Experiencing the Atmosphere

Almaz Paalvast

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How to deal with the architectural elements when redesigning churches

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June 2017

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Preface

Throughout my study I have developed a personal fascination for older buildings and the architectural challenge in redesigning them. The fine balance between treating these buildings with the utmost respect, but also being able to leave your own mark for the coming generation, which, one day, might also become the old elements of the building that we are fascinated with today. For me it is about the way to make a design in which the strong existing atmospheric elements of the location will be used to accommodate the experience of the newly added architectural structure. But it is also about combining the old and the new as a harmonious ensemble, while at the same time the distinction between the two remains clear.

With this research, I found the opportunity to explore more about one of the branches within the field of redesign, namely that of the redesign of churches. There is something

about these types of religious buildings that give me a special feeling when visiting them, even though I am not a Christian. It is something about the atmosphere that makes them special to me. An atmosphere that can still be present when the church gets a new purpose. In my opinion, it should be the task of the architect to make sure it does. In the end, I also hope this thesis can function as a guideline for others who will come across the question of redesigning a church.

With special thanks to everybody who helped me during this research.

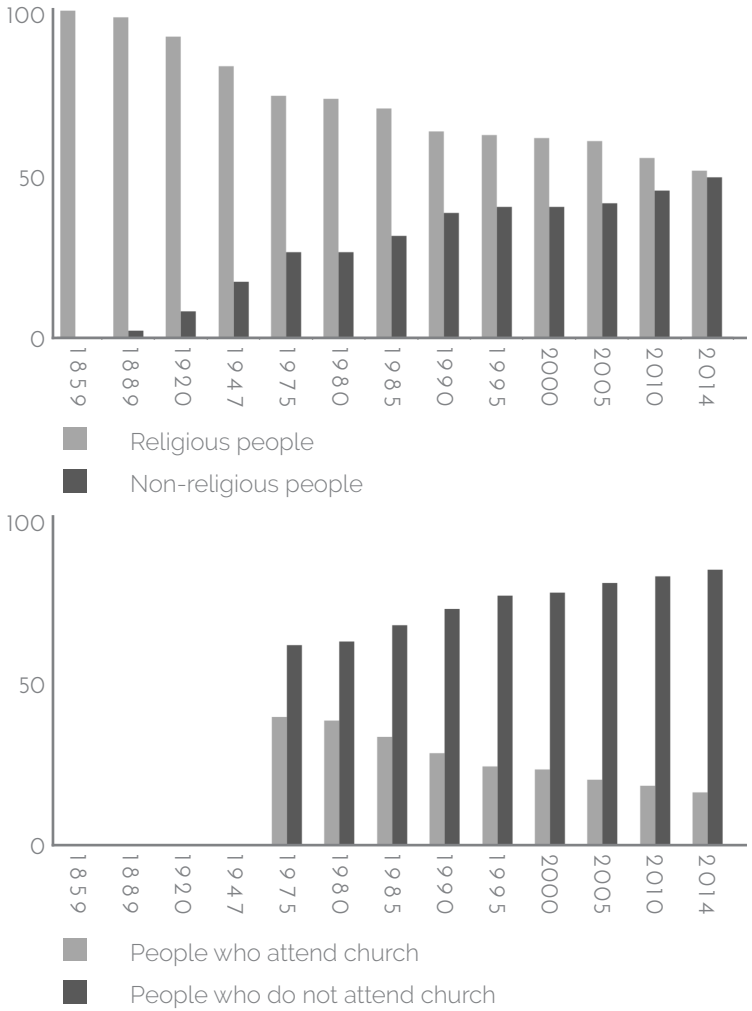
Almaz Paalvast,
June 2017

Contents

Introduction

"Quality architecture to me is: when a building manages to move me. One word for it is atmosphere"

- Peter Zumthor



1. *Top:* People in the Netherlands who affiliate themselves with religion.
Bottom: Church attendance in the Netherlands

Relevance

Europe's largest museum is for sale. The past few years, the number of churches and monasteries across Western Europe that are being forced to close their doors is increasing rapidly. The Church of England has to close around 20 churches per year. About 200 churches in Denmark have discontinued their services in the past few years. In Germany, in the past decade, the Catholic Church has had to close down roughly 500 churches. In The Netherlands this trend is even stronger; It is estimated that 1,000 Catholic and 700 Protestant churches will close within the next ten and four years, respectively.[1]

The large number of closing churches reflects the rapid decline of faith in Europe. Figures show that the percentage of the Dutch population feeling affiliated with any religion has dropped from almost one hundred percent in the first half of the nineteenth century to almost fifty percent today (fig. 1).[3] This trend has consequences for the whole society. Neighbourhoods will

be confronted with these empty churches, which for many centuries have been the centrepiece of the community. Especially in small towns, often consisting of only a handful of public buildings and a few houses, the abandoned churches form a big hole in the town centre.[4]

For most Christians the closing of a church is an emotional event. For generations they have practised their beliefs in these buildings and have felt both grief and joy there. However, even many non-religious residents feel upset when these churches fall into disuse and are threatened with demolition, as they represent important landmarks and have both great historic and cultural value in Western society. This issue establishes a question for communities, and governments: what to do with these holy, but now vacant buildings?

As society struggles to repurpose its vacant churches, some solutions are less reputable than others. People often want to restore the social function of bringing people together the church once had. The problem, however, is the high maintenance costs of these buildings. This often results in commercial projects occupying the space, whose interests lie with inexpensive and quick solutions, rather than making the most out of a building from an architectural point of view.

Research goal

Although many churches have already been redesigned in the past couple of years, a clear overview of the influence of interventions and modifications on the atmosphere has not been made yet. The goal of this research is therefore, to not only create a collection of types of interventions and their effects for architects to use when redesigning a church, but also to show a range of different successfully executed projects for stakeholders who are interested in converting churches. This overview can act as a frame of reference for future design assignments and help with the modern day question what to do with the growing number of vacant churches.

Because of the challenge for future projects to redesign these vacant churches and repurpose them, without forgetting the great architectural values that are often present in these buildings, the following research question is stated: *How can vacant churches be redesigned in such a way that the atmospheric aspects inherent to church design are maintained or enhanced?*

To help answer the main question, the question is divided into three smaller questions: *What architectural elements constitute such atmosphere in church design? What type of interventions and modifications can be made in the redesign of a church? What are the influences of these interventions and modifications for the atmospheric aspects?* The focus of this research is the architecture of these buildings and therefore, aspects related to religion such as rituals, will not be a part of this research.

Research methods

After this introduction with the problem statement and relevance of the research, the second part of the thesis consists of a theoretical and visual framework to form a basis for the rest of the research. Not only will existing literature on church design and its history be looked at, but also a part of the Dutch art history is taken into account as church interiors played an important role in this. Next, the research covers a selection of case studies of both churches that are still in use and those that have been redesigned. The former to analyse what architectural elements help constitute the atmosphere of the place, the latter to identify the differents types of interventions and modifications and their influences on the atmosphere. Each part of the thesis will end with a sub-conclusion. At the end, the various sub-conclusions together will form a main conclusion to give an answer to the main question.

1. Wall Street Journal, *Europe's empty churches go on sale*, January 2 2015.

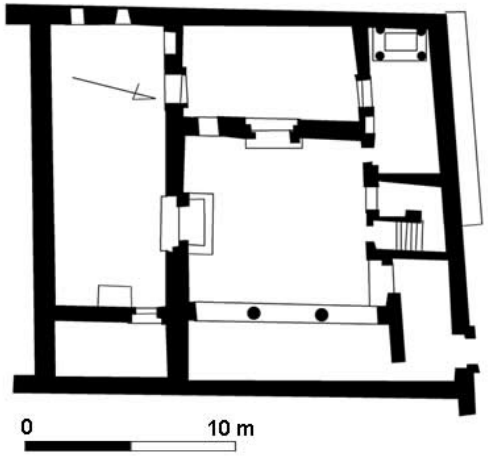
2. Centraal Bureau voor de Statistiek, *Kerkelijke gezindte en kerkbezoek: vanaf 1849; 18 jaar of ouder*, 2016.

3. M. van Houten and J. Ploeg, *Dorpen en steden zonder kerken, wie kan zich daar iets bij voorstellen*, July 14 2016.

History of church architecture

"Architecture starts when you carefully put two bricks together. There it begins"

- Ludwig Mies van der Rohe

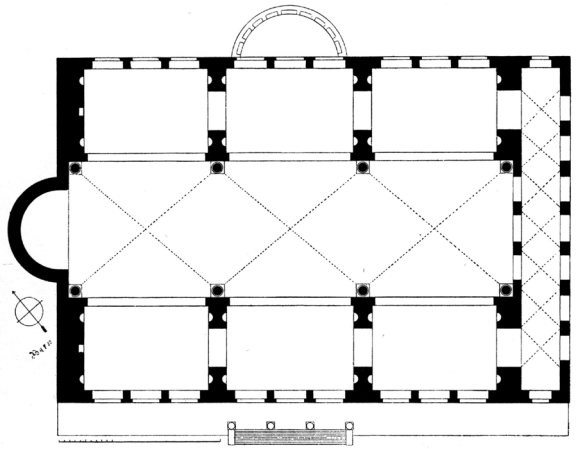


2. *Top:* Plan of the church of Dura-Europos
Bottom: Remains of the church of Dura-Europos

The beginning of church architecture

In the Netherlands and other parts of Western Europe, different periods of church architecture styles can be distinguished. In general, with a few exceptions, the period in which a church is built also determines the level of difficulty for the redesign task. Usually this simply has to do with the fact that the older the church, the more value is attached to it, i.e. whether it is a monument or not.

The first Christians did not have separate buildings that functioned as churches, but used whatever place was available. In early Christianity, worshipping was originally a private activity and would often take place at one's house. Only after several centuries, when Christianity began to rise and private dwellings became too small for the growing community, it did become necessary to establish autonomous buildings for practising faith. At this point, Christian architecture came into existence.[1] The church of Dura-Europos in Syria is known as one of the oldest buildings that functioned



3. *Top:* Floor plan of the Basilica of Maxentius and Constantine in Rome.
Bottom: Remains of the northern aisle of the Basilica of Maxentius and Constantine.

exclusively for Christian worshipping (fig. 2). This domestic house was converted as a church halfway through the 3rd Century.[2]

Contrary to popular belief that during the first few centuries Christians were under constant oppression and had to practise their faith in secrecy, in reality they were able to carry out their practices without much interference. Although Christianity was a *religio illicita*, an unrecognized religion, the imperial persecutions that were carried out, were not that large in number.[1] An important factor, however, for the growing number of church buildings, was the Edict of Milan by Constantine the Great in 313 AD, which made Christianity legal in the Roman Empire. Despite the fact that Christianity was now legal, it did not become the official religion of the Empire until 380 AD.[3]

The basilica

Around the time of Constantine's Edict, the newly built churches were not inspired by the Roman Temple, but by the architecture of the basilica (fig. 3). Since the beginning

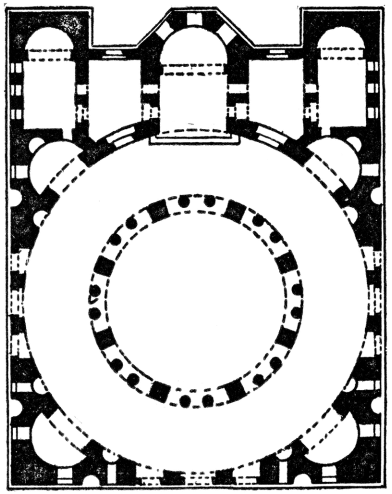
of the Common Era these basilicas were in use as public spaces for markets or a place for the Judiciary and had a secular function. The civil basilicas, in their turn, were derived from the Ancient Greek temples, so it is not surprising that this type of structure was chosen for the early Christian churches.[4]

Typically the basilica consisted of a rectangular space with interior colonnades dividing the space into a central nave with aisles and an apse at one end. The central nave tended to be higher and wider than the aisles, letting daylight come through the clerestory windows.[4] The altar would stand on the middle axis, and was the focal point of the building around which everyone would gather for the service. In the semi-circular apse the bishop would have his seat, the *cathedra*.[5]

