



WPI

Ecclesiastical Architecture of Venice:

Preserving Convents, Churches, Bells and Bell Towers

An Interactive Qualifying Project

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Abstract

The Ecclesiastical Heritage team studied convents, churches, bells, and bell towers. Due to an increasing shift in the general population away from religion, these structures fall into disrepair and disuse or are repurposed. This team looked at the gathering and publication of data about each of these structures to promote their preservation. Using data and existing infrastructure from previous teams, this team was able to publish all of the Venice Project Center's data in a clear and concise format. This team also increased the wealth of knowledge contained within the Venice Project Center by expanding upon previous data and investigating potential projects that would benefit the Center and its mission. Furthermore, this team created easy to access and easy to use applications to demonstrate to the public and potential project supporters the goal of the Venice Project Center and its associated projects. From the response to the project and the amount of work that is still required to complete the body of knowledge, it is recommended to continue the project with increased focus on bell towers, their accessibility and clocks as well as creating a project that focuses on church alters.

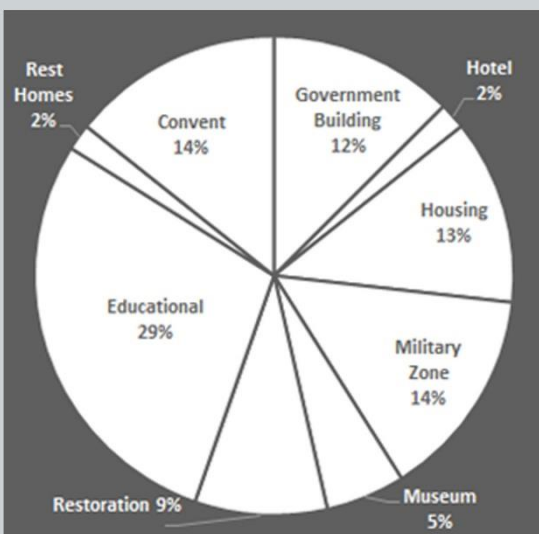
ECCLESIASTICAL HERITAGE

CONVENTS



▲ 59 Convents in Venice

ADAPTIVE REUSE



86%
51 Reused
Convents

14%
8 Active
Convents

Churches



▲ **144** in the Venetian Lagoon

▲ **121** in the city of Venice

Church Floor Artifacts



Bell Towers



▲	107	in the Venetian Lagoon
▲	92	in the city of Venice
▲	2	Publicly Accessible
▲	7	Inaccessible*

45 Average Height (m)*

9 Bells
10 Clocks
8 Stone ramps*



*data as of 2013

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1. Introduction

As travel and tourism become more prevalent in modern day society, especially to classical cities around the world, historically pertinent architecture and artifacts often become forgotten due to lack of documentation, preservation, and restoration. After enough time, entire periods of history can be lost when these pieces are destroyed or forgotten. Wars throughout Europe, namely the Napoleonic War, contributed to the devastation and destruction of historically significant architecture in cities such as Venice. Napoleon’s reign in Venice virtually reshaped and redistributed palaces, churches and convents throughout the city. “. . . Monastic churches, nunneries and friaries were demolished or put to use as warehouses, mills or ammunition dumps.”¹ The older a piece is, the more likely it has come into contact with human expansion and natural disaster which can be devastating to culturally significant items. In addition to historic destruction of cities, modern amenities contribute to the decline of ecclesiastical architecture. Global secularization contributes to the lack of interest in religious activities and the disrepair of religious buildings such as convents and churches that once acted as the epicenter of communities, providing a place for citizens to come together and worship. With rapid developments in technology and the changing landscapes of cities, buildings are often repurposed to accommodate changing societies and artifacts become obsolete due to lack of necessity and use.

