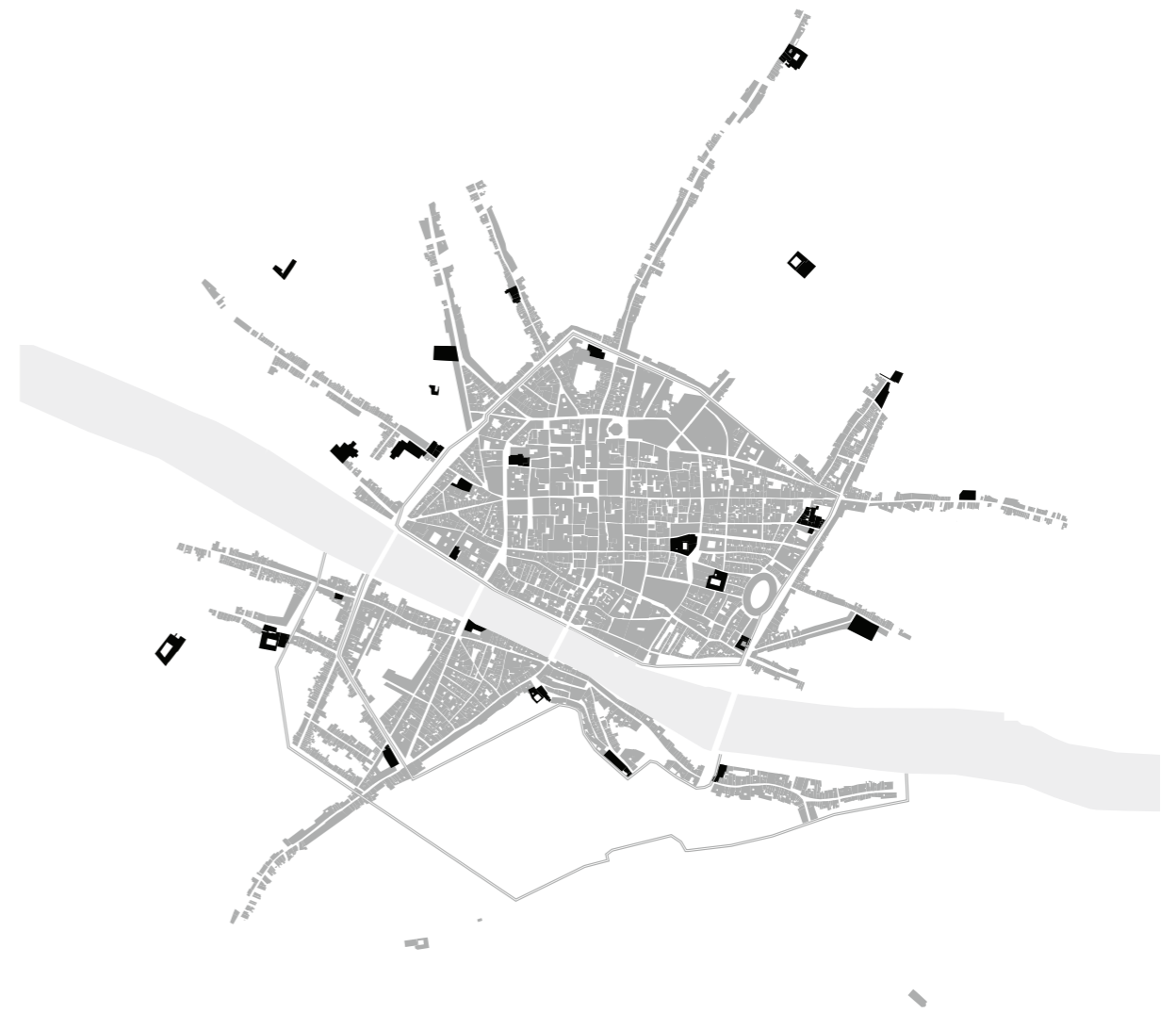
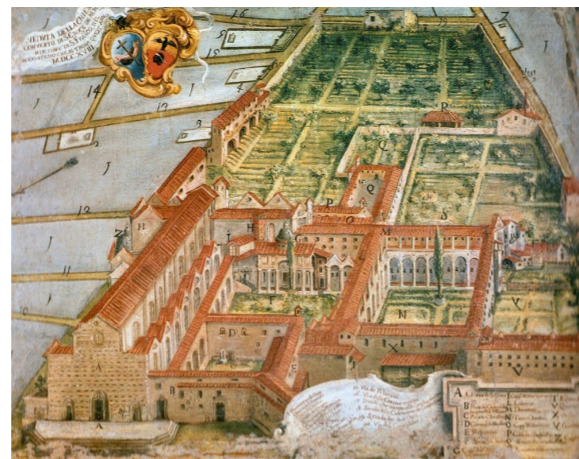
At the end of the 13th century, several interventions were made to reorganize the city to meet the urban demands related to the city's new identity and functioning. Several buildings, often religious, that would play a central role in the urban fabric were built under the supervision of Arnolfo di Cambio. This includes the Duomo, but also Orsanichele and the Santa Croce basilica with adjacent square. A new, and also the last, wall circle has been built with a diameter of 8.5 kilometers. This wall includes the existing buildings outside the previous wall, while at the same time leaving room for future urban fabric and agricultural activity<sup>6</sup>. In this space within the walls was the opportunity to establish new monastic structures, around which is open space for the placement of large gardens linked to the structures.

4. Chessa & Poli, 1996  
 5. Fanelli, 1985  
 6. Benevolo, 1980  
 7. Bellandi, 2013

2-3 Santa Croce with surrounding gardens

The religious institutions started real estate exploitation in the areas surrounding the existing monasteries, resulting in a city organized around these religious structures. The monastic structures became important focal points in the district, not only in religion but also in the political life of the city. The structures influenced the organization of the surrounding areas; neighborhoods with believers were organized around it, as well as spaces related to religious activities<sup>7</sup>.

The 14th century was a time of crisis for the city. There was political instability and an economic crisis. In the mid-14th century, the plague reached the city and halved the city's population within a few years. These events were followed by an emigration flow and food scarcity. Despite this turmoil, the existing monastic structures remained important and expanded, as is the case with Santa Croce and Santa Maria Novella. The space around these monasteries, as well as new



2-4 Monastic structures Florence 1280



monasteries founded between the last two wall circles, were organized into neighborhoods formed around religious structures.

After the time of crisis, Florence quickly climbed out of the abyss and flourished again. In the 15th century, economic prosperity, together with a new cultural movements, led to the Renaissance in the city. During this time there was not a great increase in the number of monastic structures but rather activities of profound transformation. The structures were expanded, often with new types of volumes such as work environment, libraries and guest houses. These expansions were not always build following the original regulations of poverty and thrift<sup>6</sup>. The transformation of the monastic structures was closely linked to the developments of the Renaissance. The various wealthy families donated money for public works, with a specific interest in religious donations. At the request of these families, artistic and architectural works were added to the structures, some of which are considered masterpieces of the history of European architecture. From the 16th century the more democratic system of governance of Florence came to an end and the Medici became the rulers of the city. The other prosperous families lost in power and started to donate less money to the monastic structures. The Medici, on the other hand, showed their prestige by intervening in the city. During this period, major transformations were carried out by the Medici in the monastic structures important to them, including the San Lorenzo, San Marco and Santissima Annunziata.



2-5 Cloister San Lorenzo with Laurentian library

As a result of the plague and the decline of the industrial and agricultural industries, the beginning of the 17th century was marked by a deep crisis. No new monastic structures were established during this period, but the expansion and renovation of the existing structures continued.



2-6 Monastic structures Florence 1450

### Suppression of monasteries

In the 18th century, a new era began with new rulers. The Medici dynasty was over and Florence was taken over by foreign rulers. A recovery was ensured, partly by reducing the power of the church. Monastic institutions had remained true to the teachings of their founders, but were at that time often no longer committed to preaching and supporting their own loyalties, but rather to the prevailing pursuit of economic interests<sup>8</sup>. Leopold heralded the first suppression of monastic orders. At that time, the economic system was based almost exclusively on agriculture and at the same time half of the agricultural land was owned by the religious institutions. In an effort to increase productive economic activity, real estate belonging to the monastic orders was expropriated. Taxes were also introduced on ecclesiastical real estate. An urban renewal was initiated in which the properties of the monasteries were redistributed. Numerous monastic structures lost their religious function and were occupied with new functions of residence and government agency, such as administration of constitutional law, the army corps and education. Due to the large increase in the population of the city in the mid-19th century and to meet the growing need for housing, monastic structures, but especially they associated green spaces were transformed. Later, the appointment of Florence as the capital of the new Italy in 1865 had a major impact on the urban fabric of the city. During this time, many monastic structures were also suppressed to accommodate the new public functions that the city was to fulfill.

As a result, almost half of the buildings associated with the government are former monasteries. The definitive change in the function of a lot monastic structures took place in those years<sup>9</sup>. In order to make Florence meet the new requirements, a major modernization plan was made under the direction of architect Giuseppe Poggi. Part of this plan was the demolition of the city wall, making room for a ring road. Connected to the ring road, a wide grid has been created for new building blocks to expand the urban fabric. Six years after its appointment as capital, this title was moved to Rome, leaving Florence in a crisis. This also had consequences for the government functions in the former monasteries, which were moved to Rome. However, the monastic structures were never returned to the religious orders but remained part of the state and municipal heritage.



8. Ballandi, 2013

2-7 Convent Murate transformed into prison

### Monastic structures in current situation

Although the religious orders do not play an important role in Florence today, the monastic structures still play a role in the functioning of the city. These structures, which were important for the development of the city, have important positions in the urban fabric and the buildings are clear landmarks, linked to the appearance and identity of the neighborhoods.

Through the years 95 monastic structures have been constructed within the city wall. About 10% of the monasteries have been lost through time, during which demolition work has taken place and new buildings have been built in their place. Only a small part of the existing monastic structures still has a religious function, the others have undergone a functional change, especially in the last two centuries. This change of function was often for social benefit, in which the structures were used as accommodation for educational institutions and municipal and military administrations. To enable this change in function, the structures often underwent a transformation, but the structures are still recognizable as monastic structures. The composition is recognizable and the finishing, but also the position in the city and the surrounding context to which the structures are closely connected.



2-8 Monastic structures Florence 2021  
■ Monastic structure partly modified  
■ Monastic structure deeply modified or demolished

## 3 Case study research

*Investigation into four Florentine inner-city monastic structures*



### Summary

The great influence of the mendicant orders and its intertwining with the development of the city has led to a great variety of impressive monastic structures in Florence. By drawing and describing four case studies via a set method, it is possible to investigate how this monastic type manifests itself in Florence. The choice of structures is based on the large dimensions of the structures and the regional role they played. The buildings chosen have a complex composition with several cloisters, are exceptional examples in the city and contain elements that had a major influence on the development of the city and its architectural history. These structures were always closely linked to life in the neighborhood and played a central role in this. The following structures have been investigated: Santa Maria Novella, Santa Croce, San Lorenzo and San Marco.

A method was created which was applied to all four structures in order to generate the correct results and to be able to compare the structures with each other. Literature research was carried out to investigate the background, origin and the various developments, which had a major influence on the composition and components of the structures. The urban configuration also has a major influence on the development of the structures and the structures have an influence on the context. The plan and section, showing the main cloisters, display the organization and hierarchy of the structure. The positioning of the various functions and the associated room types are described in combination

with the organization of the structure.

The cloisters are an essential part of the organization and functioning of the structures. The most important cloisters for each monastery structure are further investigated. The relationship between plan and section is drawn. The relationship between the facades around the cloister is also investigated in a combination drawing, in which a distinction is made in the drawing style between foreground and background. An in-depth study examines the colonnade and the elements are described.

### 3-1 Location case studies in Florence

*From west to east*

Santa Maria Novella - San Lorenzo

San Marco - Santa Croce



### 3.1 Santa Maria Novella

The monastic structure of Santa Maria Novella is located on the west side of the historic center of Florence, positioned in the Santa Maria Novella district. With 7 cloisters, the structure is one of the largest monastic structures in Florence and the basilica with the facade of Alberti is the most important Dominican building in the city.

In 1221, the small 9th-century church of Santa Maria delle Vigne was assigned to the Dominican order. In 1279 the Dominican community started to create a new and larger church building and an adjoining monastery on this spot and called this structure Santa Maria Novella (new). Construction work took nearly a century and several decades later the basilica was consecrated in 1420<sup>1</sup>. Commissioned by the wealthy Florentine wool merchant Giovanni di Paolo Rucellai, Leon Battista Alberti designed the basilica's famous marble facade, which was completed in 1470. The facade is not the only element in the structure financed by wealthy families, there are several chapels in the cloister and basilica. This is connected with the identity of the monastic orders, which derive part of their income from donations<sup>2</sup>.

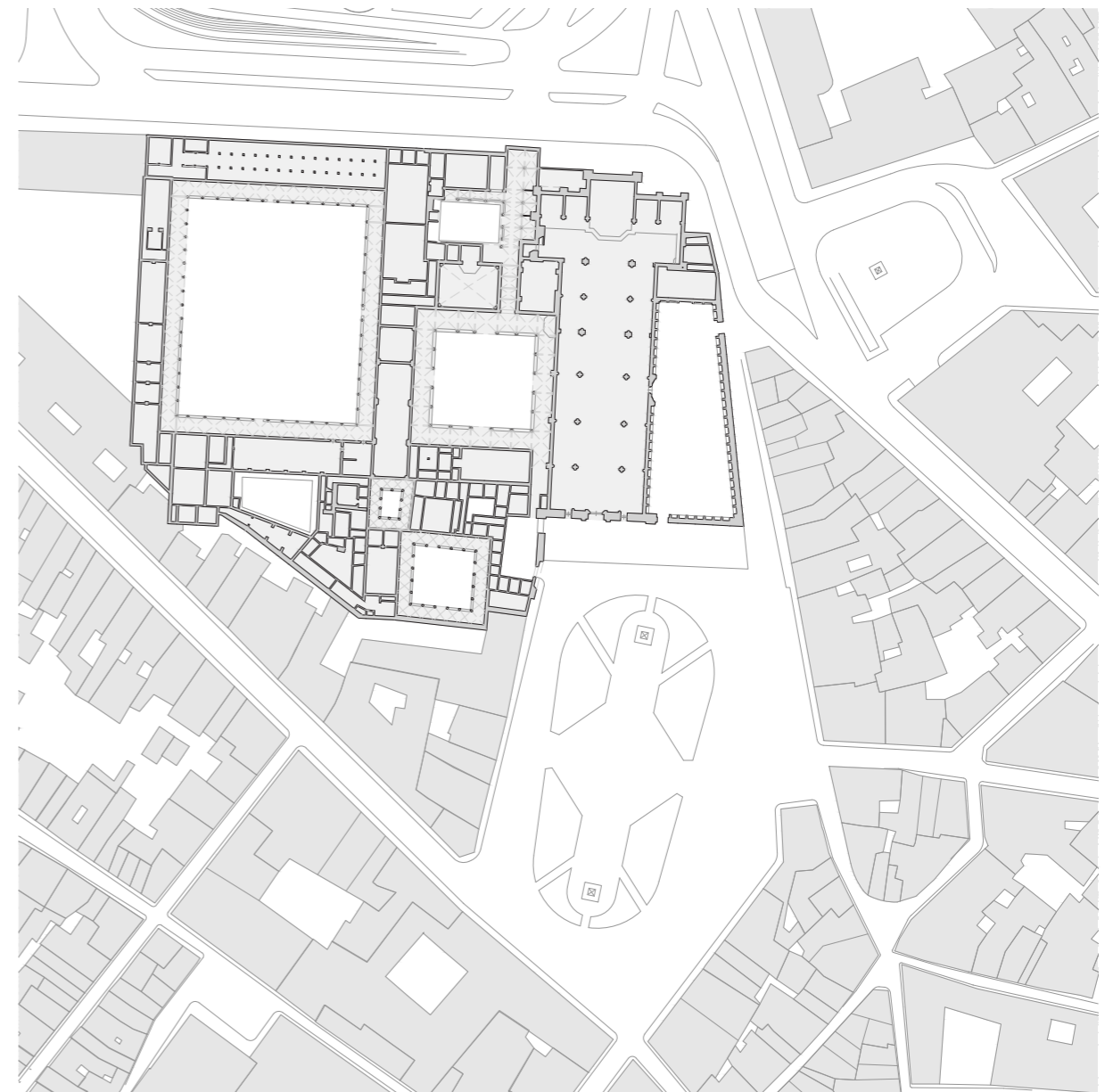
Connected to the front of the basilica is a large square. The square was created on the initiative of the municipality around 1325, after the demolition of the houses that stood there. It was used to welcome the growing number of believers who flocked to the sermons of the Dominican friars who lived in the adjacent monastery. Thanks to its size, it later became the scene of festivals and shows. Also on

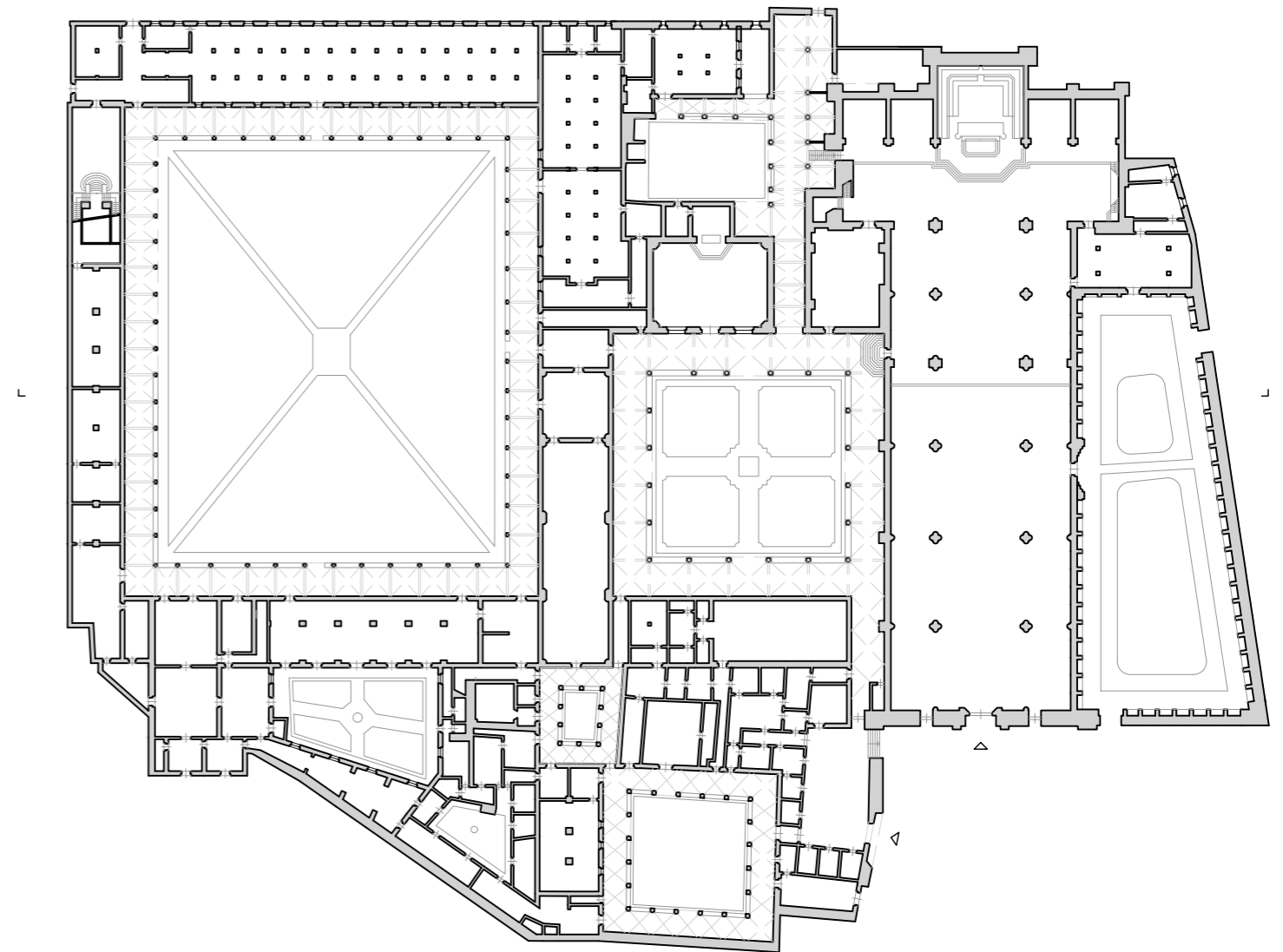
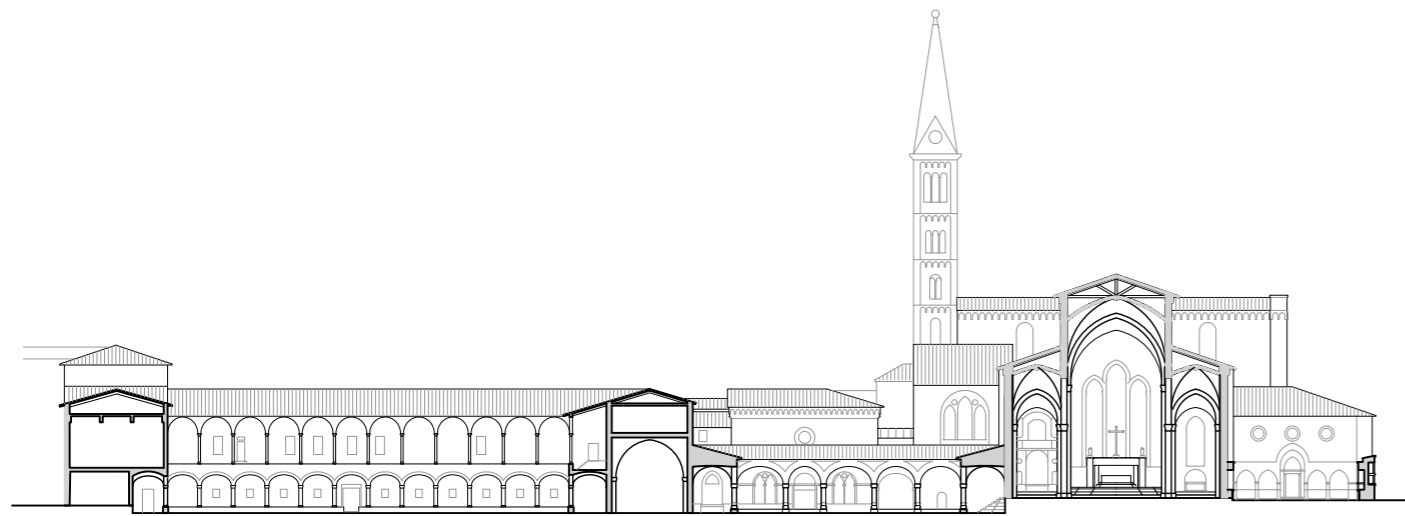
the east side of the basilica is a square, which was created during the time when the church of Santa Maria delle Vigne was orientated to the east. The area to the north of the monastery, where previously the monastery gardens and part of the monastery structure were positioned, is now occupied by the Santa Maria Novella station with a square in front of it. The structure of the former monastery of the Santissima Concezione, founded in 1563, attached to the west side of Santa Maria Novella, belonged to the structure for two and a half centuries. The monastic structure thus forms almost the entire part of the organically grown building block. The convent is somewhat hidden in the building block, but the basilica with its tower is a clear landmark in the district. The large volume, which is prominently positioned on its squares, stands out clearly from the surrounding buildings.



1. Centauro, 2020
2. Opera for Santa Maria Novella, 2018

Left 3-2 Santa Maria Novella building volume in context  
Right 3-3 Santa Maria Novella situation, 1:2000





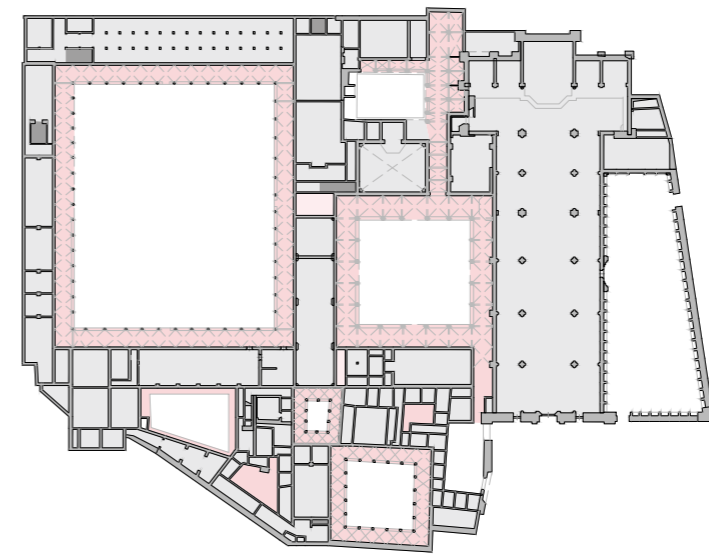
3-4 Plan, 1:1000  
3-5 Section, 1:1000



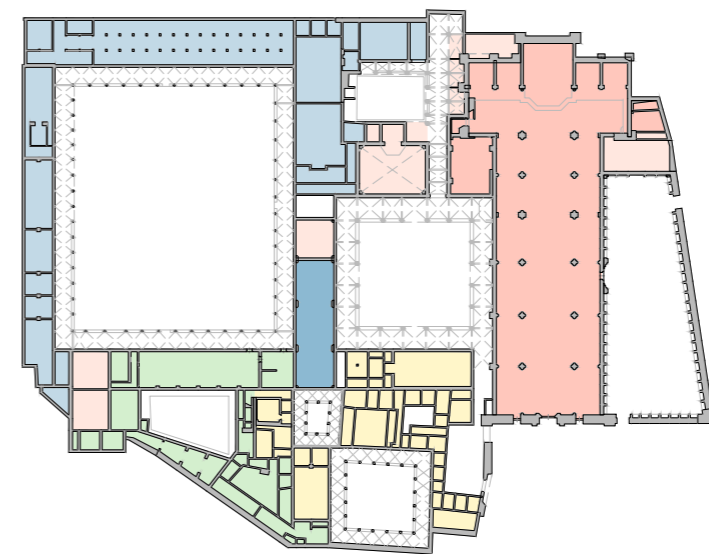
The basilica is the most prominent volume of the structure. This volume is orientated towards the square in front, making it accessible as the main church of the district. The interior is based on a basilica plan, designed as an Egyptian cross and is divided into a 100 meter nave, two side aisles and a short transept. The monastic structure is accessible via a walled outdoor space which is located next to the front of the basilica. From here, the heart of the monastic structure, the green cloister, can be reached via a long corridor. This part of the cloister was completed around 1350 and was painted in the first half of the 15th century with earthen paintings, which lends the name of the cloister. The central functions of the structure are accessible through this cloister: the large refectory, the sacristy, the chapel degli Spagnoli and the church. From the cloister there is a corridor towards the cloister of the dead, the oldest cloister in the structure. This used to be the cemetery, a function that was also placed walled on the east side of the church. From the green cloister, a passageway leads to the large cloister, also known as the second cloister. The cloister, completed in 1360, is the largest in the city. The dormitories that are positioned around the cloister open towards the colonnade on the ground floor and the first floor. In addition to the three cloisters and the courtyard at the entrance, there are another 3 courtyards in the current structure. These courtyards organize the southern part of the monastery, which has grown

more dynamically and has no clear structure. These courtyards have irregular shapes, derived from irregular volumes. Often the courtyards are connected to a particular function that is positioned adjacent to the space, such as the courtyard linked to the function of infirmary.

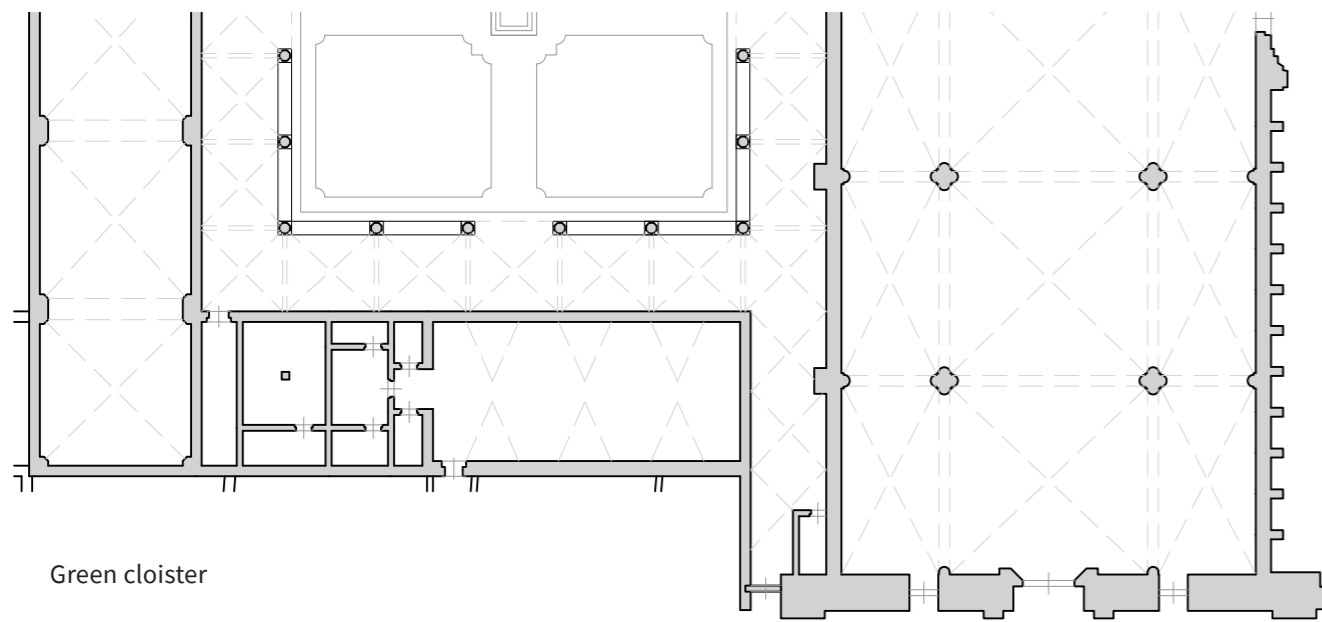
3-6 Distribution Santa Maria Novella  
 3-7 Functions Santa Maria Novella



- Routing
- Pass way
- Volume
- Stairs

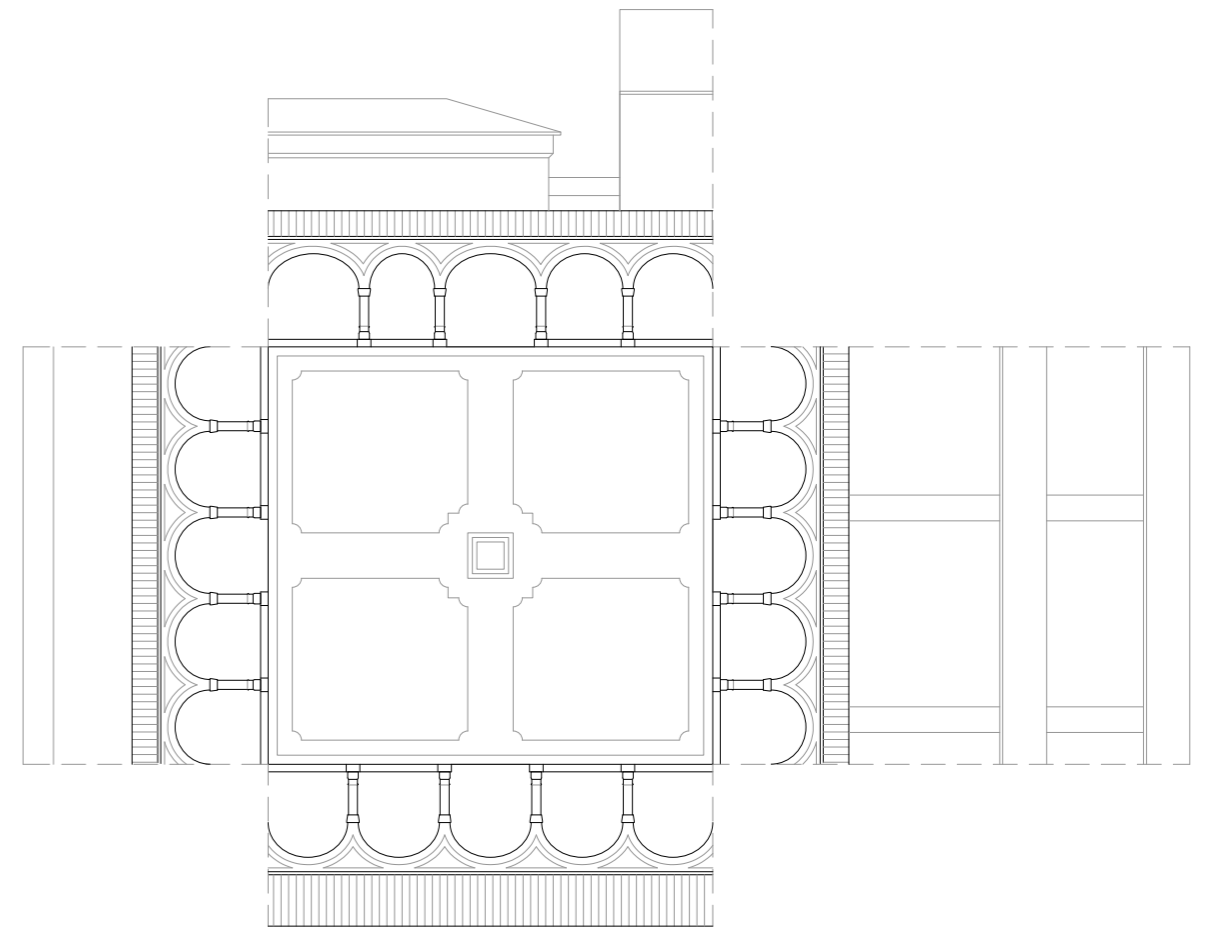


- Church
- Chapel
- Refectory
- Dormitory
- Healthcare
- Administration



**Green cloister**

Left 3-8 Plan and section, 1:500  
 Right 3-9 Plan and facades, 1:500

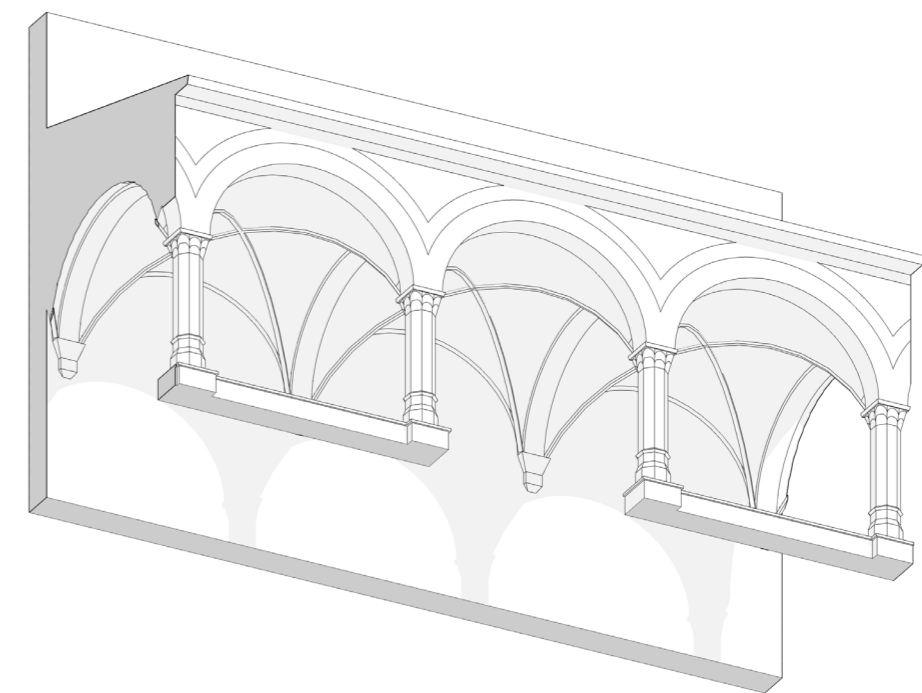


The green monastery plays a central role in the organization of the structure. The cloister has the perfect geometric shape of a square. The large refectory, the sacristy, the chapel and the church are accessible via a single-storey colonnade. The colonnade consists of a base, octagonal Corinthian columns supporting semicircular arches. The colonnade is spanned with a groin vault structure with clear articulated transverse and diagonal ribs. The semicircular arches and vault are finished with plaster and are painted following the rhythm of the arches. On the inside, the colonnade is decorated with frescoes depicting various stories. There are 5 arches on each sides, but they do not continue in a uniform rhythm. On one side the openings are adapted to the rhythm of the volume of the chapel and the adjacent corridor. The volumes

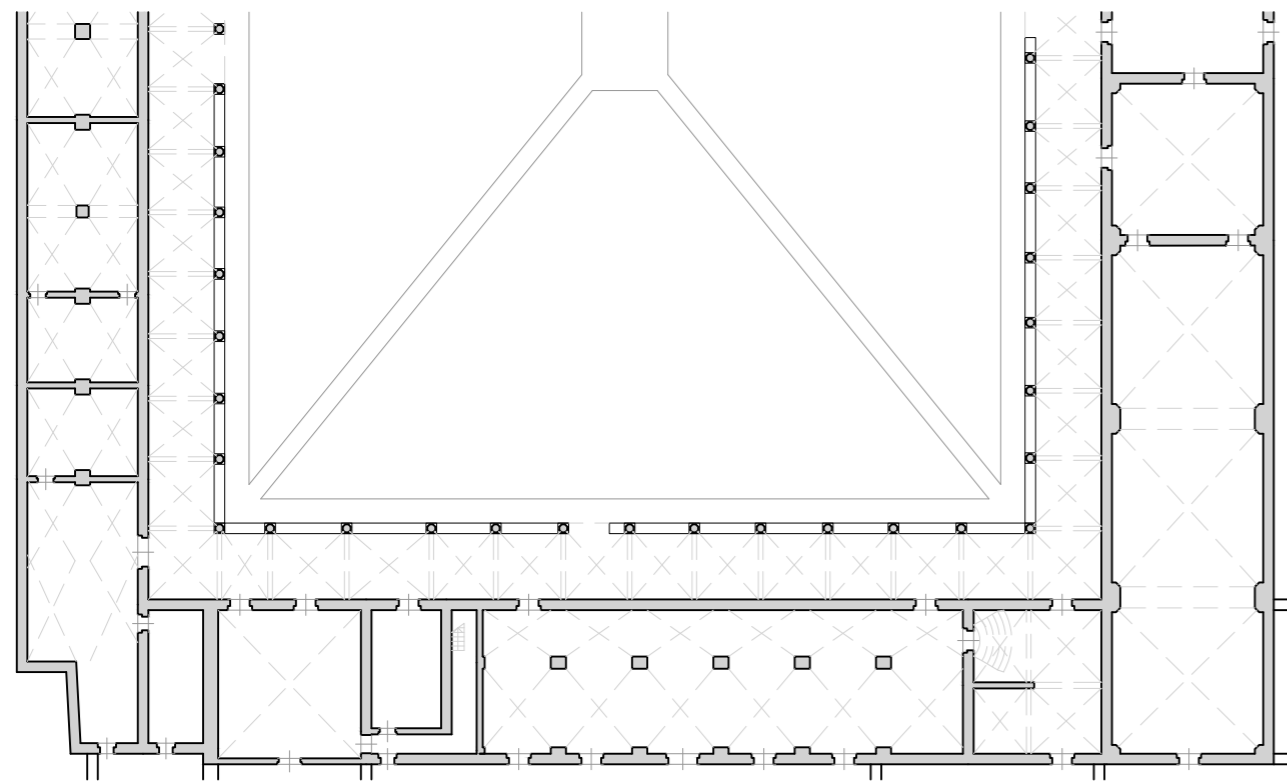
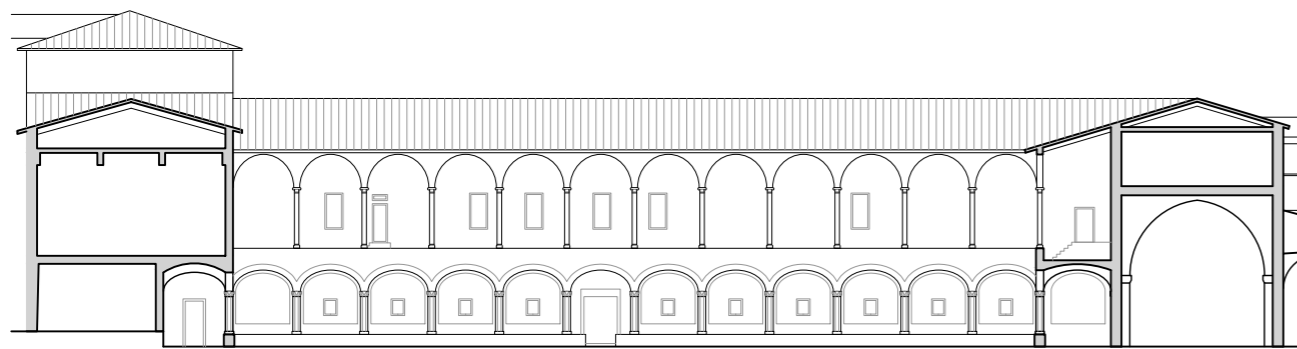
behind the colonnade all have different heights and rhythm in openings, but the cloister is experienced as a uniform whole by the continuing colonnade. In the center of the cloister is a decorated well, which is accessible by a cross-shaped path. This path divides the cloister into 4 patches of grass with cypress trees.