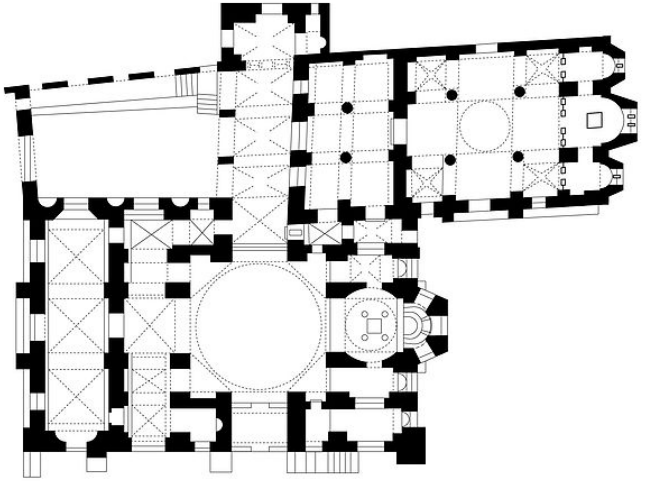
From the fourth century onwards, with the legalisation of Christianity, most churches started to have the same orientation: the apse pointed towards the east. It is not completely clear why this happened, but the theory goes that it is based upon the verse: "*For as the lightning cometh out of the east, and shineth even unto the west; so shall also the coming of the Son of man be*." (Matthew 24:27) This predicts Christ's Second Coming from the east.[6]

The central type

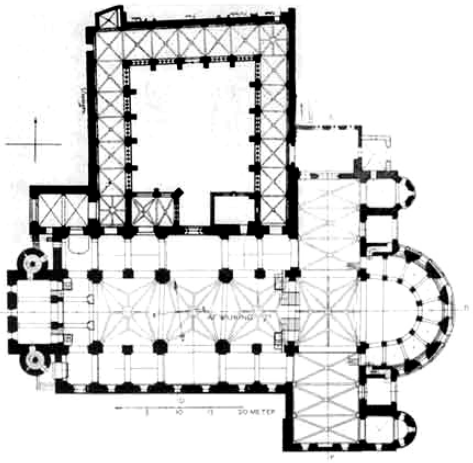
Besides the basilicas, a more central type of structure was common in early Christian architecture as well. These types of buildings have no uniform floor plan, but the common factor is that they are focused towards the centre of the floor plan and are built around a central vertical axis (fig. 4). Like the basilicas, the central type of architecture was derived from already existing structures, namely mausoleums. Thus at first the Church used the central building plans as memorial places to mark a holy place or tomb of a saint. Later on, predominantly in the eastern part of the Roman Empire, this type of construction was also used as church and would later on lead to what is now known as the Byzantine architecture (fig. 5). [7]



4. *Top:* Floor plan of the church of Bosra, Syria.
Bottom: Ruins of the church of Bosra, Syria.



5. *Top:* Floor plan of the Hosios Loukas monastery in Greece.
Bottom: Entrance of the Hosios Loukas monastery.



6. *Top:* Floor plan of Our lady Church in Maastricht.
Bottom: Our Lady Church in Maastricht in present day.

Romanesque period

After a few centuries, in the 11th and 12th century, the number of churches increased significantly. A transept was added to the shape of the basilica, leading to a cruciform floor plan, after which this type of floor plan became the most common in Western Europe. When the Romanesque architecture started to flourish, an increasing desire for verticality also led to the construction of large towers. This architecture style was the first real distinctive style in Europe after the Roman Empire and many churches that exist nowadays have their roots within this period, although most were altered in later centuries.[8]

This Romanesque architecture style combines features of the Roman and Byzantine styles and is characterised by round arches, thick walls and sturdy pillars. It radiates the feeling of solidity and strength and each building consists of regular, symmetrical architecture defined by simplicity (fig. 6). Contrary to the preceding Roman and succeeding

Gothic architecture, in which columns and arches are the load-bearing structure, Romanesque architecture, like Byzantine architecture, seems to depend mostly on walls or sections of walls.[8]

The arches, characteristic for Romanesque architecture, are almost always semi-circular. Arcades, which consist of a row of arches on columns or piers, started to occur in larger churches to separate spaces like the nave and aisles. In order to build higher naves with clerestory windows, arcades were often stacked on top of each other, fulfilling both a structural and decorative purpose. Shortly after this, the architecture became leaner, marking the end of the Romanesque period.[8]

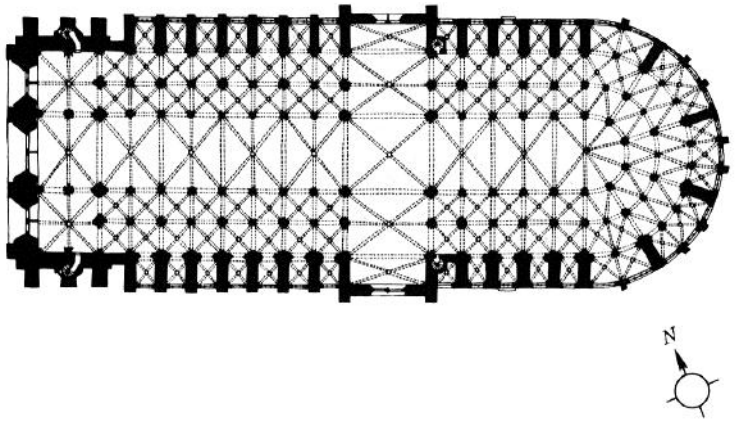
Gothic architecture

The rise of the Gothic architecture, which allows the construction of very high and well-lit churches, originated in the 12th century and lasted roughly until the 16th century. The Gothic style derived from the Romanesque architecture but suppressed

this Romanesque style in most parts of Europe. Gothic architecture is known by its pointed arches, ribbed vaults and high windows, emphasising the height of the structures. Because of the great competition between cities and regions to build the highest and biggest structures, it is still recognisable as the architecture of many of the cathedrals and churches in Europe that still stand today (fig. 7).[9]

A Gothic cathedral or church was, until the 20th century, typically the landmark of a region. Being much higher than other surrounding structures within the city, these buildings were at that time by far the largest structures Europeans would ever see. This desire for verticality emerged from implying an aim towards heaven.[9]

Like the Romanesque churches, most Gothic churches are built with a cruciform floor plan, with a long nave as the centre of the church, a transept and behind that the choir. Though the main part of the building is substantially taller than it is wide. Even



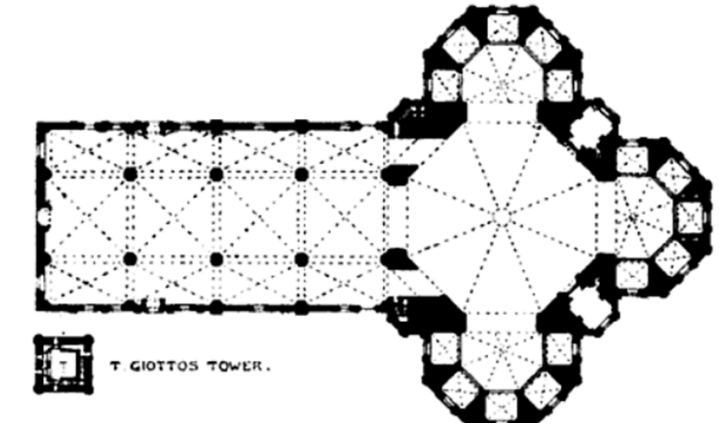
7. *Top:* Floor plan of the Notre-Dame in Paris.
Bottom: The western facade of the Notre-Dame

a couple of centuries after the basilica prevailed, the basic elements, like the central nave with aisles and high clerestory windows of the basilica, are visible within the evolved Gothic architecture style.

The Renaissance

After the Gothic period, the Renaissance arose, starting in the 14th century in Italy and later on spread across the rest of Europe in the 15th and 16th century. Renaissance architects rediscovered and admired ancient Greek and Roman architecture. It was a countermovement against the Gothic architecture, which they thought of as barbaric. Gothicism never really took place in Italy and because of the many still existing structures dating back to the once great Roman Empire, it is only logical the Renaissance started there. The knowledge of this former architecture style was obtained by studying the remaining buildings from this classical period.[10]

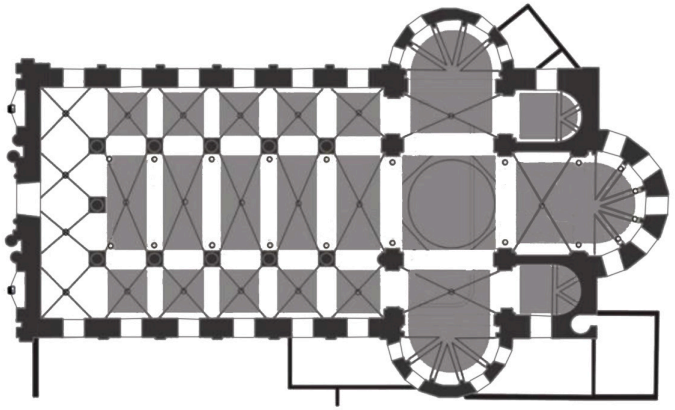
The triad of Vitruvius: *Utilitas*, *Firmitas* and *Venustas*, written in his books on



8. *Top:* Floor plan of Basilica di Santa Maria del Fiore in Florence.
Bottom: Basilica di Santa Maria del Fiore in Florence by night.

architecture in 15 B.C., became one of the most influential guidelines during this revival period. Rational order, in which proportions of all elements come together and form a perfect harmony, became a concept of beauty of great importance to the Renaissance architects. Remarkable though, is the use of classical elements in a way in which the Ancient Greeks and Romans would have never used them.[10]

Renaissance architecture emphasises the use of symmetry, proportion and geometry. Although characteristic elements of the classical Roman architecture were adopted, the layout and function of buildings had changed. The ancient buildings were analysed and reconstructed to serve a new purpose. Typical for the Renaissance architecture, floor plans would have a square or symmetrical form, originating from certain dimensions and proportions. Within church architecture, these modules would often be the width of an aisle.[10]
Church façades would normally have an arrangement of columns, pilasters, arches



9. *Top:* Floor plan of Saint Michael's church in Leuven.
Bottom: Entrance of Saint Michael's church in Leuven.

and entablatures, and are symmetrical around their vertical axis. As far as the use of columns and pilasters, Renaissance architects used them either for structural or purely decorative purposes. Other characteristics of the reborn Classicism are the return of the barrel vault and the frequent use of domes. Especially after the design of the Basilica di Santa Maria del Fiore in Florence (fig. 8), the use of domes in church architecture became a frequently used element.[10]

Baroque architecture

Under the influence of some Italian architects a new style began to develop in the late 16th century, which again started in Italy and later on expanded towards the North into the rest of Europe. Although they still used the vocabulary of the Renaissance architecture, the Baroque style is more theatrical and has bold nature (fig. 9). After the Reformation during the 16th century, it was mainly the Protestants who kept on using the Renaissance architecture for their churches. The more exuberant

Baroque style was the Catholic answer to this. Baroque architecture was more open towards emotions and also formed a visible representation of the wealth and power of the Catholic Church.[11]

The aim of Baroque architecture is to make a great impression on the visitor through excesses. Because of this and the lack of refinement, the style got its name from the word *barrocco*, used by jewellers to indicate a rough, unpolished stone. Besides the excesses and lack of refinement, this style is also characterised by new explorations of form, light and a dramatic intensity. Individual parts of the building do not stand alone, but fit within the context of the whole. Open, fluid shapes prevail and flow into one another and sharply defined contours are avoided. In addition, a fondness for strong contrasts between light and shadow was developed.[11]

In the later stages of the Baroque during the 18th century, the style became more flamboyant and highly decorated. This last phase within the Baroque period is also known as Rococo and was developed by French architects as a reaction against the strict rules and symmetry that were featured in the earlier phase of the Baroque period. However, this last phase did not last very long and by the end of the 18th century the Baroque and Rococo styles were largely replaced by the Neoclassic style.[11]

19th century revival styles

Under the influence of Napoleon in the 19th century, freedom of religion was introduced by law in the Netherlands. From then on, the Reformed Protestant Church was no longer the ruling church, thus making it legal again for other religions to build churches. This resulted in an increase in religious buildings, often in the new and upcoming Neoclassic style (fig. 10).[12]

Neoclassicism, like the Renaissance, draws inspiration from the classical architecture of Ancient Greece and Rome. Like the Renaissance was a reaction to the Gothic period, Neoclassicism was a

10. Mozes and Aäronchurch in Amsterdam

11. Neuer Mariendom in Hamburg

12. Non-realized tower design for the Cathedral of Saint-Denis by Viollet-le-Duc in 1860.

countermovement against the Baroque architecture. The Neoclassical style occurred simultaneously with the 18th century Age of Enlightenment and continued throughout the 19th and 20th centuries and follows the principles of symmetry and simplicity drawn from the 16th century Renaissance. [12]

Shortly after, Neoclassicism makes place for other revival styles like the Neo-Romanesque (fig. 11) and Neo-Gothic (fig. 12) architecture styles, both originating from the romanticized memories of the Middle Ages. As the names of these styles suggest, they draw their guides and principles from the Romanesque and Gothic architecture respectively. The main architect of the Dutch Gothic Revival was Cuypers, who was influenced by the French Viollet-le-Duc. [12]

Pre-Modernism, Modernism and Post-Modernism

Around 1900 the blind imitation of styles of the past was being criticised and was not considered to be original and authentic. Under the influence of Berlage, a new style

emerged that featured showing construction and avoiding unnecessary ornamentation. Because of the rationalism of this style, this type of architecture was especially popular with Protestants. Later on, starting from around 1915, a more profane architecture came over from Germany, known as expressionism, of which the Dutch version is known as *De Amsterdamse School*. This style features graceful brick ornaments and decorative additions in natural stone (fig. 13).[13]

Another rising architecture style from the same period, though less common in church architecture, is Functionalism, a movement which lets the form follow the function in response to all the decorative styles like expressionism that preceded it shortly. This style continues from the earlier rationalists like Berlage (fig. 14).[13]

Within the turbulent times of the first half of the 20th century another movement arose, mostly within Dutch architecture, as a reaction to all these upcoming new

13. Reformed Church in Andijk

14. Christian science church in The Hague

architecture styles: the Traditionalist School, founded by Granpré Molière. This traditionalism was a reaction against the expressionism and functionalism and was a revival of former rural building styles and tradition and with the use of traditional building materials. *De Delftse School* is the most known movement within this traditionalism.[13]

After World War II, as a result of the devastation during the war and rapid urban expansion, many new churches had to be built and existing churches rebuilt. Internationally, Modernism slowly gained ground, but in the Netherlands this movement did not really appear until 1960. Between the end of the war and 1960 the church architecture was in fact dominated by a new variant of Traditionalism known as *De Bossche School* (fig. 15) founded by the Benedictine monk and architect Dom. H. van der Laan. The proportional systems of *De Bossche School* are based on the Plastic Number or Golden ratio. Its structural principles go back to the design of early

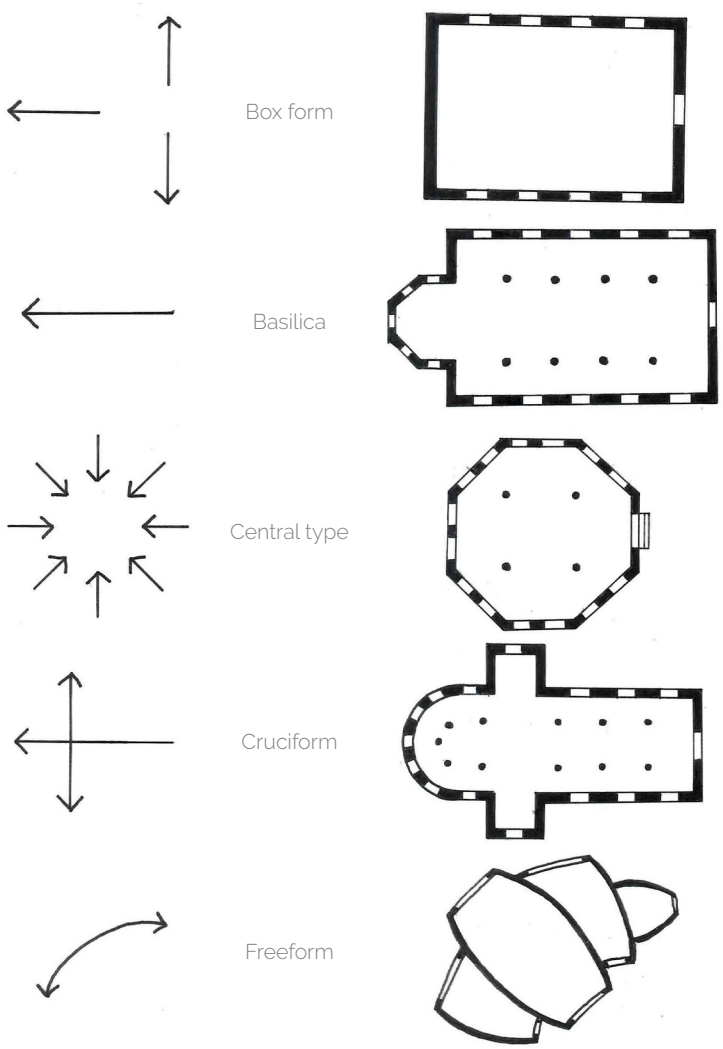
15. St. Martinuschurch in Gennep

16. Easterchurch in Amstelveen

Christian and early Romanesque churches in Italy.[14]

During the 1950's a unique and sculptural variant emerged in international Modernism under the influence of the French-Swiss architect Le Corbusier. This new style would form an important source of inspiration in the 1960's for Protestant churches in particular (fig. 16). The Catholic churches, however, were much less influenced by Le Corbusier and Catholic architects would often choose, besides *De Bossche School*, for regular Modernism or even Functionalism.[14]

From around 1965, under the influence of secularisation, the construction of churches with great architectural pretensions in the Netherlands was mostly done. New churches still arose, but often to replace existing churches that had become too big for the reason mentioned above. There are exceptions, though, which are often built in a more modern and contemporary style.[14]



17. *Different types of floorplans and their main directions*

Sub-conclusion

As time progressed the typical floor plan of churches went from a simple square to a basilica with an apse at one end, to a central type of floor plan, to a cruciform and in modern times even some freer forms of floor plans. Each of these types has a different kind of main direction, which is also strongly present and emphasised in the rest of the architecture of the church (fig. 17).

When looking at the different architectural phases of the history of church architecture, it is apparent that most periods are a counter-reaction to their prior periods. Despite having different principles, it appears the desired goal often matches, one of which is the aim to go higher and reach for the sky. This already started when the Basilica, where the nave tended to be higher, became the main building type for churches. The central type was focused around a central axis and by the time the Romanesque period had begun, naves became higher and towers started to appear.

As building techniques evolved during the Gothic period, the churches and cathedrals became even higher. Since the Renaissance, repetition, proportions and organisation began to be more important as well, though these aspects were already present to some extent in earlier periods.

The use, or lack, of ornamentation and expression of the architecture formed the main reason for most movements and styles to arise, yet ironically the lack of ornamentation and the thought of using a structure in its pure form can be seen as a form of ornamentation or expression as well. Therefore this aspect forms a corresponding element within the different styles of church architecture as well.

1. J. G. Davies, *The origin and development of early christian church architecture*, 1952, p. 12-13

2. G. F. Snyder, *Ante Pacem: Archaeological Evidence of Church Life Before Constantine,* 2003, p. 128-134

3. W. H. C. Frend, *The early church,* 1965, p. 135-137

4. J. G. Davies, *The origin and development of early christian church architecture*, 1952, p. 16-31

5. J. G. Davies, *The origin and development of early christian church architecture*, 1952, p. 36

6. J. G. Davies, *The origin and development of early christian church architecture*, 1952, p. 81

7. J. G. Davies, *The origin and development of early christian church architecture*, 1952, p. 51

8. E. H. Gombrich, *Eeuwige schoonheid,* 1996, p. 171-177

9. E.H. Gombrich, *Eeuwige schoonheid,* 1996, p. 185-190

10. D. Watkin, *De westerse architectuur: Een geschiedenis,* 1994, p. 211-250

11. D. Watkin, *De westerse architectuur: Een geschiedenis,* 1994, p. 283-362

12. D. Watkin, *De westerse architectuur: Een geschiedenis,* 1994, p. 439-52

13. D. Watkin, *De westerse architectuur: Een geschiedenis,* 1994, p. 582-648

14. D. Watkin, *De westerse architectuur: Een geschiedenis,* 1994, p. 648-684

Subject of paintings

"A painting is complete when it has the shadows of a God"

- Rembrandt van Rijn

18. Jacob van Campen (1596-1657), *Portrait of Pieter Saenredam*, 1628. chalk on paper. The British Museum, London.

The Dutch Golden Age of paintings

During the 17th century Holland became a major European power. After the northern provinces of the Netherlands signed the Twelve Years' Truce with Spain in 1609, a period of economic growth and wealth emerged. Despite the country's break with the Catholic Church and the drawback for Dutch painters resulting from this, the 17th century would become one of the greatest periods in Dutch art history.[1]

Protestantism initially had a negative effect on the field of art. The Protestant Church thought of images of saints in churches as being Popish idolism and a lot of painters lost their most reliable source of work, that of painting the altarpiece. Nevertheless, the demand for portraiture increased as most proud burghers and burgomasters wished to have a portrait of themselves in their offices and governing members wanted group portraits for their boardrooms. Thus, the genre of portrait painting was born.[1]

19. *Top:* Drawing of the interior of the St. Bavochurch by Pieter Jansz. Saenredam.
Bottom: Painting of the interior of the St. Bavochurch by Pieter Jansz. Saenredam.

Besides portraits, a new genre of painting became popular in the Netherlands: that of church interiors. These paintings, often called *perspectives*, were not random images of interiors, but carefully crafted, constructive works with lots of consideration for the architecture of the space.[1]

Pieter Jansz. Saenredam

One of the great painters of the 17th century, known for his paintings of church interiors, is Pieter Jansz. Saenredam (1597-1665) (fig. 18). He was the first Dutch artist who created truthful illustrations of architecture of these buildings and is known to have made over 140 drawings of church interiors. Saenredam had a precise way of working in which he started with sketches of parts of the interior when visiting the church and later on using these sketches to construct the painting (fig. 19).[2]

His work is exceptionally detailed and he uses light and gradient shadows to express the interior's atmosphere (fig 20). His preference for subtle light and shadows

20. Pieter Jansz. Saenredam (1597-1665), *Interior of the Mariachurch in Utrecht*, 1651. Oil on panel, 49 x 36 cm. Private collection, Los Angeles.

is much more nuanced compared to later Dutch painters of the 17th century when the interior paintings of churches became much bolder and stronger in contrasts of light.[2]

Looking purely at the architecture of Saenredams work, certain elements keep coming back. For one, the repetition of (architectural) elements is seen in a lot of his paintings, but also columns and arches are present in almost every church interior. Finally, the fact that Saenredam places human scale figures into the paintings gives the beholder the ability to get a sense of scale of the place (fig. 21 and 22).

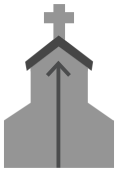
Other masters of the genre

Besides Saenredam, the Dutch Golden Age knew some other great painters who are known for their work within the genre of church interiors, like Gerard Houckgeest (1600-1661) and Emanuel de Witte (1615-1692). Houckgeest started his career painting non-existing architectural pieces, but mid 17th century he started to paint the interiors of the Old and New Church in Delft.

21a. Pieter Jansz. Saenredam (1597-1665), *Interior of the St. Bavochurch in Haarlem*, 1630. Oil on panel, 41 x 37 cm. Louvre museum, Paris.

Repetition

Arches and Columns



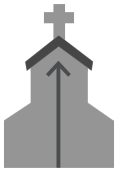
Scale

21b. Architectural aspects highlighted in *The interior of the St. Bavochurch in Haarlem (1630)* of Pieter Jansz. Saenredam

22a. Pieter Jansz. Saenredam (1597-1665), *The nave and choir of the Mariachurch in Utrecht,* 1641. Oil on panel, 121 x 95 cm. Het Rijksmuseum, Amsterdam.

Repetition

Arches and Columns



Scale

22b. Architectural aspects highlighted in *The nave and choir of the Mariachurch in Utrecht (1641)* of Pieter Jansz. Saenredam

23. Gerard Houckgeest (1597-1665), *Ambulatory of the Nieuwe Kerk in Delft,* 1651. Oil on panel, 66 x 77 cm. Het Mauritshuis, The Hague.