3-10 Green cloister  
3-11 Green cloister



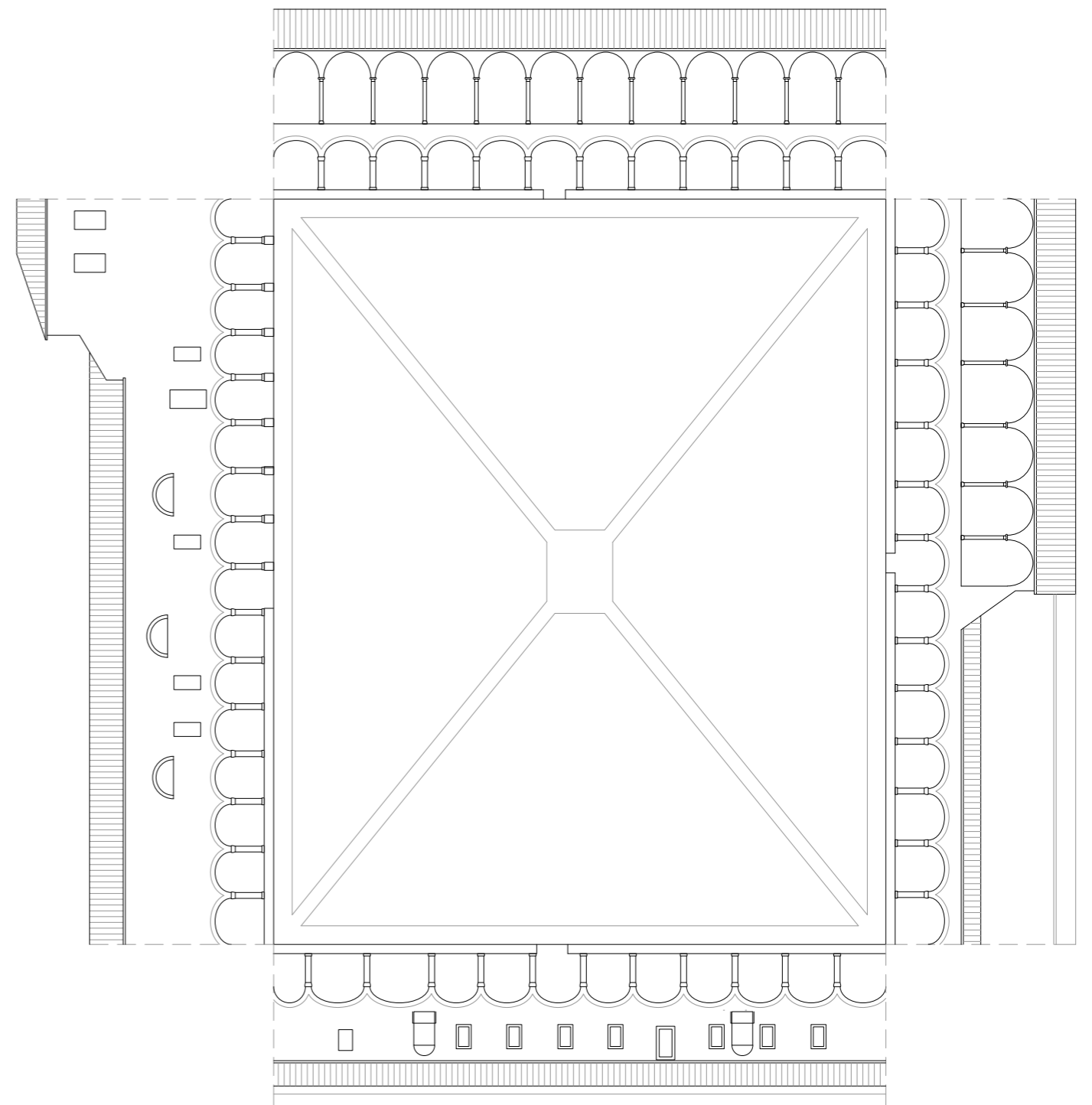
3-12 Isometric impression colonnade



Grand cloister

Left 3-13 Plan and section, 1:500

Right 3-14 Plan and facades, 1:500



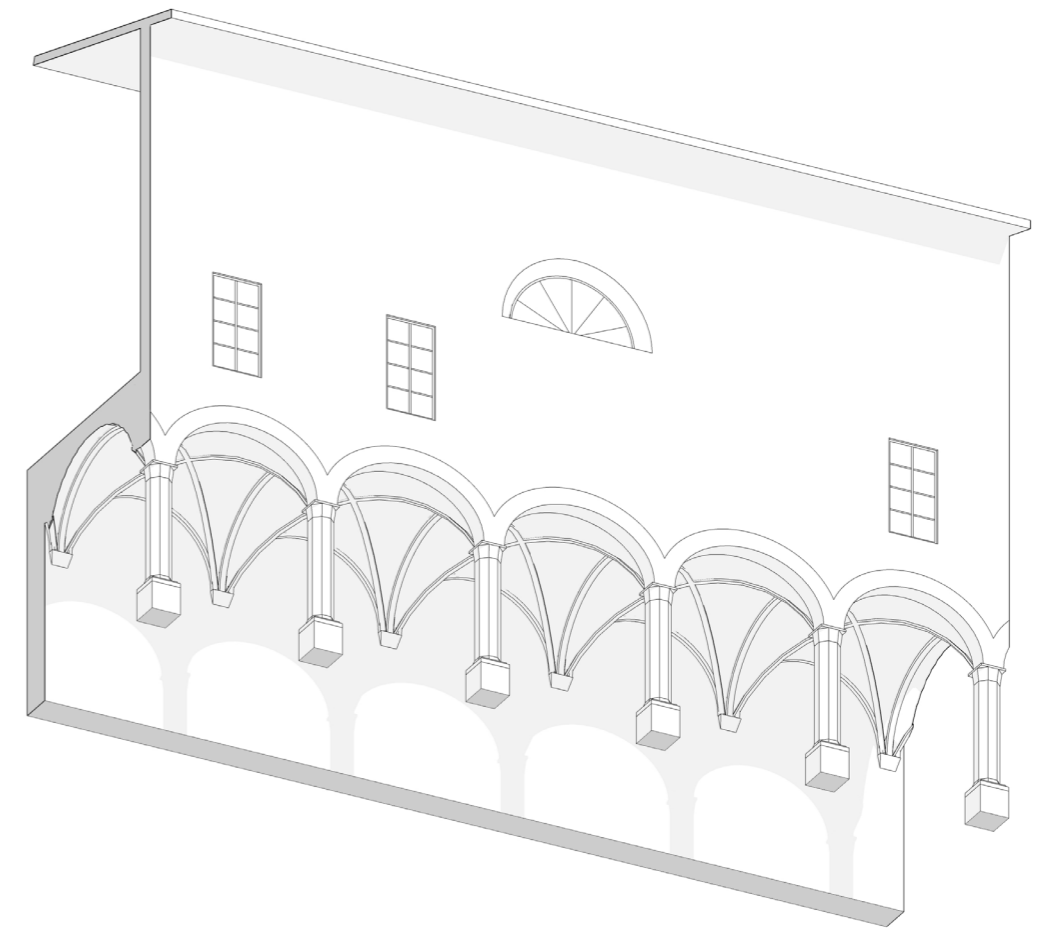


The large cloister is the second cloister of the structure. It has the largest dimensions and a ratio of 4: 5. This cloister connects to the various living areas and an infirmary in the south. On the ground floor, a colonnade continues on all sides to provide a covered connection to all adjacent volumes. The colonnade has an extra level on two sides. On the other sides, the colonnade on the ground floor is topped by a volume with a few openings in the facade. These openings have different sizes and are positioned randomly, mostly centrally above an arch. The colonnade consists of a base, octagonal Corinthian columns supporting semicircular arches. The colonnade is spanned with a groin vault structure with clear articulated transverse and diagonal ribs. The semicircular arches and vault are finished with plaster and are painted following the rhythm of the

arches. On the inside, the colonnade is decorated with frescoes depicting various stories of Christ and Dominicans. On the upper floors, the cloister has different volumes, but because the colonnade on the ground floor continues in a repeating rhythm and the facades have the same finishing, the cloister is experienced as a whole.



3-15 View from garden of grand cloister  
3-16 Under colonnade grand cloister



3-17 Isometric impression colonnade



## 3.2 Santa Croce

The monastic structure of Santa Croce is located on the east side of the historic center of Florence, positioned in the Santa Croce district. It is one of the largest monastic structures in Florence and the basilica is the largest Franciscan church in the world. It is the place where some of the most illustrious Italians are buried, such as Michelangelo, Galileo Galilei, Machiavelli and Rossini, which is why it is also called the Pantheon of Italian Glory.

In 1228, an oratory was founded by the Franciscans along one of the main trade routes leading to the city. Construction of the basilica began in 1294, to a design by Arnolfo di Cambio as one of his most important works in urban renewal of the city of Florence<sup>1</sup>. The construction of the churches was partly financed by wealthy families, who gave money to the mendicant orders in exchange for the burial of relatives. The remainder of the money came from the performance of public duties assigned to the Franciscans by the municipality. The church was not completed until 1444 because of the crisis, flood and the plague. Simultaneously with the basilica, the first cloister was created, which was used, among other things, as a cemetery. The sacristy, dormitory, infirmary, guest house, refectory and library were soon added to the original core. The second cloister, named after Brunelleschi, was completed in 1453 and financed by Tommaso Spinelli. In 1863 the church was given a neo-Gothic facade. During this time, a volume within the monastic structure was demolished, which resulted in the merge of two cloisters in the large central cloister. Part of the monastic structure was

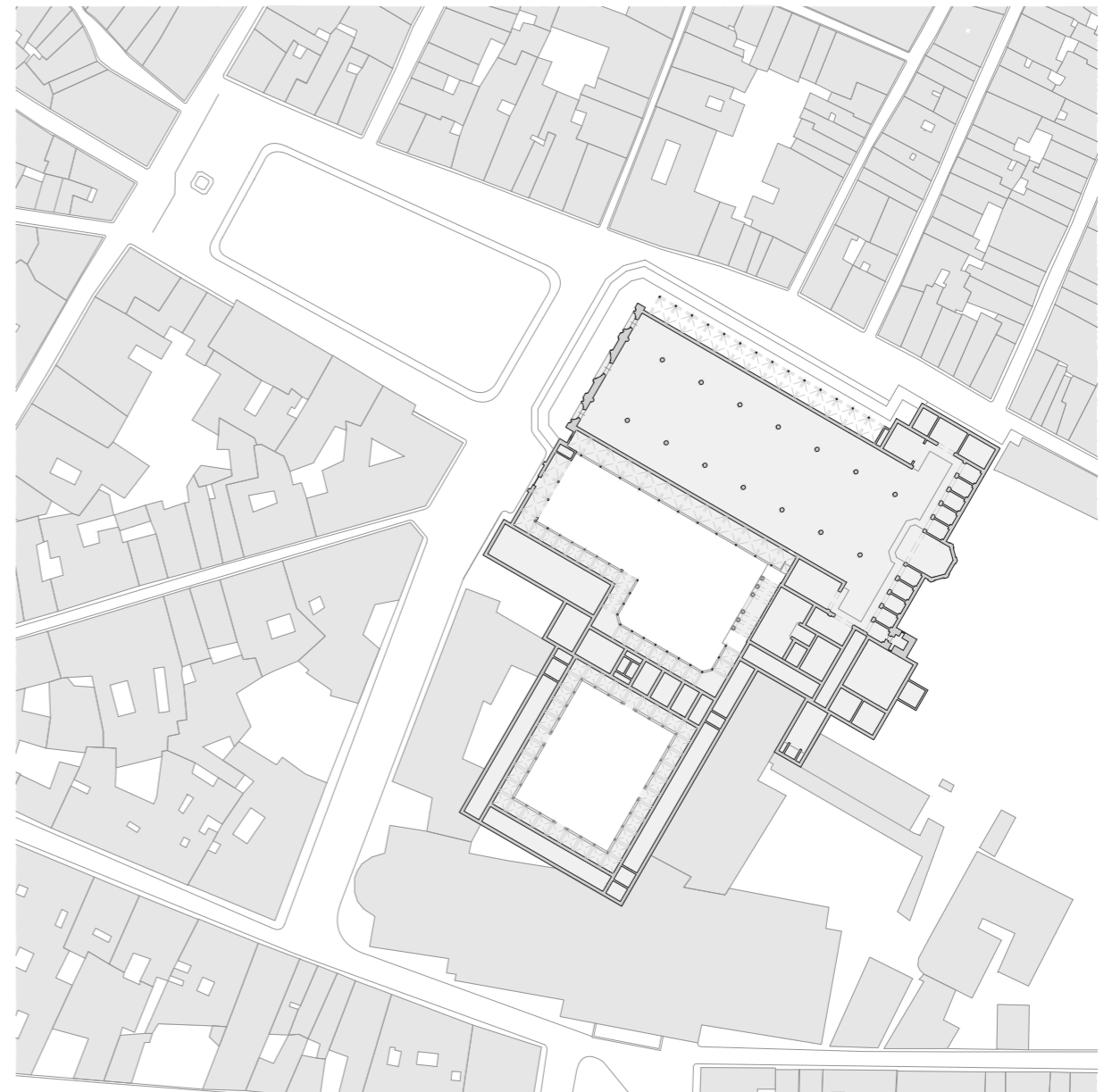
gradually secularized from the 19th century to make room for new purposes. For example, the National Central Library was built on the east side of the building block, orientated towards the Arno<sup>2</sup>.

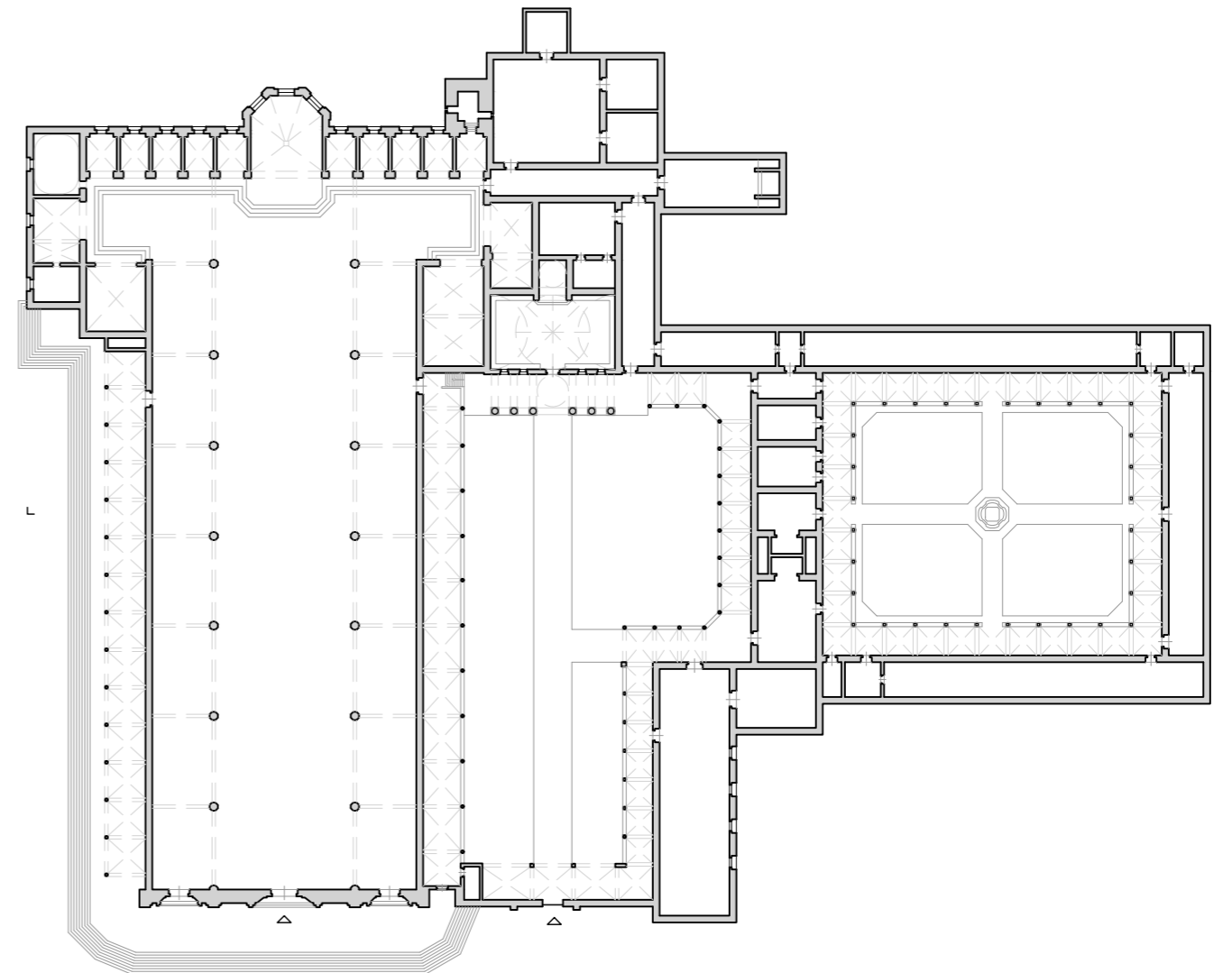
Connected to the front of the basilica is the large Piazza di Santa Croce, which has always been the scene of cultural activities in Florence. The square was created in the 14th century as part of the interventions of Arnolfo di Cambio. The monastery, together with its garden, forms most of the building block, along with the functions that have replaced parts of the monastery structure from the 19th century. The basilica with its tower is a clear landmark in the district. The large volume, which is prominently positioned on its square, clearly stands out between the surrounding buildings.



1. Fanelli, 1985
2. Opera for Santa Croce, 2021

Left 3-18 Santa Croce building volume in context  
Right 3-19 Santa Croce situation, 1:2000

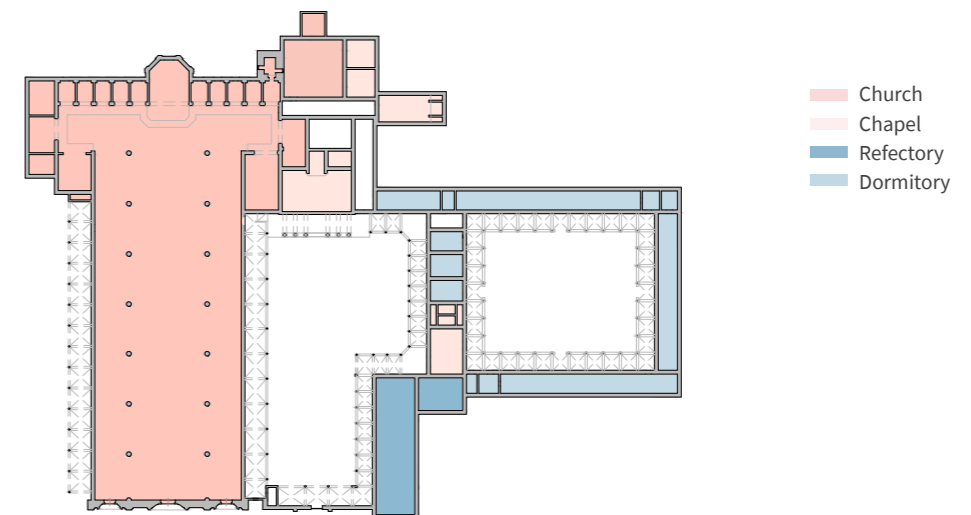
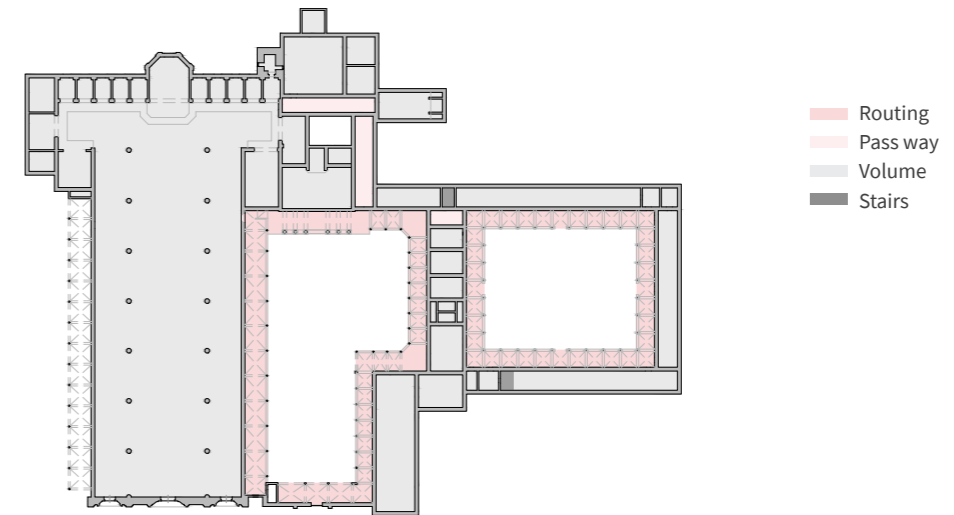


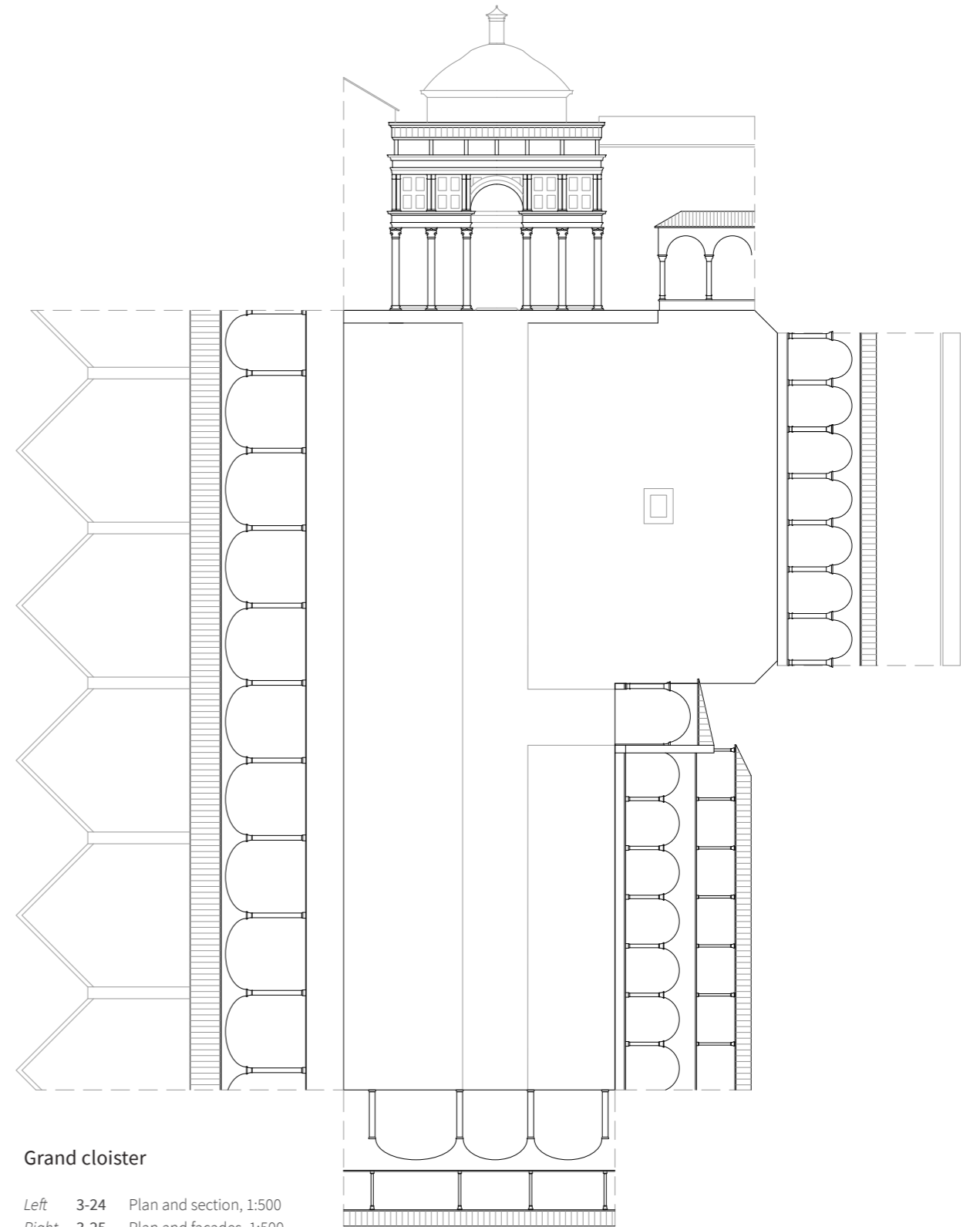
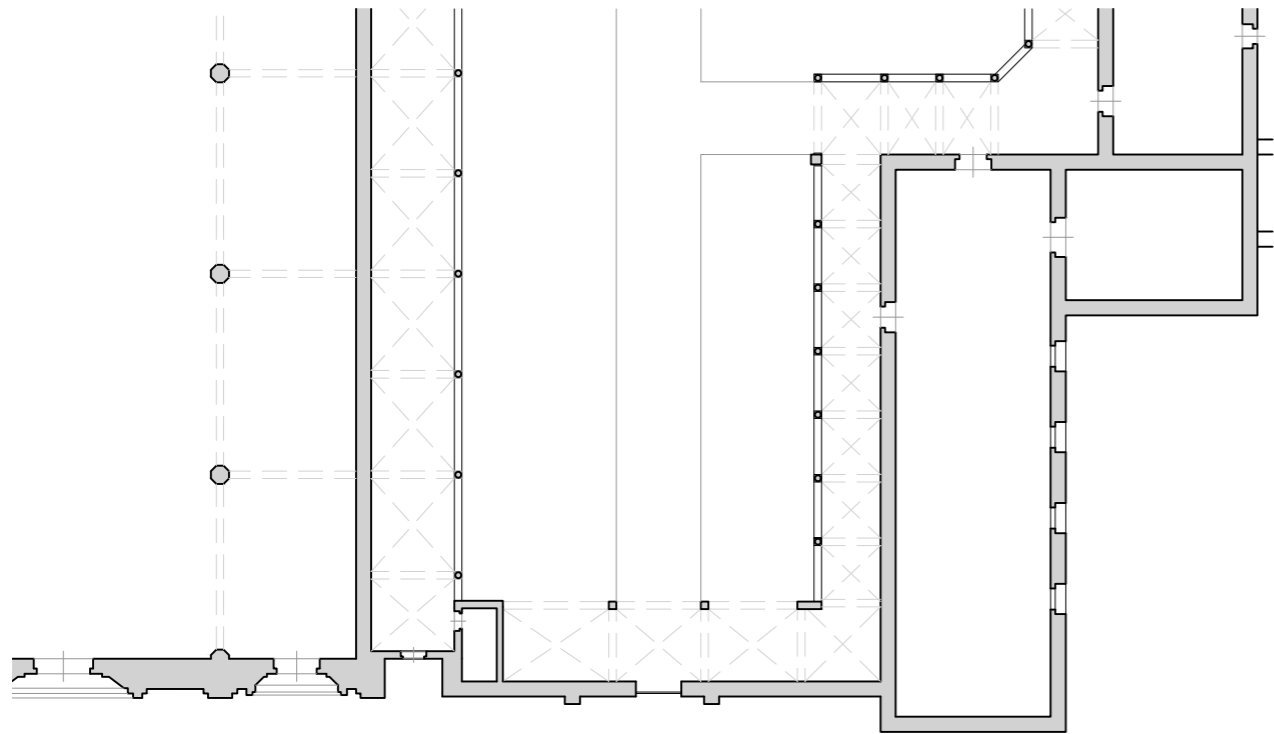


3-20 Plan, 1:1000  
3-21 Section 1:1000

The basilica is the most prominent volume of the structure. This volume is orientated towards the square in front, making it accessible as the main church of the district. The interior is based on a basilica plan, designed like an Egyptian cross, divided into a 100 meter long nave, two side aisles and a short transept. The monastic structure is accessible next the front of the basilica. From here you directly enter the large central cloister. The Pazzi chapel is positioned centrally on the cloister. This early Renaissance masterpiece was funded by Andrea Pazzi and created by Brunelleschi in 1443. The basilica, another chapel and the refectory can also be reached from the cloister. The second cloister, known as the Brunelleschi cloister, can be reached from the 'grande' cloister through a passage. The sleeping quarters were previously linked to this cloister. Linked to large cloister, positioned on the head of the church are a number of spaces which can be reached via a corridor that overlooks a small outdoor space.

3-22 Distribution Santa Croce  
 3-23 Functions Santa Croce





**Grand cloister**

Left 3-24 Plan and section, 1:500  
 Right 3-25 Plan and facades, 1:500

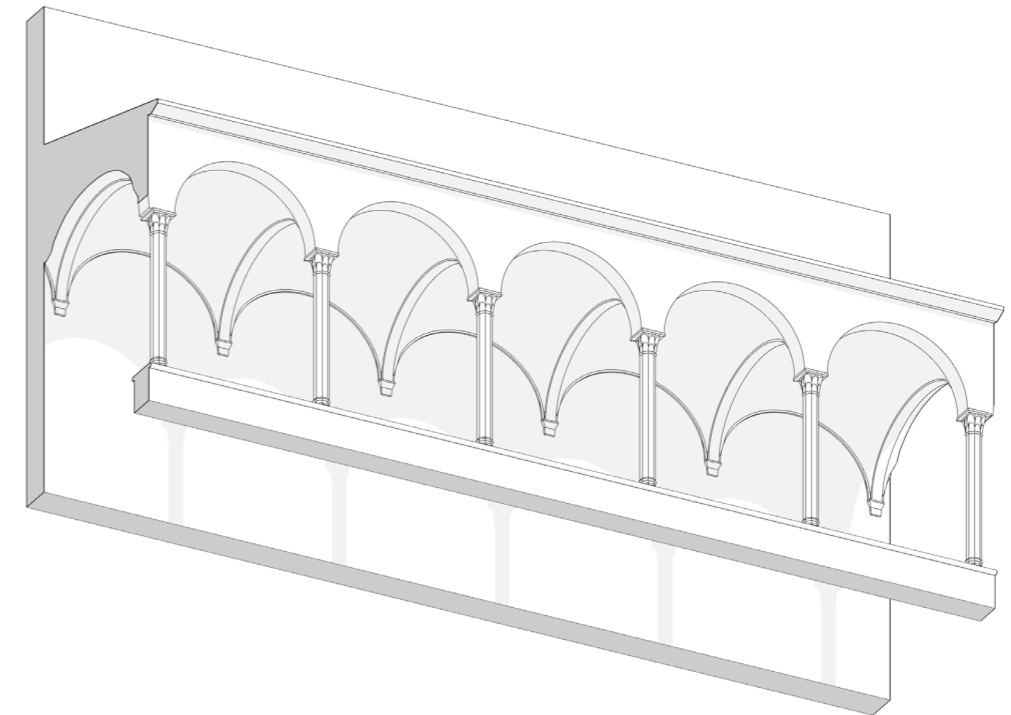
The grande cloister plays a central role in the organization of the structure. It has an asymmetrical shape, consisting of a combination of a square and a rectangle. The cloister is connected to the church, the rafter and two chapels. The cloister is a composition of different volumes and five different types of adjacent colonnades, constructed in different time periods. Some of the colonnade only run on ground floor, other colonnades consists two layers. Because of the impressive portico and the central position in the cloister, the Pazzi chapel is the most prominent element in the cloister.

The arcade that runs on three sides on the opposite of the basilica consist of a base, round Corinthian columns supporting semicircular arches. The colonnade is spanned with a groin vault structure with articulated transverse ribs. The semicircular

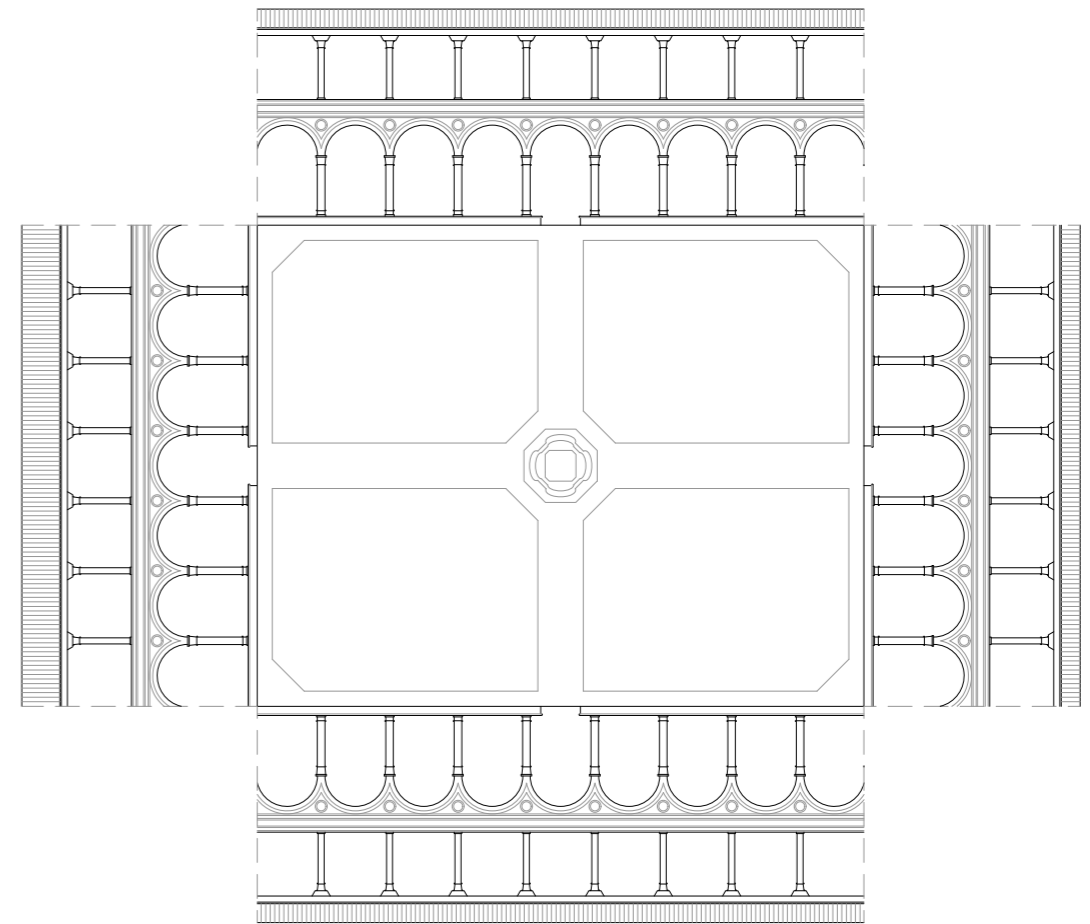
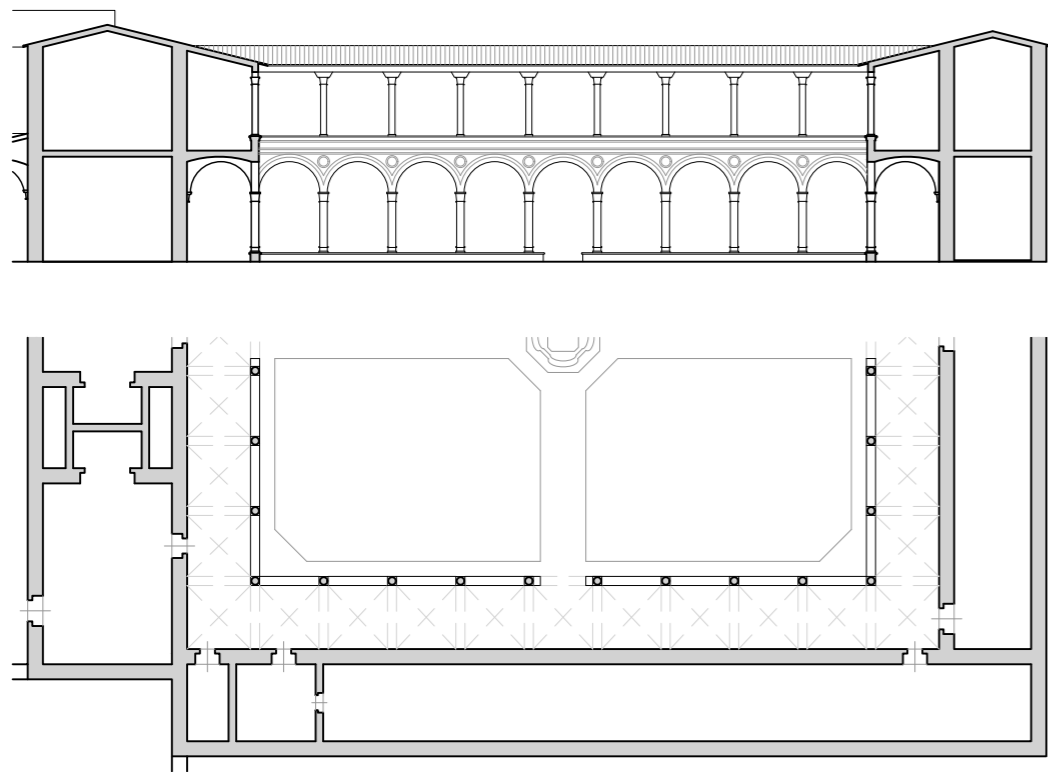
arches and vault are finished with plaster. Because the cloister has an asymmetrical shape and there is a wide range of colonnades and underlying volumes, the cloister has a fragmented appearance. Also, it has a clear direction and a clear point of view, namely the Pazzi chapel. Grass grows in the cloister and there are a number of cypress trees.



3-26 View to Pazzi chapel  
3-27 Grand cloister



3-28 Isometric impression colonnade



Cloister of Brunelleschi

Left 3-29 Plan and section, 1:500  
Right 3-30 Plan and facades, 1:500

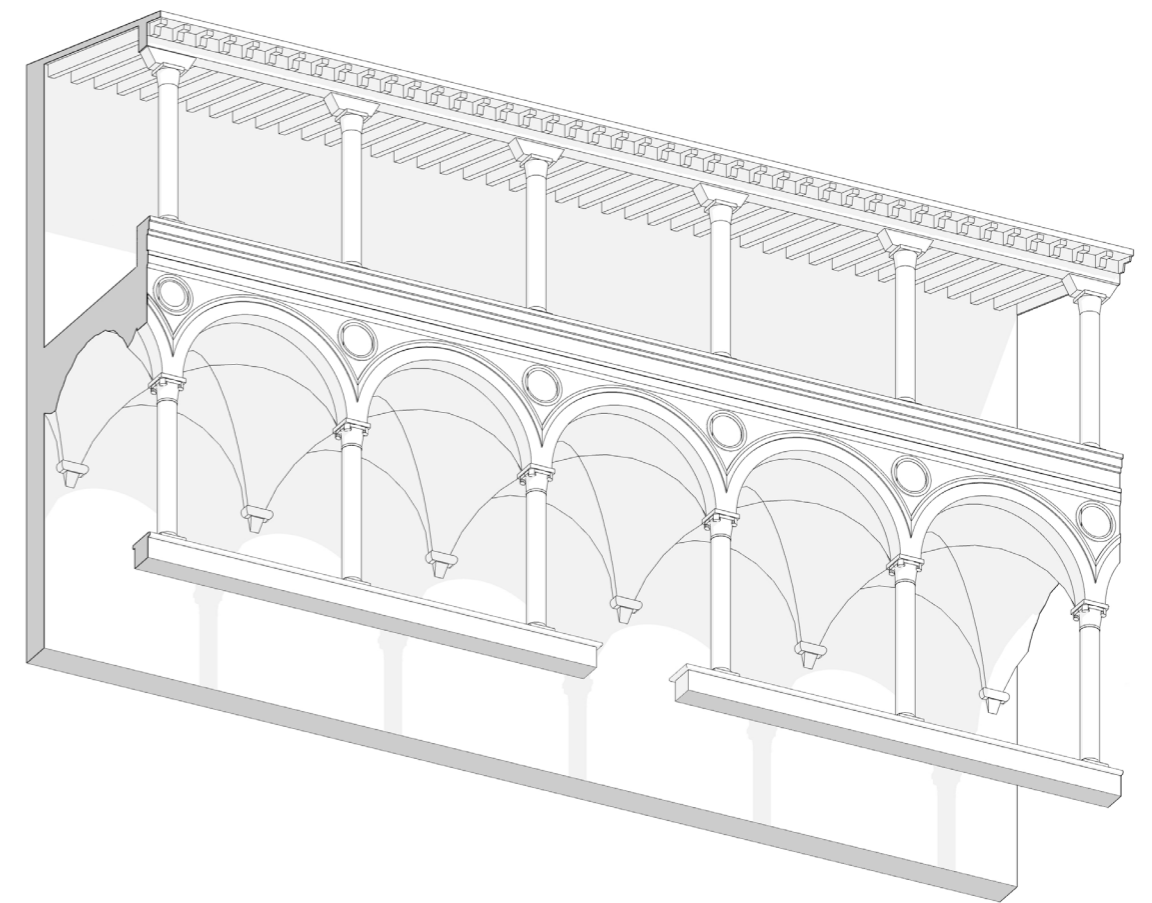


The “cloister van Brunelleschi” encloses the living areas of the monastery. It was funded by donations from Tommaso Spinelli and designed by Bernardo Rossellino. It has a ratio of 4 : 5. A two-storey colonnade runs uniformly along all sides, with 7 arches on two sides and 9 arches on two sides. On ground floor, the colonnade consists of a base with round Corinthian columns supporting semicircular arches. The colonnade on the ground floor is spanned with a groin vault structure. The semicircular arches support the colonnade on the upper level, where smaller round Corinthian columns support an architrave on which the rafters of the roof are placed. The arches are decorated with pendentives that have a refined graffiti decoration and round reliefs, with coats of arms. The colonnade is made out of pietra serena, which is partly finished with plaster.

The volume behind the colonnade does not exceed the height of the colonnade. In the cloister there are identical facades around the cloister, which results in a uniform whole. In the center of the cloister is a decorated well, which is accessible by a cross-shaped path. This path divides the garden into 4 patches of grass with shrubs.



3-31 Cloister of Brunelleschi  
3-32 Cloister of Brunelleschi



3-33 Isometric impression colonnade

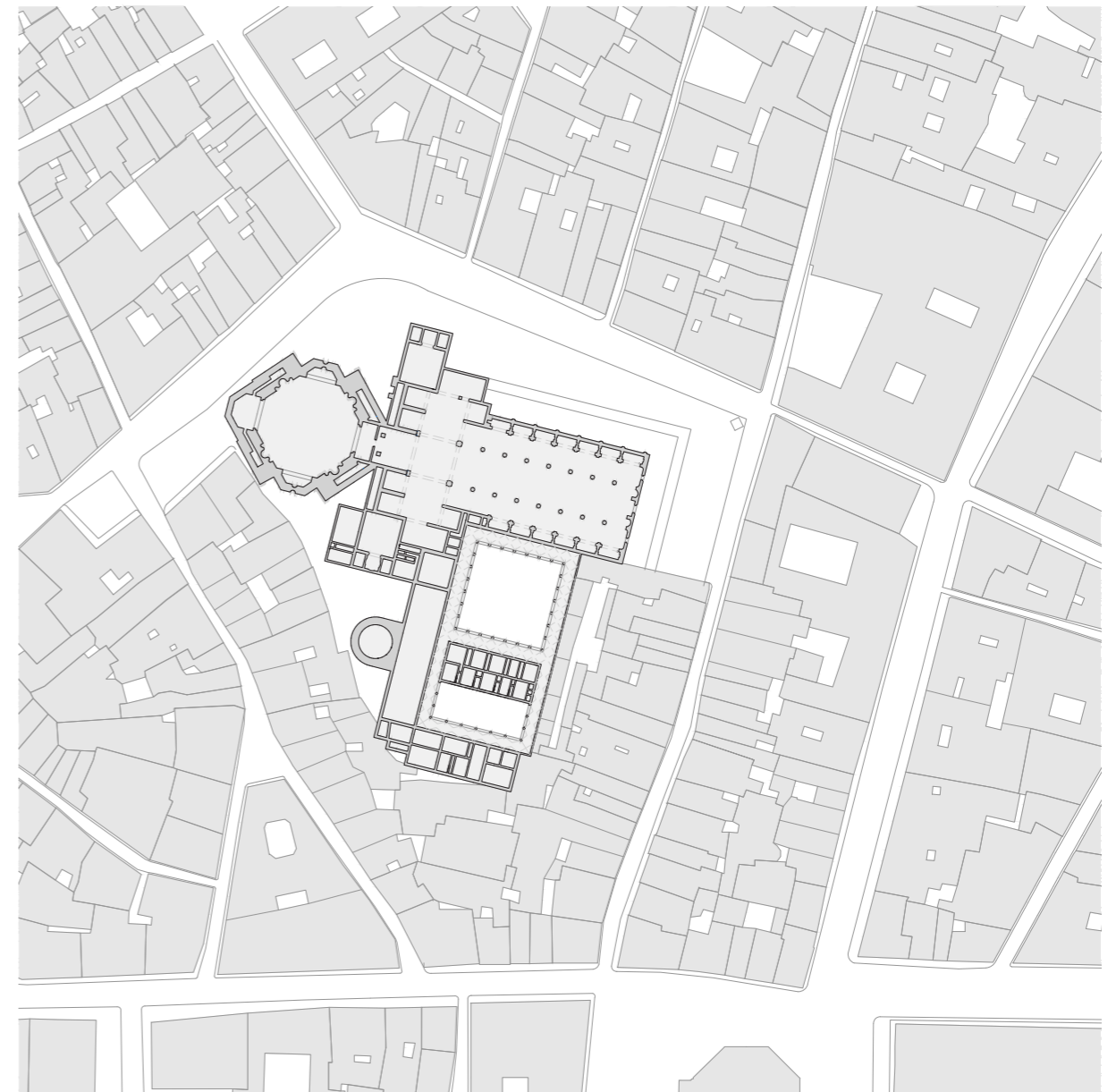
### 3.3 San Lorenzo

The monastic structure of San Lorenzo is situated in the district of San Giovanni, close to the Duomo. The church is one of the oldest of Florence and the development of the structure is closely linked to the Medici family. A lot of volumes connected to the structure are considered masterpieces of the history of European architecture.

The first church of San Lorenzo was consecrated in 393 by the holy Ambrosius. It was the city's main church before the official seat was transferred to the church of Santa Reparata<sup>1</sup>. To make space for a bigger church with square, surrounding buildings needed to be demolished. The works started in 1418 and were later taken over by Brunelleschi. He suggested to use classical form pillars instead of octagonal ones and introduced architectonic decoration. The plan was to adopt the transept design but working out a new type of crossing to link the new work to the old church<sup>2</sup>. Brunelleschi was already commissioned on the old sacristy by Giovanni de' Bicci de' Medici. Because of financial problems the works on the church took decades, completed in 1480. A few years later, the Medici palace was completed on the opposite of the San Lorenzo. In the following period, the San Lorenzo kept closely connected to the triumphant rise to power of the Medici dynasty. The Medici family financed different other important architectural and artistic works in the structure. The Laurentian library, by Michelangelo was opened in 1571, housing the manuscripts and books belonging to the private collection of the Medici family. As extension of the

church, the cappella dei principi, surmounted by a tall dome with a height of 59 m, was created in the 17th century with the purpose of celebrating the Medici family.

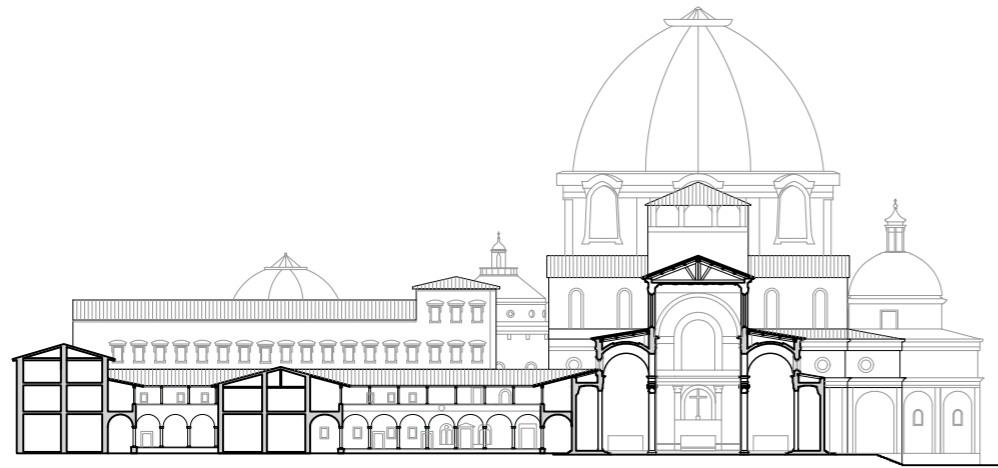
Connected to the front of the church, the open space of the square occurs in the dense city center of Florence. The monastic structure is intertwined with the other buildings in the building block. Over time, when the monastery expanded, different buildings of this block were demolished to make space for the new volumes. The volume of the basilica and the cappella dei principi clearly stands out between the surrounding buildings, the chapel can be seen from around the city.



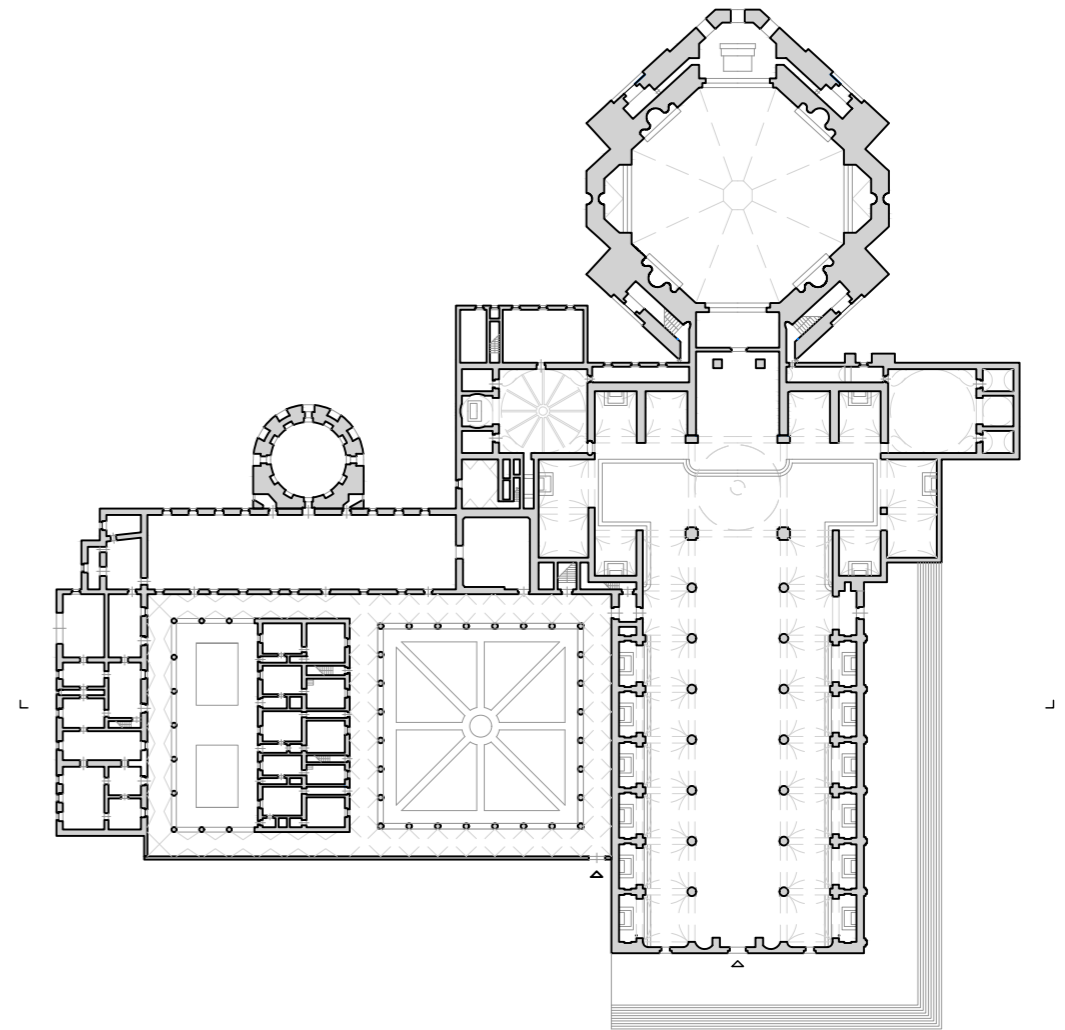
1. Opera Medicea Laurenziana, 2020
2. Kostof, 1985

Left 3-34 San Lorenzo building volume in context  
Right 3-35 San Lorenzo situation, 1:2000





3-36 Plan, 1:1000  
3-37 Section 1:1000



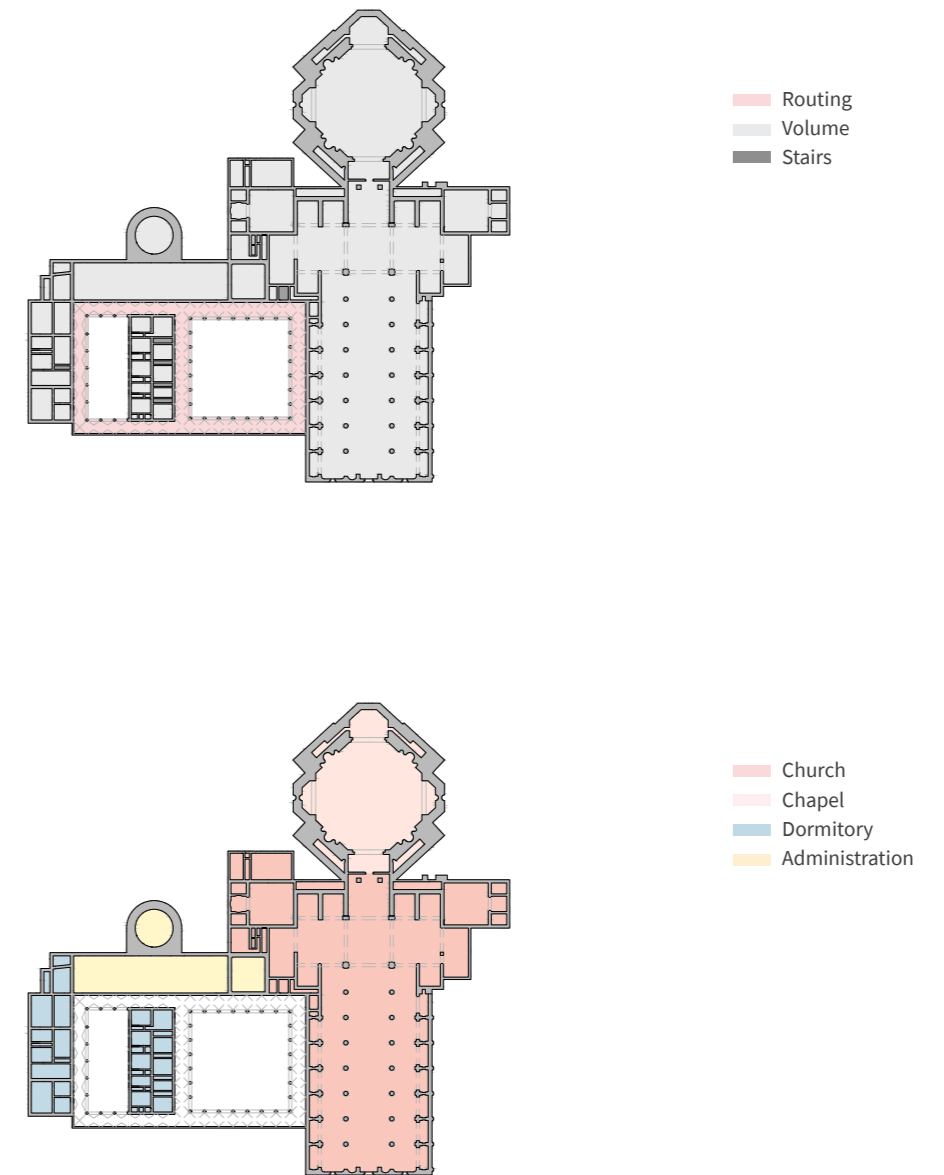
The monastic structure consists of the basilica with various chapels and a convent with various volumes linked to the two cloisters.

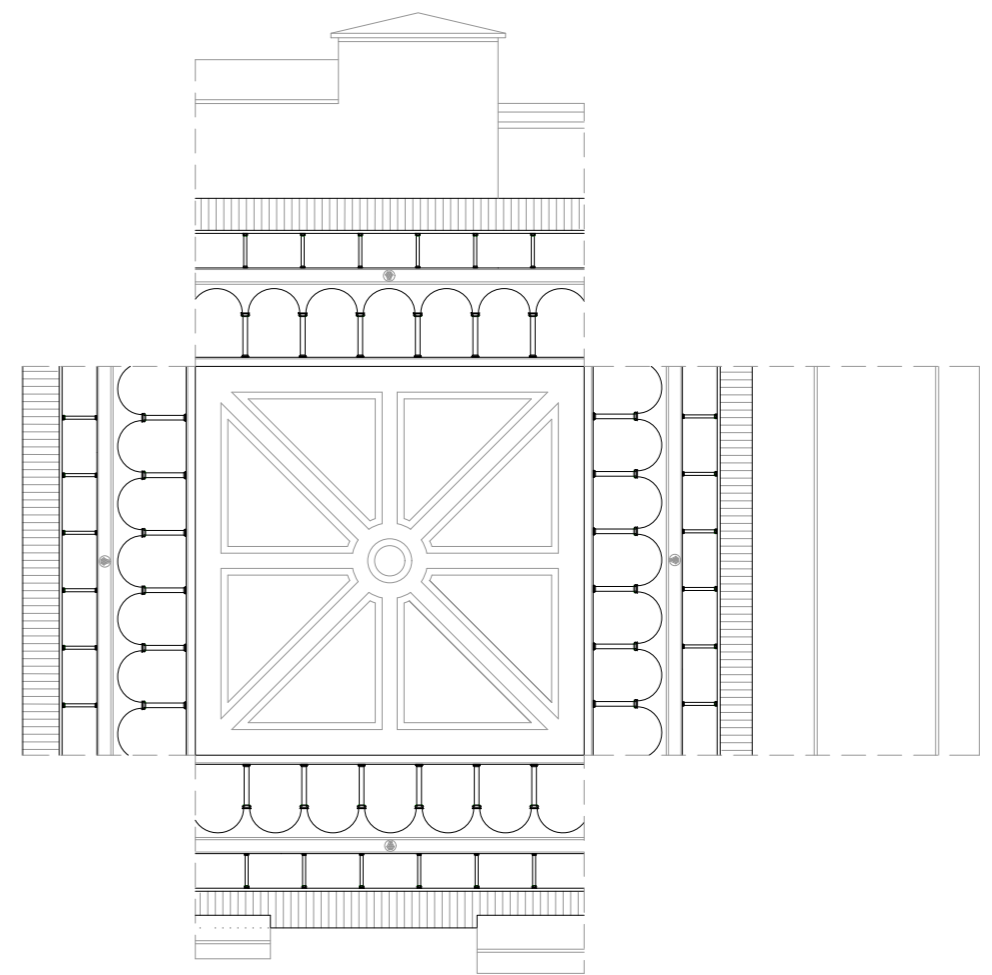
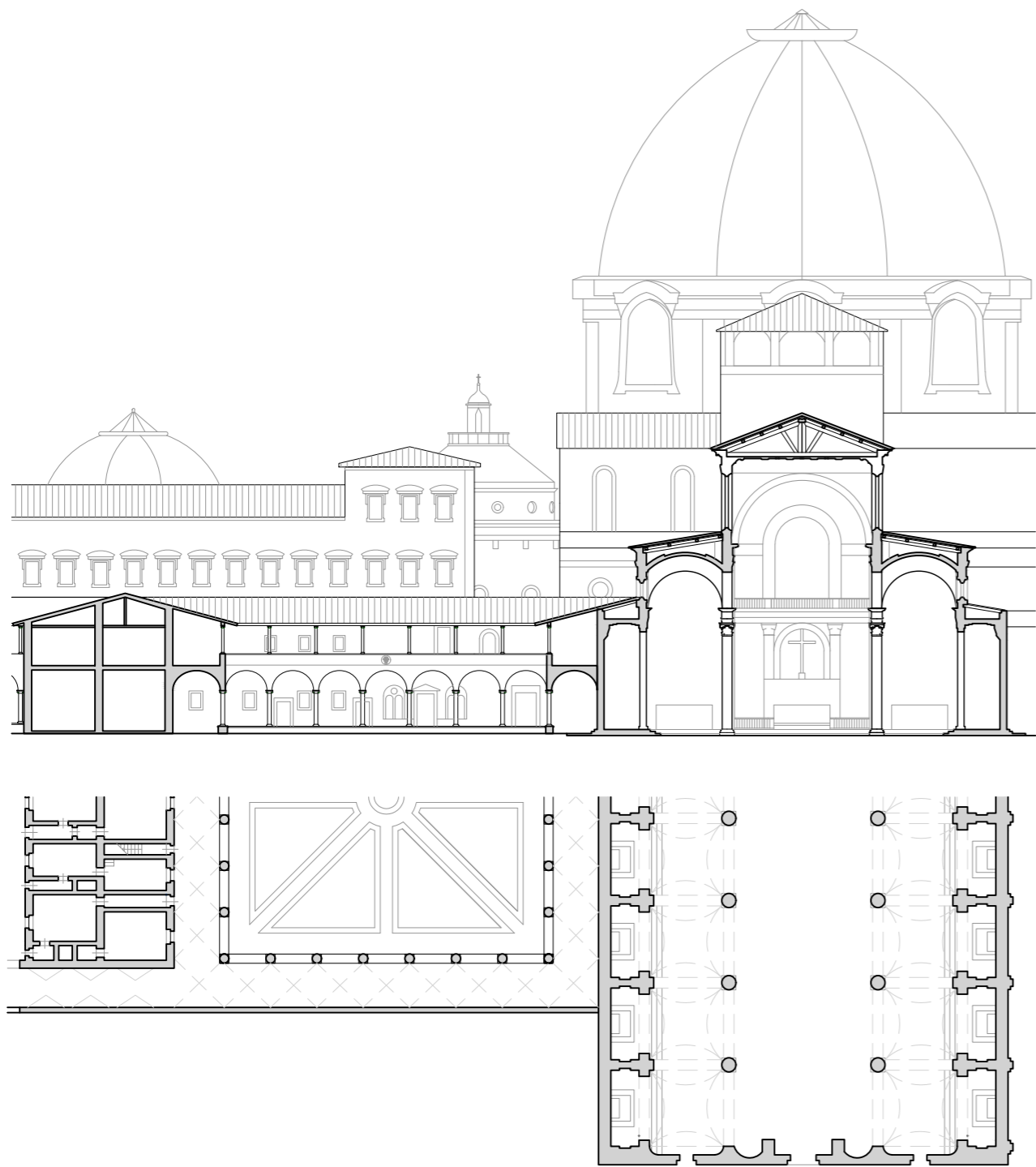
The volume of the basilica is orientated towards the square at the front, making it accessible as a parish church. The side of the basilica is also located on the square. The basilica is designed by a system which uses proportions, in where the crossing became the module for the whole church. The module was applied six times for the nave and three times for the transepts, which results in a proportion off 1:2. At the rear of the basilica, the large volume of cappella dei principi is located, which rises high above the rest of the structure. Chapels are positioned on the side of the basilica, including the old sacristy by Brunelleschi and the new sacristy by Michelangelo. The various chapels are accessible via the church.

The two cloisters and the rest of the convent are hidden in the building block and accessible via an entrance linked to the square, positioned next to the front of the basilica. When entering the convent one immediately arrives at the main cloister, the cloister of Canonici. After the restoration of 1462, the dwellings, the basilica and the other central functions of the structure where accessible from here: the kitchens, the refectory and the chapter room. Connected to the first level of the colonnade is the entrance to the stairs of the Laurentian library. This monumental staircase works as an dramatic entrance to the longitudinal library positioned on the second floor. This masterpiece by Michelangelo

was created as a special location to collect all the manuscripts of the family, make them open to the public. The library was built on the upper floor on purpose to protect the books in case of a flood.

A second cloister is accessible via two corridors that are an extension of the colonnade of the first cloister. This smaller cloister is the most ancient part of the monumental structure and is the only part that preserves elements before the transformation of the 15th century. The cloister connects to connects to different living spaces.





**Cloister of Canonici**

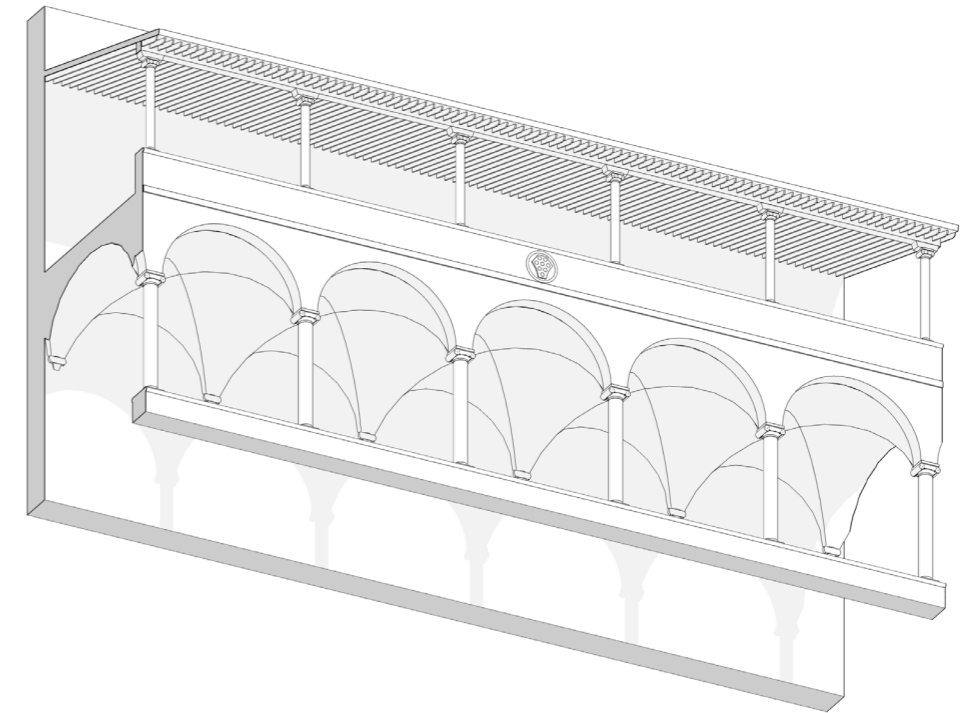
Left 3-40 Plan and section, 1:500  
 Right 3-41 Plan and facades, 1:500

The cloister of Canonici plays a central role in the organization of the structure. The present appearance was created in 1462 by Antonio Manetti, Brunelleschi's heir and pupil, financed by the Medici family. A two-storey colonnade runs uniformly along all sides of the cloister, originally connecting the basilica, the kitchens, the refectory, the chapter room, staircase leading to library and the dwellings. On ground floor, the colonnade consists of a base with round ionic columns supporting semicircular arches. The colonnade on the ground floor is spanned with a groin vault structure. The semicircular arches support the colonnade on the upper level, where smaller round ionic columns support an architrave on which the rafters of the roof are placed. In the middle of every side, the colonnade is decorated with a pendentives that is decorated with the coats

of arms of the Medici family. The semicircular arches and the vault structure are finished with plaster. The volumes behind the colonnade all have different heights and rhythm in openings, but the cloister is experienced as a uniform whole because of the continuing colonnade. The garden within the cloister consists of a geometric form of grass and hedges.



3-42 Cloister of Canonici  
3-43 Cloister of Canonici



3-44 Isometric impression colonnade



### 3.4 San Marco

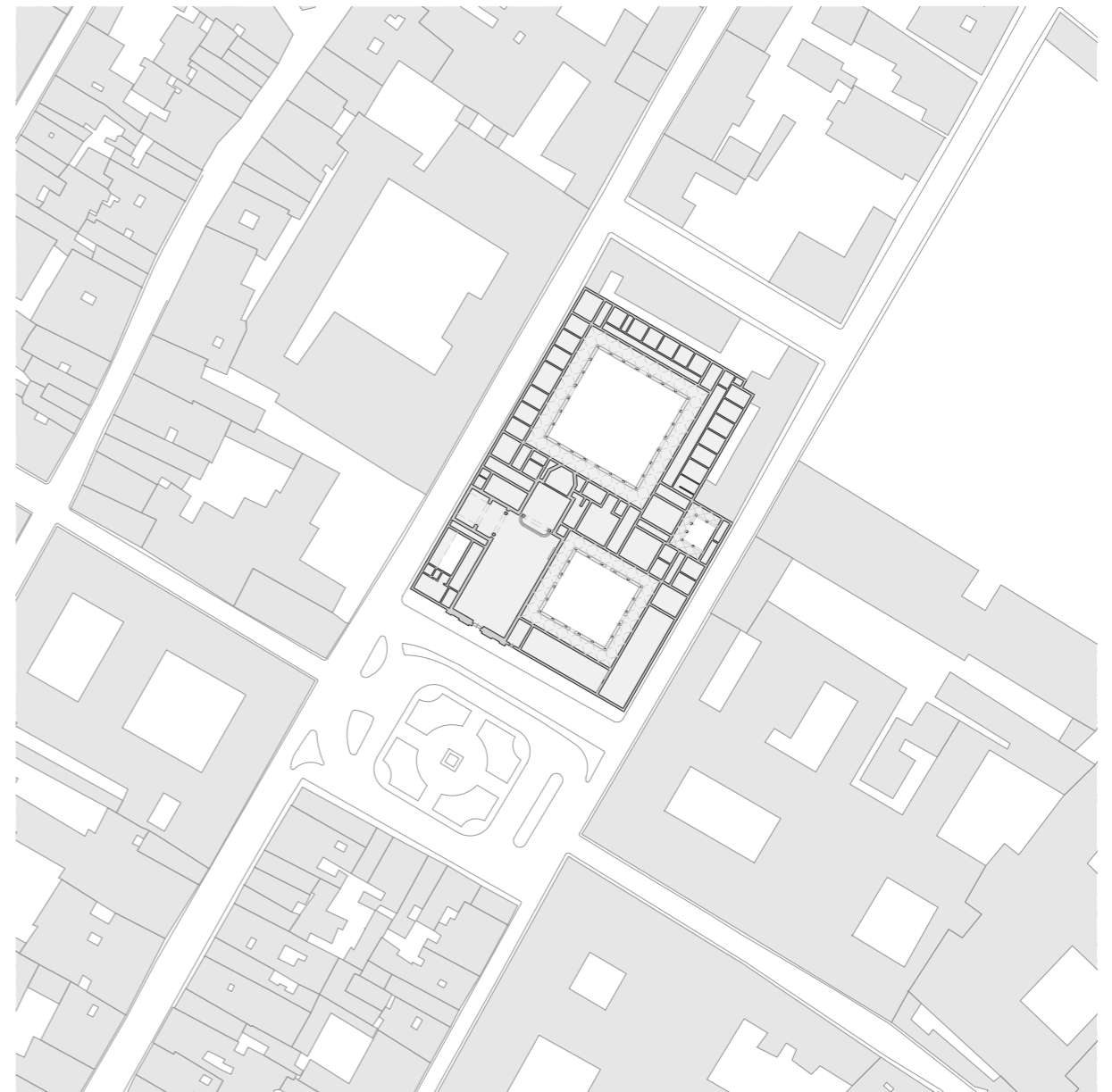
The monastic structure of San Marco is centrally located in the north of the historic city center, of Florence positioned in the San Marco district. The Dominican monastery is a masterpiece of the renaissance and owes its fame partly to it having a library which houses a unique collection of manuscripts. The structure currently houses a national museum and is since recently not inhabited by monks.

The original structure was built around 1300 and served as a monastery for a Benedictine order and a parish church. In 1437, Dominican monks settled in the monastery partly because of the interference of Cosimo de' Medici. Since his return from exile, he had expressed his wish to resettle an order of Dominicans, preferring a monastery close to the Medici palazzo and the San Lorenzo structure. Cosimo had the monastery rebuilt and expanded by Michello, according to the principles of the Renaissance. The structure with two cloisters, church and library was inaugurated in 1443. To the church, a neoclassical style facade was added in 1777.

The structure is prominently positioned on the square, with the church facade making a grand gesture. The quadrangular square is positioned along one of the major trade routes and forms a junction between different roads. The square was created simultaneously with the renovation of the monastic structure in the 15th century.

The composition of the monastic structure is influenced by the roads that enclose the building on

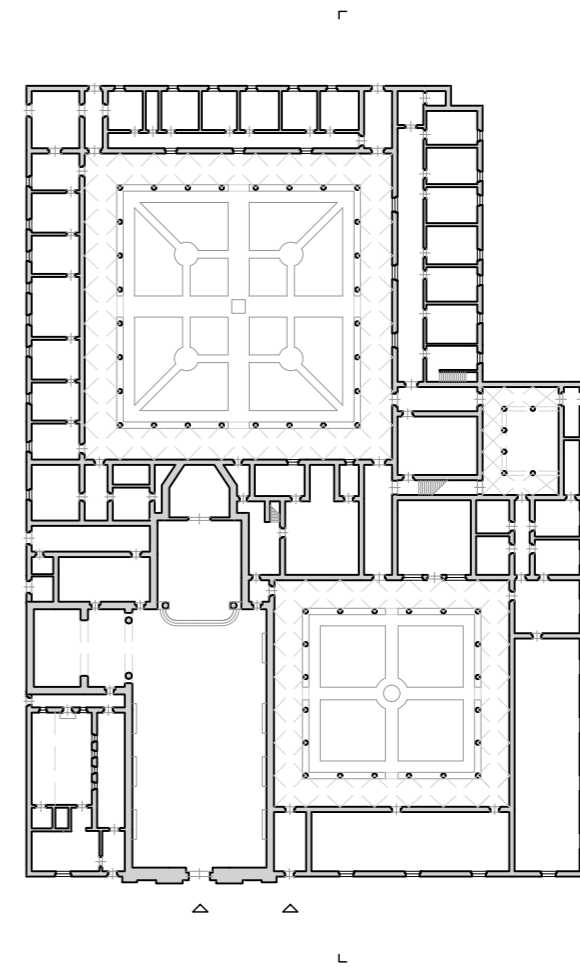
the east and west sides and the square at the front. These clear borders have resulted in a rectangular building composition. In terms of size and scale, the monastery is comparable to the structures situated around San Marco. In this part of the city, mainly along the north-south axis, a wide range of monastic structures have been built. However, due to its positioning on the square and the church facade, the structure stands out between the other structures.



Left 3-45 San Marco building volume in context  
Right 3-46 San Marco situation, 1:2000



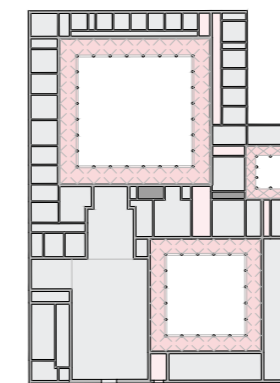
3-47 Plan, 1:1000  
3-48 Section 1:1000



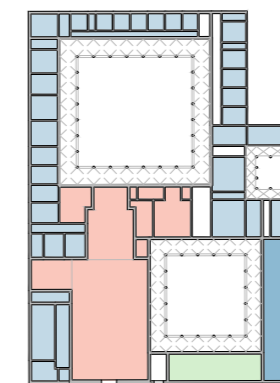
The building structure was planned according to an arrangement focusing on practicality and simplicity, but with great elegance. This resulted in a sober but comfortable Renaissance building, organized around two cloisters.

The church is the most prominent volume of the structure. This volume is orientated towards the square at the front, making it accessible from the district to fulfill its regional role. The church has a single nave with side chapels that are added in the late 16th century. The monastic structure is accessible via an entrance that borders the square next to the church. When entering the monastery, you will first enter the central cloister of Sant'Antonino. The central functions of the building are linked to this cloister: the chapter house, the large refectory and the church are accessible from the colonnade. Furthermore, a hospice for pilgrims is linked to the cloister. The first floor is accessible via a slightly concealed staircase. The friars' cells are positioned on the first floor, organized along a straight corridor. These cells are small with a small window facing the road or the cloister. The library is directly connected to the corridor of the cells on the first floor. This elongated volume consists of two rows of columns which form three naves with barrel vaulting. Natural light enters from large windows to allow study of the manuscripts. Under Lorenzo a rich collection of writings was collected which could be read by residents of the city.

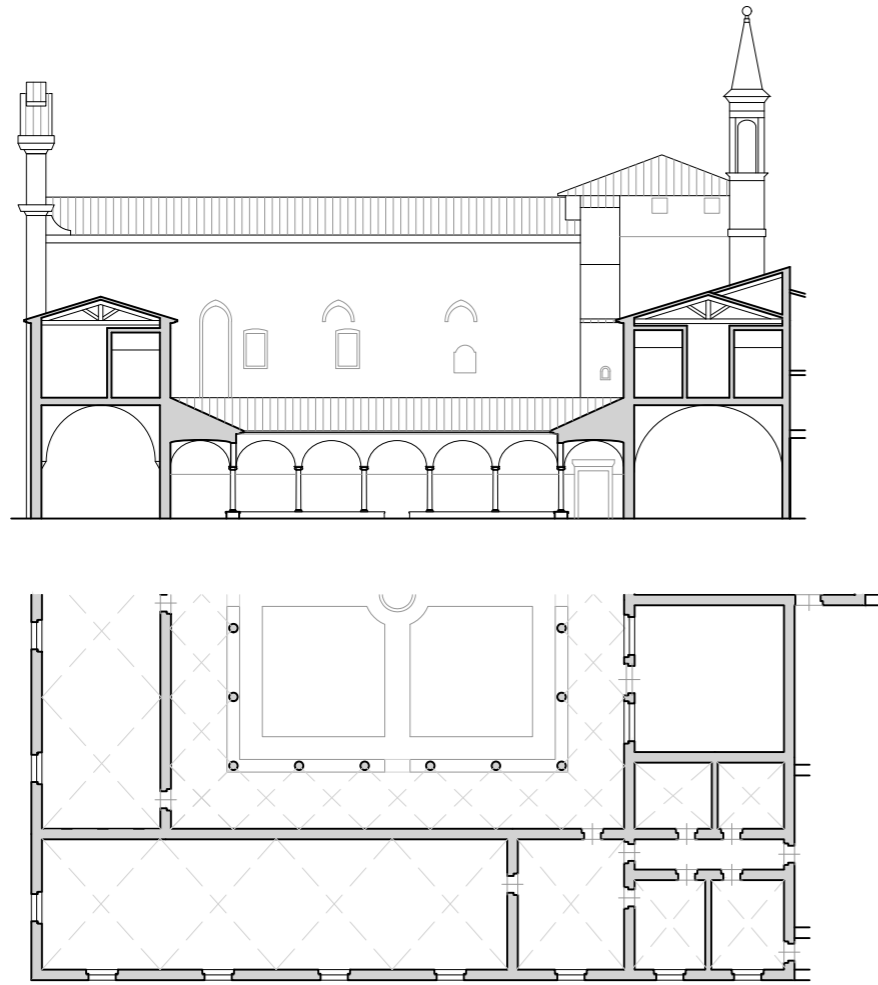
The second cloister, of San Domenico, can be reached from the first cloister. This cloister is slightly larger with various secondary functions. These spaces are smaller in scale, accessible via a corridor in the volume. The spaces are orientated from the inside, but also receive sunlight through openings on the street.



Routing  
Volume  
Stairs

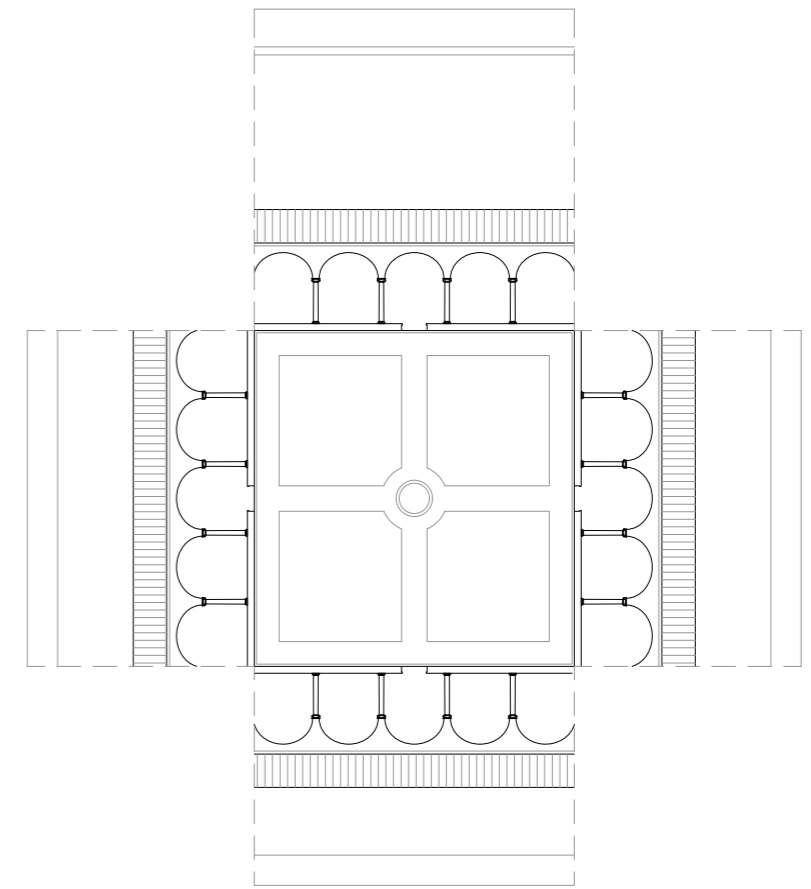


Church  
Refectory  
Dormitory  
Healthcare



**Cloister of Sant'Antonino**

*Left* 3-51 Plan and section, 1:500  
*Right* 3-52 Plan and facades, 1:500

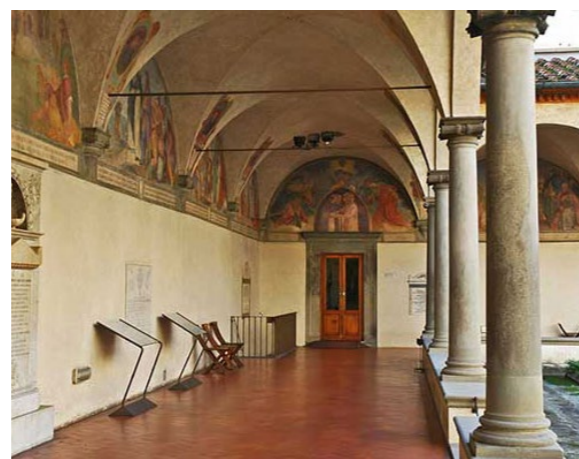




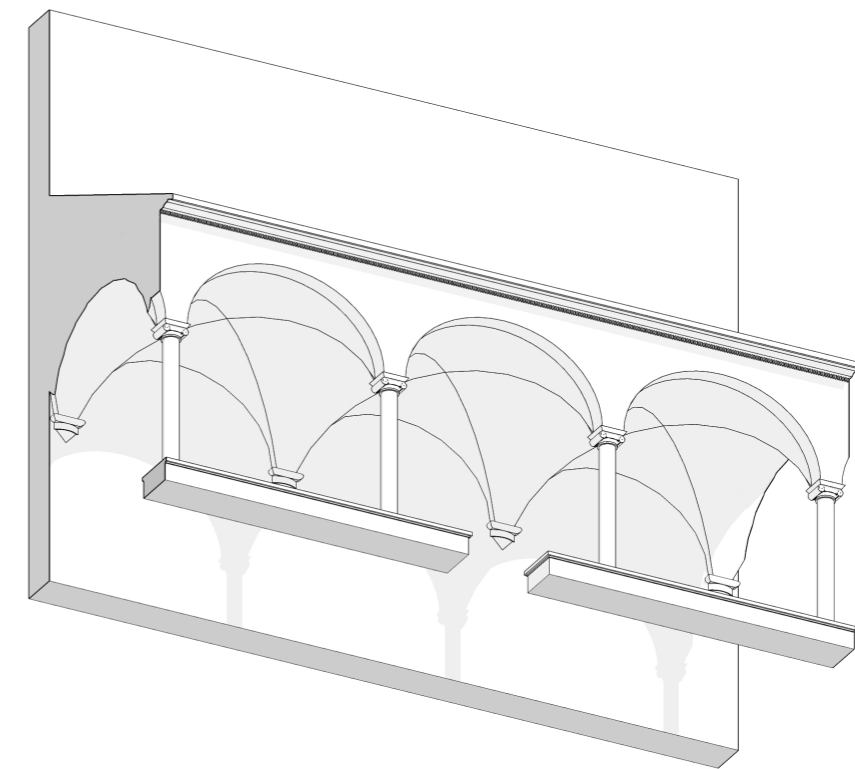
The Sant'Antonino cloister plays a central role in the organization of the structure. The cloister has the perfect geometric shape of a square. The church, chapter house, large refectory and the hospice for pilgrims are accessible from the colonnade. On all sides, this single-story colonnade runs in a uniform rhythm next the volumes. The colonnade consists of a base, Ionic column and semicircular arches and is spanned with a groin vault structure. There is a decorated eave under the overhanging roof with gutter. The semicircular arches and vault are finished with plaster. On the inside, the colonnade is decorated with frescoes

The volumes adjacent to the colonnade have their own rhythm and logic. The volume of the church, positioned on the west side, has a great height and is very flat and closed due to the limited openings. On

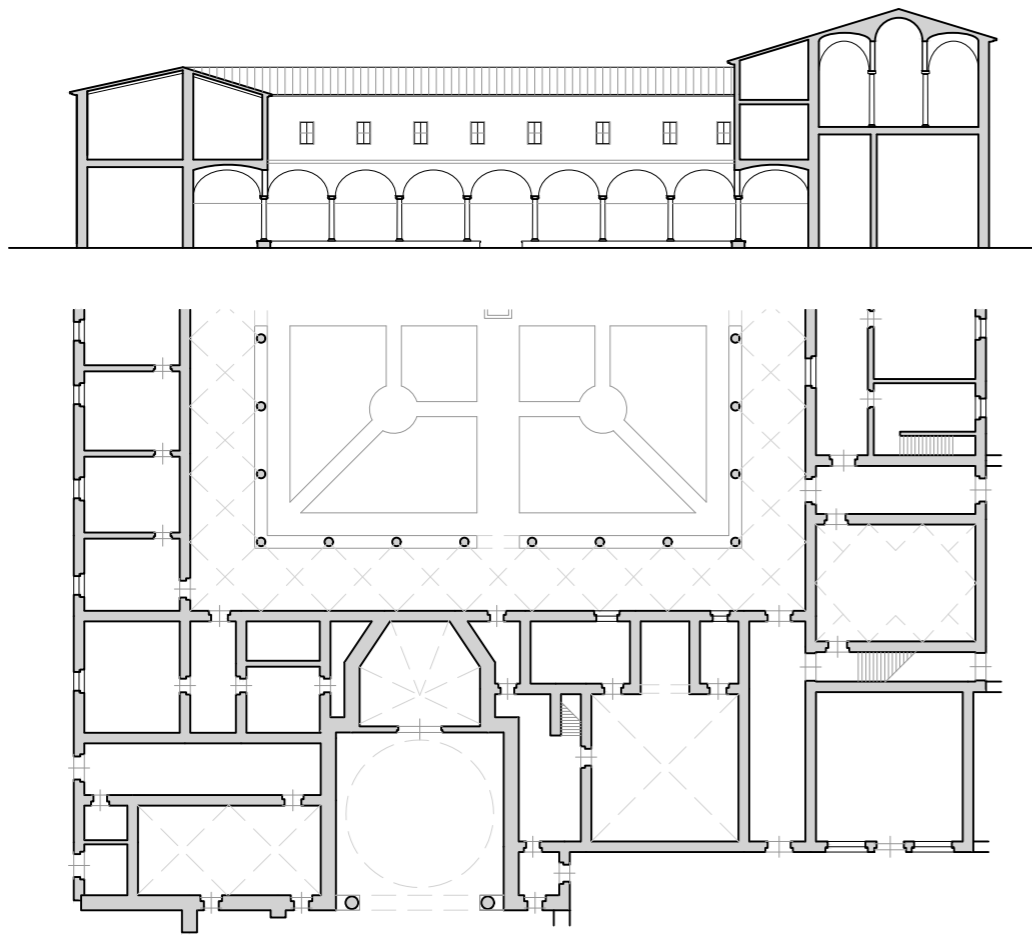
the other sides of the first floor, the small windows of the cells continue in their own rhythm. Across the cloister, through the grass, there is a path in the shape of a cross which is accessible through openings in the base of the colonnade.