His work focuses mainly on the architecture of the place and, like his predecessor Saenredam, he portrayed only few human figures in his interiors. The use of perspective in his paintings is striking. Interiors are painted in a wide angle, almost like a panoramic view of the place, and again giving the viewer a feeling of grandeur. The soft light hitting the columns gives the interior in the painting a calm and serene feeling (fig. 23).

Like Houckgeest, Emanuel de Witte is famous for his paintings of church interiors as well, both imaginary and real. His recognition is due to his way of using linear perspectives and grasping the sense of the atmosphere, rather than painting the composition as accurately as possible, unlike Saenredam. His often busy scenes and dramatic use of light distinguishes his work from others as well (fig. 24).

Sub-conclusion

In order to find out what architectural elements help accommodate the special atmosphere in churches; the Dutch 17th

24. Emanuel de Witte (1617-1692), *Interior of a Calvinist church,* 1660. Oil on panel, Private collection.

century art history cannot be ignored. Saenredam's consciousness of the architecture of the churches and the atmosphere he conveys through his paintings makes his work so special. In some cases it seems as if Saenredam exaggerates the perspective and scale a bit, so this sense of immensity of the place, certainly for people of that time, becomes really clear. But besides scale, the aspects such as repetition of elements and the use of arches and columns in the architecture are clearly visible in his work as well.

Like Saenredam, Houckgeest and de Witte made clever use of perspective in their works to really let the beholder experience the scale of the interiors. And although the first two painters used light in a different way than the latter, light and shadow still is an important element used in the paintings of all three.

1. E. H. Gombrich, *Eeuwige Schoonheid,* 1996, p. 413-420

2. A. de Groot, G. van Heemstra, L. Helmus & M. Plomp, *Pieter Saenredam, The Utrecht Work: Paintings and drawings by the 17th-century master of perspective,* 2002, p. 73-90

Case studies

Stil in use

"And this stone, which I have set for a pillar, shall be God's house."

- Genesis 28:22

Introduction

The experience of sacred architecture is not necessarily constrained by religious significance but can clearly be sensed by anybody encountering such atmosphere. To create a better idea of what architectural elements evoke this atmosphere, various churches have been studied in this chapter. The examples are chosen not only to cover different periods and architecture styles throughout history, but also several different countries and cultures. The case studies are described both through personal experience and visual or written research.

Pantheon

Rome

The Pantheon in Rome is one of the most well known and best preserved buildings dating back from ancient Rome. Originally the structure was built as a temple for all the gods, but today it is used as a Catholic basilica. The side of the building shows that it was built between 118 and 125 A.D. This Pantheon was built by emperor Hadrianus and was dedicated to Marcus Agrippa's Pantheon of 27 B.C., which burned to the ground in 80 A.D.[1]

Little is known about the original use of the Pantheon, apart from being a temple, because the structure is completely different from other Roman temples like the Roman Forum. Until today it is unknown as to how worshipping took place when the building was in use as a Roman temple. The main reason the Pantheon has been preserved so well and still exists today is

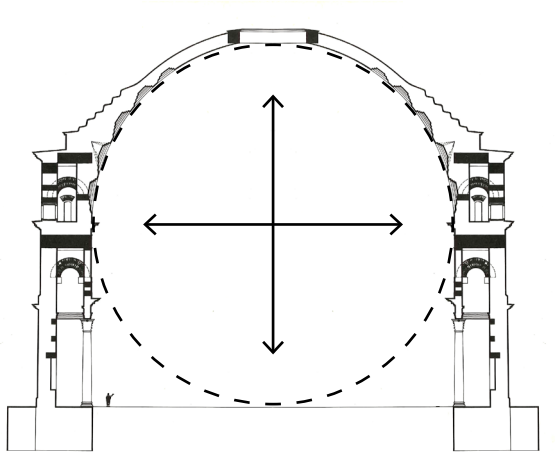
25. The entrance of the Pantheon with the pediment and colonnade.

26. The oculus in de centre of the dome when looking upwards.

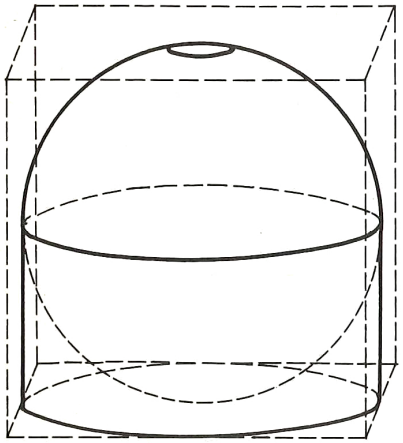
because Emperor Constantinople gave the Pope permission in 609 A.D. to consencrate the building as a church therefore ensuring its survival.[2]

When approaching the Pantheon, the inscription on the façade reads:
M · AGRIPPA · L · F · COS · TERTIUM · FECIT
Which means: "*Marcus Agrippa son of Lucius, having been consul three times made it.*" The pediment above the inscription is blank nowadays, but there used to be sculptures here, acting out the battle of the Titans. The great bronze doors, which were covered in gold and would have guarded the entrance, are also gone (fig. 25).[3]

When entering the Pantheon the interior consists of a large dome with a diameter of 43.3 metres. To this day, this dome remains the largest dome of plain concrete ever made. Besides its large scale, the diameter of the dome is the exact same as the height from floor to top, forming a perfect sphere (fig. 27 and 28). In the centre of the dome, there is an oculus with a diameter of 8.7



27. The section of the Pantheon forms a perfect circle.

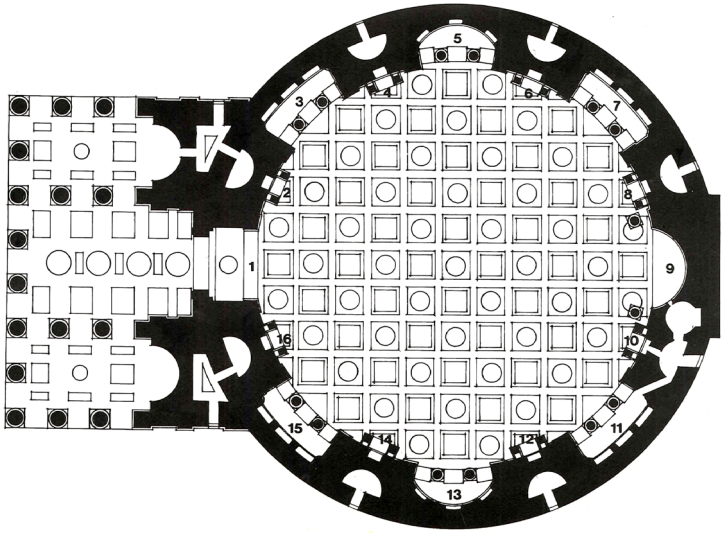


28. The spherical and cubical geometry of the Pantheon.

metres, which forms the main source of light for the building.[3] Because of this strongly present oculus, the view of the visitor will almost immediately be drawn upwards, accommodating a feeling of connection between the tangible and intangible (fig. 26).

Another architectural element that contributes to the atmosphere inside the Pantheon is the floor. After one is done looking up towards the oculus and the view goes down again, one notices the floor consists of a pattern of squares and circles (fig. 29). At first this pattern was made to mirror the order within the Roman Empire, but later this order in the repetitive floor plan also became more symbolic for the divine.[3]

This recurring theme of the circle in the floor plan, section and opening, is a symbol of infinity and the universe. Because this symbol is not associated with a specific religion, but instead is universal, every visitor will have almost the same sacred experience when standing inside.



29. The floor of the Pantheon covered with a pattern of circles and squares.

Originally the Pantheon was built as a universal building, as pan means all and theon means gods; it was meant as a temple for all gods but later turned into a Christian church. In the end the building is one of the best examples, within sacred architecture, of the use of light and symmetry. The oculus and large dome make it a breath-taking experience for both believers and non-believers.

1. W.L. MacDonald, The Pantheon: Design, Meaning and Progeny, 1976, p. 13

2. W.L. MacDonald, The Pantheon: Design, Meaning and Progeny, 1976, p. 14

3. W.L. MacDonald, The Pantheon: Design, Meaning and Progeny, 1976, p. 27-44

Hagia Sophia

Istanbul

The Hagia Sophia was originally constructed as a church for the city of Constantinople in the Byzantine Empire of Justinian I and is one of the greatest examples of the Byzantine architecture that still exists today. Successively, two cathedrals previously stood on the site, but both were destroyed by riots. Around 536 two architects, Isidore of Miletus and Anthemius of Tralles, started the construction of the present building without any former experience. In 558 the dome of the cathedral collapsed and was rebuilt slightly smaller, giving it its current diameter of 33 metres.[1]

Up to 1453 the church served as an Eastern Orthodox cathedral, with the exception between 1204 and 1261 when it was converted as a Catholic cathedral by the crusaders of the Latin Empire. After 1453 the Ottoman Empire converted the building into

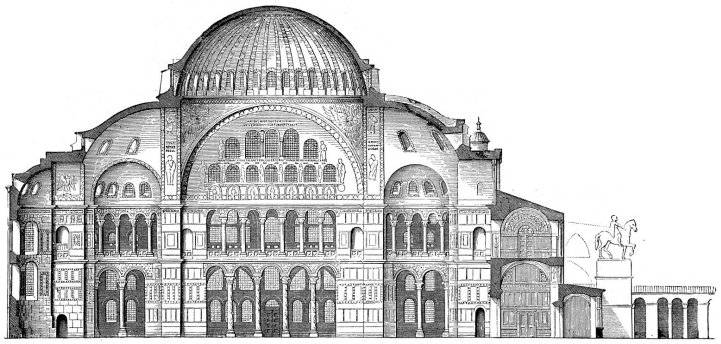
30. The Hagia Sophia stands as a landmark on the hill, visible from other parts in the city.

31. The central area of the Hagia Sophia underneath the dome.

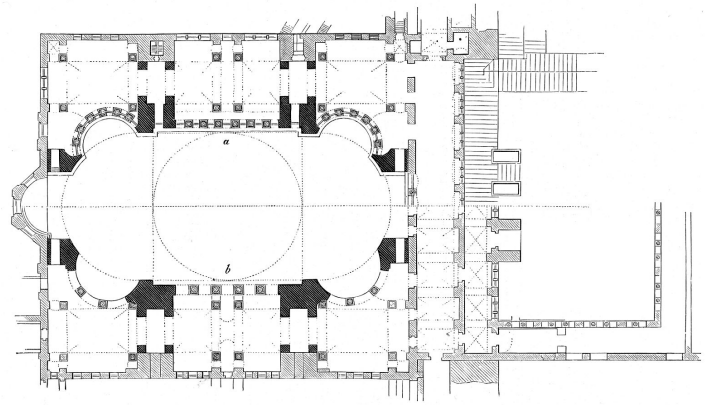
a mosque and changed the name to Aya Sofia. The Byzantine frescoes and mosaics were covered under a white plaster. In 1935 the mosque became secular and opened as a museum, and the frescoes, mosaics and marble floor became visible again.[1]

The floor plan consists of a rectangular space of 71 by 77 metres, defined by four pillars carrying the dome, which dominates the interior of the building. In contrast to the Pantheon, the dome of the Hagia Sophia spans a square instead of a round area and is not supported by a thick wall, but by pendentives rising up from the pillars. This construction method gave the opportunity to eliminate the supporting walls under the dome, giving the square space an open connection with the surrounding areas (fig. 31). [1]

North and South of the floor plan the central area is separated from the aisles with high marble columns, while the East and West parts merge without interruption into the two areas that are covered with two large



32. Section of the Hagia Sophia with the main dome and the half-domes on the sides.



33. Floor plan of the Hagia Sophia.

half-domes built against the main dome. These half-domes have the same diameter as the main dome and help absorb the horizontal pressure (fig. 32 and 33).

The whole structure, despite being built rather rationally and symmetrically, has somewhat mysterious, as it is difficult for the beholder to precisely determine the boundaries of the space. The massive dome on top of the nave has windows all around the base of the structure, giving it the impression of hovering in the air. The light that enters through these windows reflects and scatters all over the interior, which is highly decorated with mosaics and marble (fig 34).

The Hagia Sophia is a great historical and architectural monument reflecting the Byzantine and Ottoman empires. The massive construction of the dome and the highly decorated mosaics are the reasons the building is on the UNESCO World Heritage list and still intrigues many visitors today.