3-53 Cloister of Sant'Antonino  
3-54 Cloister of Sant'Antonino

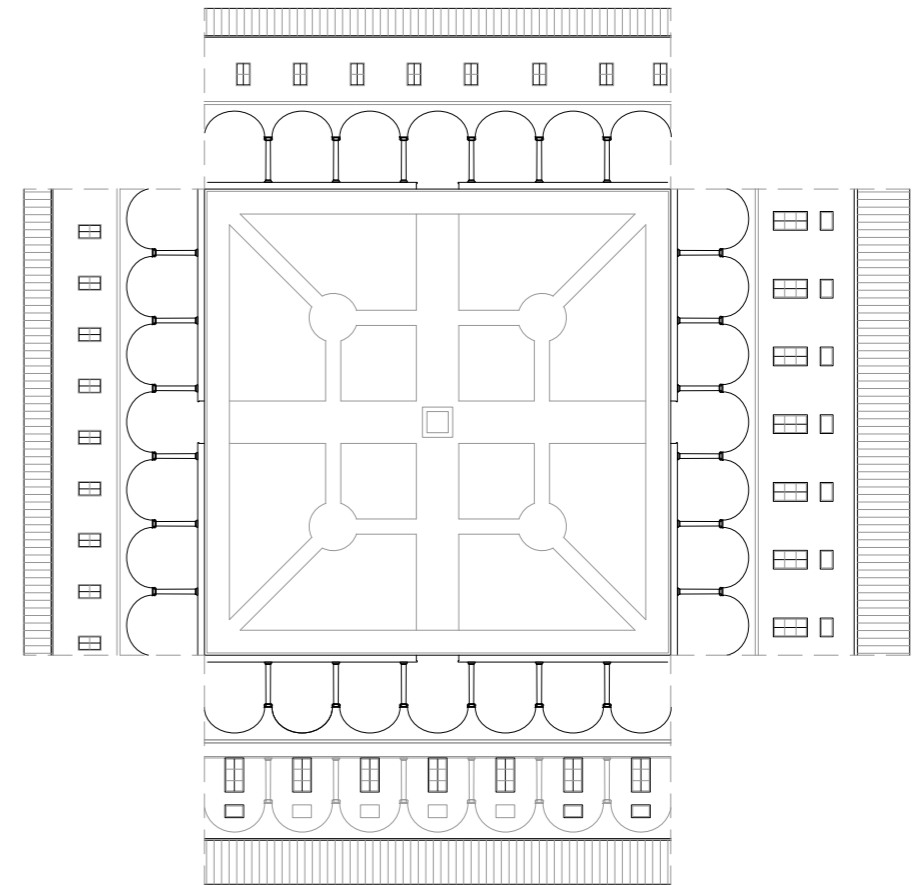


3-55 Isometric impression colonnade



Cloister of San Domenico

Left 3-56 Plan and section, 1:500  
Right 3-57 Plan and facades, 1:500



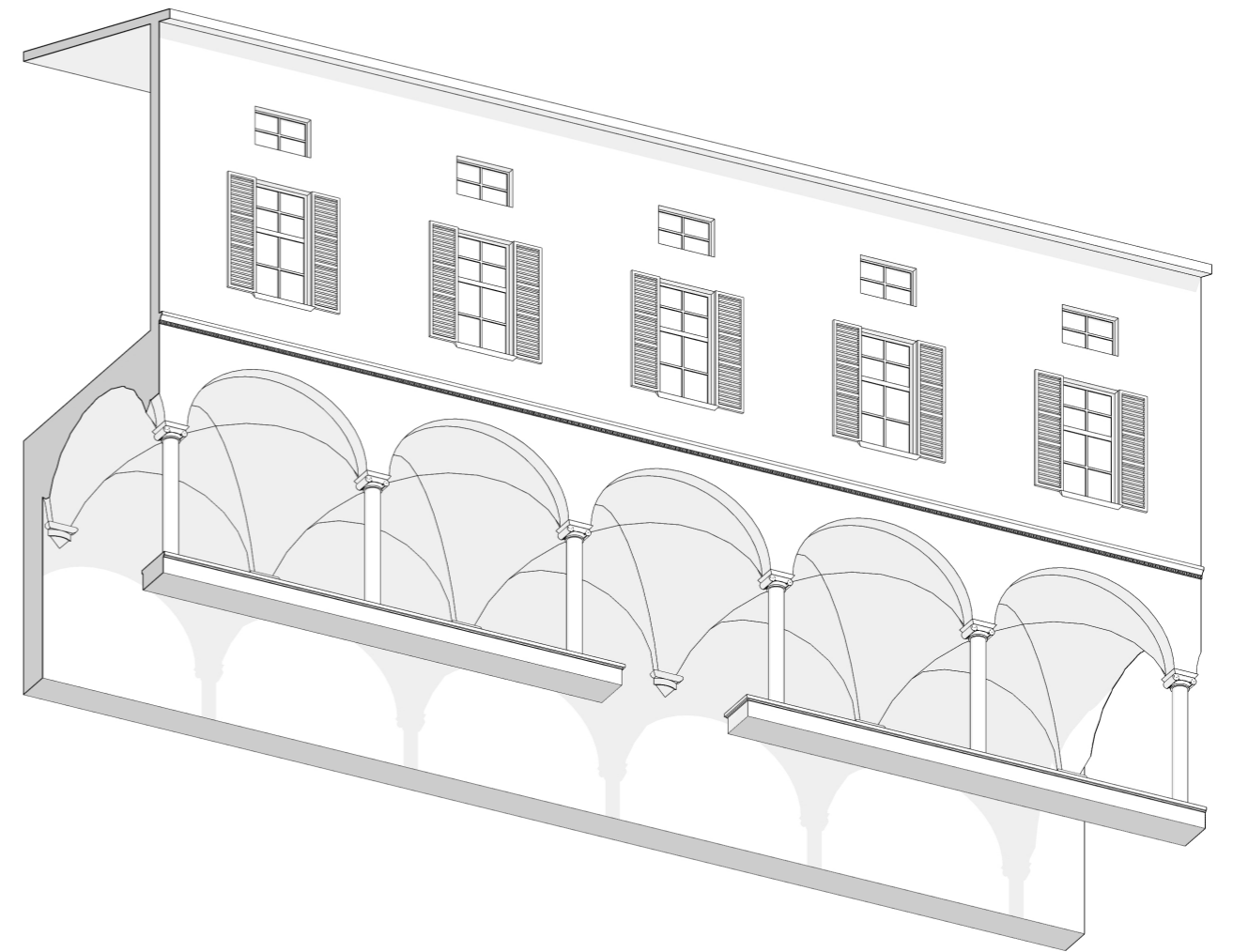
The cloister of San Domenico is the secondary cloister in the organization of the structure. The cloister is accessible via a passage from the Sant'Antonino cloister. The cloister has the perfect geometric shape of a square, enclosed by a colonnade with a storey on top. The colonnade continues in the same rhythm on all sides of the cloister and has the same elements, finish, height and proportions as the colonnade of the Sant'Antonino cloister. There are openings on two sides that follow the rhythm of the underlying colonnade. On these sides, there are large openings, with a small opening above. On the other two sides, the smaller vertical rectangular openings do not form a uniform rhythm and have no relationship with rhythm of the underlying colonnade.

As in the Sant'Antonino cloister, the colonnade consists of a base, Ionic column and semicircular

arches and is spanned with a groin vault structure. The semicircular arches, vault and overlying volume are finished with plaster. The arcade is visually separated from the upper volume by the use of a vertical strip. The cloister is currently covered with grass and trees. In the cloister there is a path in the form of a complex geometric shape, with a statue in the center.



3-58 Cloister of San Domenico  
3-59 Cloister of San Domenico



3-60 Isometric impression colonnade

## 4 Florentine monastic type

*Investigation of the monastic structures in Florence*



### Summary

In an attempt to understand how the type of the inner-city monastic structure manifests itself in Florence, there is reflexion on the previous chapter with the addition of literature research. The characteristics of the original monastic type, the implementation of monastic structures in Florence, the results of the four case studies and further literary research allow statements to be made about the type of the monastic structures manifesting in Florence. The constructions are decomposed into principles, structures and elements in a continuous relationship between the different scales, starting from the scale of the building block and zooming in to the element of the cloister. This causes for a better understanding of the limits, boundaries, possibilities and implementations of this specific type.

Just like the mendicant orders, the architectural monastic type of the mendicant orders adapted to the new situation in the city. The structure of the inner-city monasteries developed as a modification of an old scheme, this is represented by the traditional monastic architecture. This scheme was adapted to implement the big monastic structures in the complex urban situations and dynamic city life of Florence.

The layout of the monastic structures in Florence is a complex interplay between the typological framework and various external aspects. Because of these external aspect, each structure is different. First of all, the composition of the structures are strongly influenced by the surrounding urban fabric. The

available surface within the urban structure indicates the preconditions for the growth of the structures. The existing hierarchy of the surroundings influences the orientation and organization of the building. The role of the monastery in the city strongly influences the functions, size and characteristics of the building, which influence the composition of the structure. Also the time and transformation periods have an influence on the building.

The configuration system of the monastic structures is highly flexible, the monastic building can be implemented in different urban structures and can be transformed and enlarged over time reacting to a changed desired capacity or new functional requirements. The layout is linked to the concept of breadth and clarity, in which volumes are organized around cloisters. The cloister plays a central role in the organization of the structure and the community. Due to their accessibility, the cloisters are an extension of the urban structure, but at the same time they are a place of seclusion in the dynamic city of Florence. It fulfills its role as the heart of the multi-functional monastic structure, to which the primary functions are linked and to which the volumes are orientated. It is a place of passage, silence, meeting and residence.

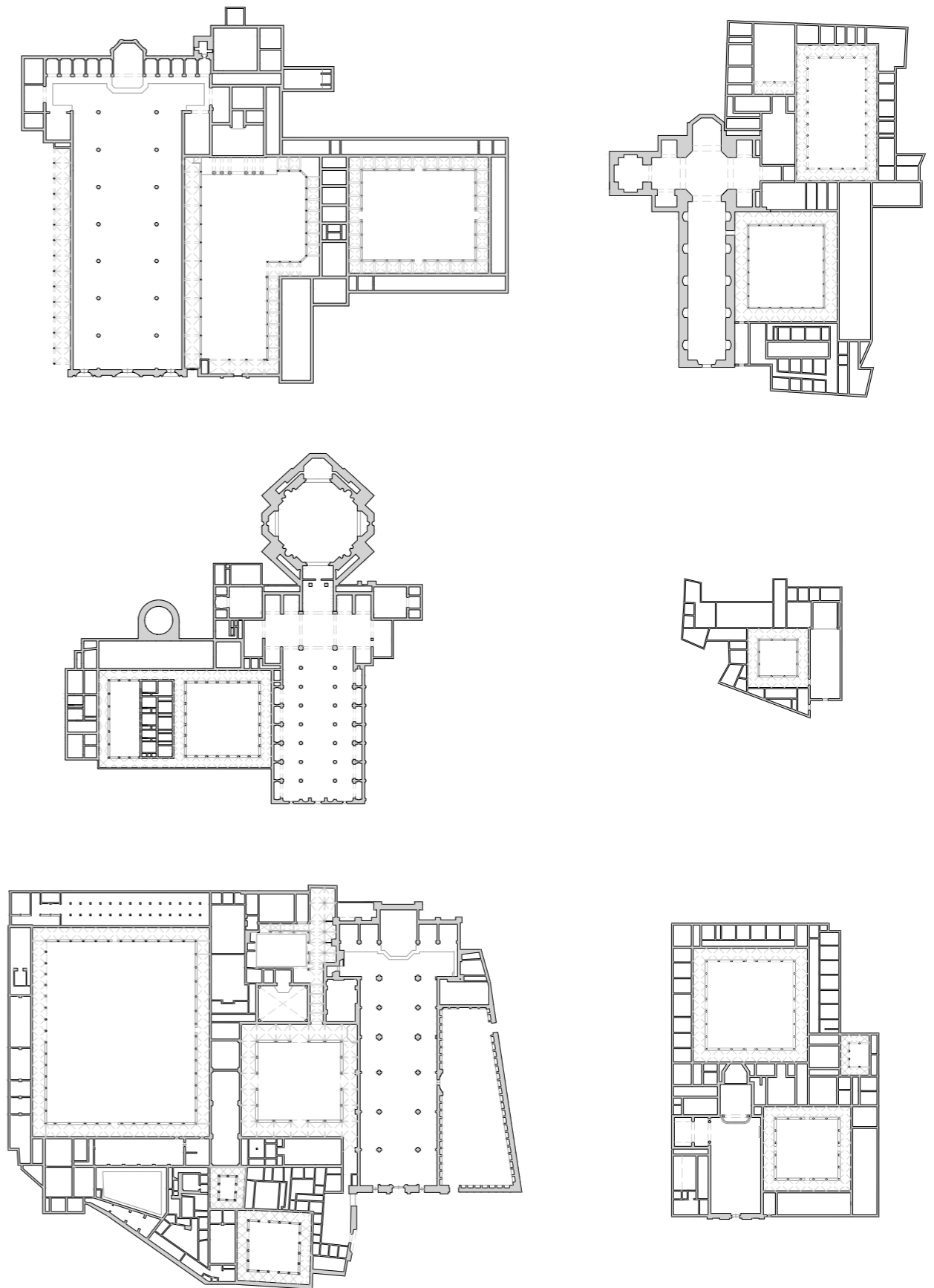
4-1 multiple Florentine monasteries, 1:2000

From top left to bottom right:

Santa Croce - Santa Maria del Carmine

San Lorenzo - San Barnaba

Santa Maria Novella - San Marco



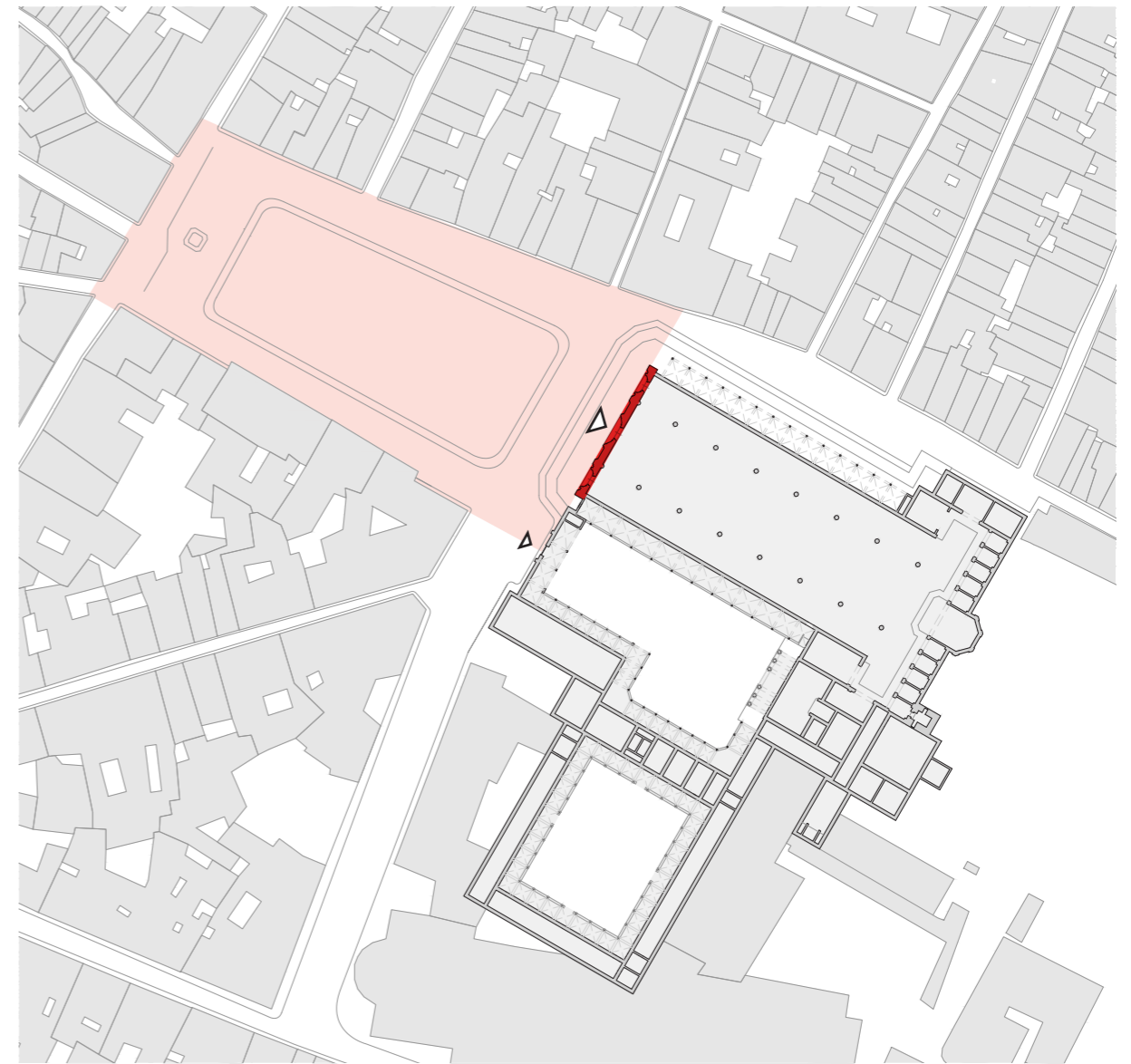
## 4.1 Urban configuration

The configuration of monasteries is strongly determined by the surrounding fabric and the surrounding fabric is influenced by the monastic structures. The available surface within the urban structure indicates the preconditions for the growth of the structures. Depending on the location and moment of intervention, sometimes space is taken up by the monastery where nothing was previously positioned, making a free layout possible. However, often there is an existing road network and existing buildings that sometimes can and sometimes cannot be removed for of the founding and expanding of the monastic structures. Due to the scale of the structures, monasteries often occupy a large part of the building block, in some cases they even form a building block in itself. The orientation of the monastic structure is determined by the hierarchy of the existing routes that enclose the building block. When the monastery is built, the church and other important parts are orientated to the primary route. The other elements of the monastery automatically follow the same logic, which determines the organization of the whole building<sup>1</sup>.

This also changes the configuration of the building block in which the structure is positioned. There is a clear nodality to the entrance of the church and the monastery. The enclosed space of the cloister is only accessible from the outside, the only point being the entrance to the monastery and the church. This church has an open appearance and a bigger size than the other volumes of the structure, which creates a clear front of the building. The front gets

the highest degree of nodality, the anti-nodality of the remaining perimeter increases. The other sides of the monastery are often more closed and have little relationship with the surrounding buildings. At the back of the monasteries. This changes the hierarchy of the surrounding urban fabric, which influences over time the surrounding buildings of the monastery. The orientation of the monastic structures also determines square formations in the urban fabric. Open spaces are often created in front of the church. This way, the hierarchy of the urban fabric is preserved and even increased, even after the monastery have lost their functional importance.

Also on a bigger scale, the monastic structure influence the urban fabric, because of the importance of the structure in their neighborhood. The cloisters are often distinguished from the built environment by the high volumes and the tower, in the historical fabric of the city of Florence. The monastic structures played a major role in urban life and some of them were the functional and architectural center point where the urban fabric developed around<sup>2</sup>. The parish churches where the center of an urban submodule with urban fabric gravitating around such a service.



1. Maffei & Marzot, 2018  
2. Fanelli, 1985

4-2 Front of church with adjacent square

## 4.2 Composition

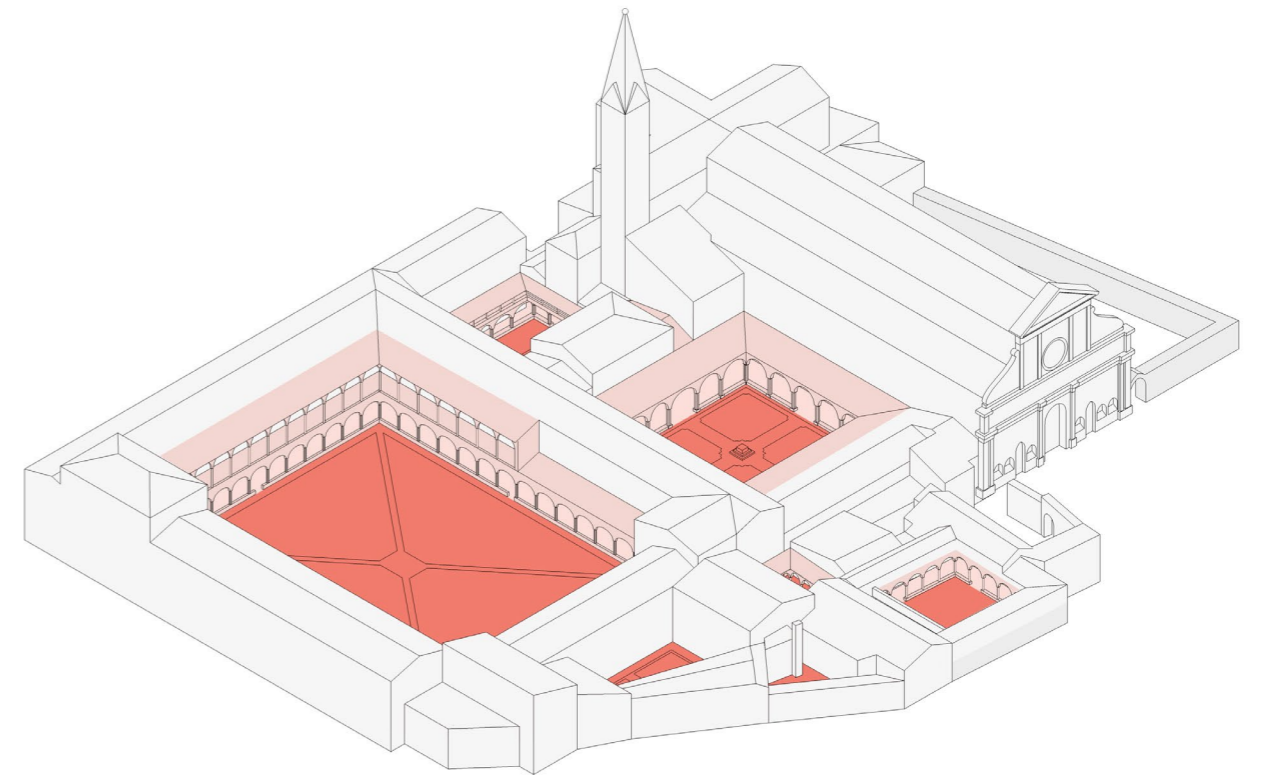
The configuration of monastic buildings consists of various building volumes which are organized around one or more cloisters. There are recognizable configuration rules that underlie the structure of monasteries. The organization is clearly visible and recognizable, but the structure is different at different locations. The foundation for the construction of the monasteries was linked to the concept of breadth, clarity and clarity, which was linked to the doctrine that the monastic institutions propagated. There was a model that pursued strictness and rationality of the forms<sup>1</sup>.

The cloister is the connecting element in the composition. It provides light, air and greenery. The different building volumes of the building are aligned in a perpendicular grid organized around cloisters. These volumes have their own logic, appearance and tradition. The size of the structure and of the individual building parts depends on the group to which it serves. The organization of the building is through the cloister by using portico corridors. All passageways pass through the cloister, connecting different parts of the building and connecting the building with its garden. The cloister is the main division of spaces and organizational element of the building volumes.

The building structure can be seen as a modular system, which makes it possible for the building to adapt to the new situation. The monastic structures are growing elements, which have undergone major transformations over the years, depending on new needs and a changing zeitgeist. The first monastic structures to emerge in the city of Florence are in

many cases the result of extensions and renovations of existing religious buildings or other buildings. The monastic structures were rarely built in one go, but have gone through centuries of development. This is caused by the building's constant dynamic growth and expanding communities. The transformations and extensions always took place according to the same configuration system. This way, different types of volumes with different types of functions could be included in the whole.

The development of the volume depends on the surrounding context, which forms a framework for the building. Depending on the building volume and the surrounding buildings, it was possible to expand. It is possible to follow an ideal configuration for monastic structures in the open landscape, but this ideal configuration could not be followed in the configuration of the inner-city structures in a complex urban situation. In the complex urban situations, the use of multiple cloisters is justified. This allows for great freedom in composition, which enables the building to implement the changed function and accommodate a growing community<sup>2</sup>.



1 Coomans, 2018

2 Lavoratti, 2019

## 4.3 Organisation

In order to understand the building, it is important to understand the organization of the building from which the positioning of the various functions and the interrelationships are derived. The configuration of the different elements is built according to a tradition of monastic life and has changed and expanded over the years. There is a clear routing, originating from an existing tradition but also dependent on the specific building and role in the city. Here there is a clear hierarchy of functions, cloisters and volumes. The traditional principles of the monastic type can be recognized in the configuration, but the strict organizational rules of the previous orders have been abandoned in the application. In particular, the symbolic positioning of the spaces in the different cardinal point was not followed, with the exception of responding to the position of the sun.

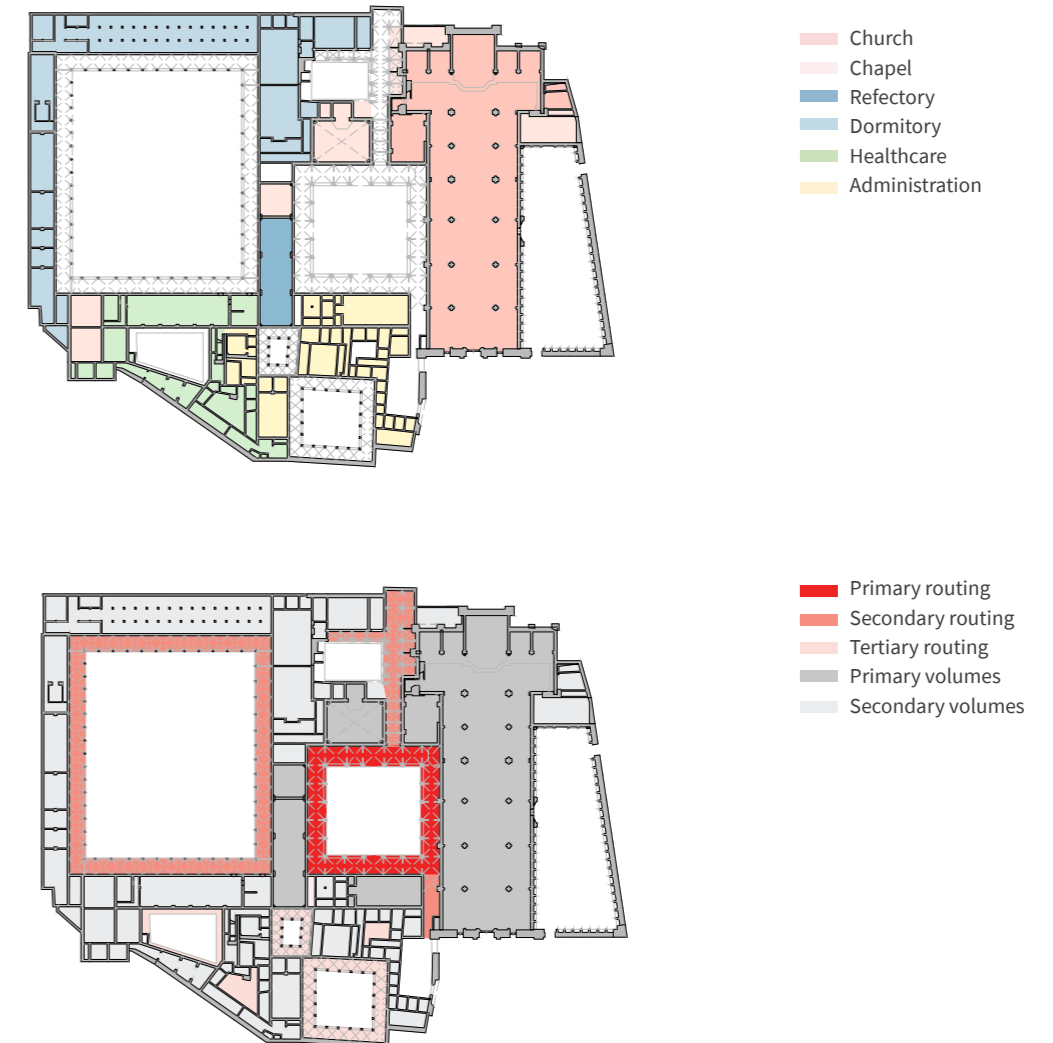
In the composition of the structure, a central role was given to the volumes associated with the most important monastic function. These volumes are the church, cloister and refectory. The monks lived a life of sleeping, preaching and studying and also had various activities linked to the city or agriculture. The general approach was to organize a core containing these main monastic functions as volumes around a central cloister. The typical organization of the structure included on the ground floor the volume of the church, the chapter house, the kitchen and the refectory. The sleeping quarters for the monks were positioned on the first floor<sup>1</sup>. However, the monastic structures of Florence were also linked to a community and positioned in a complex urban

situation. This resulted in the clear basic model not always being fully applied.

To the monastic structures of the mendicant orders also various other functions are linked. In different situations, in different times and locations, there were different needs and associated functions. Think, for example, of a hospice, sleeping places for pilgrims and libraries. Also, the numerous spaces present within the monastic structure were used for civic activities such as elections, receptions, etc. It was also a place for economic activities and education.

We can consider the structures of the mendicant orders as multifunctional buildings, where both religious and civic functions were present. They were not closed spaces in relation to the city, but they were connected and integrated with the urban context<sup>2</sup>.

1 Lavoratti, 2019  
2 Coomans, 2018



4-4 Functions Santa Maria Novella  
4-5 Hierarchy Santa Maria Novella



## 4.4 Cloister

The cloister is both inside, in the sense of being enclosed within, and outside, in the sense of being open to the sky. In addition to its functional use, the cloister has a symbolic meaning. The cloister is a place of seclusion and perfection in the chaos of the surrounding city. The cloister is functionally and organizationally the center of the community, and has spiritual aspects as well as functional. It is a versatile place: "Ultimately the cloister was the multi-purpose place for the monastic community. A place through which to pass but also in which to stay, for silent reading at certain times of the day or to talk at other times; a place that was home to many of the small jobs of daily life. Yet it was also a place where the atmosphere of liturgical ritual, the backdrop of medieval monastic life, always came first, while liturgical solemnity was freely deployed there during the many processions"<sup>1</sup>.

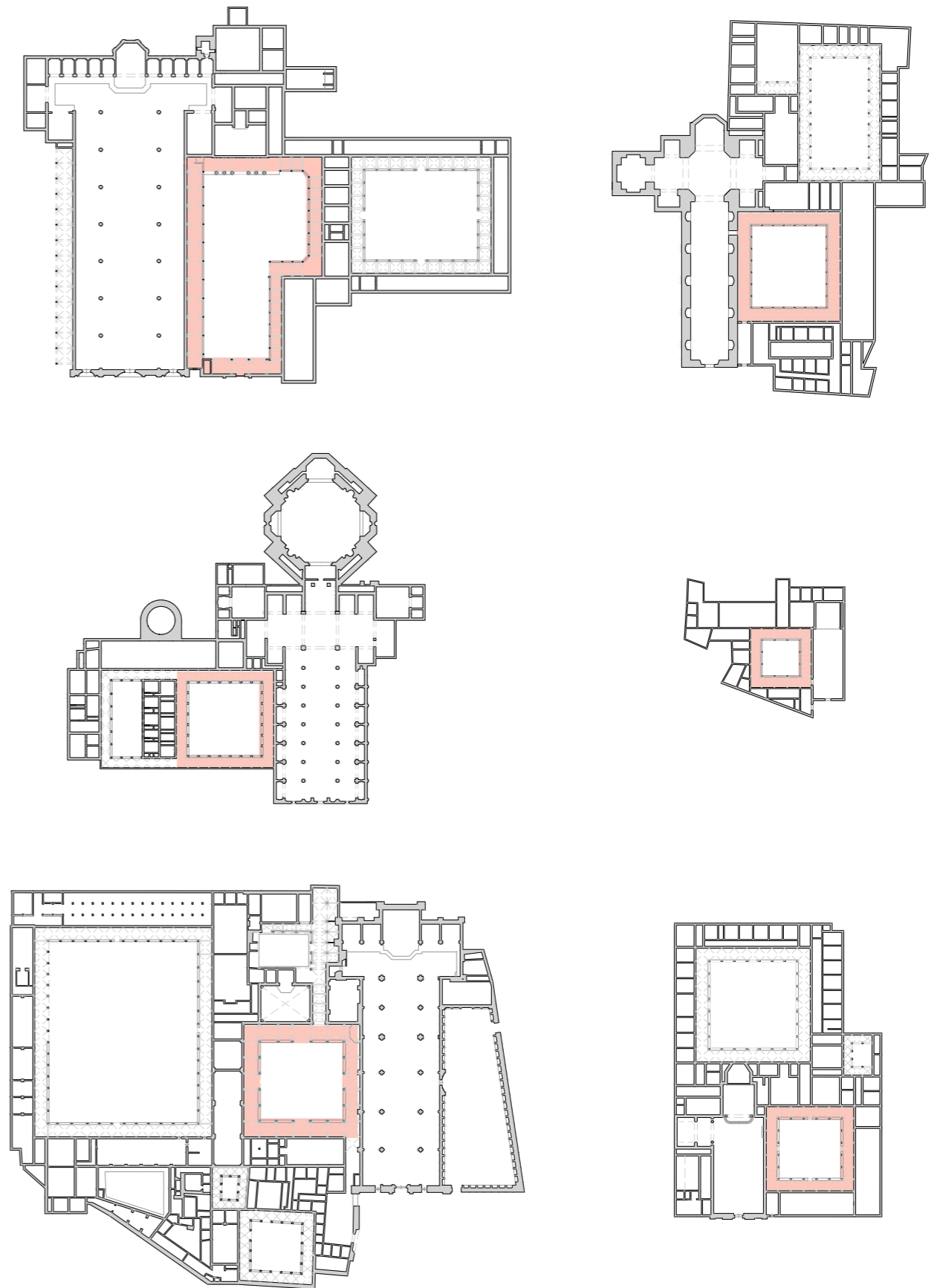
The cloister plays a central role in the monastic structure, the cloister is the heart of the multi-functional building. The cloister is not exclusive to the monks and nuns, as was the case during the first applications of this principle in Carolingian times, but it is an addition to the urban structure. The cloister often has the shape of a square surrounded by galleries that connect the church and various monastic spaces, especially the refectory and the chapter house, in a rational and organized way. The organization of the building is through the cloisters using passage covered by a portico. The adjacent building volumes are orientated towards the inner garden, the monastic structure is turned inward in

its orientation and organization. This open space between the volumes provides light and air for the adjacent functions.

All passageways run through the cloisters, connecting different building parts and connecting the building with the garden. The cloister is the main division of spaces and organizational element of the building volumes. A clear hierarchy can be recognized between the different cloisters in a monastic structure, depending on the position in the whole and the functions associated with it. In all inner-city monastic structures there is a clear main cloister, to which the central functions are linked. The secondary cloister are linked to secondary functions.

1 Davril, 2003

4-6 Central cloister



Ideally, the cloister has the shape of a square. However, there are several rectangular cloisters, often with the ratio 4:5 and sometimes there is also a layout without perpendicular angles. In most cases, the intended ideal shape of the cloister is leading in the configuration of the surrounding building volumes. However, sometimes due to limitations in the available lot, a cloister can have an irregular shape.

In its pure form, a colonnade in the cloister continues on the ground floor, which guarantees a covered passage around the enclosed garden. The rhythm of the colonnade almost never corresponds with the rhythm of the adjacent volumes. These volumes have their own configuration and logic. The volumes adjacent to the cloister often have a facade layout that is derived from their internal organization and function. Inside the cloister, the fixed rhythm of the colonnade is the connecting element between the different types of volumes.

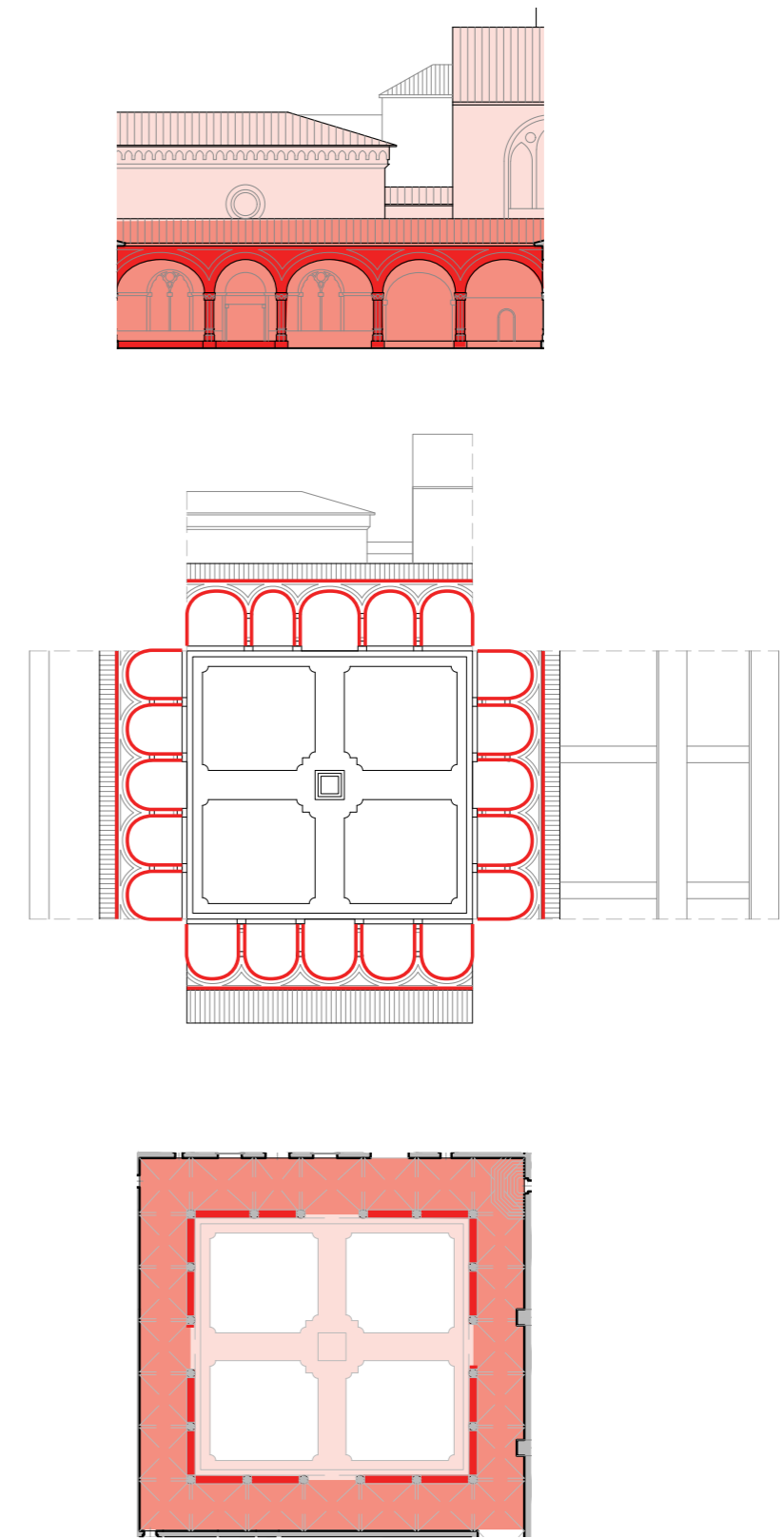
Sometimes a colonnade is placed connected to the volume, often as one layer, but sometimes on multiple levels. Sometimes the volume continuous on top of the colonnade. The rhythm of the colonnade uniformly on all sides of the cloister. The colonnade creates depth within the facades around the cloister, due to its bay. The walls that enclose the cloister are the colonnades and the facades of the building volumes behind.

Often the base of the colonnade works as a threshold between the colonnade and the garden. This element is also used as seating. It makes the cloister and its garden separate spaces. The corridor does

not belong to the garden, nor to the building volume. In its expression, the colonnade is an independent, free-standing element.

The garden is often designed as a lawn with often randomly placed trees and shrubs. The garden is often crossed by a path that usually leads to a centrally located water point. This water point is located in the center of the green space and is the central viewpoint from the colonnade. It symbolizes the presence of Christ and was part of the daily routine of the monks; washing was done before entering the refectory.

- 4-7 Depth in facade
- 4-8 Rhythm in colonnade
- 4-9 Boundary cloister

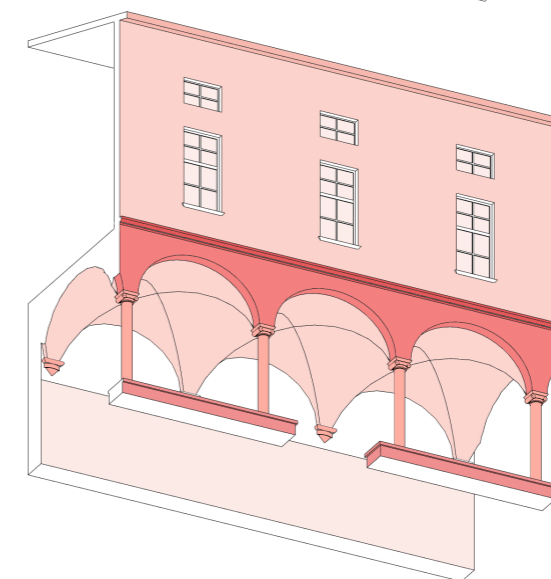
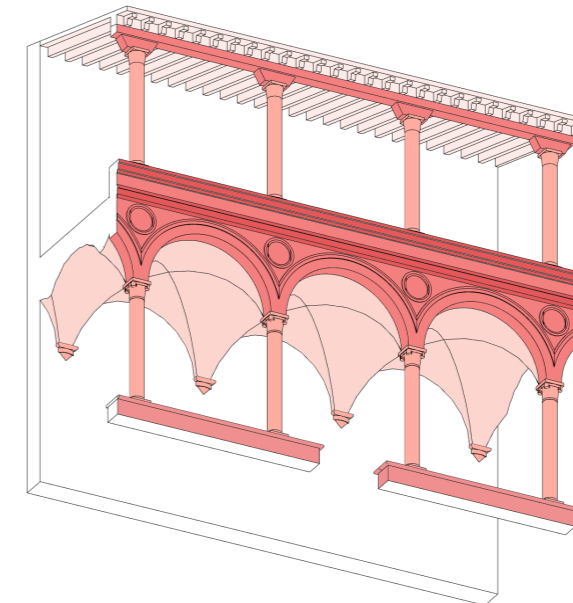
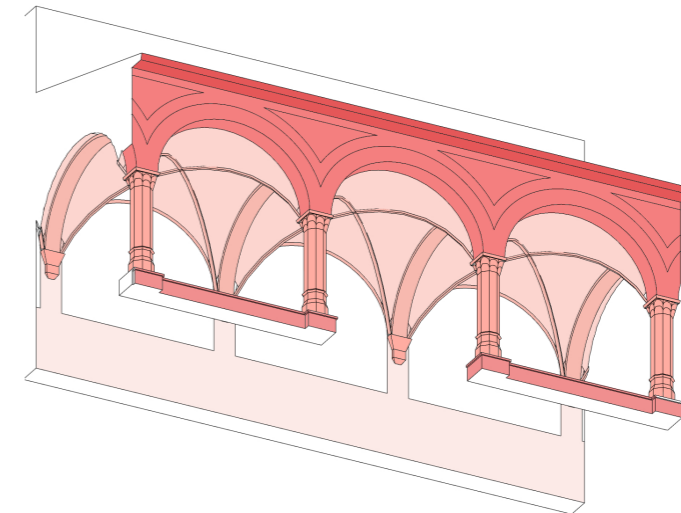


There are three different types of configurations of the colonnade in the Florentine cloister that are most common:

1. Single colonnade placed in front of the building volumes
2. Double colonnade placed in front of the building volumes
3. Single colonnade with building volume continuing on top.

The colonnade consists of a base and columns supporting semicircular arches. The colonnade is spanned with a groin vault structure with sometimes articulated transverse and/or diagonal ribs. The colonnade surrounding the cloister is characterized by uniformity and austerity. The finish of the colonnade is usually in plaster. When the colonnade consists of two layers, the upper colonnade is constructed out of smaller columns support an architrave on which the rafters of the roof are placed. When there is a volume on top of the colonnade, sometimes the rhythm of the colonnade is followed in the facade openings. Sometimes it volume has its own logic. The semicircular arches, vault and overlying volume are finished with plaster, the columns are made of stone.

- 4-10 Single colonnade placed in front of the building volumes  
4-11 Double colonnade placed in front of the building volumes  
4-12 Single colonnade with building volume continuing on top



## 5 Santa Verdiana

*Investigation of the design location*



### Summary

The monastic type is still very usable to house a public function in the city of Florence. This is visible in the Florentine monastic structure of Santa Verdiana, located on the east of the historic centre of Florence. Santa Verdiana was founded in 1395 as a monastery for nuns. Over time the monastery was enlarged, transformed and the cloister was built. In 1865 saw the definitive abolishment of the convent. The structure was transformed into a female prison, which included the functional adaptation of the old parts of the structure. In 1983, Santa Verdiana got a public function again, housing the Università degli Studi di Firenze. It currently houses the Five-year, Single-cycle, and Second-cycle Degree Courses in Architecture, the Landscape Architecture Degree Course, and the Masters-Programme in Architectural Design.

In the design assignment, a new layer is added to east side of the monastic structure of Santa Verdiana. In this chapter, an investigation is conducted to understand the current situation of the structure. In comparison with the case studies, a more extensive methodology of analysis was carried out, with more in depth urban, historic and organizational research. First, the history and the current urban context were examined, in which the hierarchy of the surrounding spaces influenced the orientation and development of the structure.

The various historical developments and the associated interventions of the monastic structure have been investigated. The building has undergone various interventions over the years. In this, the

structure has been transformed to accommodate the changing needs of its users and parts have been renovated or demolished as they fell into disrepair. These transformations took place during the holding of the monastic function, but certainly also during and between the new functions of the structure. The development has led to the building that it is today, in which a monastic structure is clearly recognizable, but the volumes and organization of the original monastery have largely been lost. However, the identity has ensured that the new layers of the building also follow the logic of the monastery, so that the new layers can also be linked to the typology of monastic structures.

The current condition has been examined per floor and on the basis of a cross-section in order to understand the dynamic composition of the building. The cloister has also been elaborated on and described. In the current situation, the original rooms of the monastery have largely been given a new function. The spatial quality of these spaces turn out to be timeless. Due to various additions, the organization of the whole has partly been altered, although the original cloister is still the heart of the structure, which today has become the real focus of the students' activities, both for work and leisure, a real micro campus of the didactic structure<sup>1</sup>.

5-1 University students in central cloister Santa Verdiana





## 5.1 Urban development



5-2 Location Santa Verdiana in city of Florence, current situation

The monastic structure of Santa Verdiana is located in the Santa Croce district, in the east of Florence's historic center. Over the years, this area has undergone various transformations. The monastic structure of Santa Verdiana has been influenced by the historic urban situations and the urban developments and the urban composition is sometimes dictated by the structure of Santa Verdiana.

### Ribbon development outside city walls

During the second half of the middle ages, the city of Florence had economic prosperity. During this period the city grew outside its borders. This urban development took place along the different important trading routes leading through the city, resulting in ribbon development outside the city wall. Along with the attraction of merchants and craftsmen, mendicant orders settled in the city. These orders played a central role in the city life and the development of the different neighborhoods like the Santa Croce district. The monastery that later became the central element of the neighborhood, Santa Croce, was founded in 1228 outside the wall<sup>1</sup>.

1. Fanelli, 1985
2. Benevolo, 1980



5-3 Urban fabric Santa Verdiana, 1280

### Interventions Arnolfo di Cambio

The city of Florence flourished because of the wool trade and the international banking activities. Different interventions were executed to reorganize the city to meet the urban demands connected to the new identity of the city. Different buildings, which would play a central role in the urban fabric, were constructed under the supervision of Arnolfo di Cambio, like the new church of Santa Croce and its adjacent square. Also a new wall circle was constructed which included the ribbon development outside the previous wall and at the same time left space for further expansion of the urban fabric within the new wall<sup>2</sup>. After an economic and population recession because of the plague, the city of Florence grew and flourished again. The most Florentine monasteries founded during this period were positioned along the important routes, close to the wall where the new open space provided possibilities to create gardens. In The monastery of Santa Verdiana was founded (in 1395) following this logic, just like different other monastic structures positioned within the district.



5-4 Urban fabric Santa Verdiana, 1450

### Densification of district

Over time, the neighborhood of Santa Croce grew within the city walls, becoming one of the important districts of the city. During this period, structures were added in the district filling up open space and creating dense urban blocks. In the 19th century, the district of Santa Croce consists of dense city blocks and walled gardens. Also the convent of Santa Verdiana had a walled garden, positioned on the east of the structure.

### Florence as capital of Italy

The appointment of Florence as capital of the new Italy in 1865 had big influence on the urban fabric of the city. To meet the new demands, a big modernization plan was created, led by the architect Giuseppe Poggi. Part of this plan was the demolition of the city wall, which made space for a ring road. Connected to the ring road, a wide grid was created for new building blocks to extend the urban fabric. Because of the extension, the monastic structure of Santa Verdiana was not on the edge of the city anymore. During this period, also the existing fabric was transformed and new buildings, piazzas and roads were created. This biggest interventions in the district where the creation of piazza Lorenzo Ghiberti with the market of Sant Ambrogion on the west of Santa Verdiana. Next to the market and Santa Verdiana, a new road was created. The ambition to make a park next to the new market was not completed, only the demolition of some buildings to make space for the park has been executed. This plot is currently largo Pietro Annigoni<sup>3</sup>.

3. Fanelli, 1985



5-5 Urban fabric Santa verdiana, 1860



5-6 Urban fabric Santa Verdiana, 1900

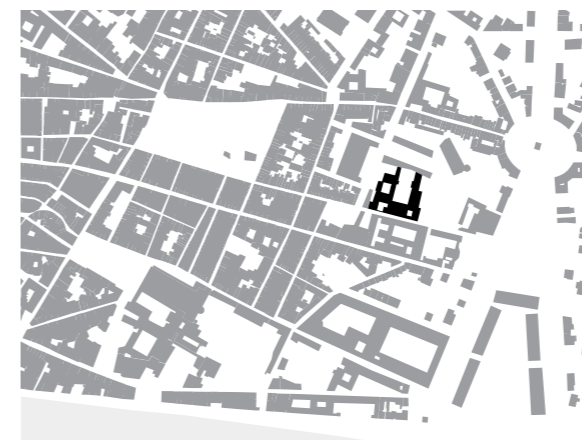
### Restructure plan Santa Croce

During the first decades of the 19th century, different reorganizations for the Santa Croce district were proposed. During this time, there was a big problem with tuberculosis which could be solved by opening up the dense urban fabric. This opportunity was also seized to transform the district, connected to the spirit of that time. The concept of the plan was to demolish the less significant buildings, widen streets, create a clear grid and create squares and gardens. The new organization would put new focus on the greater existing and new buildings. The demolition works started in 1936. There was a commission investigating the architectural value of the blocks, but a lot of buildings with high architectural quality of exterior and interior where lost. After the demolition of different building blocks, the works stopped<sup>4</sup>.

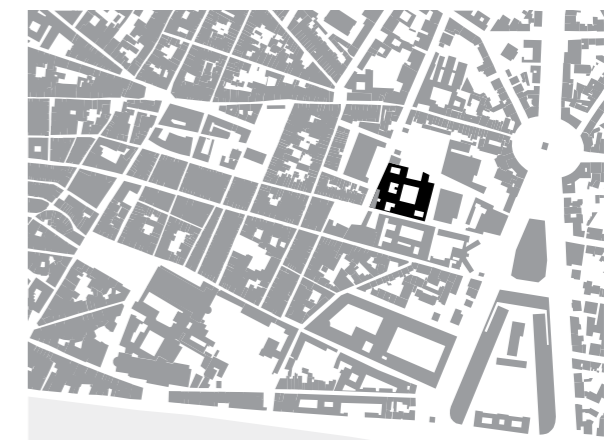
### Current situation

Gradually, different buildings were added in the district. Sometimes the new structures were placed in the open spaces within the building blocks and in the openings that were created in the interventions of the last decades of the 19th and the first decades of the 20th century. The new urban structures did not always follow the original design of the interventions, sometimes resulting in unfinished urban situations. Next to the monastic structure of Santa Verdiana, the building structure of Sede de La Nazione is constructed. This building did not solve the urban situation, leaving largo Pietro Annigoni as an undefined large open space.

4. Orefice, 1992



5-7 Urban fabric Santa Verdiana, 1940

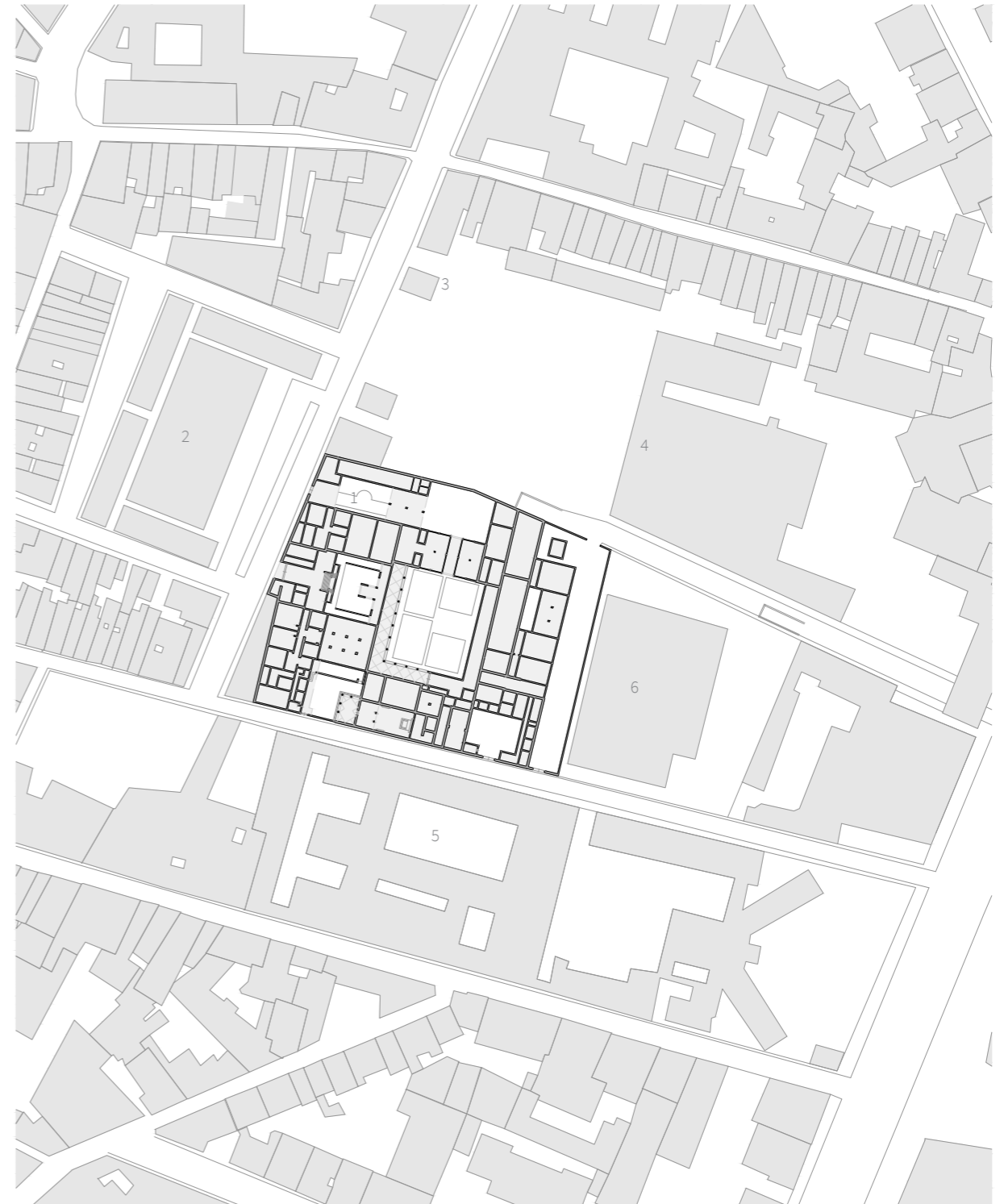


5-8 Urban fabric Santa Verdiana, current situation

## 5.2 Urban situation

The area around Santa Verdiana is a dynamic part of Florence. The open spaces on the north and west sides of Santa Verdiana, created in the 19th and 20th, play a central role in the functioning of the neighborhood. The Sant'Ambrogio market hosts a daily market and is one of the dynamic spots in the area. Largo di Annigoni is a big open space that houses a daily flea market. Centrally located along largo Pietro Annigoni is the headquarters of the newspaper La Nazione. In the current situation, the historical route on the south side of Santa Verdiana has a secondary function. Not only San Verdiana is located on this route, but also the Monastery of Murate. This monastery has served as a prison for a while but is transformed into a vibrant cultural center with homes, shops and catering. On the east side of San Verdiana is currently a walled industrial site, in the area where the garden of the monastic structure previously was positioned. Here is a rectangular building, separated by a 4 meter high wall.

The orientation of the Santa Verdiana structure has changed over the years, due to the change in the urban situation. Historically, the structure is orientated towards the historical route on the south side, with the courtyard with entrance and the church on this side. Currently, the structure is also orientated to the west with an entrance opposite the Sant'Ambrogio market. On the north side, towards largo Pietro Annigoni, there is currently no facade, but the ambition is to create a clear finishing to the Largo with an entrance to the structure of Santa Verdiana.



5-9 Urban situation, 1:2000

1. Ex monastery Santa Verdiana
2. Piazza Chiberti with Sant'ambrogio market
3. Largo Pietro Annigoni
4. Sede de La Nazione
5. Ex monastery Murate
6. Electricity company / plot for addition of Santa Verdiana in design exercise.





5-10 Largo Pietro Annigoni with view to Sede de la Nazione  
 5-11 Sant'ambrogio market  
 5-12 One of the courtyards of the transformed monastery Murate



5-13 Historic street next to Santa Verdiana and Murate  
 5-14 Space between Santa Verdiana and electricity company  
 5-15 View from Largo Pietro Annigoni to wall surrounding electricity building



## 5.3 Transformation periods

### The monastery of Santa Verdiana

In the 14th century, it became common for nobility to finance the construction of religious structures for religious and / or devotional reasons<sup>1</sup>. Niccolo di Manetto di Bonagiunta, civil-law notary and Florentine merchant, had decided as last wishes, with a high degree of pure dedication, in the absence of male heirs, to allocate much of his wealth for the construction of a female monastery in Florence<sup>1</sup>. This monastery was named after Santa Verdiana, patron of the castle where the family came from. The purchase of a number of properties located in S. Ambrogio along Via della Fornaci was under negotiation to create the monastery there. In 1395 an existing 'palace' is sold and several buildings are added to the existing construction, including a first church.

Various interventions have taken place over the years. At the end of the 15th century the monastery was enlarged with money from the Medici family who took care of the monastery. From this time on the cloister to be created, various volumes are added and the church is expanded. A high number of interventions were also carried out in the following centuries. Existing spaces were renovated and new volumes were added to house an increasing number of nuns. The various extensions of the structure took place parallel to the street and towards the open area in the north. There was also a constant renovation work going on due to the decay of spaces and various floods of the Arno.

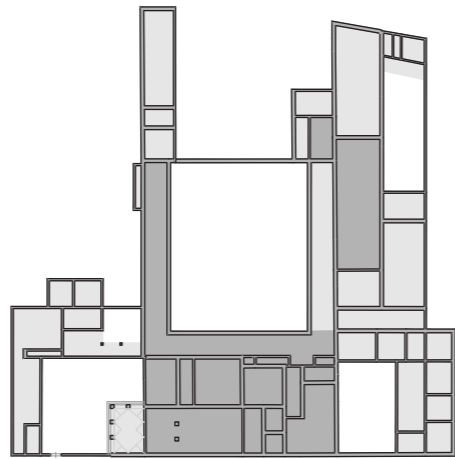
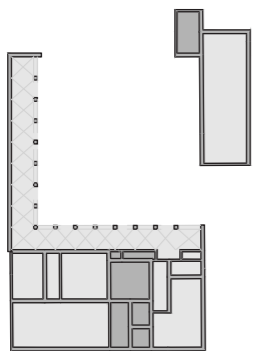
In the 19th century, the monastery of Santa Verdiana was organized by a central cloister and several courtyards, including a courtyard linked to the church and the street. The monastery is divided into numerous rooms related to the daily activities of the nuns: the pharmacy, the room of the stove for herbs and the other looms for spinning textile, a balcony to wash the grain, laundry room, service rooms, kitchen and a chicken coop. The church played a central role in the daily life of the nuns and there were two refectories, one on the first floor in front of the infirmary and the other, communal and very large, on the ground floor. The nuns' sleeping quarters were also located on the first floor. There was also a cemetery in the walled garden<sup>2</sup>.



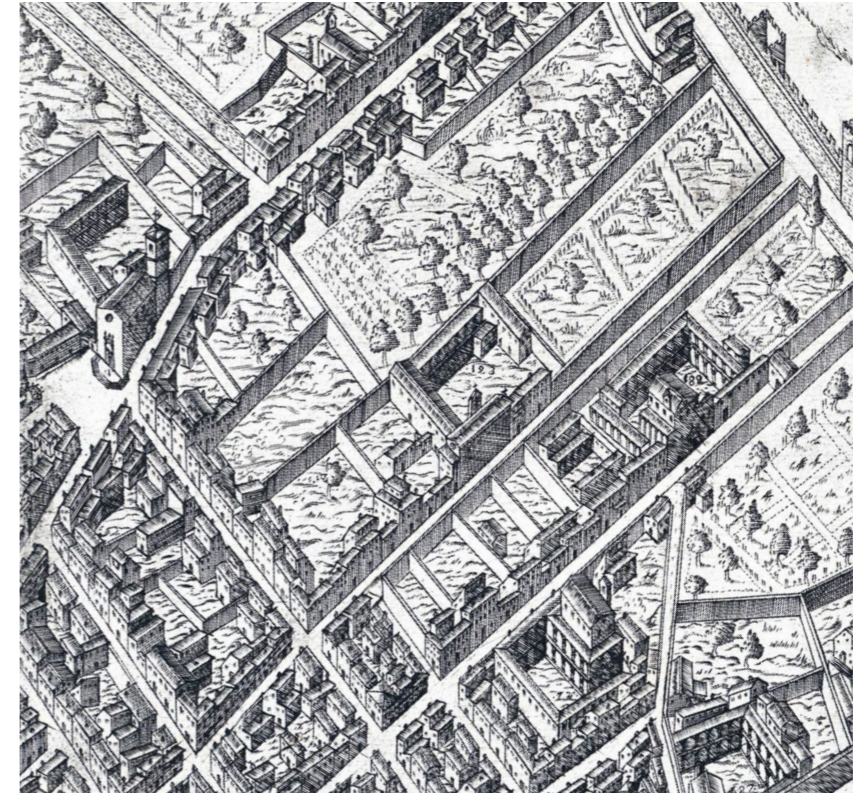
<sup>1</sup> Università degli studi Firenze, 2013

<sup>2</sup> Farneti & Van Riel, 2017





Left 5-17 Estimated plan of Santa Verdiana in the 15th century, with in dark gray the structure of the purchased 'palazzo'  
 Right 5-18 Santa Verdiana in 1808, with in dark gray the (strongly transformed) structures of the 15th century structure



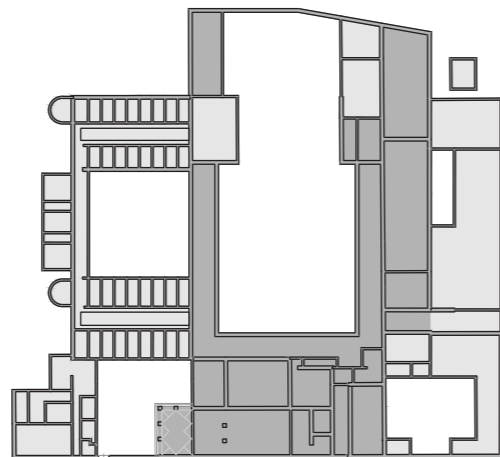
5-19 Santa Verdiana with surrounding urban fabric and gardens, 1584  
 5-20 View into central cloister of the monastery

### Santa Verdiana as prison

During the Napoleonic oppression of 1808, the monastic structure was partly used for productive purposes, among other things as a slaughterhouse. Here begins the process of secularization and transformation of the monastery that has brought the structure to its current composition. When Florence became the capital of the new Italy in 1865, it began a series of profound changes. During this period, ministries, barracks, prisons and schools are housed in, among other things, monastic structures. This is also the case in Santa Verdiana, where part of the building lost its monastic function to house a women's prison. In the following period, two volumes with 3-storey of prison cells were built on the west of the structure, which encloses a new courtyard with an entrance volume. Also the structure of Murate was transformed into a prison during this period.

After interventions carried out from 1930 onwards, the eastern part of the monastery, still in use by the nuns at that time, was allocated as space for an extension of the prison. Drastic transformations were carried out in the existing structure during this period. For example, part of the eastern arches of the cloister was dismantled and the colonnade was closed here. Various other volumes in the cloister were also demolished, which had become unstable. Renovation work took place in, among other things, the church, the cloisters, the important rooms of the structure and of the most important artistic parts. The renovation took place instead of demolition, as the monastery was considered significant in Florence. The restoration of the south facade of the

cloister and the opening of the arches and vaults, the demolition of the floors above and the subsequent reconstruction of the first floor as an infirmary was started. The rooms on the entire eastern part of the structure, which had not yet been restored before the Second World War, were in a bad condition after the war due to total lack of maintenance and damage during and at the end of the war. In 1952 the management was forced to carry out a safety intervention in anticipation of a total restoration project. Subsequently, only a part of the former monastery was repaired. Different volumes on the east side were demolished and replaced with new volumes built from scratch<sup>3</sup>.



3. Farneti & Van Riel, 2017

5-21 Santa Verdiana in 1970 with in dark the maintained (strongly transformed) structures of the monastery building



left 5-22 Connection space of the rooms used as general warehouses, 1984  
right 5-23 First arm of the prison with a double order of galleries on east of structure, 1984  
bottom 5-24 Prison branches on east of structure



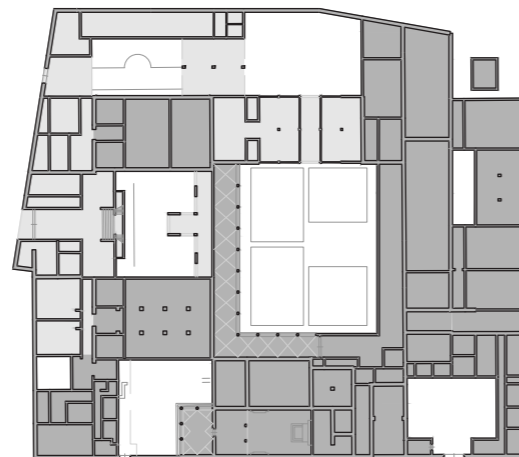
### Santa Verdiana as university structure

As a result of the opening of prison facilities in Sollicciano, it was possible to transform the prison structures in the Santa Croce area. An international competition was organized for the restoration of these buildings that were left without function. The competition, held in Santa Verdiana, did not come up with a concrete winner, but the main idea was to create a multifunctional space that could regain the traditional, cultural, social and productive functions of the district. At that time, the Florentine University had been looking for spaces that could be used as university classrooms for some time. On October 10, 1986, part of the vacant Santa Verdiana structure, roughly equivalent to the cloister part, was delivered to the university. In the following years, there have been multiple interventions to restore the entire structure for the use of the university and the community.

Classrooms and workshops have been created in the part of the structure built from scratch by the prison administration after the war, leaning against the east wing of the former cloister. The vertical connections in the historic parts of the structure were not suitable, for which temporary stair constructions have been made in construction site materials, which are still used today.

Between 1989 and 1991, the "Project for the new Faculty of Architecture" was created by architect Roberto Maestro, involving the western prison buildings and the northern part of the monastery. Maestro strives to make optimal use of the existing architectures. Moreover, the project integrates the

old monumental part with the nineteenth-century part and strives for a distributive flexibility that makes it possible to hold cultural activities linked to the city. The two volumes of cells on the west side were transformed and between them a stairwell and a new entrance towards Piazza Chiberti were created. The interventions made it possible to completely redesign the facade of the Faculty of Architecture on this side. The courtyard became the connecting piece between the entrance, the volumes that previously housed the cells and the old monastery structures. The restoration of the old parts of the eastern body, built in the second half of the twentieth century by the prison administration, has yet to be fully completed. In conclusion, the interventions that turned the former Santa Verdiana women's prison into a university center respected the monumental aspects of the structure, allowing compatible use of it for the benefit of the community<sup>4</sup>.



4. Farneti & Van Riel, 2017

5-25 Current plan of Santa Verdiana, with in dark gray the maintained (strongly transformed) structures of the prison building

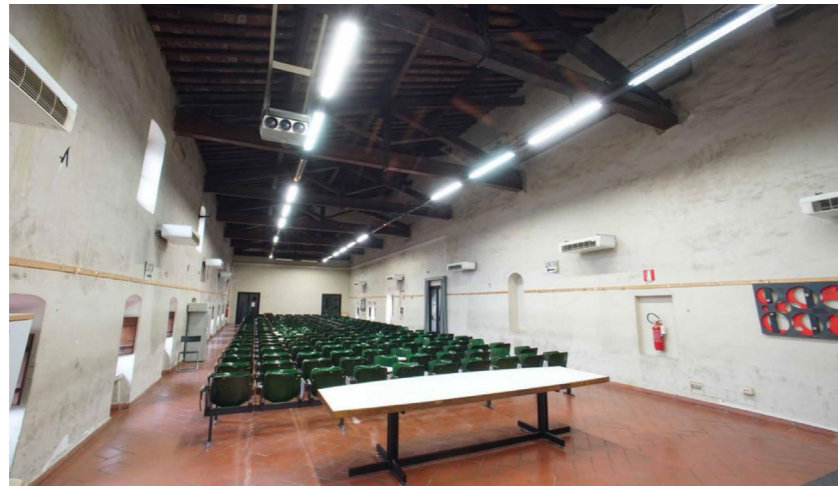


5-26 View of the current entrance to the educational structure from piazza Ghiberti

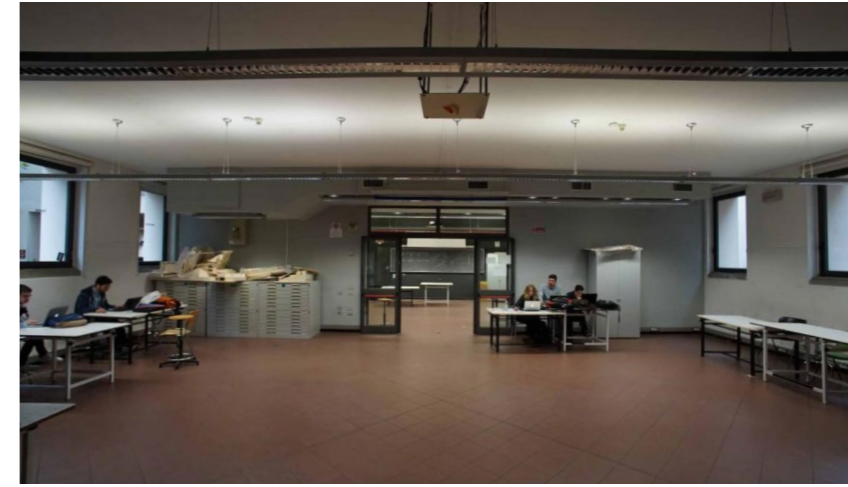
5-27 Courtyard between the two blocks of the former prison

5-28 View towards the south of the cloister with the church on the background



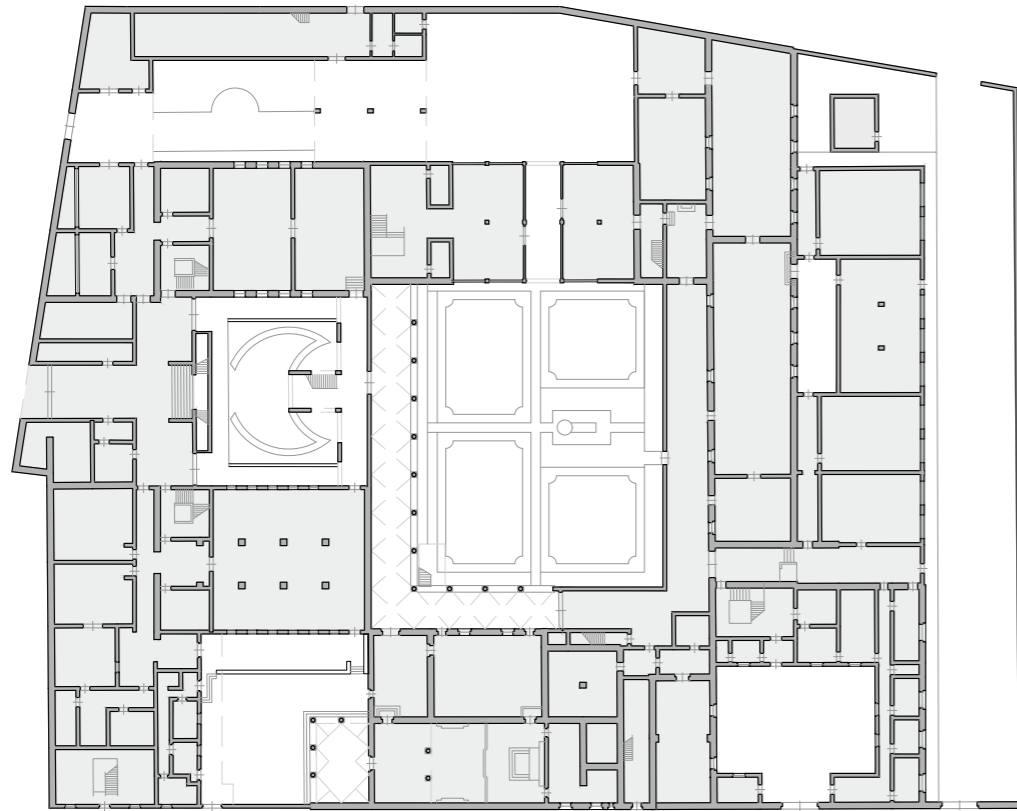


5-29 Classroom in east of structure of monastic volume, ground floor  
 5-30 Classroom in east of structure of monastic volume, first floor  
 5-31 Projector inside church of Santa Verdiana

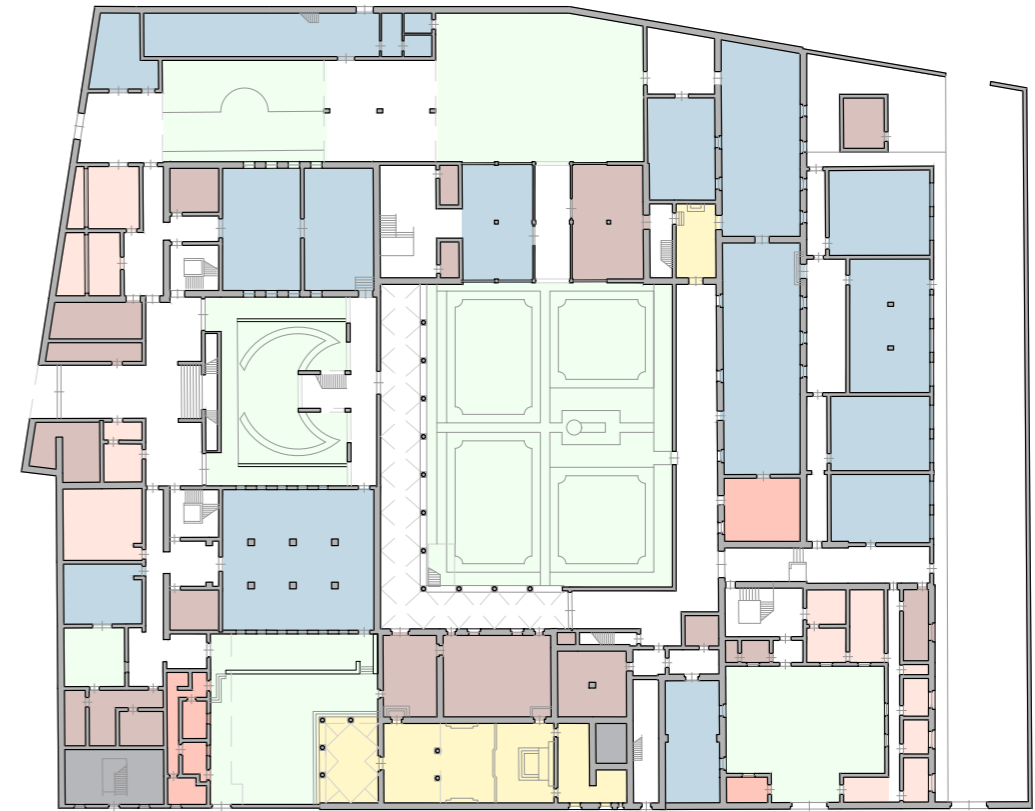


5-32 Second arm of prison transformed in classrooms  
 5-33 External view of the portion of the prison structure built on east from scratch after the war  
 5-34 Classroom in the prison structure built on east from scratch after the war, ground floor

## 5.4 Current situation

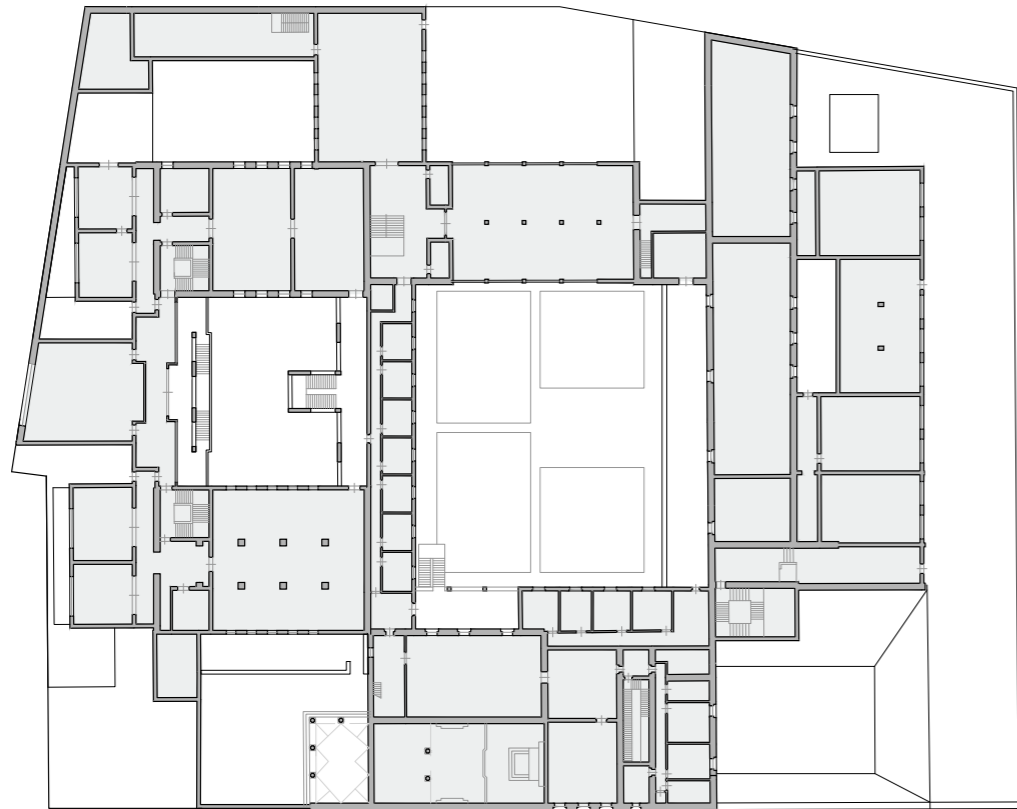


5-35 Ground floor current situation, 1:800

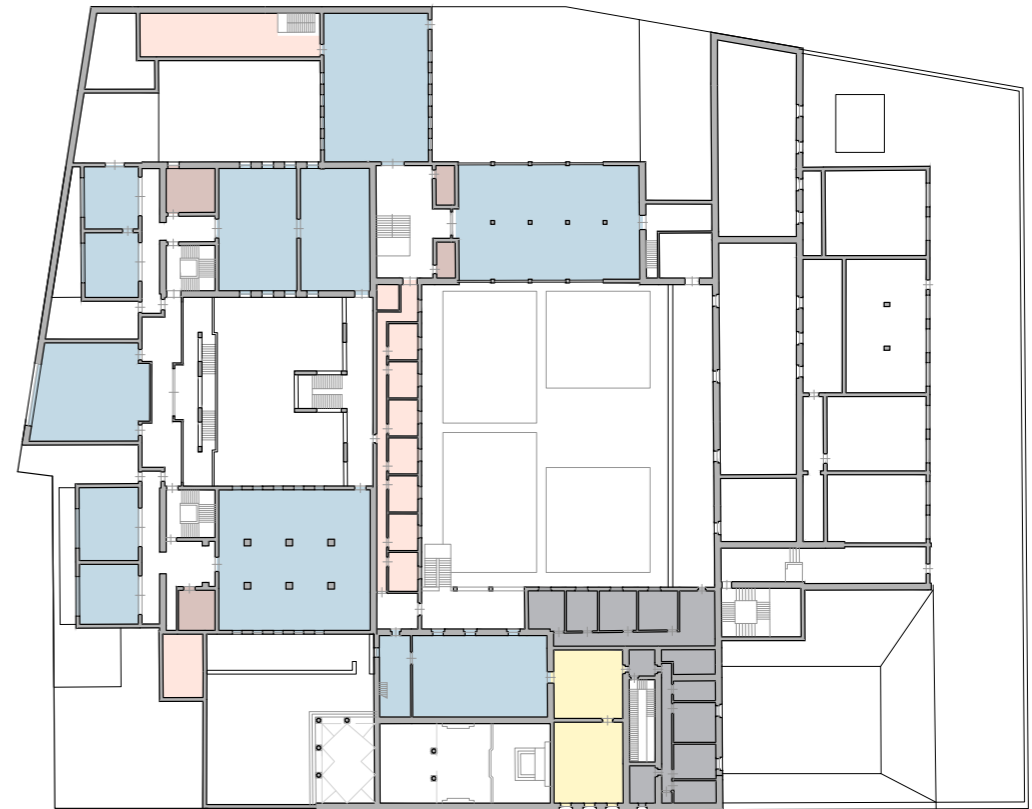


5-36 Ground floor current situation, functions, 1:800

- Didactic spaces
- Professors spaces
- Student spaces
- Former religious spaces
- Services
- Apartments
- Outside space



5-37 First floor current situation, 1:800



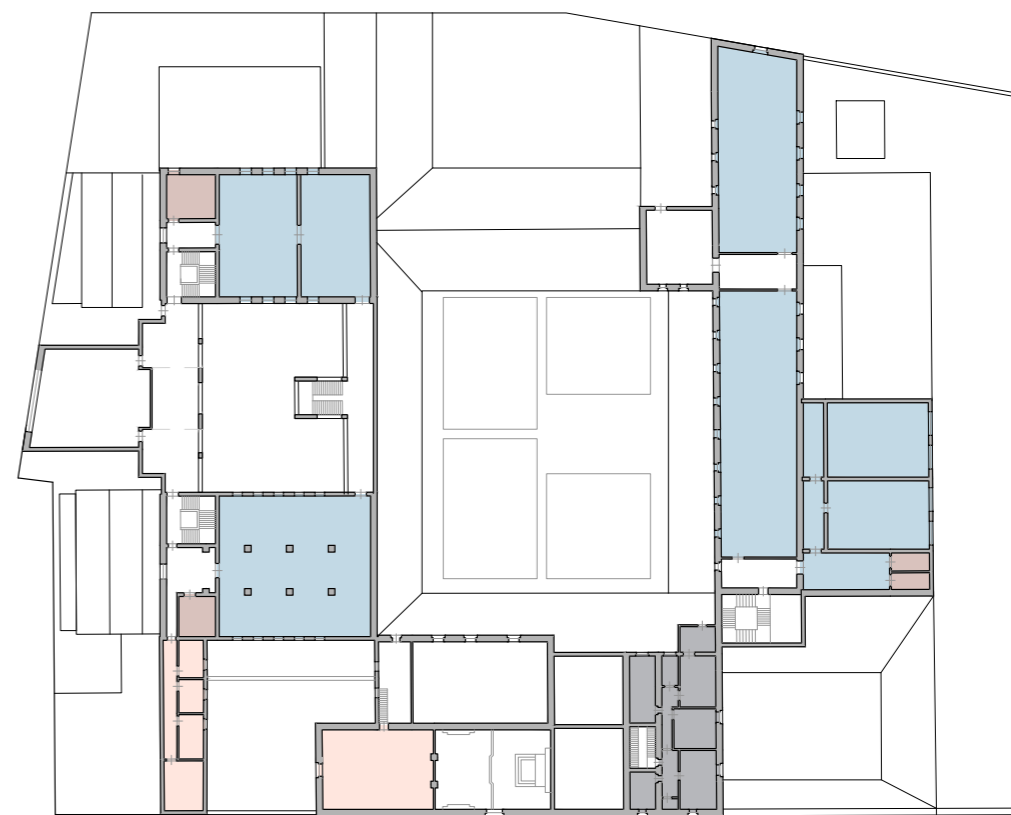
5-38 First floor current situation, functions, 1:800

- Didactic spaces
- Professors spaces
- Former religious spaces
- Services
- Apartments



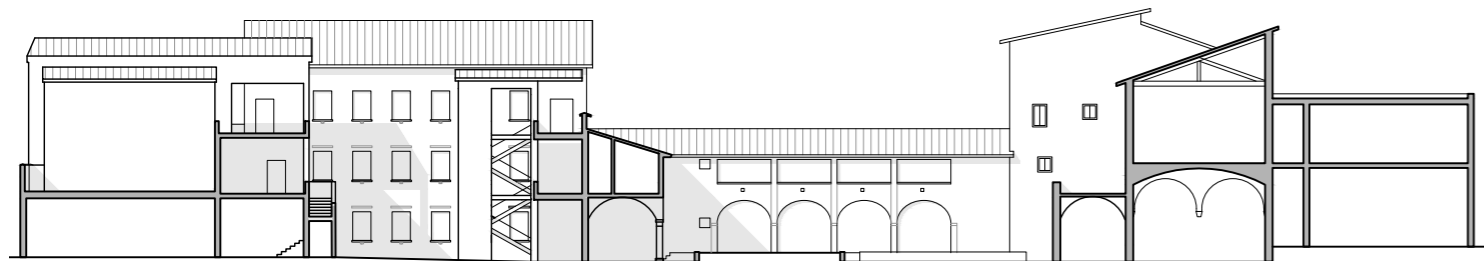


5-39 Second floor current situation, 1:800

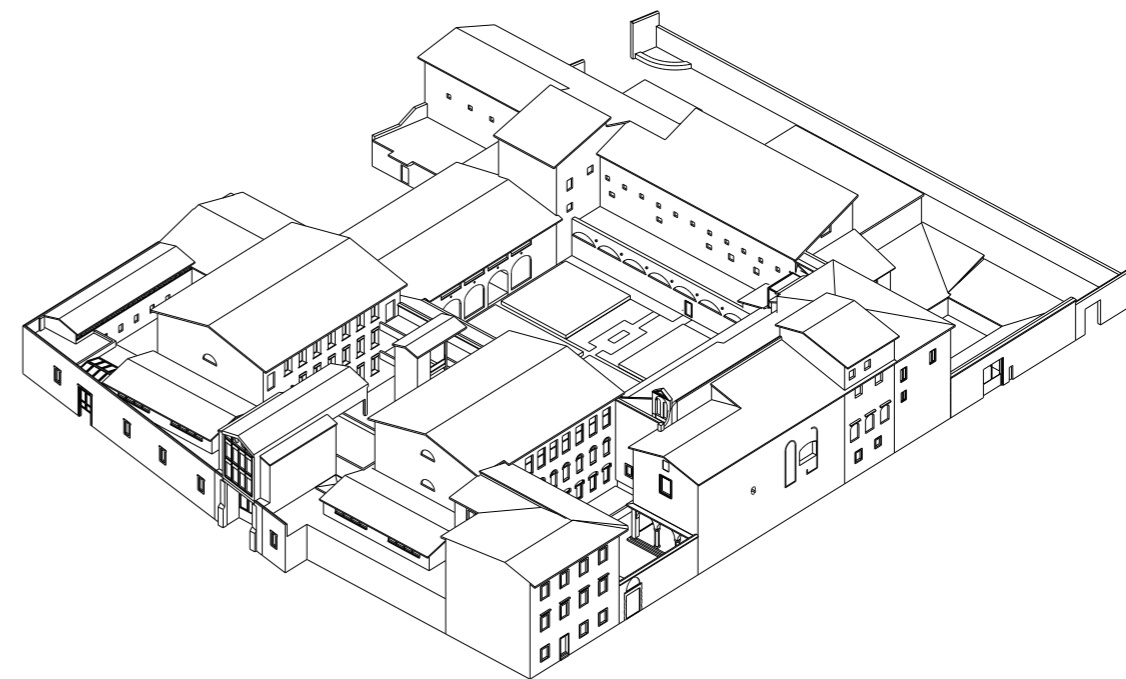


5-40 Second floor current situation, functions, 1:800

- Didactic spaces
- Professors spaces
- Services
- Apartments



5-41 Section current situation, 1:500  
5-42 Volume Santa Verdiana



The current situation of the building is the result of several centuries of transformations. The building has undergone several interventions over the many years, transforming the structure to meet the changing needs of its users and renovating or breaking down parts as they have fallen into disrepair. This happened during the holding of the monastic function, but certainly also during and between the use of the building as prison and university campus. The development has led to the building that it is today, in which a monastic structure is clearly recognizable, but the original monastery has been largely lost. However, the identity as a monastic structure has ensured that the new layers also followed the logic of the monastery.

The building is very fragmented. The various additions of building volumes have created a dynamic whole of different spaces. The internal organization of the structure takes place through the different open spaces between the volumes. A central role is reserved for the central cloister, which also fulfilled this role during the monastic function. This central cloister has been transformed and restored over the years and today is the hub of student activities <sup>1</sup>.

The original main entrance of the monastic structure was orientated towards the south. In the current situation, the main entrance is the entrance on the west side, which was created when the structure housed the university function. The current functions of the different spaces have changed from their original use. After the change of function to university, few new volumes were added. However, existing spaces were mainly transformed

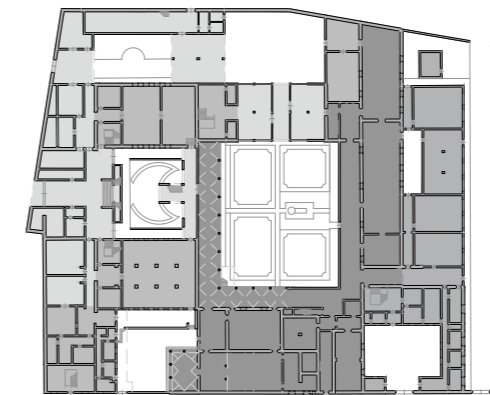
1 Farneti & Van Riel, 2017

5-43 Historic layers Santa Verdiana

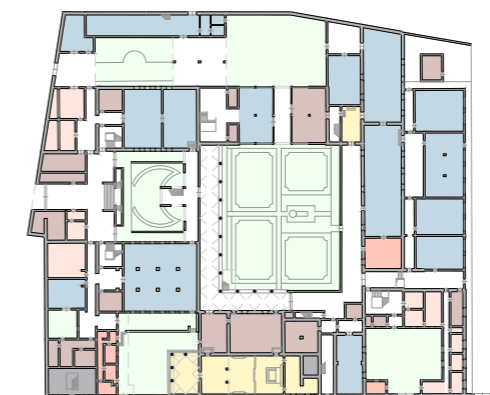
5-44 Functions Santa Verdiana

5-45 Routing Santa Verdiana

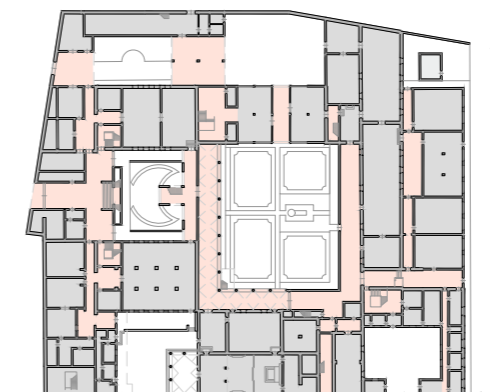
to accommodate the new use. This also applies to some rooms of the original monastery, for which the spatial quality lends itself to a specific use. A new layout has been created without the clear existing structure, with the various functions spread over the different building parts. The change of use over time led to a different hierarchy of spaces, changing the internal distribution.