34. The imperial gate mosaic (top) and the Southwestern entrance mosaic (bottom).

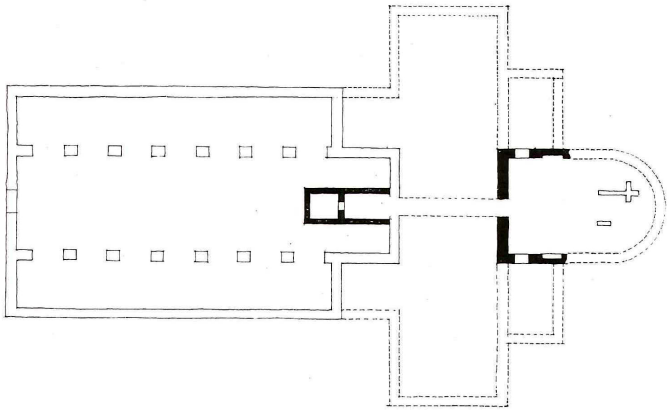
1. D. Watkin, *De westerse architectuur: Een geschiedenis*, 1994, p. 94 - 99

st. Servaas Church

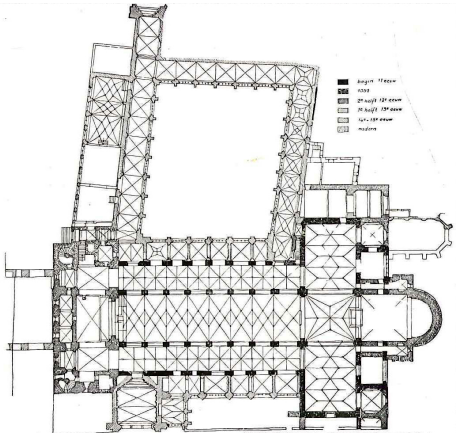
Maastricht

The St. Servaas Church in Maastricht is a church from the Romanesque period and is considered to be the oldest still existing church in the Netherlands. The first traces date back to the 4th century. However, the parts of the church that stand today originate from around the year 1000. The present-day church is believed to be the fourth church built on this site of Saint Servatius' grave who, allegedly died in Maastricht in 384. Around 570 the small wooden memorial chapel was replaced by a larger stone church, which in turn was replaced by a larger pilgrim church around the 7th century.[1]

The construction of the current Romanesque church at the *Vrijthof* in Maastricht, took place in several stages over the course of almost 200 years. Around the year 1000 the existing pilgrim church was demolished to the foundation to make place for the new



35. Floor plan of the early Basilica of St. Servaas in the 11th century with the burial chamber and small crypt.



36. Floor plan of the St. Servaaschurch and surrounding complex in their present state.

church, a three naves pillar basilica without transept, which is still recognisable in the present nave (fig. 35 and 36). In the second half of the 11th century the transept was added and the choir and westwork were built in the late 12th century.[2]

After the completion of the Romanesque church, several changes took place over the centuries. At the end of the 12th century or in the early 13th century the sculpted *Bergportaal* arose at the south side of the church, and it is probably the very first manifestation of Gothic architecture in the Netherlands. In the 14th and 15th century, the aisles were expanded with Gothic side chapels. Large lancet windows replaced the Romanesque windows and the nave and transept got their vaulted ceilings. In 1556 a tall spire was placed on top of the westwork. After that, in the late 16th and early 17th century, both the *Vrijthof* side of the church and the *Bergportaal* got a Baroque style façade after which the westwork followed in 1770. By the end of the 18th century, the whole church looked more Baroque than

37. Westwork of the St. Servaas church as seen on from the tower of the st. Jan church.

38. The sculpted Bergportaal of the St. Servaas church.

Gothic or Romanesque. The windows no longer contained stained glass and the interior had been painted white.[3]

In the late 19th century the St. Servaas Church underwent major restoration work led by Pierre Cuypers. Cuypers tried to bring back previously demolished elements and painted the church in a Neo-Romanesque polychrome colour scheme. The sculptures of the *Berportaal* and North entrance were restored or replaced by new ones as well as some of the Romanesque capitals. The Baroque influences were completely wiped out and the spires were replaced by Neo-Romanesque ones.[3]

In 1981 the church underwent another big restoration. This time to reverse Cuypers changes and to restore the church in a more truthful state based on more recent discoveries. But because some people felt that Cuypers additions had also become part of the church its history, it was decided to keep parts of Cuypers restoration work as glimpses into the past.[4]

39. Neo-Gothic sculputers at the North entrance of the St. Servaas church.

40. Ligh entering the cloister at the St. Servaas church.

The present day entrance of the Church is through the Northern gate behind which the cloister and courtyard are located (fig. 39). Here the visitor enters a world of tranquillity far away from the busy city centre. Light enters the cloister through big windows also giving the visitor a view of the courtyard (fig. 40). The entrance to the main church is on the opposite site.

Inside the church the amount of colour and light is striking. The nave and its vaults are highly decorated in different colours and the light coming in through the clerestory windows illuminate these colours even more (fig. 41). In contrast to the bright central nave are the transept and lower side chapels. Here the windows have darker, stained glass depicting scenes from the bible (fig. 42 and 43).

The floor of the church is covered in a pattern of black and white squares, interrupted by seven memorial tiles. These tiles mark the graves of some bishops and provosts, one of which is the grave of St. Servatius (fig. 44).

41. The central nave of the church with light coming through the clerestory windows.

42. Stained glass windows in the chapel of St. Barbera.

43. Ligh shining through the stained window on the sculputre of St. Anthony of Padua.

44. Bronze tile marking the grave of St. Servatius.

45. The service crypt underneath the crossing of the nave and transept.

Underneath the crossing of the nave and transept lie the underground crypts, the reason pilgrims are visiting the church for centuries (fig. 45).

The St. Servaas Church is exceptional place to visit. The atmosphere created by its colours, light and sculptures leave an impression that will last for quite some time. What makes this place so special though, are its long history and corresponding changes it went through. The traces of time are clearly visible and contribute to the cultural and historical importance of the church.

1. T. Panhuysen, *De Sint-Servaaskerk te Maastricht in de vroege middeleeuwen. Voorlopig eindverslag van de opgravingen door de dienst Stadsontwikkeling Maastricht in de periode 1981-1989,* 1991, p. 15-24

2. J. J. M. Timmers, *De sint Servaaskerk the Maastricht,* 1955, p. 7-10

3. J. J. M. Timmers, *De sint Servaaskerk the Maastricht,* 1955, p. 11-40

4. R. Brouwers & M. Dickhaut, *Fictie wordt realiteit*, 1992, p. 186

St. John's Cathedral

's-Hertogenbosch

The St. John's Cathedral in 's-Hertogenbosch is hard to miss when visiting the city. It's highly decorated exterior is visible from all around the city and forms an important part of the cityscape (fig. 46). The St. John is in a central place of the city centre on the corner of the *Parade* and *Torenstraat*. On the spot where now the St. John is situated, there used to be a Romanesque church constructed in the 13th and 14th century. During the second half of the 14th century the church began to expand, explaining its current gothic style. The old Romanesque part was mostly demolished, leaving only the church tower in Romanesque style.[1]

The unusual amount of sculptures that adorn the exterior is fascinating. In total there are about 600 figures. The statues have a vocational and allegorical theme: From stonecutter and blacksmith to dragon,

46. Cityscape of 's-Hertogenbosch with St. John's Cathedral in the background.

47. Some of the flying buttress figures on the exterior of the St. John's Cathedral.

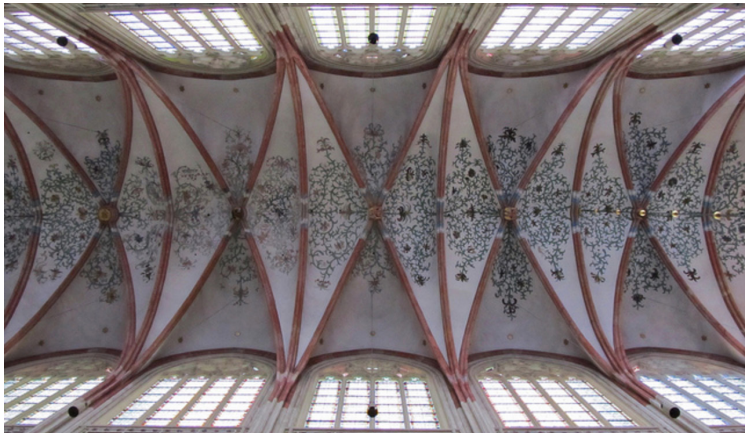
monkey and dog (fig. 47). The current figures are copiers, reconstructions or new designs dating from the 19th century restoration. Even though some sculptures were still in a good state, it is unclear why they all have been replaced.[2]

With it's total length of 115 metres, a width of around 60 metres and a nave of 40 metres high, the cathedral is the largest Catholic Church in the Netherlands. This immense feeling becomes particularly clear when standing on the square in front of the church, a feeling that continues when walking inside the church. Despite the large dimensions of the church, the interior of the church feels harmoniously and peaceful because the unity in style of the interior (fig. 48).

The repetition of elements and the light coming true the stained glass windows in the aisle of the church, gives the visitor an enchanting feeling when entering (fig. 49 and 50). In contrast of the somewhat darker aisle and mysterious lights coming through

48. The nave of the St. John's Cathedral.

49. The stained glass windows in the aisle of st. John's Cathedral.



50. The repetition of the coloured vaults feel enchanting.

51. cafés and terraces on the Parade in ‘s-Hertogenbosch.

52. The Northeast side of the church surrounded by nature.

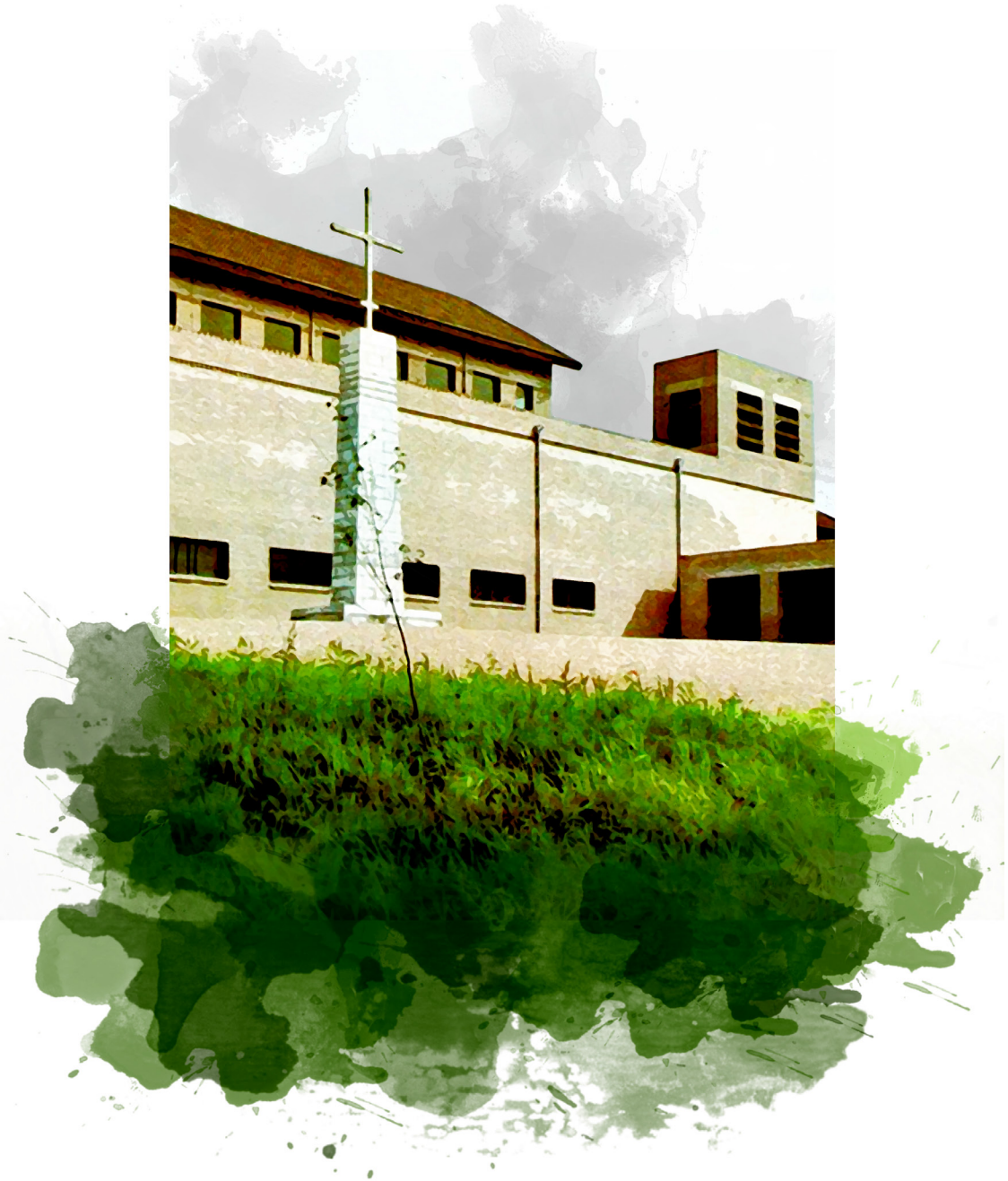
these stained glass windows, the light in the nave part of the church comes from high above through clear windows making this part of the church much more brighter.