- Structures monastery
- Structures prison
- Structures university

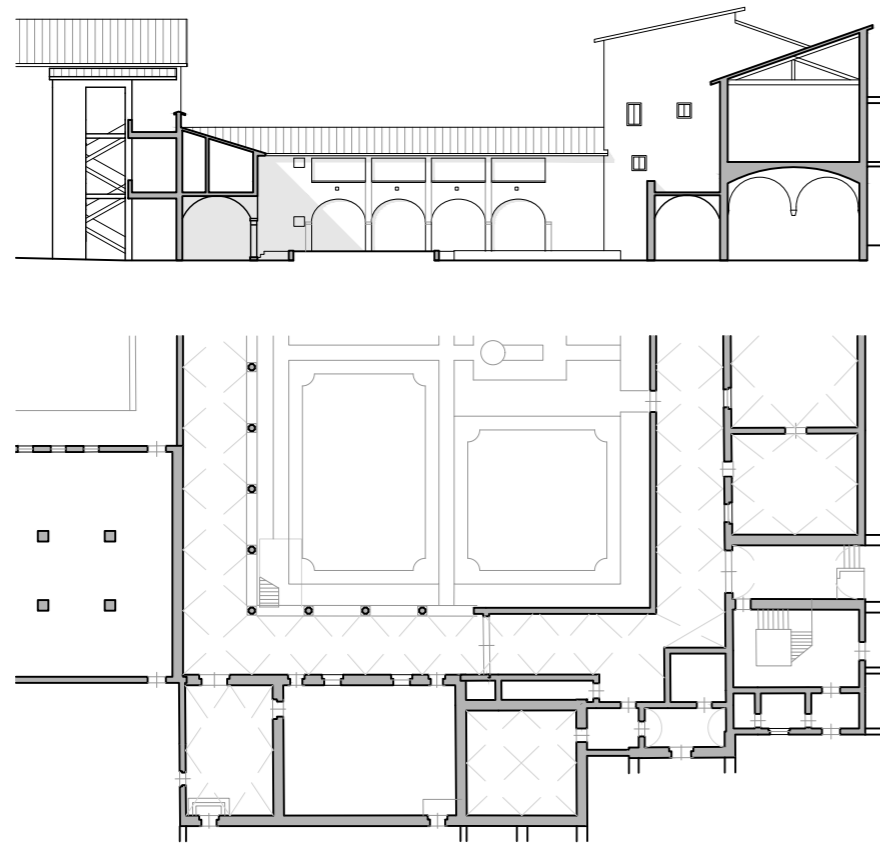


- Didactic spaces
- Professors spaces
- Student spaces
- Former religious spaces
- Services
- Apartments
- Outside space

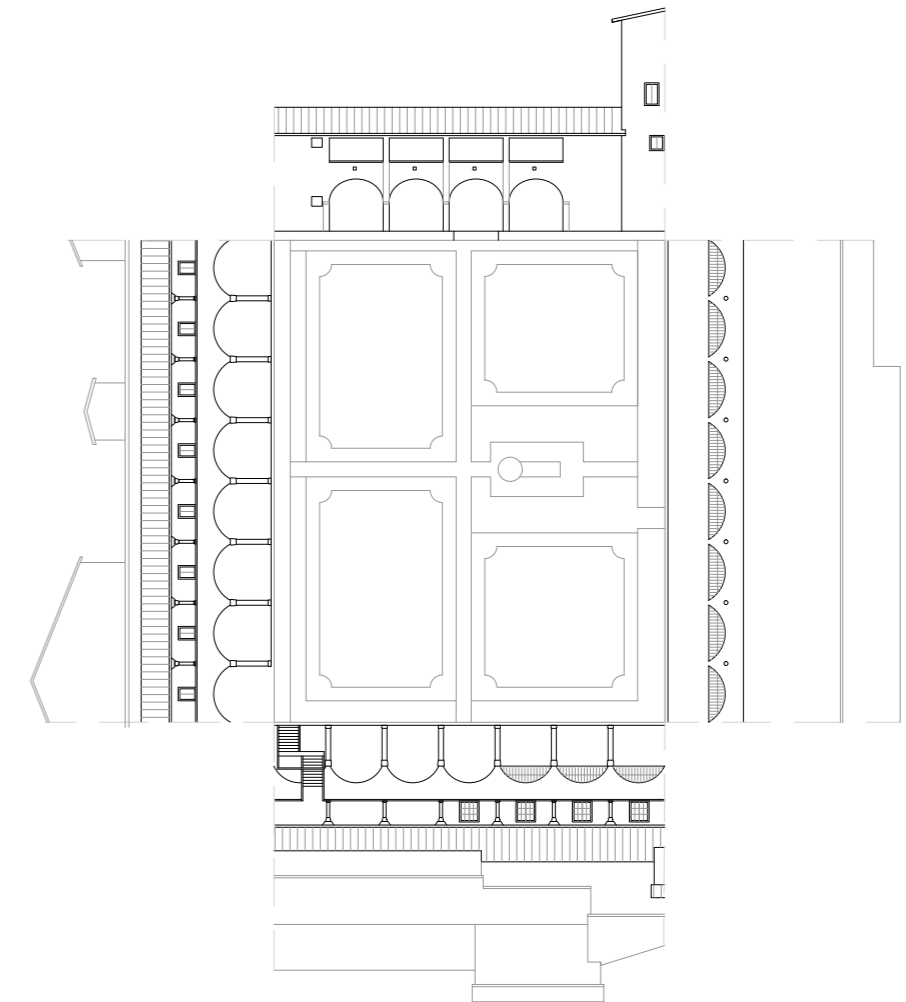


- Routing
- Room

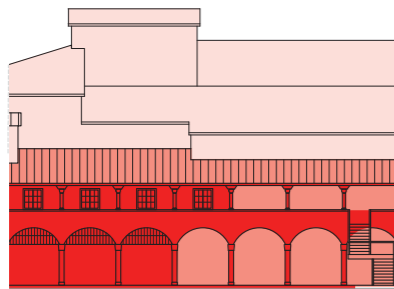
## 5.5 Cloister



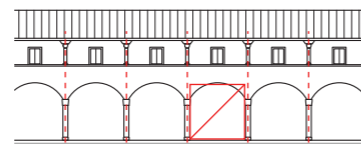
Left 5-46 Plan and section, 1:500  
Right 5-47 Plan and facades, 1:500



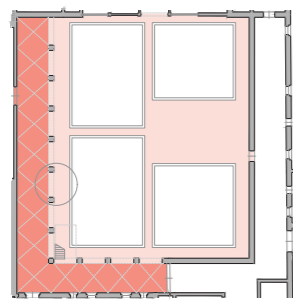




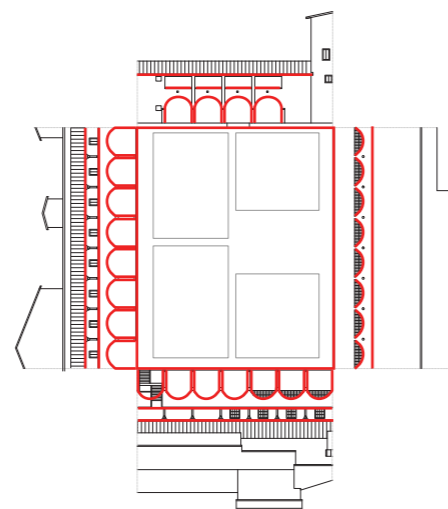
5-48 Depth in facade



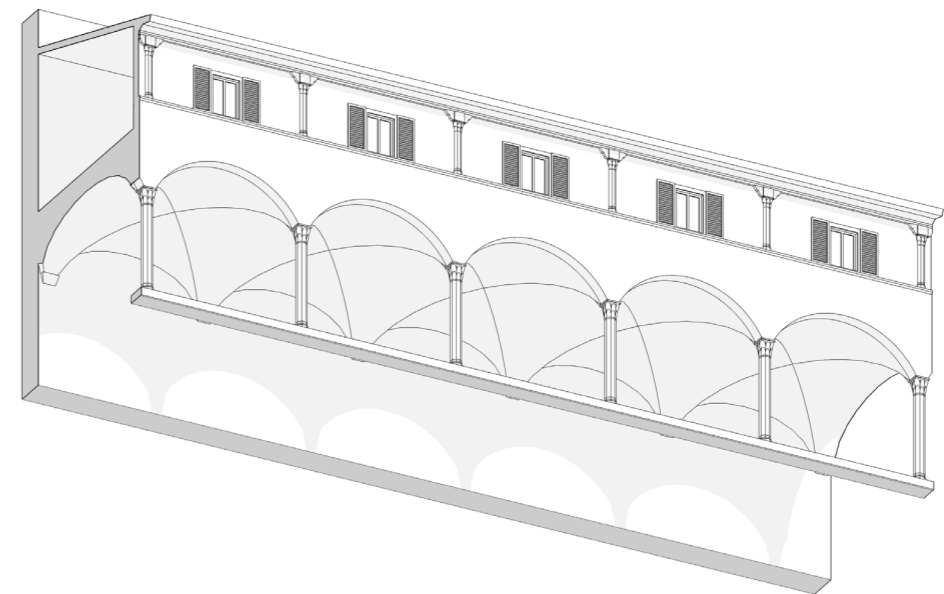
5-49 Rhythm and ratio



5-50 Hierarchy in spaces



5-51 Rhythm and uniformity



5-54 Isometric view colonnade

From a historical perspective, the cloister is the central organizing element of the structure. Even after the large number of additions and transformations of the structure, the cloister is centrally positioned and the connecting element between the different volumes. The cloister has the shape of a rectangle and has different types of facades on the adjoining sides. For a certain period, there was a colonnade that only ran on 3 of the 4 sides, on the east, south and west. The arches of the colonnade were closed over time and later partly restored to their original state. In the 20th century, a volume was added

on the north side. This volume does not have a colonnade, but has openings that reflect the shape of the colonnade. The original colonnade consists of a low base, Corinthian column and semicircular arches and spanned with a barrel groin structure. On two side, the colonnade has two levels. In the top level the rhythm of columns is recognizable, but the openings are closed in most places and provided with a window. Inside the cloister there is grass, hedges and trees with paths going through.



5-52 Colonnade cloister



5-53 View of the cloister from central well

## 6 Design

*Design for a new layer for the monastic structure of Santa Verdiana*

## 6.1 Specification design assignment

Although the religious orders currently do not play an important role in Florence, the monastic structures still play a role in the functioning of the city. These structures, which were important for the development of the city, occupy important positions in the urban fabric, the buildings are also clear landmarks, linked to the appearance and identity of the neighborhoods they are located in. These structures have undergone transformations to meet the new requirements. A number of monastic structures have been adapted in this respect, which makes it possible to still play an active social role in the city. The monastic structure of Santa Verdiana is an example of this. This building has undergone several transformations to accommodate the new function and currently still holds an important role in the city, namely as a university faculty. This makes it an interesting example of how a monastic structure can still fulfill a public role.

In a design assignment, a new layer is added to the monastic structure of Santa Verdiana. The existing structure is the result of several transformation periods and provides the opportunity to add new layers to meet the new needs of the building. The addition for Santa Verdiana will be strongly linked to the existing structure and will be constructed following the principles of the monastic typology. The design assignment attempts to create a new whole, with the additional structure which has its own identity and program that connects to the existing building.

The university building is a dynamic place in Florence that is closely linked to the city life. It is a

publicly accessible place, where various people come together. It makes an open connection to the city and is experienced as an addition to the urban fabric. A wide range of different functions are linked to the university, which result in a dynamic whole in the building structure. The monastic typology lends itself perfectly for combining multiple functions through the application of a sequence of cloisters. The monastic typology can be fully utilized in the application of a university function. The properties of the monastic typology for housing various functions is useful as a composition method for the university and the cloisters can add extra value to the quality of the building. The historical elements of the monastic structure lend themselves well to a translation to the new use of the university. By using analogies, the spatial qualities and characteristics can be translated to match the new function.

In addition to the new function of auditorium, library and student restaurant, in the extra layer of Santa Verdiana space has been reserved for the accommodation of exchange students. Multiple studios will be added, together with function connected to the housing of students like a gym and gathering space. Because student housing is added, a new dynamic is created in the structure. An interesting whole of public and more secluded places is created in the building. In the design, the inner courts anticipate on the daily sequence of the students. This results in the creation of an interesting pattern in the building through the use of hierarchy and interspaces. This allows the monastic type to be used to its fullest.

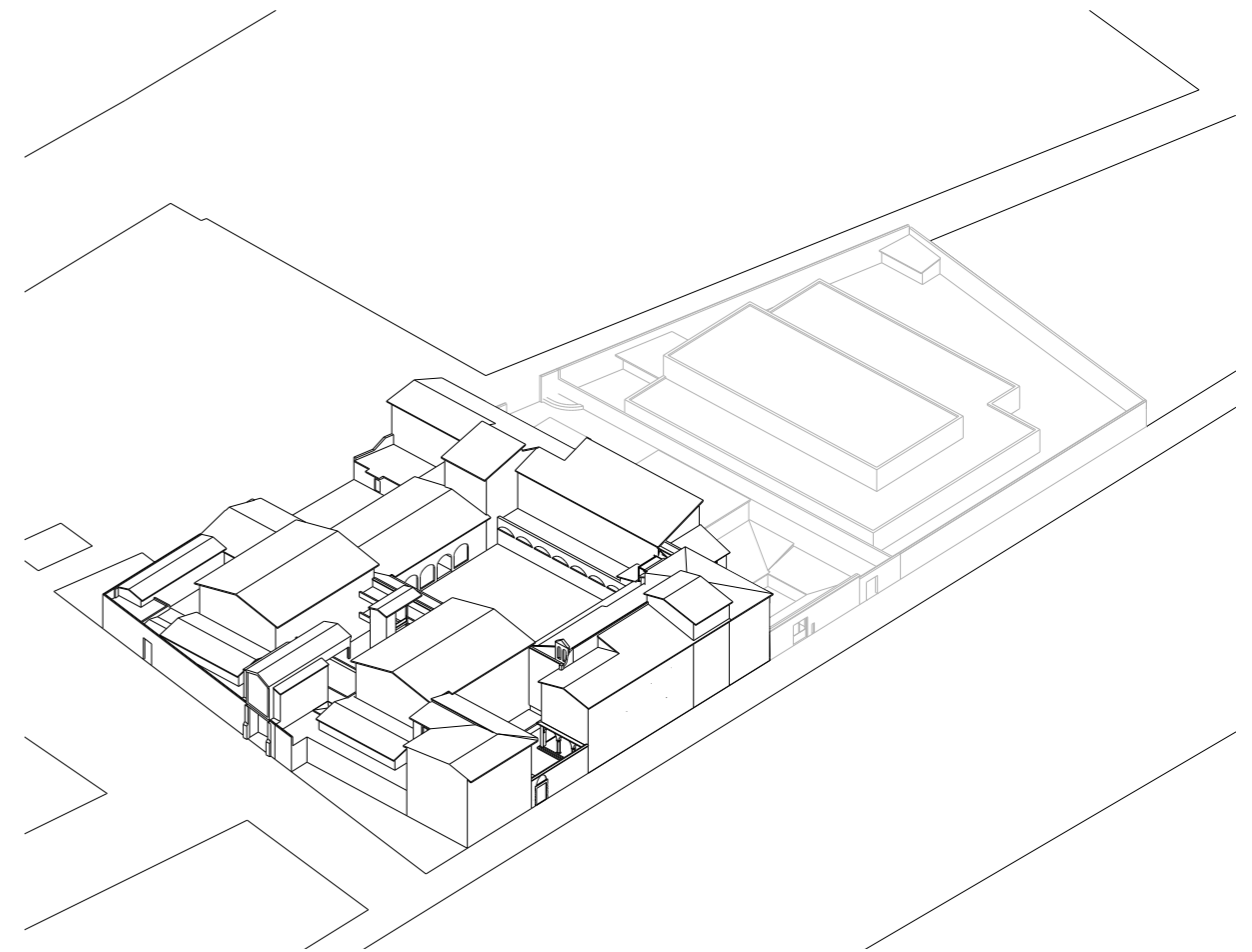
The addition of Santa Verdiana will be linked to the east side of the structure, where the garden of the structure was previously located. On this spot a building is currently located which serves as a workshop for an electricity company. This building has no architectural or historical value and is currently surrounded by a 5 meter high wall. By removing this existing volume, a building plot is created for a new addition to the structure of Santa Verdiana.

The functions that are added to the structure are linked on the one hand to the tradition of monastic structures and on the other hand to its current use as a university building. In the new layer there is space for an auditorium, library, classrooms, offices, student workplaces and studios for exchange students.

In the east side of the structure of Santa Verdiana there are currently volumes that were built up from the ground after the 2nd World War. During the transformation to the university function, the layout of these spaces was changed to make these spaces suitable for the new function. However, a thorough renovation was carried out. These volumes do not

have any architectural quality and do not match the rest of the structure<sup>1</sup>. These volumes can be removed to make space for the new building volumes for Santa Verdiana and create a good connection with the rest of the building.

An entrance on the north side of the building is currently under construction, which is orientated towards largo Pietro Annigoni. This volume does not fit into the overall configuration of the building with the new extension and is replaced in this design assignment by a volume that does match. This volume is being built which connects to the square. A passage to the new part of Santa Verdiana is made on the side of this entrance.



6-1 Current situation, removal of volumes on east side



## 6.2 Design principles

The design is based on a number of important principles derived from the design location and tradition of the monastic structures in Florence. The starting point for the design is to build on the tradition and the existing situation of Santa Verdiana. This takes into account the results of the research and specific examples from other structures in Florence. This made it possible to add a new layer to the existing structure. In the design of the structure, a number of things played a role at the same time, which determined the configuration of the addition of Santa Verdiana:

1. The existing structure of Santa Verdiana,
2. The surrounding urban fabric,
3. Rules of configuration of Florentine monastic structures
4. Principles connected to the identity of the various new building volumes.

### 1. Existing structure of Santa Verdiana

The existing Santa Verdiana monastic structure has its own configuration and development history. The structure is linked to the monastic typology which influenced the further development of the structure. It has its own rhythm to which should be considered and included in the addition. The existing structure determines the possibilities of the positioning of the link to the new volumes.

### 2. The surrounding urban fabric

The urban fabric provides a clear framework where the addition must fit in. The boundaries of the plot are defined by streets and existing volumes, which

results in an irregular plot. The position of the surrounding buildings is leading in the orientation of the structure. The connection to the environment is very important. In the height, positioning and orientation of the new volumes the surrounding buildings are taken into account.

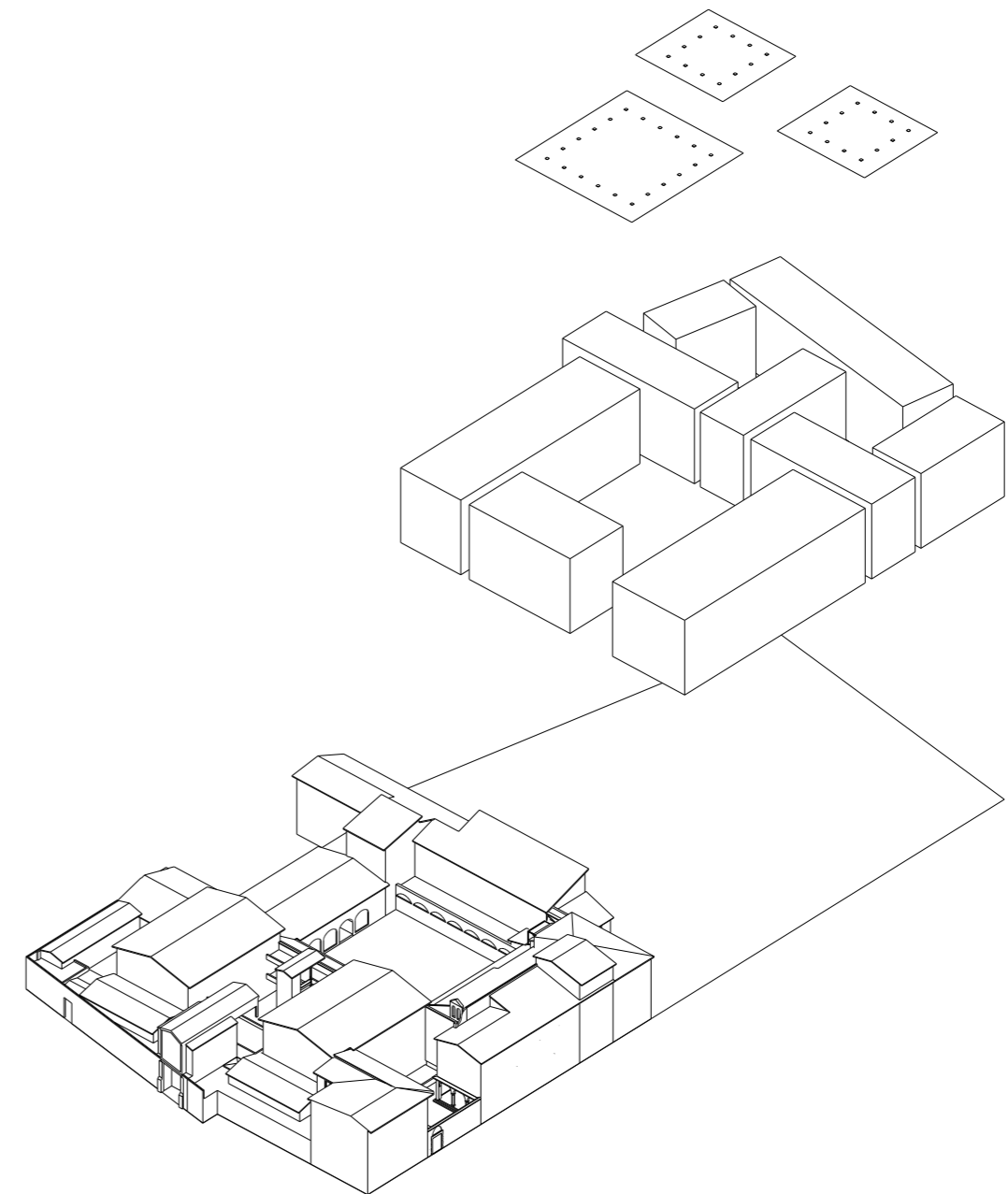
### 3. Rules of configuration of Florentine monastic structures

The cloisters play a central role in the configuration and functioning of the structure. The cloisters are connected to the different building volumes and are connected to each other, resulting in a logical sequence. The different cloisters have a specific proportion and hierarchy.

### 4. Principles connected to the identity of the various new building volumes.

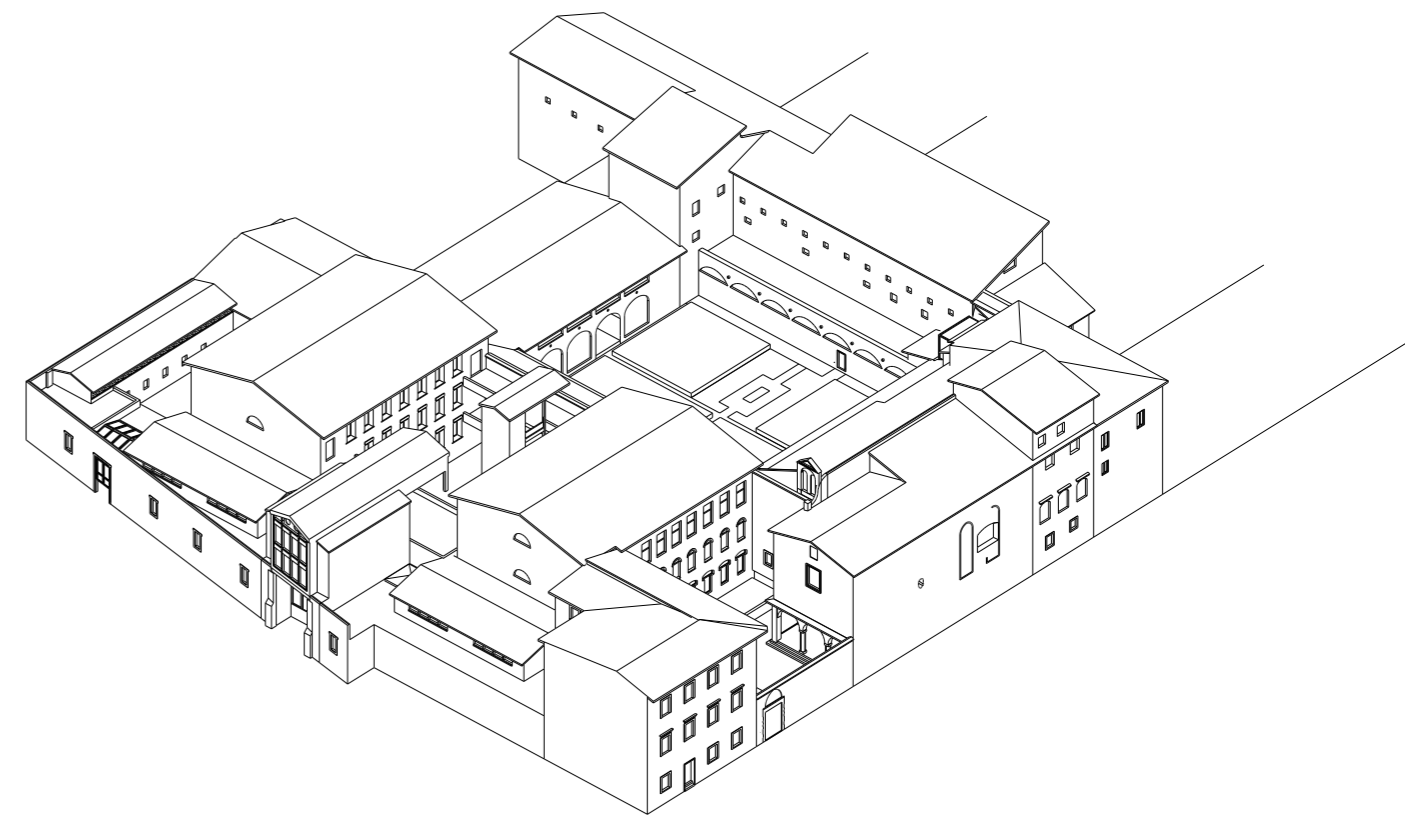
In the monastic structures the different volumes have their own specific configuration rules. The historical volumes that are characteristic to the Florentine inner-city monasteries are translated into new functions that are connected to the function of university faculty and added in the new structure of Santa Verdiana. The added new functions are an auditorium, library, classrooms, offices, student workplaces and studios for exchange students.

The different volumes are closely linked to the use of the building. They are designed from a configuration of spaces organized around a cloister. In terms of size, the volume has a hierarchy in the whole. The spaces have a relationship with one or multiple cloisters.



### 1. The existing structure of Santa Verdiana

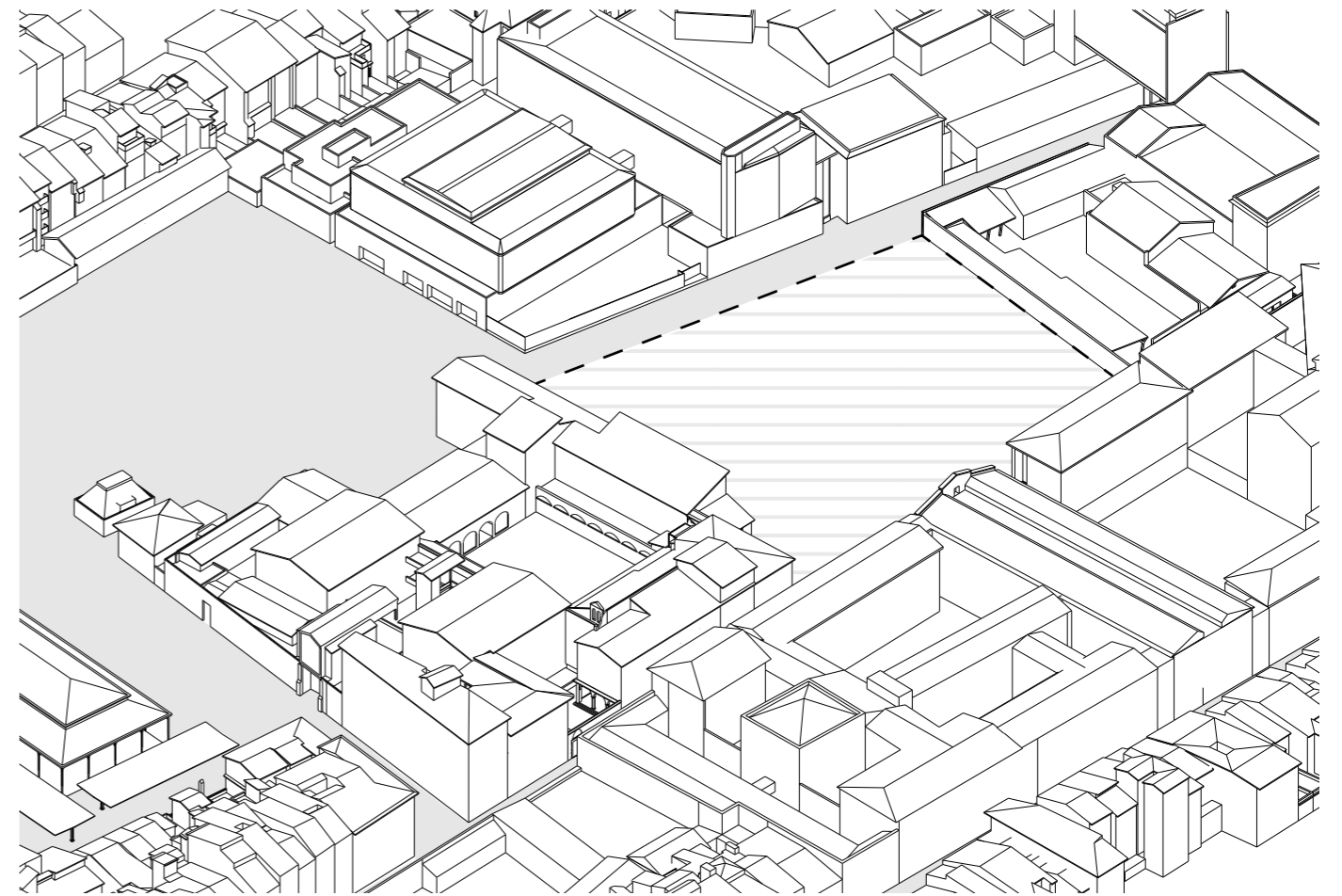
The addition for the building of Santa Verdiana should be strongly linked to the existing structure. The rhythm and feeling of the new part should be in line with the existing structure. The rhythm of the existing volumes has been taken into account in the design of the expansion. The organizational methodology of the existing monastic structure has been used in the new structure. Functionally, the new volume connects to the existing function as a university building. A library, an auditorium, a dining hall and areas for student housing are added. These new functions are based on the historical function of monastic structures and at the same time connect to the new use as a university building.



## 2. The surrounding urban fabric

The urban fabric provides a clear framework within which the new addition of Santa Verdiana must fit. The available lot on which the extension is made has a shape without orthogonal angles. This creates challenges for the configuration of the monastic structure which traditionally has an orthogonal organization. The building plot results in cloisters and volumes that are not organized orthogonally, but that have more dynamic shapes.

The surrounding buildings play a central role in the orientation of the structure, the volume takes the different sides into account. On the south side of the structure, the historic route is situated to which the monastic structure was originally orientated. This tradition is taken into account in the design. The market on the west side and the square on the north side later changed the organization of the structure, so that new entrances were designed. On the east side of the structure is a building with a garage on which the new volumes cannot be orientated.



6-4 Boundaries plot and surrounding urban fabric

### 3. Rules of configuration of Florentine monastic structures

The configuration methodology of the addition of Santa Verdiana builds on the tradition of the monastic structures. The volumes are organized around several cloisters, to which they are orientated. These cloisters provide air and light. The cloisters form a connection with the various areas of the monastic structures.

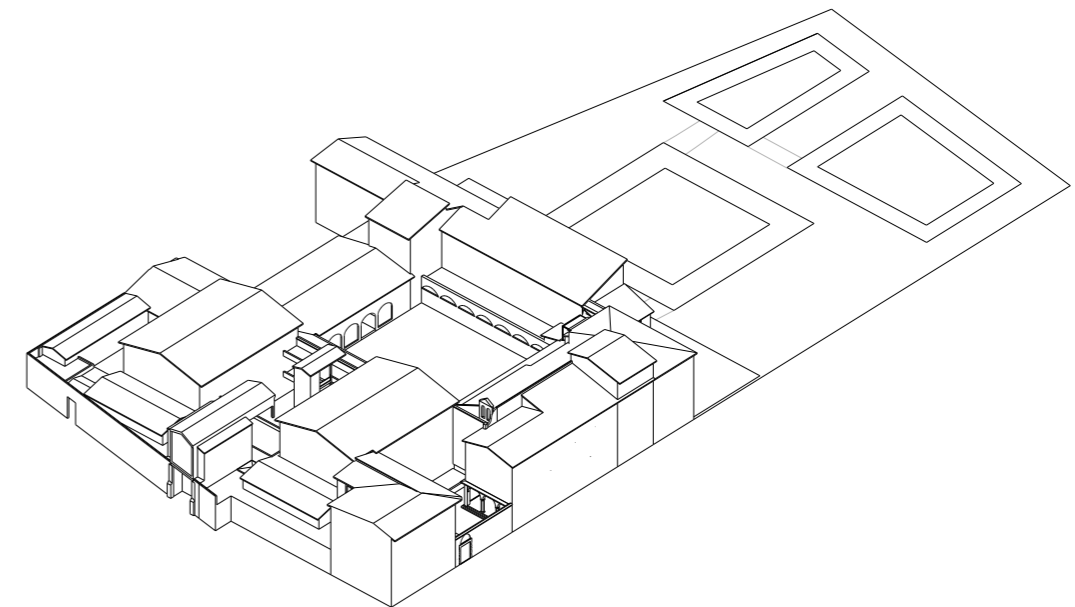
The different cloisters have a different role and hierarchy in the structure. A clear hierarchy between cloisters can be recognized in the monastic structures in Florence. In all cases there is a central cloister, to which the primary functions of the structure are linked. This central cloister has a pure geometric shape, derived from the ideal as a cloister. The other cloisters have their own configuration and fulfill a specific secondary role. This principle is also applied in the addition for Santa Verdiana. There is a main cloister in which the central functions are placed so that they are easily accessible and recognizable. This cloister is in proportion similar to the already existing central cloister in the structure. There is also an entrance cloister which forms the connection to the street. To reach the studios of the exchange students, a sequence of cloisters must be followed. There is a cloister which functions as a transition area and a cloister which is functionally fully linked to the student housing.

Despite the dynamic composition, extra attention has been paid to the routes in the structure. The routes have straight lines. The cloisters are the

central organizational elements in the buildings. The vertical connections are located at the end of the walking lines.

The role of the cloister in the historical examples is comparable to the new application. In the inner-city monastic structures, the cloister was used for routing, but it is also a place of silence and multi-functional use. It is a place to meet and forms the heart for the structure. These properties are also valuable in its new use as a university building. The cloister is a place for meeting, studying, eating and relaxing. The green space in the urban fabric provides an open space with quality. For the students, it is a place to study, to meet and to create tranquility in the dynamic city of Florence.

The cloister has a certain rhythm which is derived from the configuration. The adjacent colonnade continues at a uniform pace. The design of the spaces linked to the cloister responds to this rhythm. The configuration of the cloisters is therefore a generator for the design. The proportions of the spaces, the hierarchy in positioning and size, the sequence of connection and the rhythm of the colonnade have generated the design.



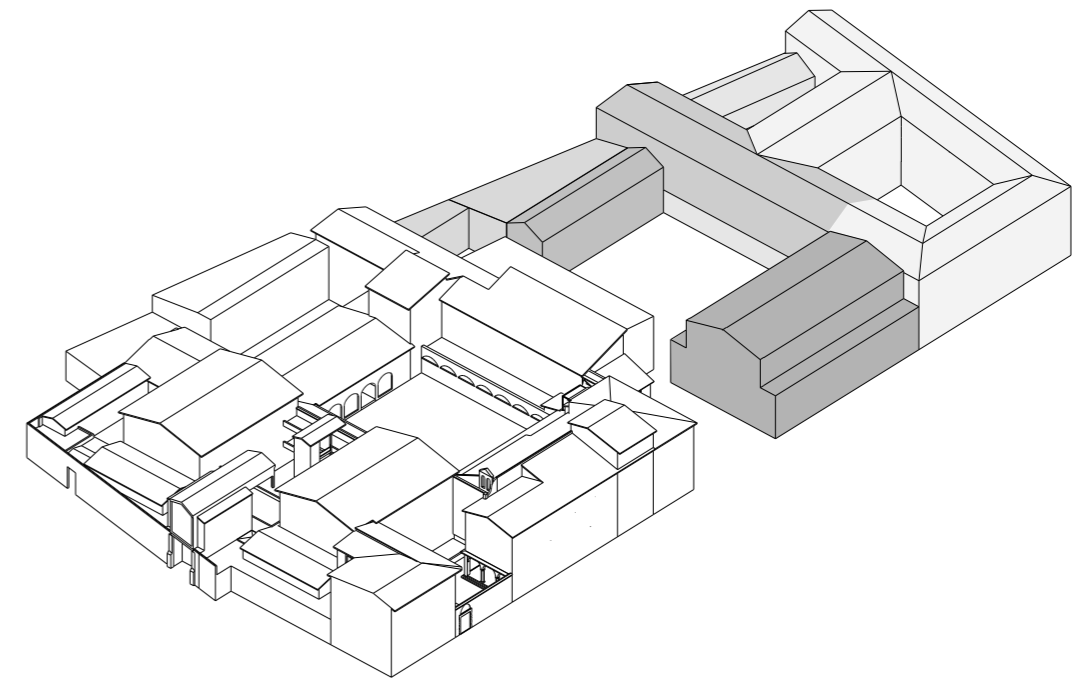


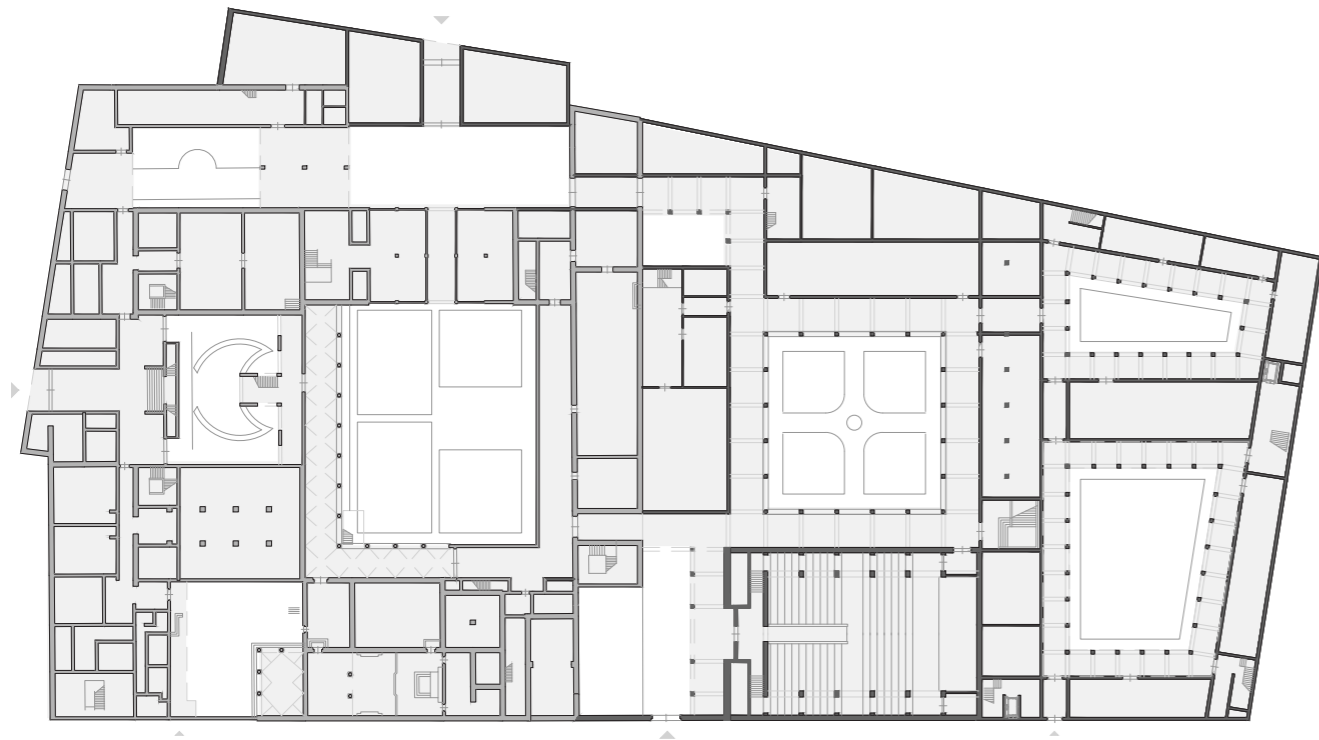
#### 4. Identity of the various building volumes

Specific characteristic volumes can be recognized in the tradition of monastic structures. These volumes play a role in the functioning of the structure and have a leading role in the configuration of the structures. The different volumes with associated function have a certain logic and use. They have a specific role and hierarchy in the structure as a whole and a recognizability in their configuration. They are designed based on the function they fulfill, which makes them different and recognizable. The different spaces are used in a certain way and a spatial component is linked to this. This not only concerns the horizontal organization, but also the heights of the different volumes, creating a hierarchy.

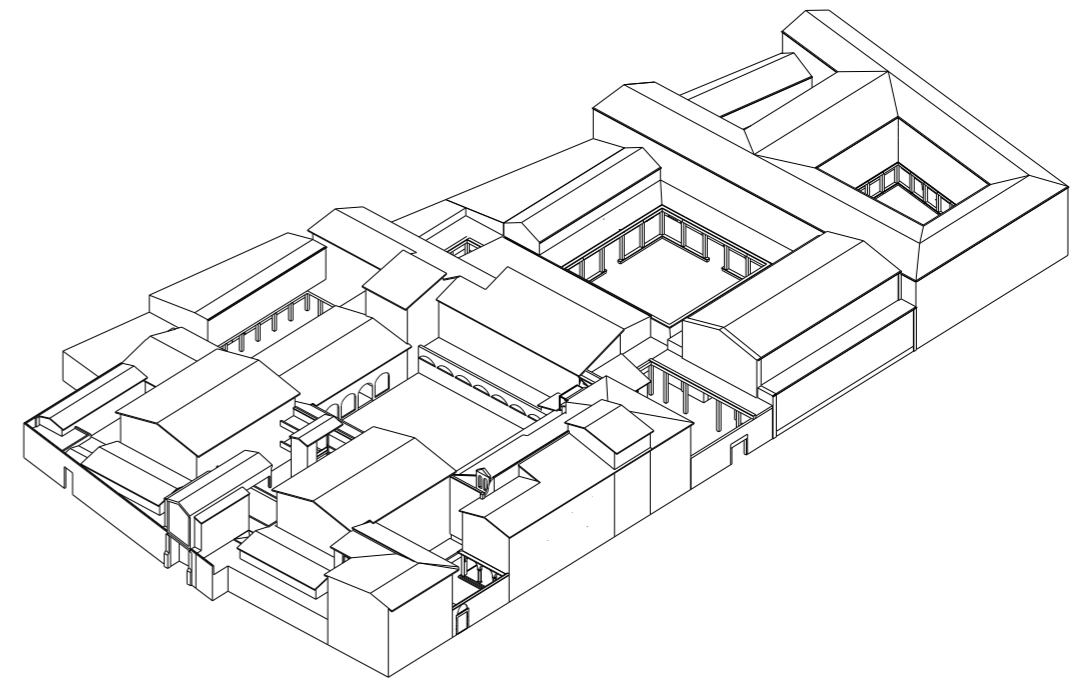
The different important volumes and their use and characteristics played a prominent role in the configuration of the new layer for Santa Verdiana. The new volumes for the new layer on Santa Verdiana are a translation in use and a translation in space. The historical examples were not directly adopted because in many cases they do not match the current use. A translation has been sought in which the recognizability and spaciousness of the spaces has been preserved. This was done by adopting proportions, elements and positioning in the structure. These properties have acted as a generator for the design. The rules associated with the volumes

have helped generate the layout of the structure. The historical volumes that have been translated played a central role in the historic monastery structures in Florence and have a recognizable appearance: the volume of the church, the library, the refectory and the sleeping quarters for the residents. These have been translated to auditorium, library, dining room and studios for exchange students.