When walking around outside of the church, on the east side, the building appears to be standing in a complete different surrounding. Instead of busy shopping streets or the square with cafés with terraces on it, here nature takes over (fig. 51 and 52). This northeast side of the church has several old trees and shrubs present and bigger and smaller areas of grass.

The St. John’s Cathedral in ‘s-Hertogenbosch is often considered the highlight of Gothic architecture in the Netherlands. The particularly harmonious interior is the result of a homogeneous style that was maintained throughout the entire two centuries construction period. The exterior, with its generous amount of ornaments and sculptures, gives a striking image of the need for decoration in the late Gothic period.

1. H. Boekweit, R. Glaudemans & W. Hagemans, *De Sint-Janskatedraal van 's-Hertogenbosch: Geschiedenis van de bouw,* 2010, p. 25-60.

2. H. Boekweit, R. Glaudemans & W. Hagemans, *De Sint-Janskatedraal van 's-Hertogenbosch: Geschiedenis van de bouw,* 2010, p. 176-184.



Abbey of st. Benedict

Vaals

During his life, Dom Hans van der Laan studied the relation between liturgy and architecture and focused on order and numbers. To answer the question: "Which proportions between length, width and height do we perceive as pleasant?" He discovered the plastic number: a proportional system that increases or decreases based on the ratio 3:4.[1]

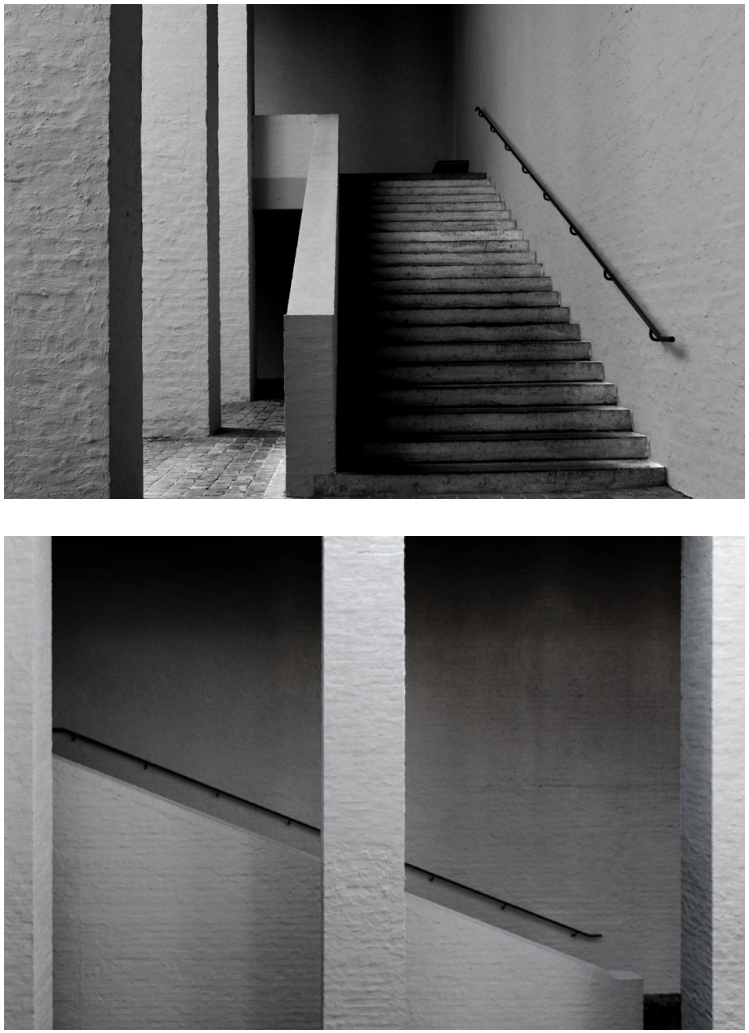
The strength of his architecture lies in the fact that he uses simple, ordinary forms and materials but still is able to create a sacred atmosphere in his buildings.[2] In order to clearly describe the atmosphere of the Abbey of St. Benedict in Vaals, it is best to analyse both the construction and use of materials as well as the proportional relations between the architectural elements (fig. 56 and 57).

53. Light coming through the alcoves from the left in the crypt.

54. Nave of the main church surrounded by colonnades.

The construction of the Abbey of St. Benedict on top of the st. Benedictusberg in Vaals started in 1922 but was left unfinished for a couple decades, until in 1968 Van der Laan completed the complex. Van der Laan's extension began with the construction of the crypt, which consists of a double row of columns supporting the main church above. The space is austere and the only ornament is a candlestick designed by Van der Laan as well. The light, which enters through alcoves from the left, together with the columns can be seen as the only decoration (fig. 53).

The floor plan of the church above the crypt is based on that of a basilica with a central nave enclosed by colonnades on three sides. Light enters the space through windows in the top part of the nave, separating and lifting the roof of nave from the rest of church. The surrounding trees are visible through these windows forming the only connection between inside and outside. Although the light comes from all directions, the beams of the light become visible because of the



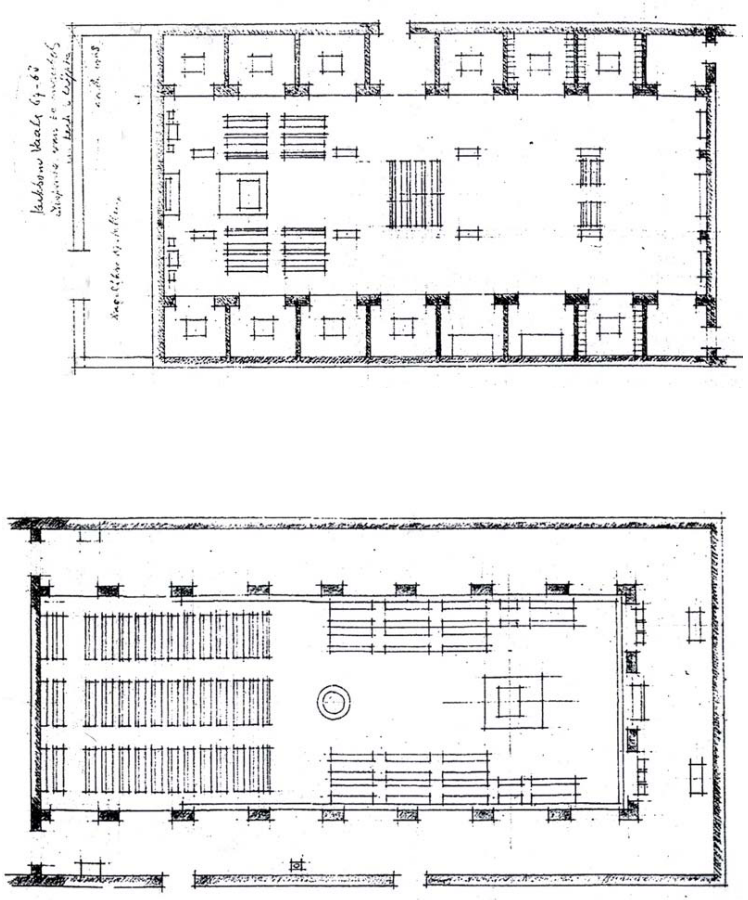
55. The atrium with stairs going up to the main church

smoke of incense thus making the light part of the atmosphere. The rest of the interior, the benches and colonnades, correspond with each other and have the same order (fig. 54).

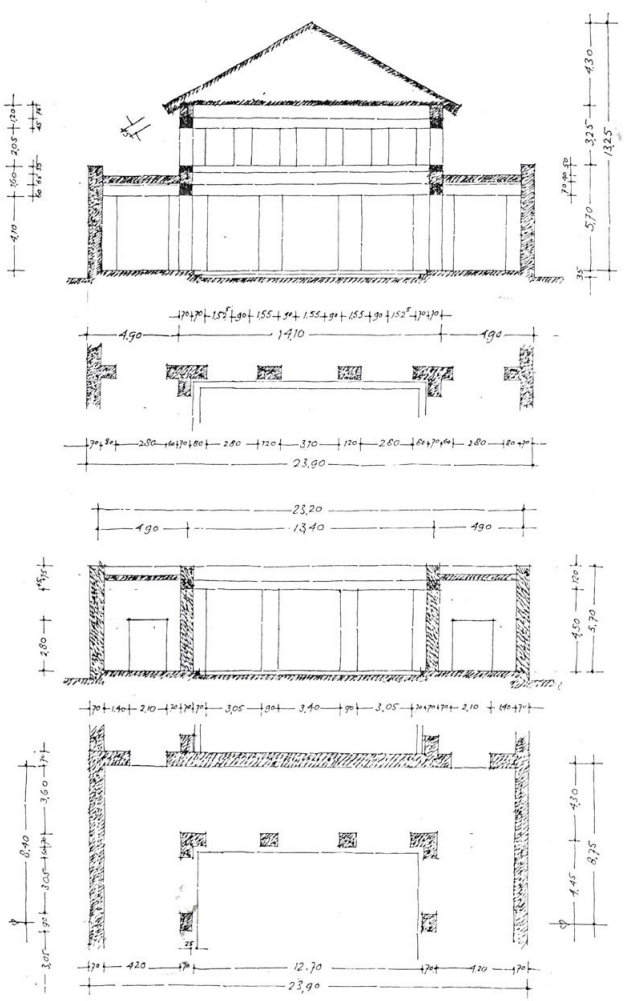
Like the crypt and church, the atrium is free from decorations and forms a gateway between public part of the monastery and the enclosed part (fig. 55). An open space only connected with the sky above. The architecture of van der Laan lacks obvious decorations and can be seen as being modernistic, though every room has a distinct purpose and the hierarchy between the spaces parallel benediction life.

1. J. Middleton, *Space, Time and van der Laan*, 2012, p. 41-42.

2. A. Ferlenga & P. Verde, *Dom Hans van der Laan, works and words*, 2001, p. 54.



56. Floor plan of the crypt (top) and main church (bottom) as drawn by Dom Hans van der Laan.



57. The proportional system of the construction as drawn by Dom Hans van der Laan.

Peter and Paul's Church

Maassluis

Peter and Paul's church at the Nieuwe Waterweg in Maassluis is quite a futuristic building. Built in 2007, the church is also known as Sydney along the Waterweg as the design is reminiscent of the opera house of Sydney. The architects Mari Baauw and René Olivier of Royal Haskoning made the design after the three parishes (Andreas, Petrus and Paulus) merged and needed a new building.

The church is made of a steel frame covered with a spanned PVDT Teflon material. The same material is stretched on the inside and the space between the two layers forms the isolation for the building. Light enters through coloured plastic placed between the leaf-shaped volumes and matte windows from the side (fig. 58 and 59). The light inside the church changes throughout the day and seasons and during the

58. Couloured light entering the church between the volumes.

59. The matte windows on the side of the church.

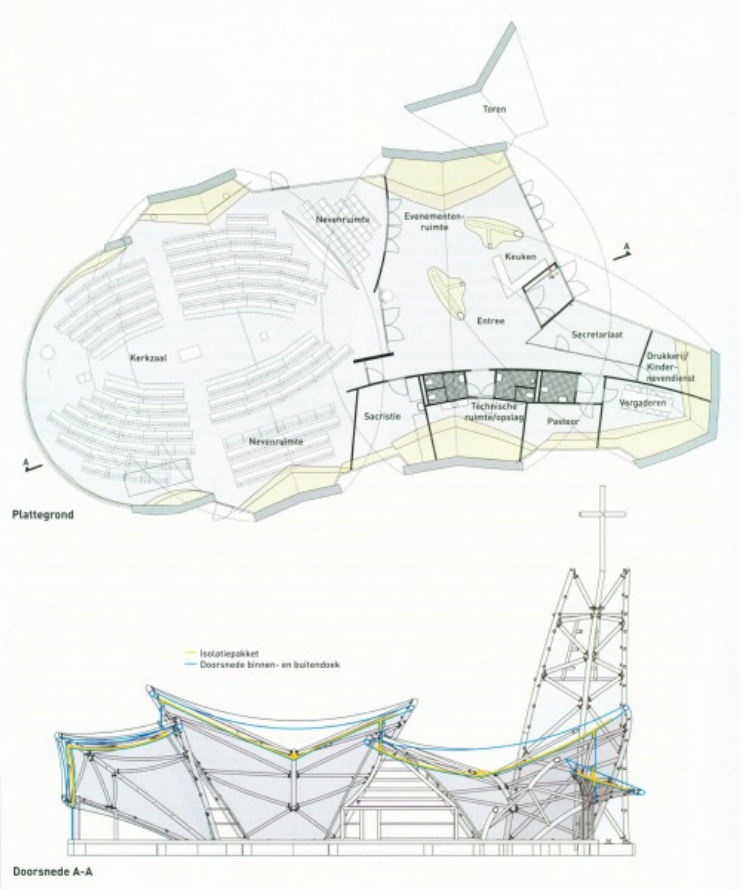
evenings the church emits an enchanting coloured light to the outside world.

Because of the clever use of the curved steel structure (fig. 60), the interior of the church is free of columns. The large span contributes to the feeling of the scale of the church, and the fact the façade is made out of PVDT Teflon, makes the church feel light and elegant.

The big cross on top of the church tower makes clear it is a church, but otherwise the building looks nothing like a conventional church. Despite its looks and the fact it is made out of plastics, the way the coloured and matte light enters the space gives the church a serene atmosphere.

60. Steel structure of Peter and Paul's church.

61. The steel structure covered with a white teflon material.



62. Floor plan and section of Peter and Paul's church.

Route

Relation with surroundings

Order and Geometry

Connection with nature

Detailing and ornamentation

63. *Different architectural elements that help constitutate a sacred atmosphere.*

Sub-conclusion

After analysing several case studies, it becomes clear that the atmosphere of church architecture is more than just the architectural elements. The importance of the church and its relevance throughout history, either within architecture or Christianity, often one of the main reasons a church still exist in its state today and is a monument or not. Though there are still several architectural elements that help constitute the atmosphere and form the boundaries in which the sacred is created.

The different projects within this chapter use different ways to achieve generally the same goals. Some of these goals were already clear in previous chapters such as: direction, scale, repetition, arches, columns and light versus darkness. Other goals became clear after studying the references in this chapter (fig. 63).

The first experience when visiting a church often already begins by walking towards the church. Most churches used to be some

sort of landmark throughout history and can still be clearly distinguished in cityscapes. But also the way one enters the building and leaves the hectic of day-to-day life behind and step into a world of sacredness is part of the first experience. It is about the transition from one place to another.

Secondly, the connection with nature forms an important element that creates the atmosphere in most churches. This probably goes back to the idea of God creating the world and, thus, nature being a creation of God. This connection can vary from an actual courtyard with trees and plants to a connection upwards with the sky and heaven.

Another expression of the sacred atmosphere can be found within the idea of order. Incorporating a measurement system or strong geometry leaves a strong imprint associated with a divine world. Like in the example of the Pantheon, the perfect geometry combined with the large scale keeps visitors fascinated for hundreds of years.

The last aspect has to do with detailing. Whether it is the use of a certain colour or material or (the lack of) ornaments, they form an important part in the experience of the building.

It is clear that there are various ways to create a sacred atmosphere with different architectural elements, but that it is definitely not necessary to use all of them. What seems important though, is that the used elements create a world that differs from the regular world outside. One that creates an overwhelming feeling.

Case studies

Repurposed

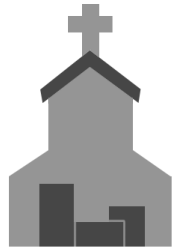
"Then for no other purpose are churches to be built (...) as for christians to come together, to pray. And where this cause should expire, the same church should be torn down."

- Martin Luther

Introduction

After establishing what architectural elements constitute the atmospheric aspects of church design, this chapter will use case studies to analyse the possible interventions and modifications when redesigning a church and their influences on these atmospheric aspects. To keep a clear overview these case studies are divided into five themes: *open space with objects*, *division of space*, *addition*, *partial demolition* and *windows*. The division within these categories is based on the main or most notable intervention. Although most of the time other smaller interventions also took place within the same project, this chapter will only focus on one per project.

Open space with objects

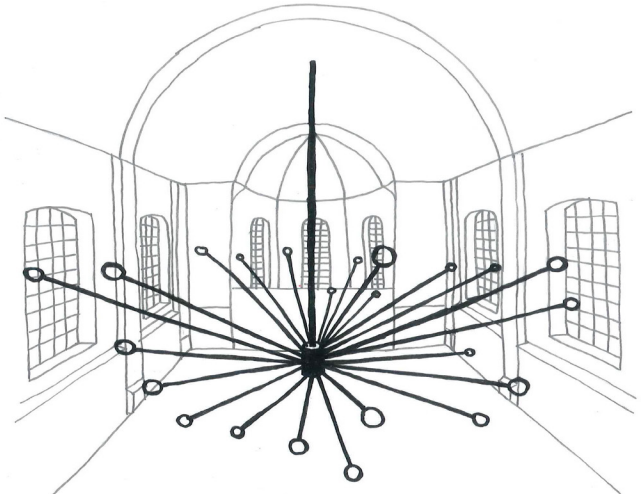


Case studies in this theme use the space of the church mainly as one open space by putting objects as items within this space. Because the interior of the church is not divided into smaller spaces, the height and scale of the building remains clear.

The Jane

Location	Antwerp, Belgium
Year	1899
Redesign	2014
Architect	Piet Boon
Function	Restaurant

About the redesign

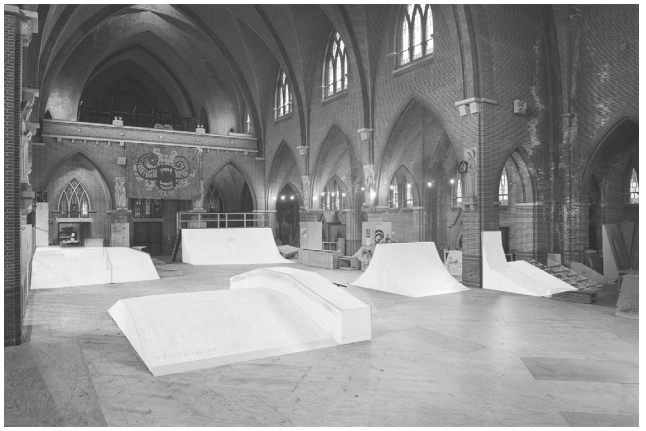


In the chapel of a former military hospital in Antwerp, Piet Boon, together with chef Sergio Herman, designed the high-end restaurant The Jane. To keep the rough character of the church, only the highly necessary was restored. To really emphasize the height of the space, a big 800 kilograms, 12 by 9 metres chandelier hangs in de middle of the restaurant, as a piece of art under which the guests sit and dine.

Sint Jozef Church

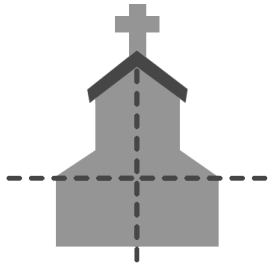
Location	Arnhem, Netherlands
Year	1929
Redesign	2010
Architect	Volunteers initiative
Function	Skate hall

About the redesign



After years of abandonment, local initiators saw the empty St. Jozef Church in Arnhem as a place to realise an indoor skate hall for the local youth.
The big open space of the church acts as an advantage for the skate hall and by adding ramps the height of the church can be used as well. The fact that it is indoors ensures that the space can be used throughout the year, regardless of weather.

Division of space

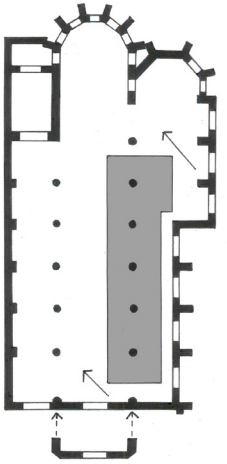


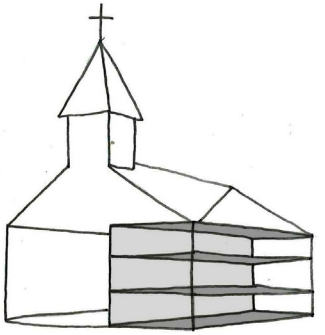
Case studies in this theme chose to divide the large space into smaller spaces, either by horizontal separations (adding floors), vertical separations (adding walls) or adding cubes (rooms). By doing so, more effective floor space and/or private areas can be realised.

Dominicanen Church

Location	Maastricht, Netherlands
Year	13th Century
Redesign	2006
Architect	Merkx and Girod architects
Function	Bookshop

About the redesign



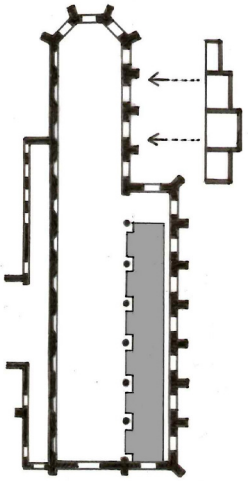


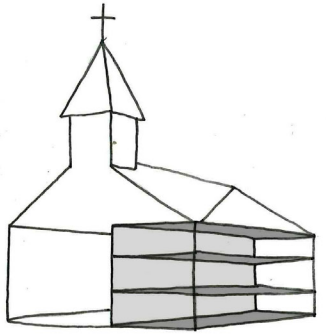
With the redesign of the Dominicanen Church in Maastricht, no big changes were made to the outer shell of the building. On the inside, new constructions were made in the form of large walk-in bookcases around the columns of the right aisle. The bookcases are surrounded with multiple stories of floors and stairs and each bookcase is 30 metres long and 7.5 metres high. The materials, colour and the way it is situated around the columns, gives the whole a sturdy and massive impression.

Broeren Church

Location	Zwolle, Netherlands
Year	15th Century
Redesign	2013
Architect	BKpunt
Function	Bookshop

About the redesign



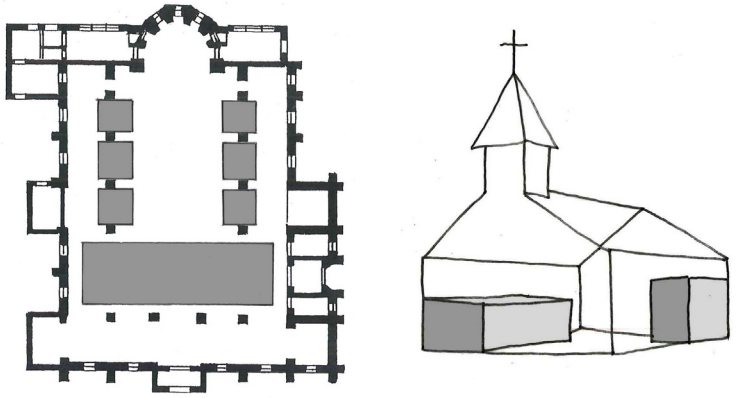


Another example of a church having been transformed into a bookshop is the Broeren Church in Zwolle. The addition of floors in this redesign is limited to the aisles, thus keeping the nave and central axis intact. The columns are also kept visible, therefore maintaining the feeling of height and the aspect of repetition. With regards to materialisation and colour, the architects chose to keep it sober and light, to not compete with the architecture of the church itself.