6-7 Santa Verdiana with new layer, 1:1000



6-8 Santa Verdiana with new layer

## 6.3 Building volumes

### Auditorium

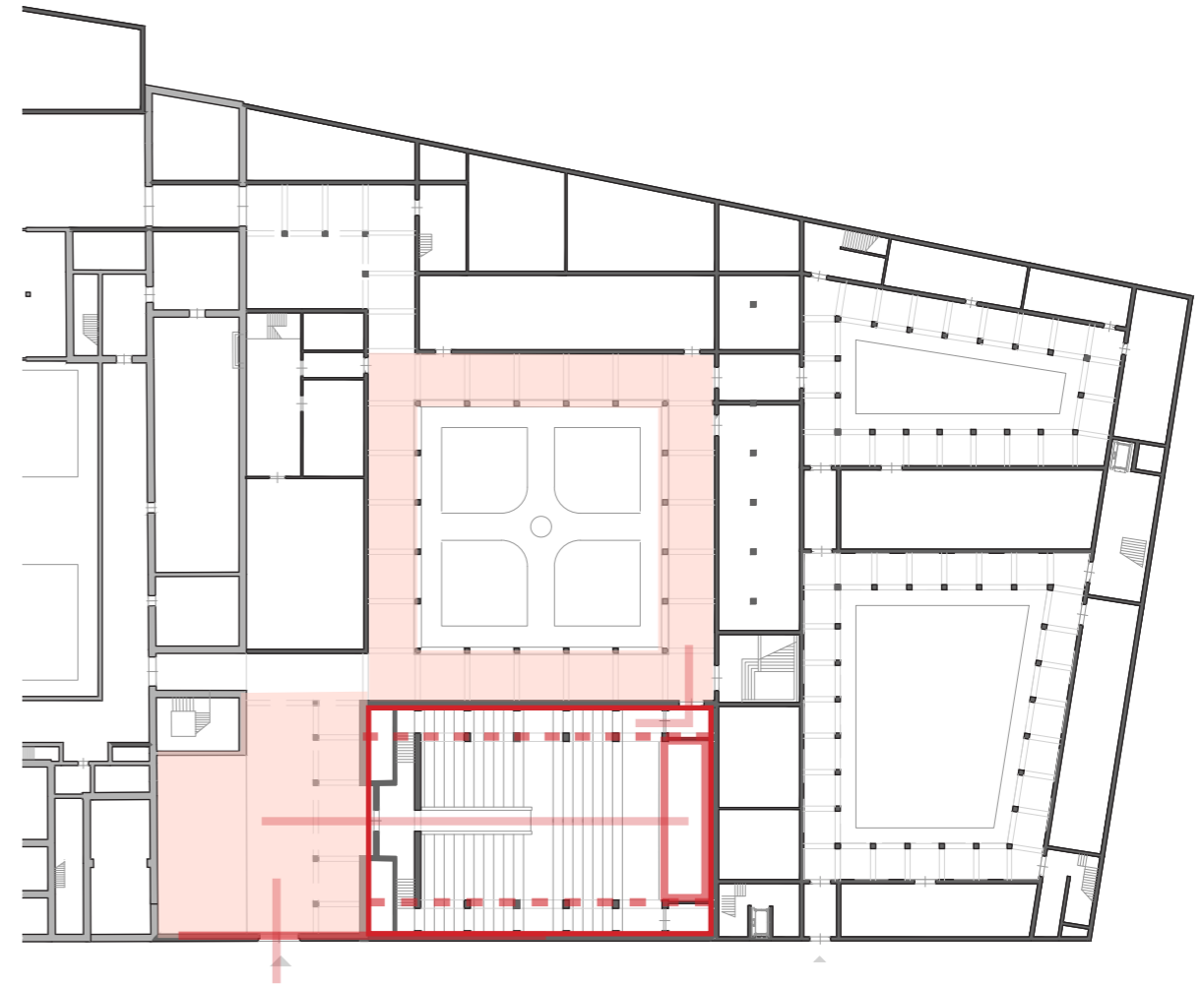
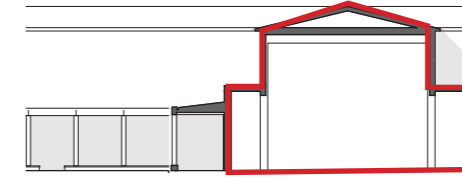
The volume of the church has a prominent role in the monastic structures. This space was used daily by the residents of the monastery, but also by the people in the area. The volume has a prominent positioning with the front facade facing the square. The front of the church also defines the front of the monastic structure. It is the largest volume and landmark of the structure. The church is linked on the side with the primary cloister.

In the extension, a translation has been made of the volume of the church as an auditorium. The auditorium is constructed as a high volume with three naves. The seats in the volume are raised making it possible to see the speaker well. The volume is positioned on the south of the complex,

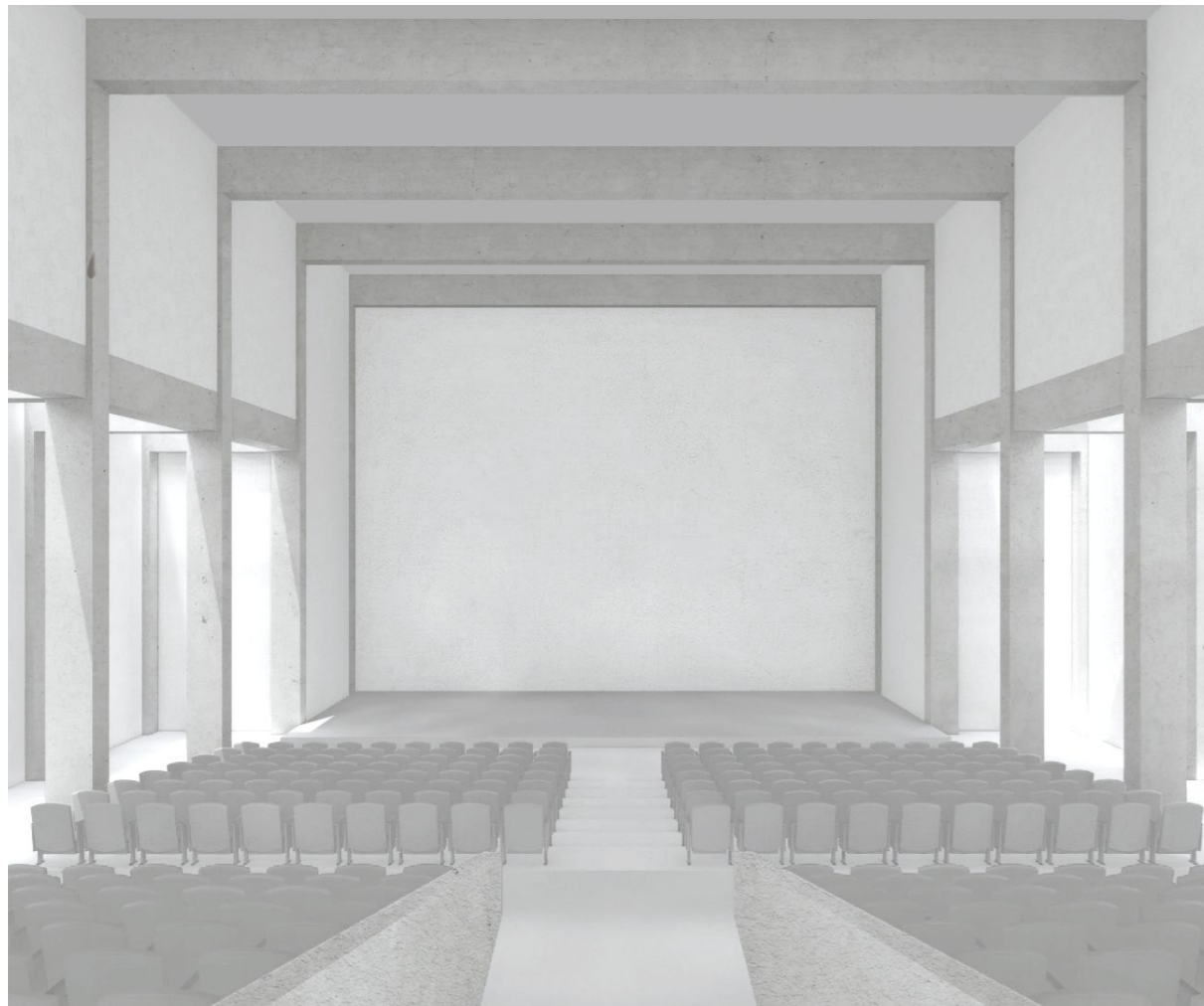
connected to the historic route and following the logic of the Chiesa of the Santa Verdiana structure. In the positioning of the volume, the central axis of the volume is linked to the entrance courtyard at the front. This central axis of the building has been preserved by inserting a passage through the elevation, so that the symmetry can be preserved when entering the building through the main entrance. On the side, the volume is linked to the primary cloister along which it is positioned. The rhythm of the central cloister has been adopted as the rhythm for the construction of the volume.



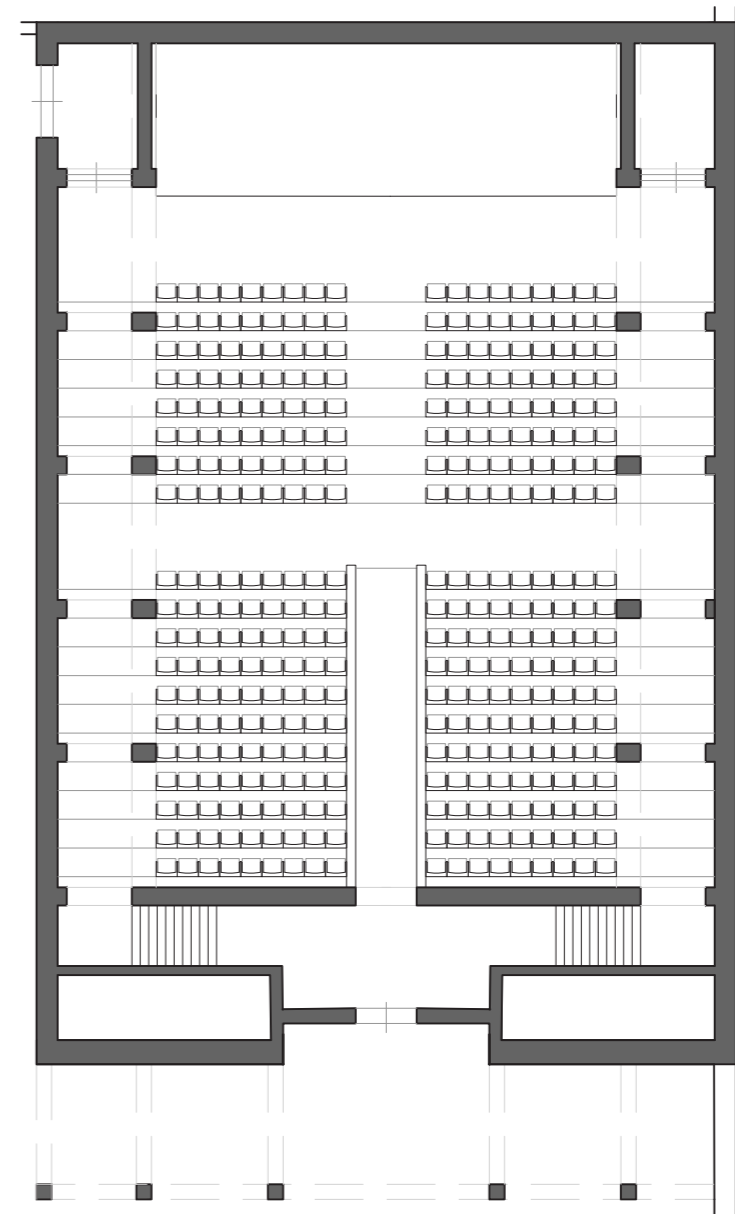
6-9 Basilica Santa Maria Novella  
6-10 Basilica Santa Croce



6-11 Configuration of auditorium on ground floor



6-12 Volume impression auditorium



6-13 Plan of auditorium, 1:250



### Library

There are a number of examples of monastic structures in Florence containing a library. The library in San Lorenzo and San Marco are the best known examples. These libraries are positioned on the higher floors and are used for the storage and reading of books. The spaces were used by the residents of the monastery, but were also accessible for people of the city. The library is a symmetrical elongated space with space on both sides for reading and storage for books.

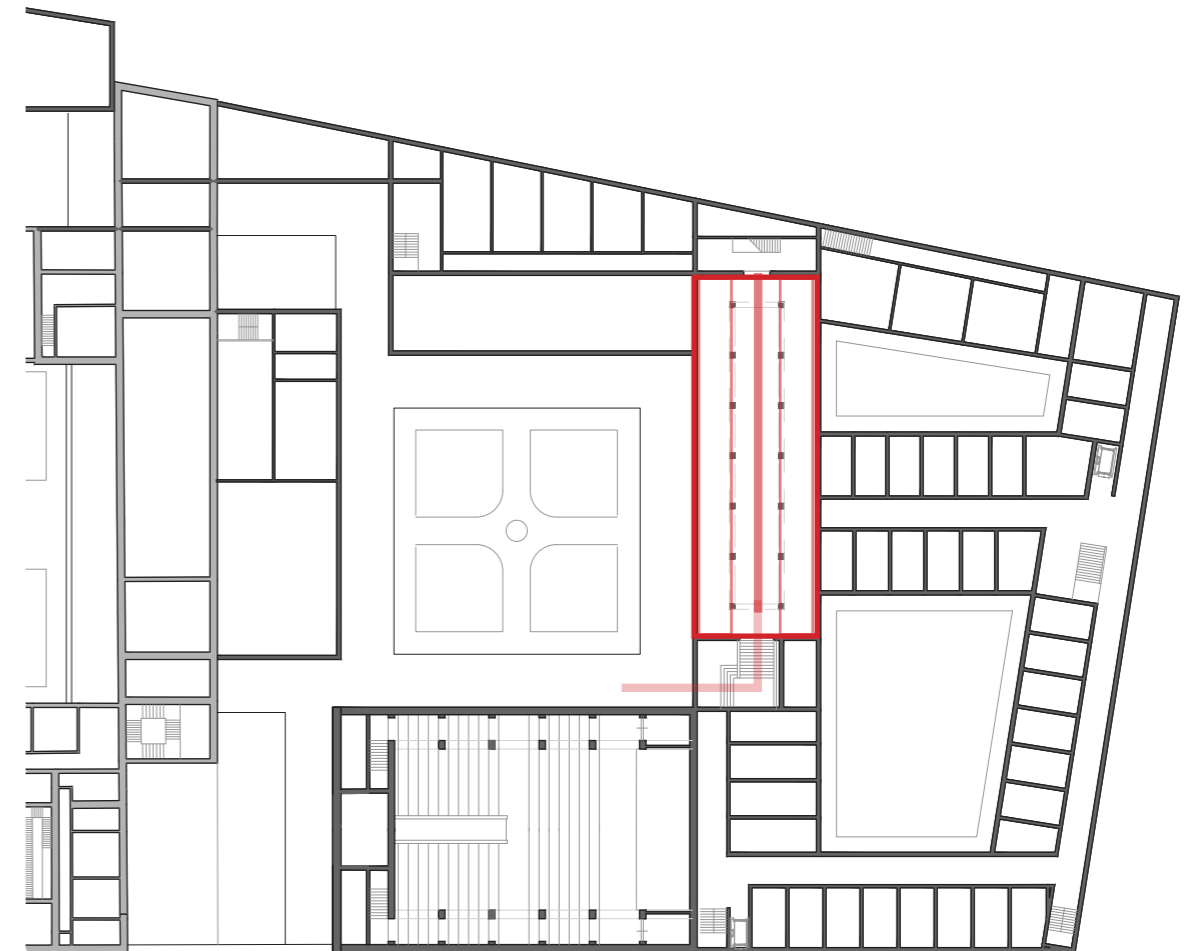
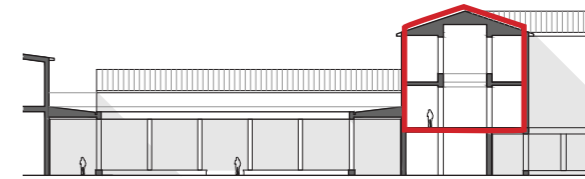
A library will be added in the extension of Santa Verdiana. The function of the library is inextricably linked to a university. The use of this space has been adapted to the current standards in which, in addition to reading, these spaces can also be used

for studying and consultation. The elongated space is located on the first floor and can be accessed by a prominent staircase connected to the central cloister. The library has two rows of columns, just like the library of San Marco. The library consists of two layers, with a central void through which the height can be observed and light can come in. The rhythm of the central cloister has been taken over in the columns.



6-14 Library San Marco

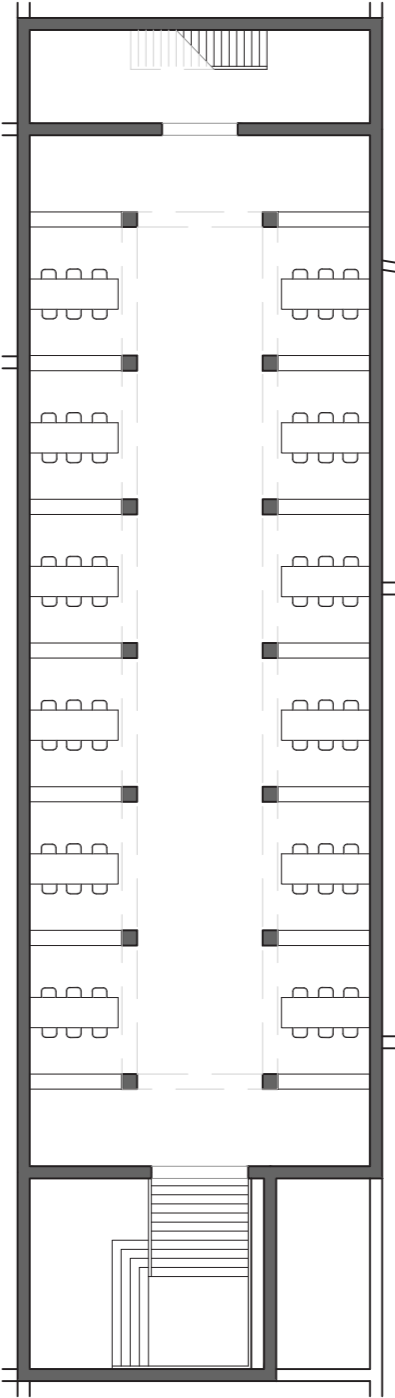
6-15 Laurentian library



6-16 Configuration of library on first floor



6-17 Volume impression library



6-18 Plan on first floor, 1:250

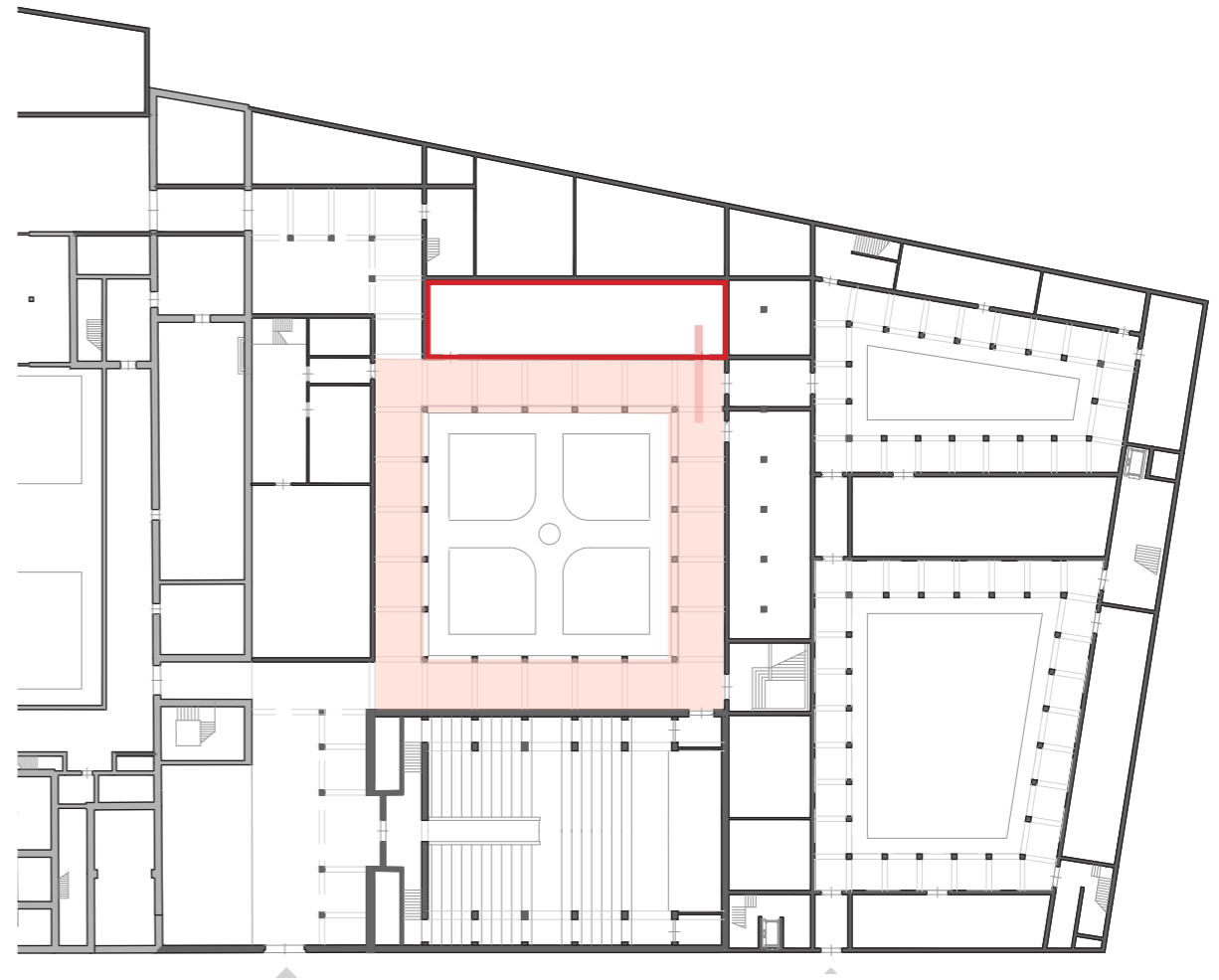
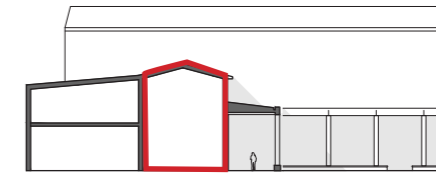
### Student restaurant

The refectory is the room where the inhabitants of the monastery eat daily and is a place where people gather. The refectory has a high volume and is often recognizable in its configuration. The volume plays a central role in the residents' day and has a prominent position, linked to the central cloister.

In the new situation, the volume of the refectory will be used as a student restaurant. It is a self-contained volume with a high ceiling. The volume is linked to the central cloister and is also functionally connected to it.



6-19 Refectory Sant'Apollonia  
6-20 Refectory Santa Croce



6-21 Configuration of student canteen on ground floor

### Studios exchange students

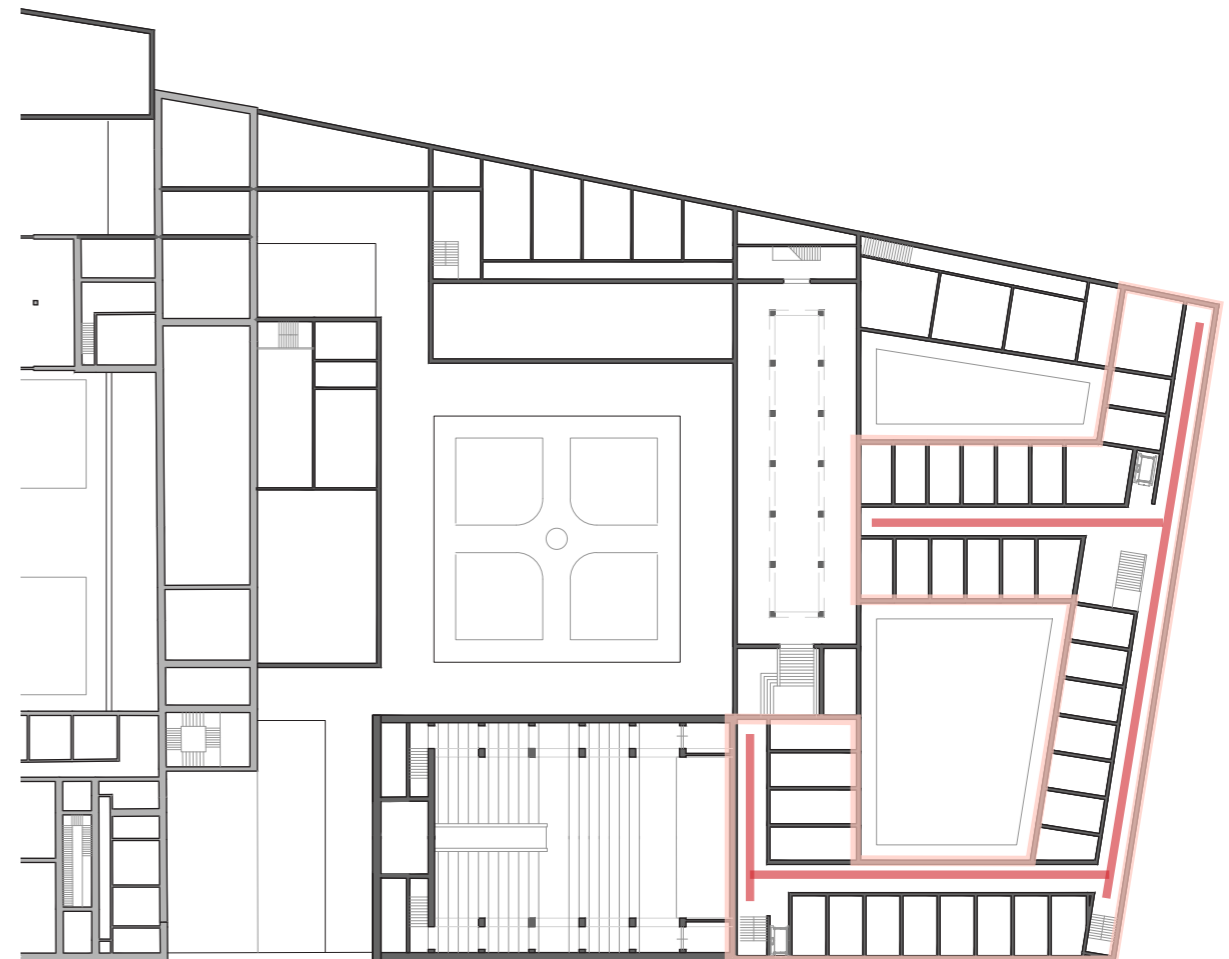
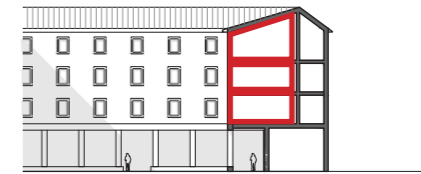
In many cases, the sleeping quarters of the inhabitants of the monasteries are organized as spaces connected to a straight corridor. The rooms are not directly accessible from the central cloister, but are often positioned on the first floor and on a secondary cloister.

The extension of Santa Verdiana will have studios for exchange students to stay. These students are present in the city for a short period of time and are therefore extra connected to the university. Because of this function, the monastic typology can be used to its full potential, creating different spaces connected to different users. The sleeping quarters for the exchange students are positioned on a secondary cloister in the structure. These rooms of the exchange

students are not accessible to everyone, but can be reached through a sequence of cloisters. Studios have been created on the first, second and third floor, organized along a corridor. These corridors are aimed at the stairwells or at an opening in the facade. The rhythm of the studios is derived from the configuration of the cloister it adjoins.



6-22 Corridor San Marco  
6-23 Cell San Marco



6-24 Configuration of student studios on first floor

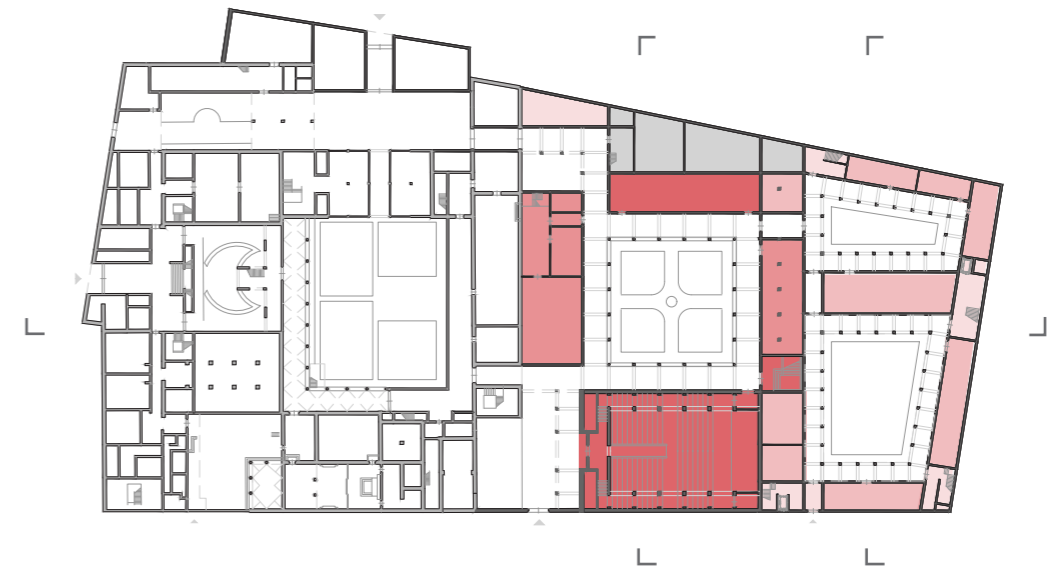


## 6.4 Configuration of the extension

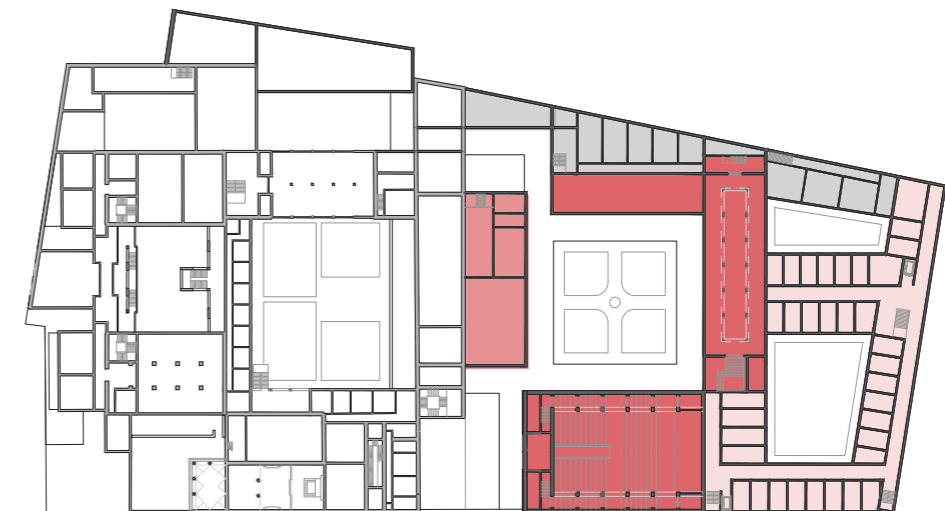
A clear hierarchy can be recognized in the configuration of building. A clear structure was sought that provides a good relationship with the function as a university structure. The layout has been created in a way in which the daily ritual of the student is followed and a structure is created in which the functions are recognizably positioned. The routing in the structure is organized by the various cloisters, which are set up in a clear configuration. There is a recognizable hierarchy in the routing with a clear connection to the important volumes, passageways to other cloisters and the staircases. The main cloister is directly linked to the existing structure of Santa Verdiana. The studios are accessible following a sequence of spaces and passageways



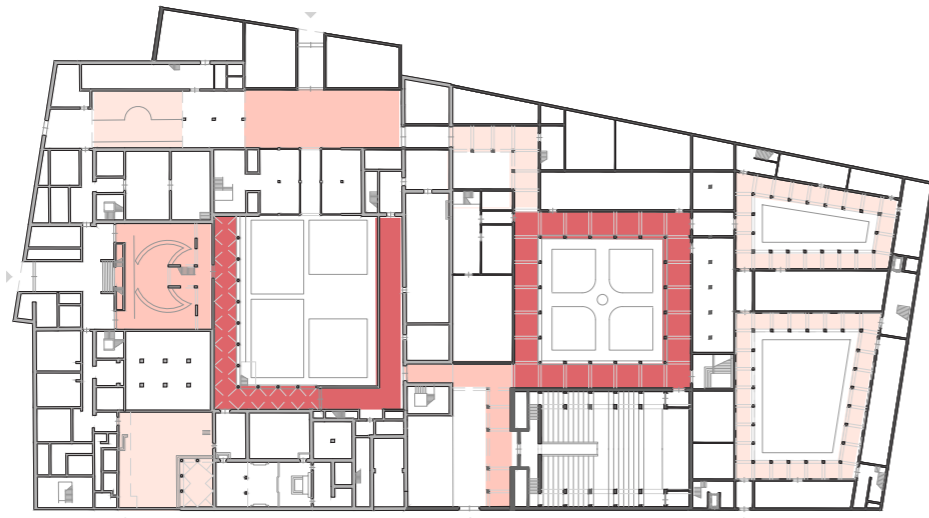
- 6-25 Functions and hierarchy of extension
- Central university functions
  - Classrooms
  - student spaces
  - studios
  - offices, secondary spaces



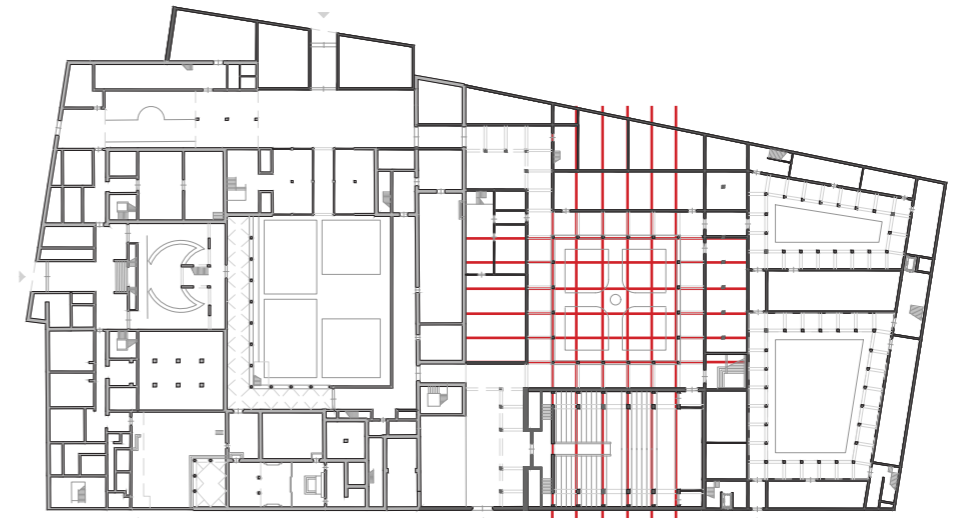
6-26 Functions and hierarchy of extension, first floor



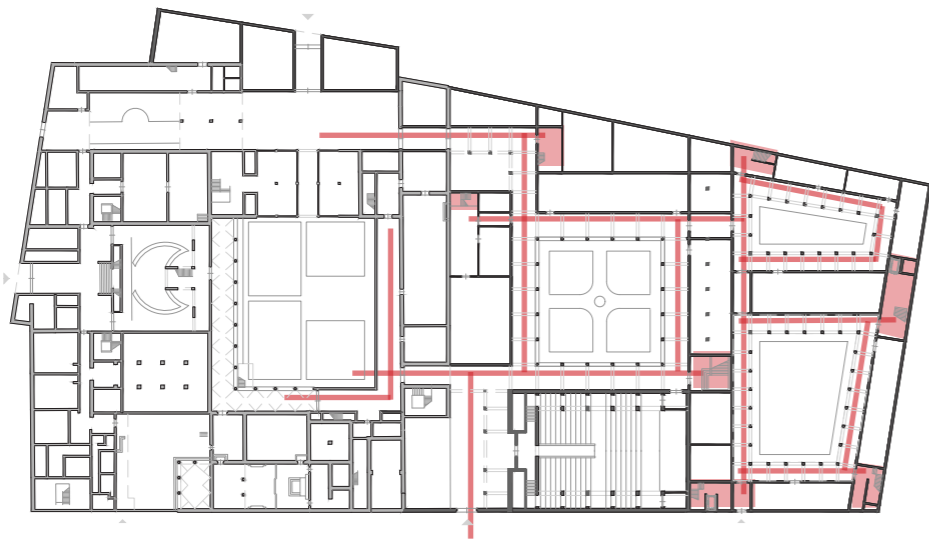
6-27 Functions and hierarchy of extension, first floor



6-28 Hierarchy in routes and outside spaces

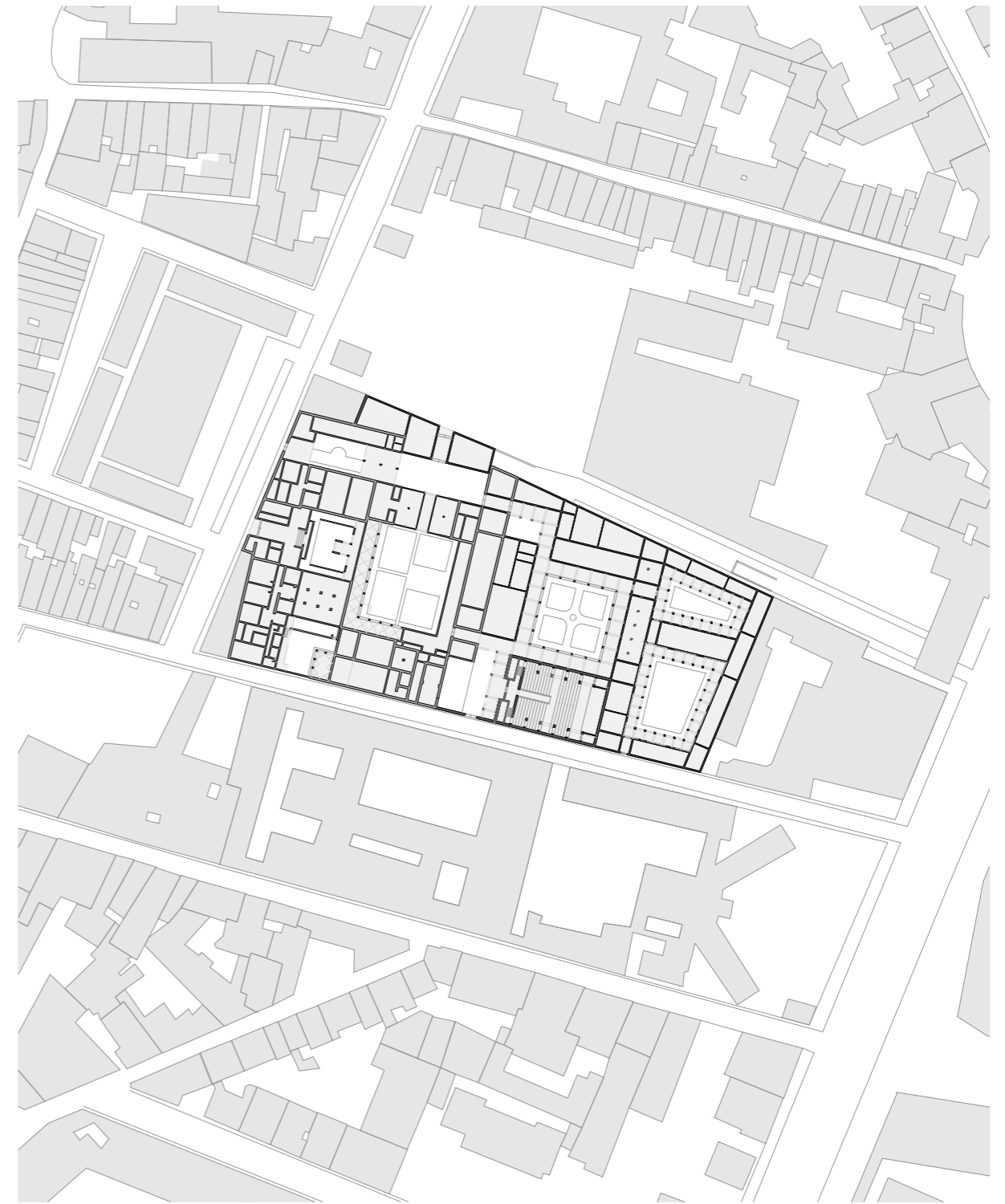


6-30 Rhythm in cloister in relation to adjacent buildings

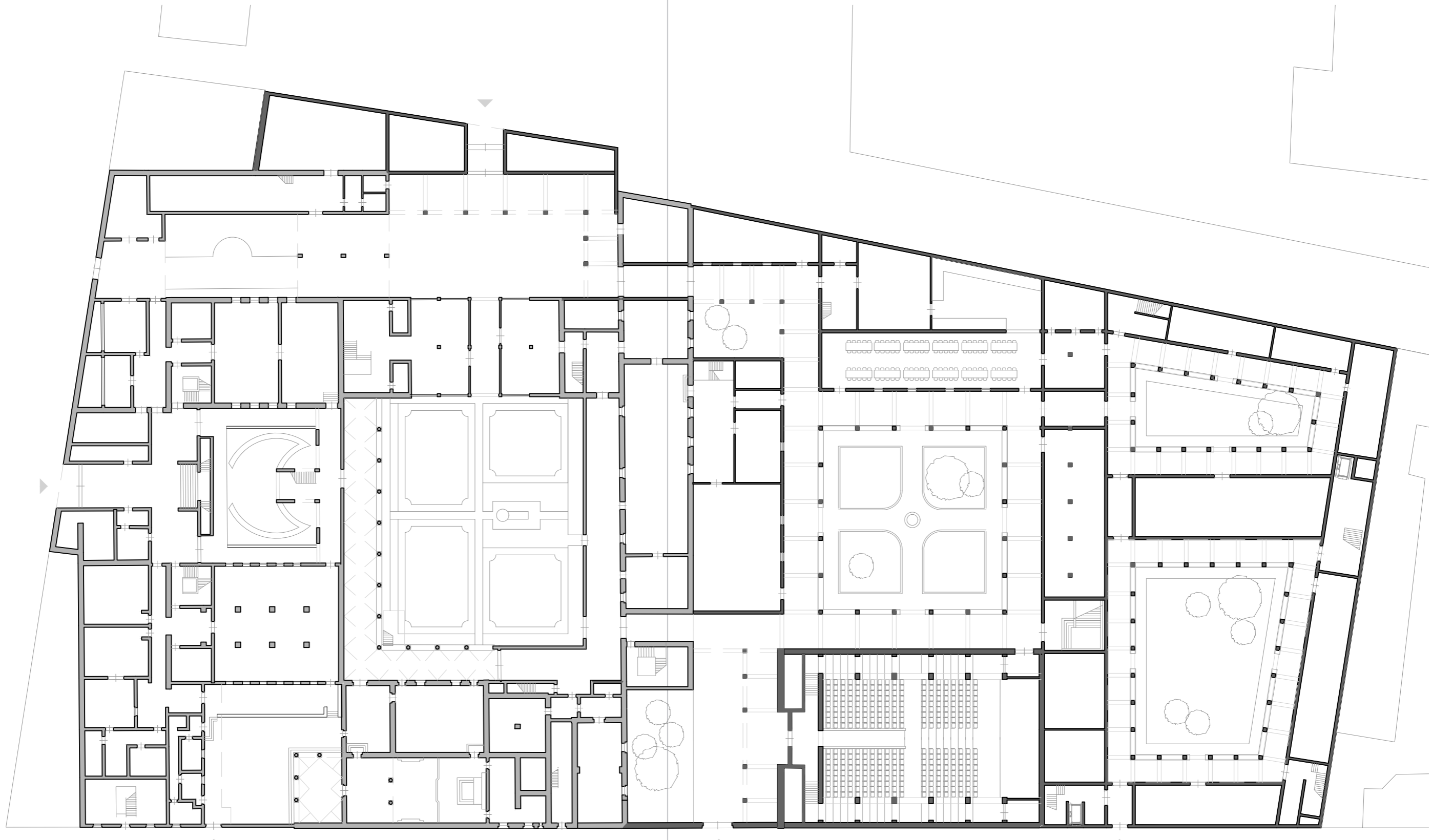


6-29 Horizontal and vertical routing

## 6.5 Design drawings

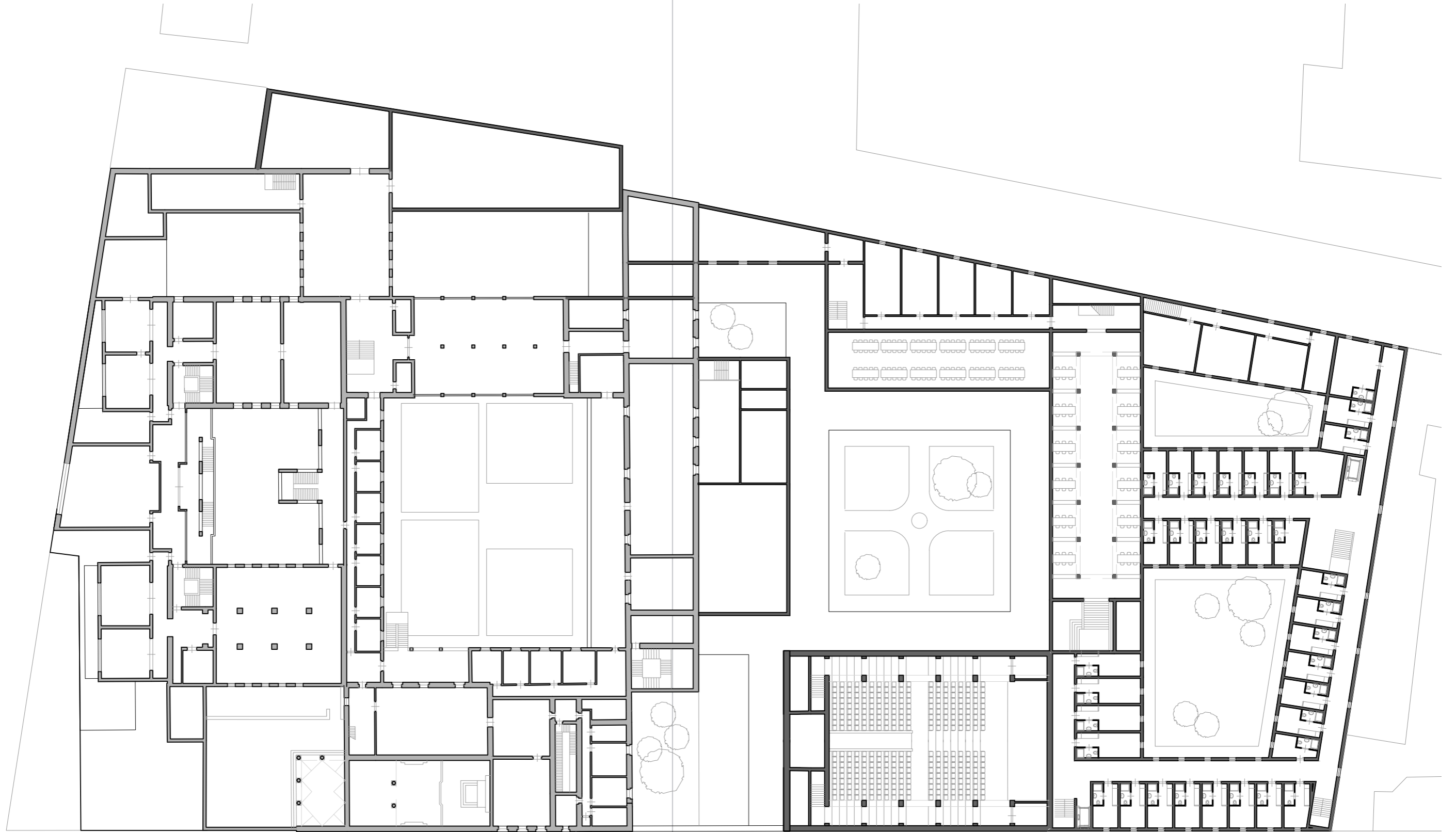


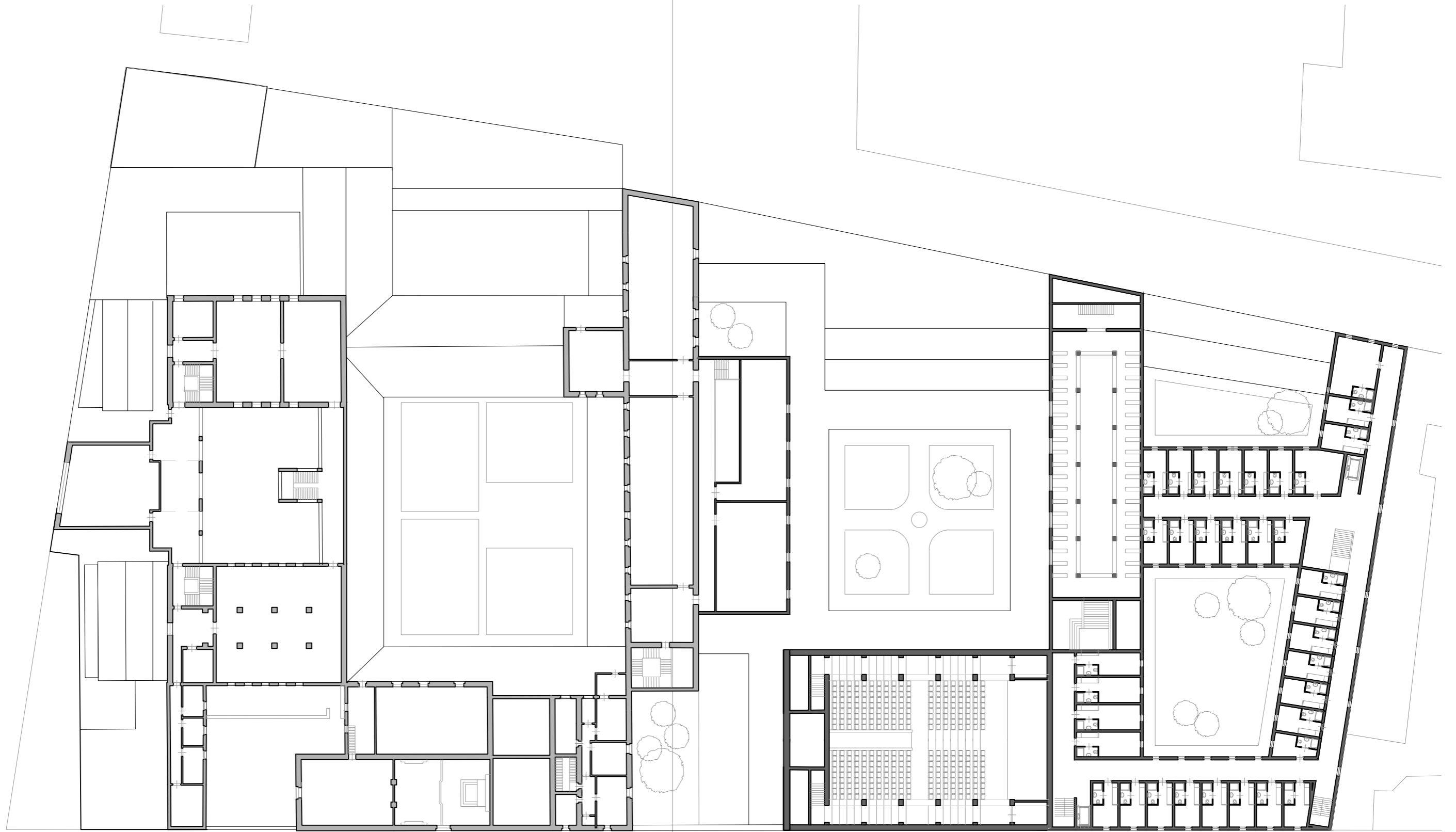
6-31 Urban situation, 1:2000

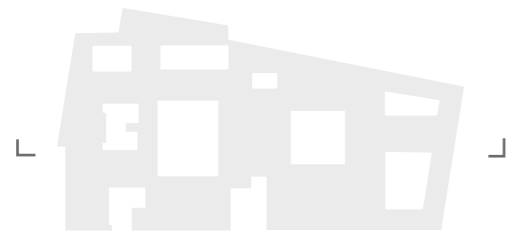
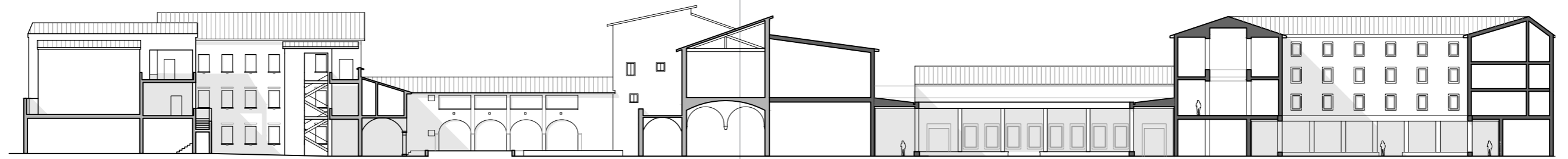


6-32 Ground floor, 1:500

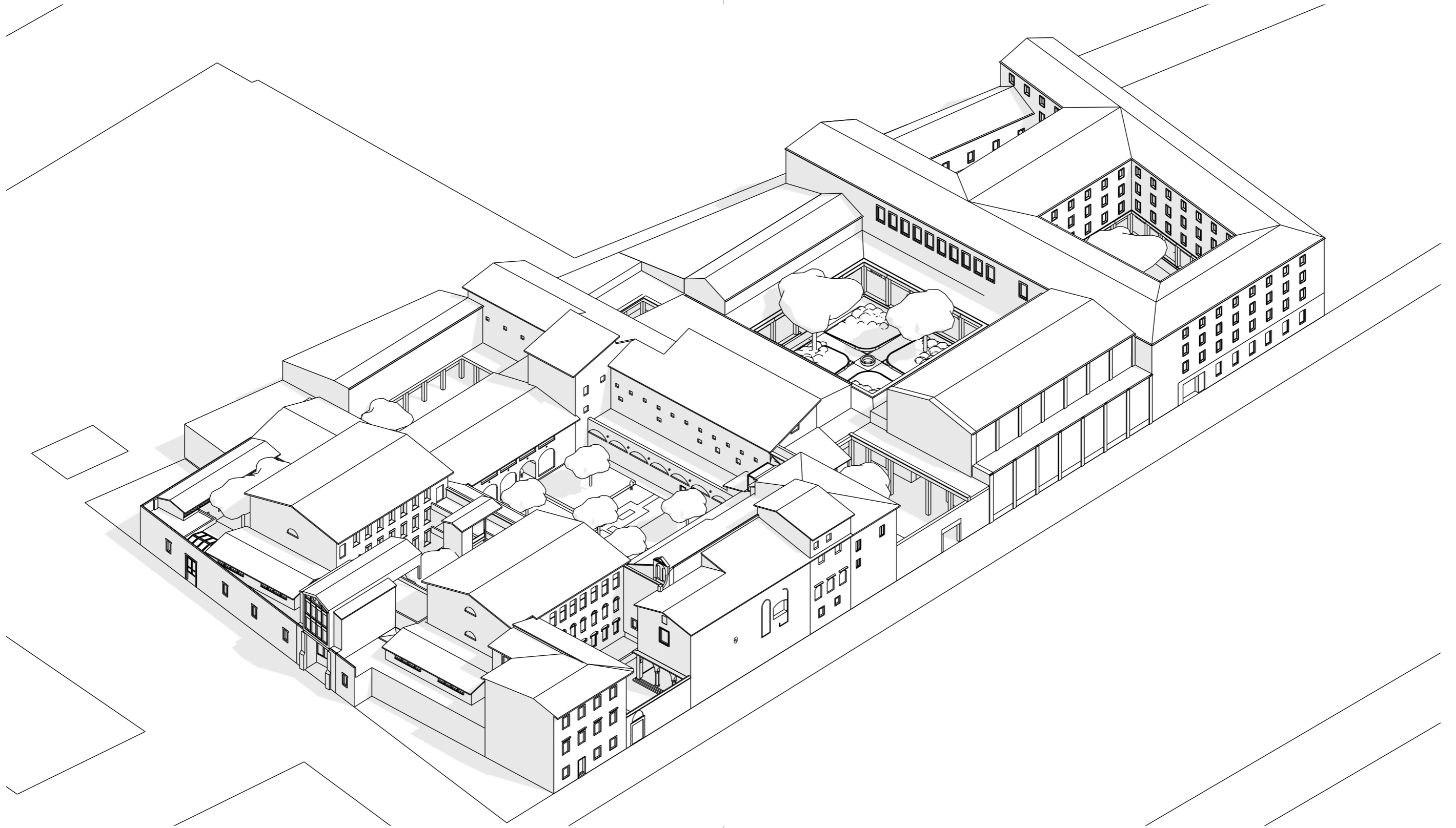








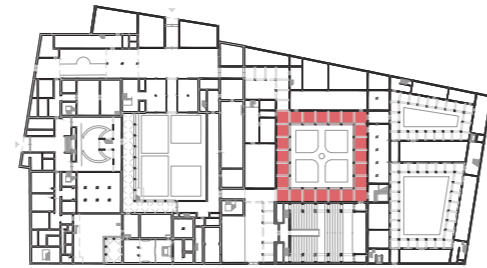
6-35 Section, 1:500





## 6.6 Cloisters

In the new layer for Santa Verdiana, the central cloister has a central role in the whole of the monastic structure. It is the location on which the important volumes, namely the auditorium, library, dining hall and classrooms, are positioned. These volumes all have their own size and scale, creating a dynamic whole. The openings of the volume are derived from the internal layout. This is all connected by a continuous colonnade. The cloister is centrally placed and plays a central role in the routing of the structure. The colonnade is accessible via the entrance cloister, the cloister of the original volume and via a space from the entrance on the north side. The proportion of the cloister is square which is traditionally the perfect shape for its function. On the sides of the cloister are large colonnades with a fixed rhythm of 5 on each side. The monumentality in the construction of the construction is preserved in this. The cloister provides a welcome opening into the building structure and the dynamic city of Florence. The cloister creates light and openness in the structure. Green has been applied in the cloister, through which a path has been positioned which has the shape of a cross. Central to the configuration is a water point which provides a view point from the colonnade and refers to the traditional layout of the cloisters. The cloister is a place of seclusion and perfection in the chaos of the surrounding city. It is a place where there is room for meeting, studying, eating and relaxation.



6-37 Location of main cloister in configuration extension

6-38 View in central cloister

For the construction of the colonnade, historical examples were looked at, in particular the colonnade in the existing cloister of Santa Verdiana. The colonnades in the monastic structures in Florence are placed in front of the volume or the volume extends over the colonnade. This element is characterized by a clear structure and a sober finish. There is a base, a column, semicircular arches and behind them the vaults. These have been applied in various ways.

In monastic structures in Florence, stone and stucco are used. In many cases, the constructive structure is finished with a layer of plaster in shades of yellow. The stone is used as construction material, a decorative and constructive framework for the window openings and as a constructive and decorative element in the columns of the cloister. This is also the case in the monastic structure of Santa Verdiana where all the volumes are finished with stucco.

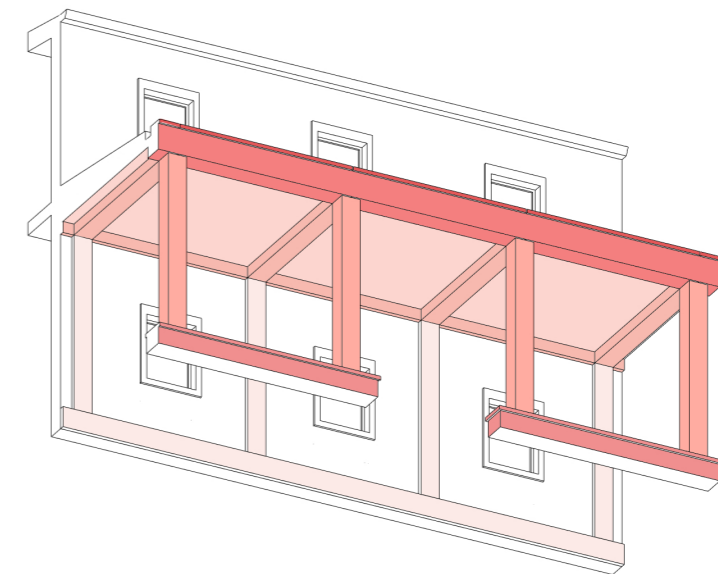
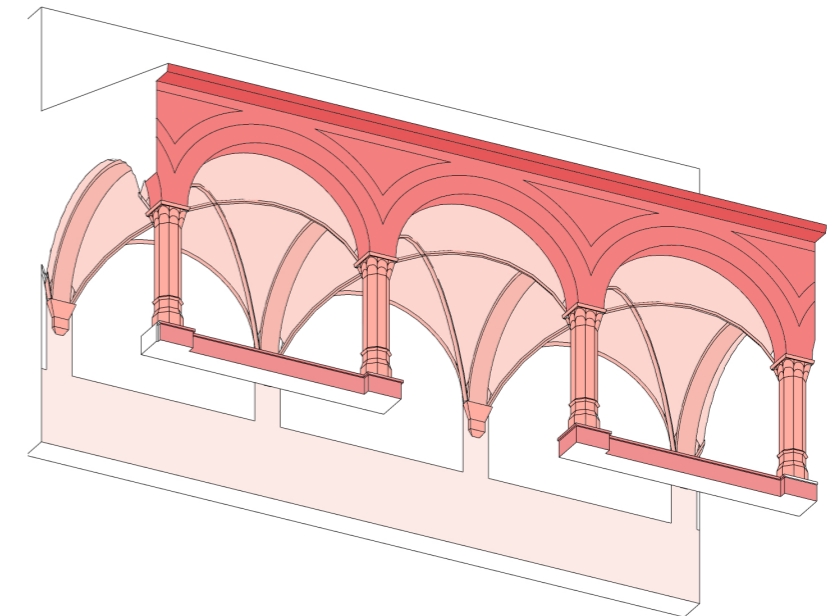
For the design, a translation has been made in the construction principle and the elements have been abstracted. This creates a colonnade that is in line with the tradition of the cloisters. There is abstraction in detailing, however, specific connections between elements have been taken into account.

The way in which the individual elements, namely the base, column, vault and beam, can be translated and placed is looked at. The design has been made, the expression facing to the front and the view from under the colonnade have been taken into account. The materials of stone and stucco are translated in the new volume as concrete and stucco. The

concrete has a color and appearance that matches the Pietra Serena stone which is used in the building in the central cloister. This new material and the new detailing express their contemporariness. This makes them stand out from the existing structure and the layer is experienced as new. The ratio is determined by the configuration of the cloister and the height to width ratio is taken from historical examples.

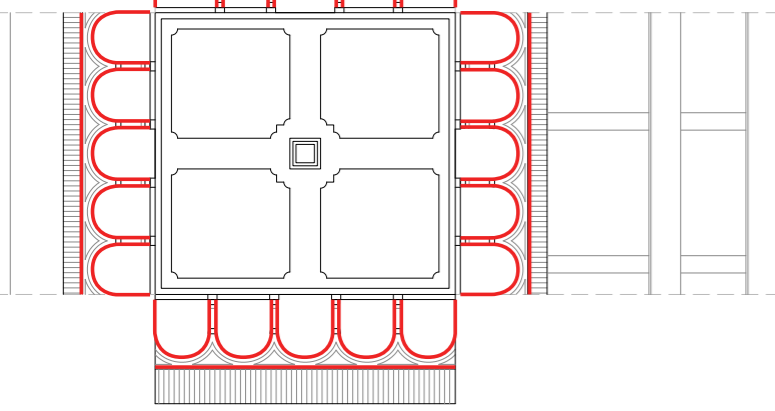


6-39 Existing cloister Santa verdiana  
6-40 Existing cloister Santa verdiana



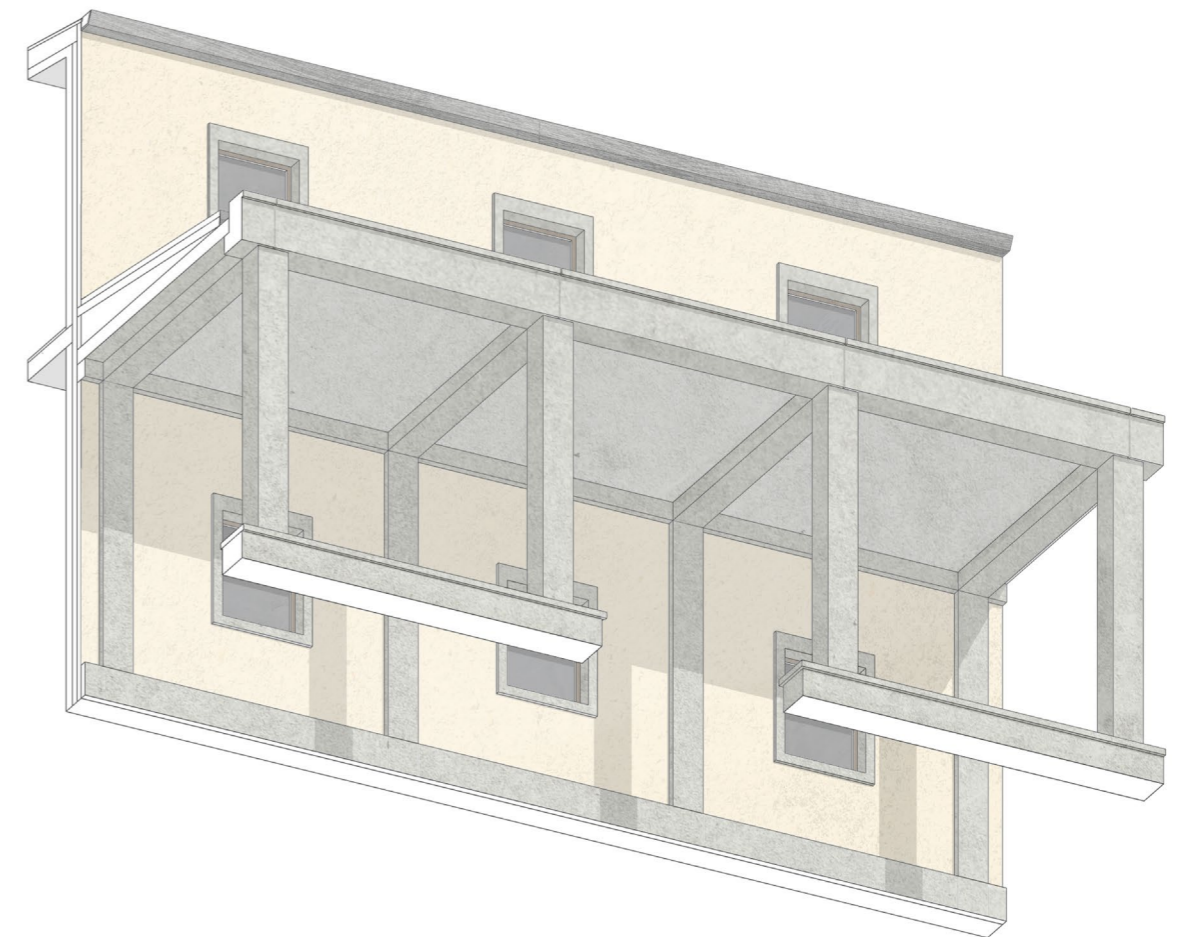
6-41 Colonnade Green cloister Santa Maria Novella  
6-42 Colonnade main cloister extension Santa Verdiana





In the new colonnade, the base also has the traditional role as a partition between the colonnade and the garden. It is a multifunctional element that can be sat on. The columns of the colonnade are abstracted as a square without ornaments and are placed on the base. A different construction method is applied for the vaults and the semicircular arches to connect to the current construction method. The semicircular arches are replaced by vertical bars. The rhythm of this element is now not indicated by the arches, but is recognizable in a seam above the columns. The bar is positioned slightly offset from the column, so that these elements are visually disconnected from each other by a shadow. In the new colonnade, the roof is behind the column. As a result, the beam also functions as a water separator. The beam is topped off by an edge which closes off the structure instead of the traditional overhanging roof.

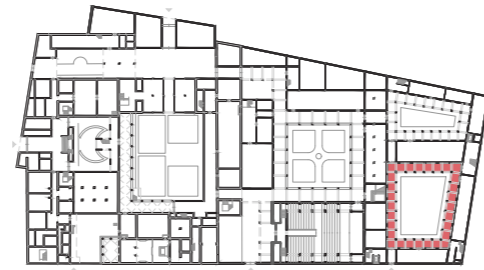
The colonnade is experienced not only from the front, but also from underneath. The rhythm of the vaults is maintained by translating the traditional transverse ribs as beams spanning between column and wall. In the wall they are placed on a ridge which extends to a plinth. As a result, the bay is perceived as a symmetrical element when walking through the colonnade.



6-43 Colonnade main cloister

This cloister has a secondary role in the organization of the new layer. The studios are organized around this cloister. This cloister can be reached via another cloister and has a direct connection to the road on the south side. The studios of the exchange students are situated on the floors around this cloister. The functions that are linked to the student housing, such as learning places and a gym, are positioned on the ground floor. The volume with the apartments continues above the colonnade and has the rhythm derived from the colonnade. The proportions and dimensions of this cloister are the result of the different frames that have formed this space, creating an irregular shape

The cloister creates a welcome opening in the building structure on which a large part of the studios are orientated. The cloister creates light, openness and greenery in the structure and into the studios. It is a place where there is room for meeting, studying, eating and relaxing



6-44 Location of residential cloister in configuration extension

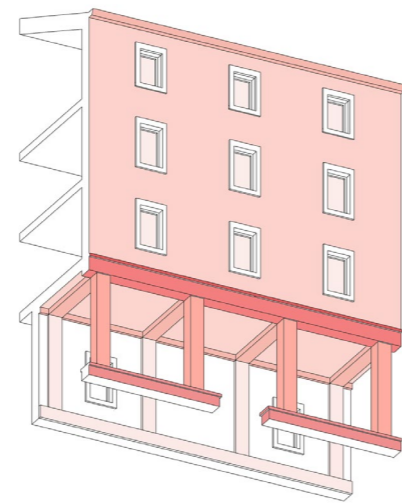
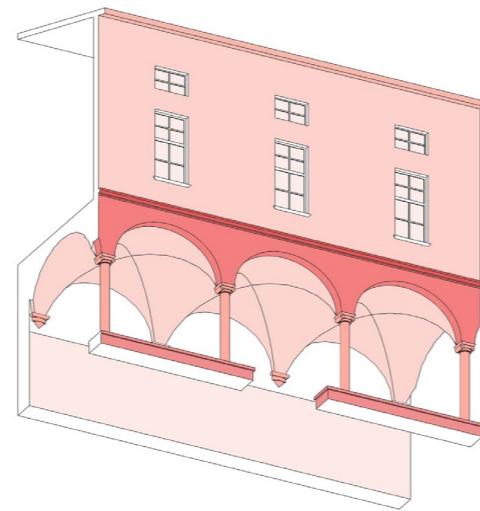
6-45 View in residential cloister



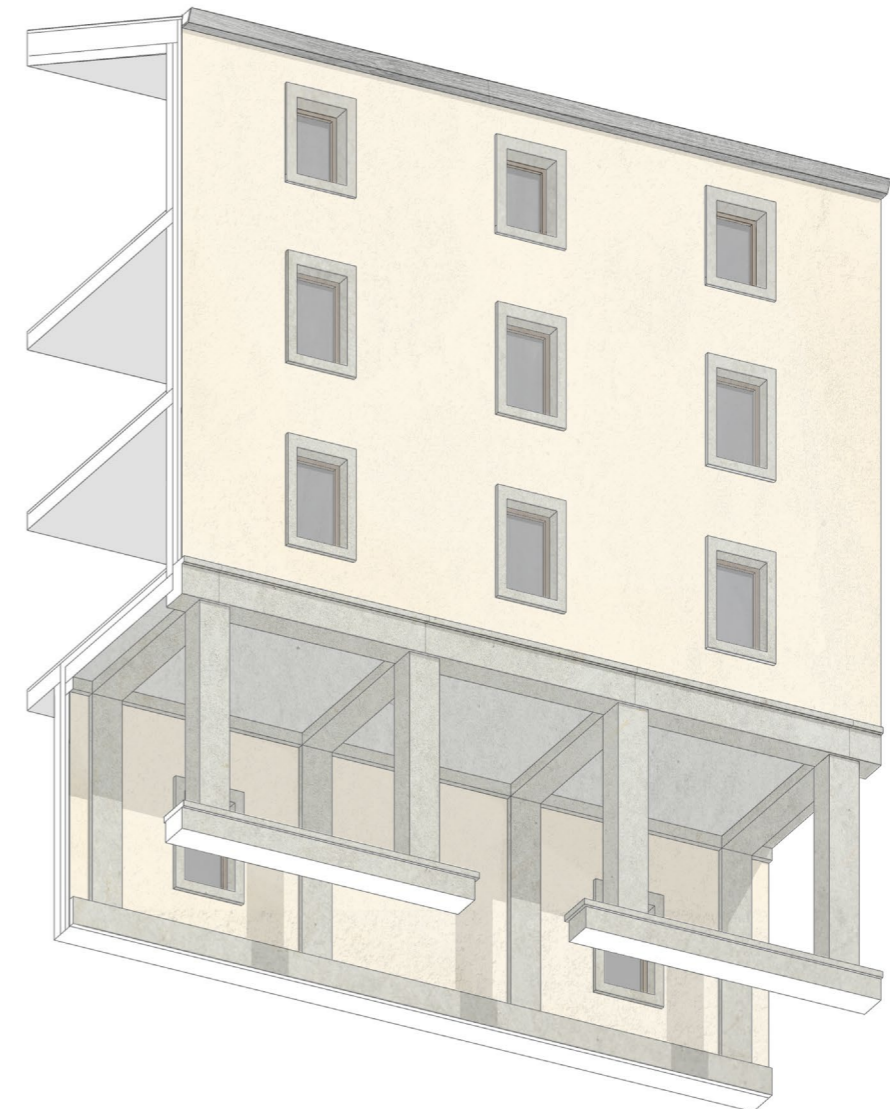
In the monastic structures, there is a distinction between the building volume and the colonnade. The building volumes are linked to the specific functions they occupy. They are closed volumes with various facade openings. In the monastic structures, openings in the volume are made depending on the use and internal layout of the room. This results in a dynamic composition of openings. The volumes are in almost all cases finished with yellow stucco. The windows used are openings in the closed volume. They are vertical openings with a ratio of 2:3 or narrower.

The structure of the colonnade is similar to the colonnade of the central cloister. The volume of the studios runs on top of the beam. The edge at the top of the beam visually disconnects the volume above it by creating a small shadow.

The rhythm in the colonnade is leading in the configuration of the volume positioned above it. The apartments have openings that follow the typical proportions. The traditional framework around the opening is made of concrete. This frame is slightly thickened to increase the depth effect in the facade. The height ratio of the glass surface is 1:2. Vertically between the openings there is always a 2:3 distance from the height of the opening. The top opening is lower to complete the volume at the top and create a distance between the top and the eaves. The gable roof does not protrude, but in the new situation the top of the volume is defined by a roof edge which also functions as a water drainage.



6-46 Colonnade of cloister San Domenico in San Marco  
6-47 Colonnade residential cloister extension Santa Verdiana



6-48 Colonnade residential cloister

## 7 Reflection

This thesis aims to capture the architectural quality of the Florentine inner-city monastery, through case studies, literature research and eventually a design assignment. In an effort to develop an understanding of how the monastic structure manifest itself in Florence, a research has been conducted which focuses on different levels. Specifically, the element of the cloister has been investigated, which has an exceptional appearance and, in several cases, is still an addition to the urban fabric of the city. In the first part of the report, an investigation is carried out to find out the origin of the monastic typology and the associated cloister and how monastic structures manifest themselves in the particular location of Florence. To investigate the relationship with the historical development and to see how the structure has been able to adapt over time to new needs, a historical research has been carried out, specifically on the relationship between the monastic structures and the development in the city. By investigating specific case studies in a recurring methodology, focusing on different scales, specific situations could be investigated and compared with each other. The conclusions from previous research have been combined with newly conducted literary research to draw conclusions about the type of the inner-city cloister in Florence. By focusing specifically on the cloister, this study cannot be considered a complete explanation of the extremely complex type of inner-city monastic structures, but through this method the monastic structure can be examined from the large scale level to the elemental level. The cloister plays an important role in the structure on all these

different levels and at the same time intersects different themes linked to elements and use. The results of the research offer a typological framework with reoccurring elements which resurface in the design exercise for the monastic structure of Santa Verdiana which is currently in use as a university faculty.

A design assignment in a location that I have not been able to visit myself, positioned in a city where I only had a short stay, is an interesting and challenging assignment. In order to understand the layered existing situation, an extensive study was carried out, which builds on the previous conclusions, but also to various new historical research. It was a challenging design assignment which gave the full opportunity to combine the various elements of the research in the design. The existing monastic structure and the public use of the building provided a good link with the research. The wide range of elements are combined in the design to be able to apply the typology in current use. The design of the extension of Santa Verdiana has remained within the boundaries of its type and the frameworks have been examined by applying abstraction, translating it into current construction methods and adapting it to new use.

## 8.1 Bibliography

- Bellandi, F. (2013). La soppressione dei conventi nel tessuto della città di Firenze. La soppressione dei conventi nel tessuto della città di Firenze. Published. <https://flore.unifi.it/bitstream/2158/858105/1/La%20soppressione%20dei%20conventi%20nel%20tessuto%20della%20citt%C3%A0%20di%20Firenze%20.pdf>
- Benevolo, L. (1980). The History of the City (1st MIT Press ed). The MIT Press.
- Centaurio, G. A. (2020). Esperienze di conservazione e restauro. Dip. di Architettura (Firenze). [https://issuu.com/dida-unifi/docs/esperienze\\_di\\_conservazione\\_e\\_restaurato\\_\\_\\_centauro](https://issuu.com/dida-unifi/docs/esperienze_di_conservazione_e_restaurato___centauro)
- Chessa, M., & Poli, M. (1996). La Presenza francescana tra Medioevo e modernità. Vallecchi.
- Coomans, T. (2018). Life Inside the Cloister. Amsterdam University Press.
- Davril, A. (2003). Medieval Cloisters (P. K. Klein, Ed.). Art Stock.
- Fanelli, G. (1985). Firenze, Le città nella storia d'Italia. Laterza.
- Farneti, F., & Van Riel, S. (2017). Santa Verdiana a Firenze. Da monastero a sede universitaria: sette secoli di storia. DidaPress. [https://issuu.com/dida-unifi/docs/farneti\\_impaginato](https://issuu.com/dida-unifi/docs/farneti_impaginato)
- Hibbert, C. (1994). Florence: The Biography of a City (Reprint ed.). Penguin Books, Limited (UK).
- Horn, W. (1973). On the origins of the medieval cloister. *Gesta*, 12, 13–52. <https://www.jstor.org/stable/766633?seq=1>
- Joyner, D. B. (2017). A Savin Bush in the Cloister. *Studies in Iconography*, 38, 55–106. <https://www.jstor.org/stable/26617262?read-now=1&refreqid=excelsior%3Ac61848cce72be0c909973a1a342b43b1&seq=1>

- Kostof, S. (1985). A History of Architecture. Oxford University Press.
- Lavoratti, G. (2019). Santa Chiara in Pescia. La documentazione del patrimonio culturale dei centri minori. Dip. di Architettura (Firenze).
- Maffei, M., & Marzot, N. (2018). Interpreting specialised buildings. Altraleina.
- Opera for Santa Croce. (2021, February 26). Santa Croce. <https://www.santacroceopera.it/en/>
- Opera for Santa Maria Novella. (2018, March 9). Santa Maria Novella. <https://www.smn.it/en/opera-santa-maria-novella/>
- Opera Medicea Laurenziana. (2020, October 14). Opera Medicea Laurenziana. <https://www.operamedicealaurenziana.org/en/>
- Orefice, G. (1992). Da Ponte Vecchio a S. Croce. Piani di Risanamento a Firenze. Alinea.
- Universita degli studi Firenze. (2013). La soppressione dei conventi nel tessuto della città di Firenze. <https://flore.unifi.it/bitstream/2158/858105/1/La%20soppressione%20dei%20conventi%20nel%20tessuto%20della%20citt%C3%A0%20di%20Firenze%20.pdf>

## 8.2 Image references

- 1-1 Green cloister Santa Maria Novella, retrieved from: <https://www.flickr.com/photos/hen-magonza/14293310307>
- 1-2 Monastery of Abbot Gundeland, Lorsch, retrieved from: Horn, W. (1973). On the origins of the medieval cloister. *Gesta*, 12, 13–52.
- 1-3 Plan of St. Gall, retrieved from: [https://en.wikipedia.org/wiki/Plan\\_of\\_Saint\\_Gall#/media/File:Plan.abbaye.Saint.Gall.png](https://en.wikipedia.org/wiki/Plan_of_Saint_Gall#/media/File:Plan.abbaye.Saint.Gall.png)
- 2-1 Historic layers visible in facade of Santa Maria Novella, Meijer, D. (2020)
- 2-2 Old church San Lorenzo, retrieved from: [https://commons.wikimedia.org/wiki/File:Codice\\_rustici,\\_san\\_lorenzo.jpg](https://commons.wikimedia.org/wiki/File:Codice_rustici,_san_lorenzo.jpg)
- 2-3 Santa Croce with surrounding gardens, retrieved from: <https://www.teggelaar.com/en/florence-day-1-continuation-4/>
- 2-5 Cloister San Lorenzo with Laurentian library, retrieved from: <https://www.visitflorence.com/florence-churches/san-lorenzo.html>
- 2-7 Convent Murate transformed into prison, retrieved from: <https://antiwarsongs.noblogs.org/post/2014/02/25/quaranta-galere-fa/>
- 3-2 Santa Maria Novella building volume in context, retrieved from: Google maps. (2021)
- 3-10 Green cloister Santa Maria Novella, retrieved from: <https://www.flickr.com/photos/hen-magonza/14293310307>
- 3-11 Green cloister Santa Maria Novella, retrieved from: [http://www.museumsinflorence.com/musei/santa\\_maria\\_novella-cloist.html](http://www.museumsinflorence.com/musei/santa_maria_novella-cloist.html)
- 3-15 Grand cloister Santa Maria Novella, retrieved from: <https://www.mediatecatoscana.it/cinema-nel-chiostro-la-nuova-arena-sotto-le-stelle/>
- 3-16 Grand cloister Santa Maria Novella, retrieved from: <https://www.novaradio.info/ampliamento-di-smn/>
- 3-18 Santa Croce building volume in context, retrieved from: Google maps. (2021)
- 3-26 Grand cloister, retrieved from: <http://casavacanze.poderesantapia.com/engels/firenze/cappellapazzi.htm>
- 3-27 Grand cloister, retrieved from: [https://commons.wikimedia.org/wiki/File:Florence,\\_Basilica\\_of\\_Santa\\_Croce,\\_Cloister\\_001.JPG](https://commons.wikimedia.org/wiki/File:Florence,_Basilica_of_Santa_Croce,_Cloister_001.JPG)
- 3-31 Cloister van Brunelleschi, retrieved from: <https://www.flickr.com/photos/134205948@N02/47730449352/>
- 3-32 Cloister van Brunelleschi, retrieved from: Lavoratti, G. (2019). Santa Chiara in Pescia. La documentazione del patrimonio culturale dei centri minori. Dip. di Architettura (Firenze).
- 3-34 San Lorenzo building volume in context, retrieved from: Google maps. (2021)
- 3-42 Cloister of Canonici, retrieved from: <https://www.visitflorence.com/florence-churches/san-lorenzo.html>
- 3-43 Cloister of Canonici, retrieved from: [https://en.wikipedia.org/wiki/San\\_Lorenzo,\\_Florence](https://en.wikipedia.org/wiki/San_Lorenzo,_Florence)
- 3-45 San Marco building volume in context, retrieved from: Google maps, 2021
- 3-53 Cloister of Sant'Antonino, retrieved from: <https://www.flickr.com/photos/profzucker/6358606925>
- 3-54 Cloister of Sant'Antonino, retrieved from: [https://florencetips.com/san\\_marco\\_museum.html](https://florencetips.com/san_marco_museum.html)
- 3-58 Cloister of San Domenico, retrieved from: [https://florencetips.com/san\\_marco\\_museum.html](https://florencetips.com/san_marco_museum.html)
- 3-59 Cloister of San Domenico, retrieved from: <https://www.nytimes.com/2018/09/25/world/europe/florence-san-marco-convent.html>
- 5-1 Cloister Santa Verdiana, retrieved from: Farneti, F., & Van Riel, S. (2017). Santa Verdiana a Firenze. Da monastero a sede universitaria: sette secoli di storia. DidaPress.
- 5-10 Largo Pietro Annigoni with view to Sede de la Nazione, Templin, K. (2020)
- 5-11 Sant'ambrogio market, Templin, K. (2020)
- 5-12 One of the courtyards of the transformed monastery Murate, Templin, K. (2020)
- 5-13 Historic street next to Santa Verdiana and Murate, Templin, K. (2020)
- 5-14 Space between Santa Verdiana and electricity company, Templin, K. (2020)
- 5-15 View from Largo Pietro Annigoni to wall surrounding electricity building, Templin, K. (2020)
- 5-16 View from courtyard to church of Santa Verdiana, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 5-19 Santa Verdiana with surrounding urban fabric and gardens, 1584, retrieved from: Fragment of map by Stefano Bonsignori, 1584
- 5-20 View into central cloister of monastery, retrieved from: Firenze, SABAP, Archivio Fotografico, 139
- 5-22 Connection space of the rooms used as general warehouses, 1984, retrieved from: SABAP, Archivio Corrente, A/187



- 5-23 First arm of the prison with a double order of galleries on east of complex, 1984, retrieved from: SABAP, Archivio Corrente, A/187
- 5-24 Prison branches on east of complex, retrieved from: SABAP, Archivio Corrente, A/187
- 5-26 View of the current entrance to the educational complex from piazza Ghiberti, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 5-27 Courtyard between the two blocks of the former prison, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 5-28 View towards the south of the cloister with the church on the background, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 5-29 Classroom in east of complex of monastic volume, ground floor, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 5-30 Classroom in east of complex of monastic volume, first floor, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 5-31 Projector inside church of Santa Verdiana, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 5-32 Second arm of prison transformed in classrooms, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 5-33 External view of the portion of the prison complex built on east from scratch after the war, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 5-34 Classroom in the prison complex built on east from scratch after the war, ground floor, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 5-52 Colonnade cloister, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 5-53 View of the cloister from central well, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 6-9 church San Marco, retrieved from: <https://twitter.com/FrankCunhaIII/status/1330833761798397953>
- 6-10 church santa croce, retrieved from: [https://live.staticflickr.com/65535/49822643678\\_cc3141de64\\_b.jpg](https://live.staticflickr.com/65535/49822643678_cc3141de64_b.jpg)
- 6-14 Library San Marco, retrieved from: <https://girlinflorence.com/2015/05/08/michelozzo-library-exploring-the-san-marco-museum/>
- 6-15 Laurentian library, retrieved from: <https://www.teggelaar.com/en/florence-day-2-continuation-8/>
- 6-19 Refectory Sant'Apollonia, retrieved from: <https://i0.wp.com/www.teggelaar.com/>

- 6-20 Refectory Santa Croce, retrieved from: <https://www.10thingstodoandsee.com/florence/the-church-of-santa-croce-in-florence>
- 6-22 corridor with cells, retrieved from: <https://wikioo.org/es/paintings.php?refarticle=8Y3DP3&titlepainting=Corridor%20of%20the%20North%20Dormitory&artistname=Michelozzo%20Di%20Bartolomeo>
- 6-23 cell San Marco, retrieved from: <http://www.goodmorningparis.fr/walks/good-morning-florence-visit-florence-off-the-beaten-track/>
- 6-39 View from courtyard to church of Santa Verdiana, retrieved from: Laboratorio Fotografico di Architettura, DIDA
- 6-40 View from courtyard to church of Santa Verdiana, retrieved from: Laboratorio Fotografico di Architettura, DIDA