St. Gertrudis van Nijvel Church

Location	Heerle, Netherlands
Year	1864
Redesign	2012
Architect	Oomen architecten
Function	General practice

About the redesign

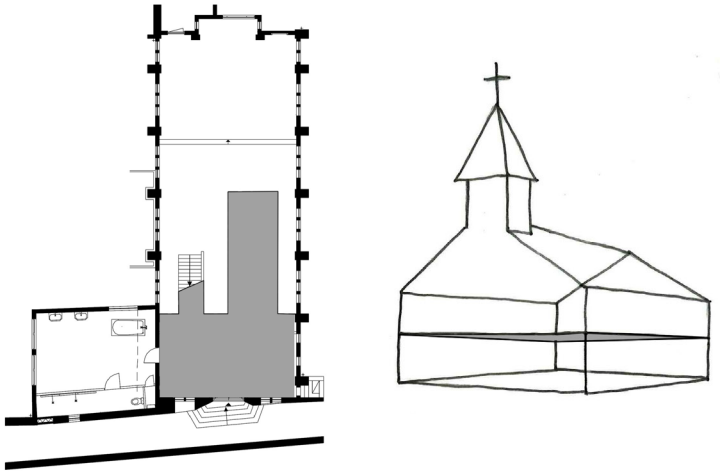


The St. Gertrudis van Nijvel Church in Heerle got a new function as general practice after the parish could not afford the maintenance costs of the building. The church has two major axes that have remained visible in the redesign. The central nave is kept free and the new features are housed in “boxes” in the aisles, which are kept free from the colonnade. The boxes are cladded with wood to create a warm harmony with the white stucco interior of the church.

St. Gregoriuschapel

Location	Utrecht, Netherlands
Year	1922
Redesign	2007
Architect	Zecc architecten
Function	Dwelling

About the redesign

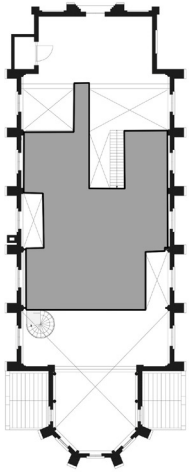


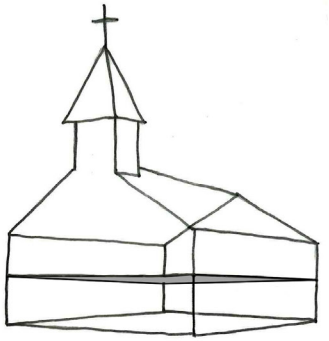
After the Gregorius monastery became vacant, Zecc architects were commissioned to redesign the former chapel into a spacious dwelling. The stained windows are preserved in their old state, and the newly added first floor has a white outside finish. This way, the light that comes through the stained glass windows is being projected onto the white finish as if it were a projection screen. The floor is kept free from the façade, thus making it possible to take out the modification, without leaving marks.

st. Jakobus Church

Location	Utrecht, Netherlands
Year	1870
Redesign	2009
Architect	Zecc architecten
Function	Dwelling

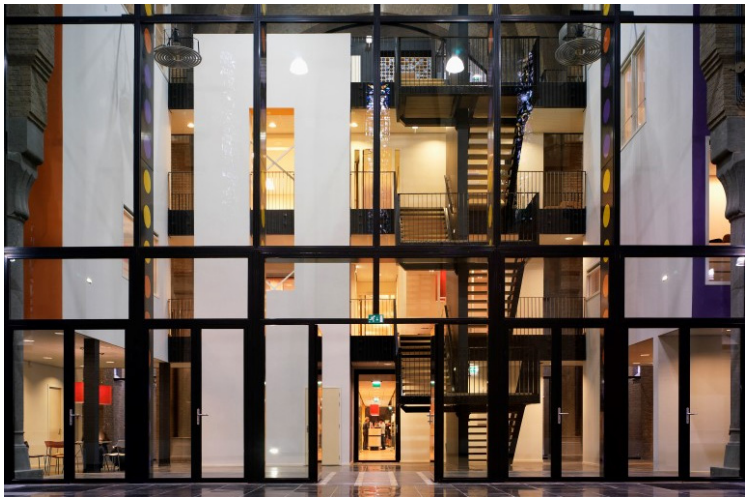
About the redesign





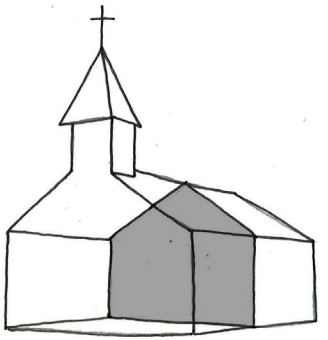
Like the previous chapel, the same architects converted the St. Jakobus Church in Utrecht to a dwelling in 2007. Because of previous secular functions, the church already had a large mezzanine floor. To get daylight access into the lower floor, the architects removed parts of this floor to create voids. The same trick to make the stained glass windows stand out was used again, by painting the complete floor and interior walls white.

Holy Leonarduschurch



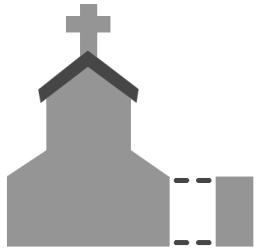
Location	Helmond, Netherlands
Year	1940
Redesign	2007
Architect	SATIJNplus architecten
Function	Healthcare centre

About the redesign



The Holy Leonarduschurch in Helmond has been converted into a healthcare centre. No big changes were allowed to the shell of the church, therefore all new additions are kept free from the existing structure. A curtain wall forms a separation between entrance and functional spaces. Because the partition is made entirely out of glass, the church maintains its spaciousness en light can still access the entire building.

Addition



Case studies in this category are chosen because of their addition to the existing ensemble. They either add a new volume to emphasize the entrance or add an annexe to create more effective floor space. The new volume, when realised in a different style than the original building, can really accentuate the architecture of the older structure.

Kruisherenhotel

Location	Maastricht, Netherlands
Year	15th century
Redesign	2000-2005
Architect	SATIJNplus architecten
Function	Hotel

About the redesign

The old *Kruisherenklooster* is transformed into a luxury hotel by the same architects of the redesign of the Holy Leonarduschurch in Helmond mentioned before. The interior of the monastery is kept the same as much as possible. Showpiece is the new copper-coloured entrance. The cone shape entrance draws attention and makes clear there is a new world behind the old walls.

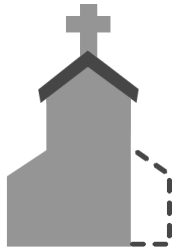
Remonstrant Church

Location	Groningen, Netherlands
Year	1883
Redesign	2004-2006
Architect	Moriko Kira
Function	Offices

About the redesign

The Remonstrant Church in Groningen is a special example where a church is redesigned and given a new function, but is still in use as a church on Sundays. By adding a new entrance building, the church has two separate entrances so the two different functions do not bother each other. The new addition forms a equivalent to the existing building but doesn't compete, standing as two brothers next to each other.

Partial demolition



Case studies in the theme of partial demolition have a part of the church demolished. By partial demolishing the existing church, an oversized church can become smaller taking up less room in its environment.
This modification is done mainly when a building is too big, even for its new function or when there is not enough daylight acces possible.

Lourdeschurch

Location	Zuidermeer, Netherlands
Year	1934
Redesign	2009
Architect	Sander Douma Architecten
Function	Townhouse

About the redesign

The Lourdeschurch became too big for its community in the 1970's after which it became a Townhouse. The church was partially demolished because the choir was in a really bad state and was too expensive to restore. The architects have placed a glass curtain wall in the place were the church now abruptly stops. The new glass wall provides the interior with extra light and the coloured glass is a reminder to the former stained glass windows.

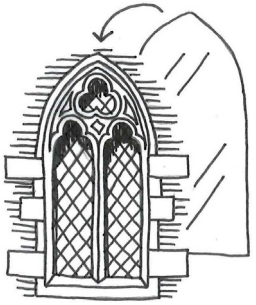
Windows

Case studies in this theme are chosen because of their changes to windows and daylight acces. Instead of keeping the existing windows the way they are, these projects added something in front or behind the existing windows, or replaced them with something completely different.

Jopenchurch

Location	Haarlem, Netherlands
Year	1910
Redesign	2010
Architect	H en E Architecten
Function	Café and brewery

About the redesign

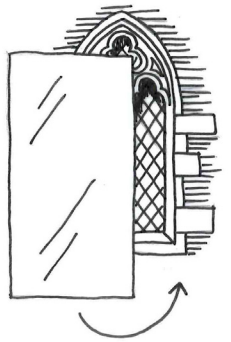


The Jopenchurch is a church transformed into a brewery pub. Because of it's new function actions had to be taken to reduce the change of potential noise disturbance, resulting in secondary glazing in front of the existing windows which not only function as noise barrier, but also provide better thermal insulation. Because the secondary glazing is placed on the inside of the building, the façade view stays the same as before the redesign.

Broerechurch

Location	Bolsward, Netherlands
Year	13th century
Redesign	2006
Architect	J.O.N.G. Architecten
Function	Event location

About the redesign

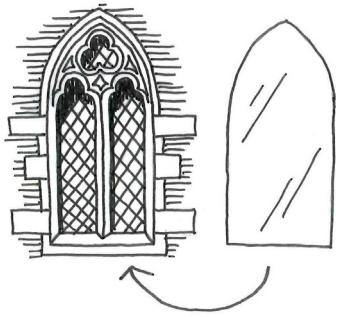


The roof and stained glass windows of the Broerechurch in Bolsward got destroyed in a fire in 1980. After the fire the ruin was open to public, but because the building deteriorated rapidly, the community decide something had to be done. J.O.N.G. architecten together with Octatube designed to give the church a protective glass shell on the outside, so the ruin would still have the same experience as before.

Antonius Abtchurch

Location	Bergen op Zoom, Netherlands
Year	1948
Redesign	2002
Architect	Architectenbureau Wierikx & Onrust
Function	Daycare centre

About the redesign



The Antonius Abtchurch in Bergen op Zoom got a new function as Daycare centre. Volumes were placed in the building to create classrooms. In order to get more daylight access inside the rooms, arches were opened and glass was put in place.

Final Conclusion

"To think architecturally is not merely to deal with external conditions or to solve functional problems. (...) We must create architectural spaces in which man can experience (as he does through poetry or music) suprise, discovery, intellectual stimulation, peace and the joy of life."

- Tadao Ando

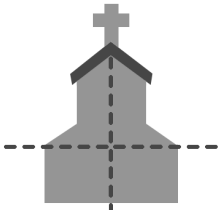
64. *Different architectural elements that help constitutate a sacred atmosphere.*

This research shows what architectural elements constitute the atmosphere inherent to church design, what type of interventions and modifications can be made in the redesign of a church and what the influences are of the interventions and modifications to the atmosphere.

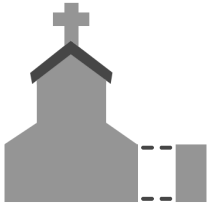
In the first two, more theoretical parts show the history of church architecture and the subject of church interiors in the Dutch 17th century art history. They formed a basis for the more practical part of the research of case studies. Combining the findings of these parts led to the following architectural elements that constitute the sacred atmosphere (fig. 64):

- *Route*
- *Relation with surroundings*
- *Connection with nature*
- *Direction*
- *Scale*
- *Order and geometry*
- *Arches and columns*
- *Detailing and ornamentation*

Open space with objects



Division of space



Addition

Partial Demolition

Windows and daylight acces

65. *Five types of interventions possible whitin church redesign.*

The second section of this research shows case studies with different types of interventions and modifications. Based on their main type of intervention these case studies are categorized in five themes and their influences on the atmosphere of the church (fig. 65):

- *Open space with objects*
- *Division of space*
- *Addition*
- *Partial Demolition*
- *Windows and daylight acces*

Despite having answered all three questions: *What architectural elements constitute the sacred atmosphere inherent to church design? What type of interventions and modifications can be made in the redesign of a church?* And *what are the influences of these interventions and modifications for the atmospheric aspects?* The main question: *How can vacant churches be redesigned in such a way that the atmospheric aspects inherent to church design are maintained or enhanced?* Can still not be easily answered.

During the analyses of the repurposed case studies, it has been found that each church redesign project is unique in its own way. There is no such thing as a standard church, as each church has its own distinctive qualities. Each example creates the atmosphere differently; therefore there is no such thing as a standard solution for redesigning churches.

The sacred atmosphere is, as it seems, still an abstract definition that cannot be easily rationalised. Like music or poetry, the experience of atmosphere is just that: an experience. My advice therefore would be to use this research as a form of guideline when redesigning a church and to take example of the case studies and to look for similarities.

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