In Venice, Italy, a city currently evolving and adapting to modern societal demands, architecture and artifacts are being forgotten or repurposed, losing their historical significance. As modern secular society grows, the structure of a devoutly religious populace is fading, attributing to the decline in use of the buildings and artifacts from this period. Global secularization contributes to the lack of interest in religious activities and the disrepair of religious buildings. The decrease of residents in Venice combatting the influx of tourists heavily contributes to the

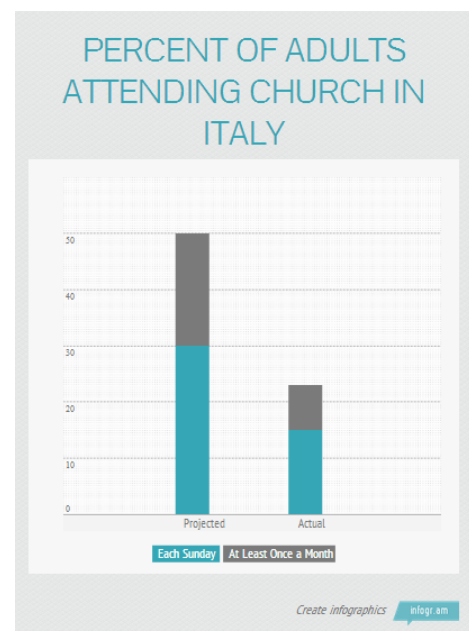


Figure 1: Church Attendance Projections

¹ (Howard and Quill 2002)

disuse of ecclesiastical architecture. 144 churches were once in full practice in Venice and the lagoon and now only eighty eight are still functioning.² Even among the remaining churches, masses are being held much less frequently than in the past. The decline of monastic orders as well as permanent residence in Venice left many convents vacant and available for reuse that would accommodate modern needs. When renovation on churches and convents first began, standards and regulations were inconsistent and sometimes even nonexistent, resulting in the permanent loss of the interior architecture. Furthermore, bells and bell towers around the city were originally used as a prominent system for notifying citizens of local gatherings and major events. Such use of bell towers has become obsolete with the advancement of modern technology and communication. Additionally, a lack in local interest in the maintenance of the bell towers has caused decay in the integrity of the towers as well as updated information and documentation of the bells.

In 1987, Venice, Italy was inducted as one of the United Nations Educational, Scientific, and Cultural Organization's (UNESCO) World Heritage Sites. Specifically, Italy is dense with UNESCO sites and monuments as illustrated below in figure xx. Venice was the first city to be named a cultural site and is among fifty three world heritage properties in Italy.³ As buildings such as convents and churches become obsolete in Venice, they are often repurposed as the city adapts to a changing

population. Additionally, as a classical city evolves into a modern day society, the use and need for bells and bell towers are becoming obsolete. Bell towers were once used as the main signaling and alarm system in the city, however, advances in communication have

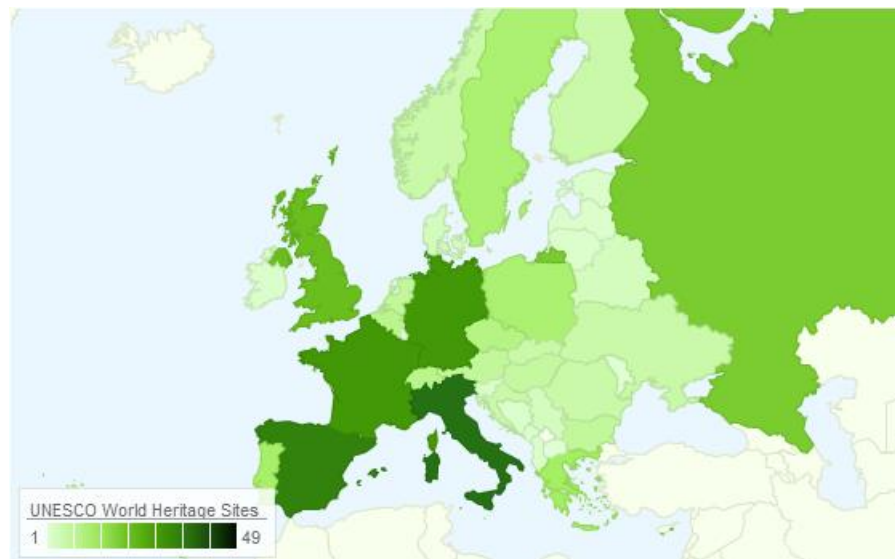


Figure 2: Map of UNESCO Heritage Sites and Monuments

made the use of them unimportant to residents of the lagoon which contributes to the disrepair and decay of both bells and bell towers. Furthermore, some restoration efforts have been poorly carried

² UNESCO.org

³ UNESCO.org

out, which has led to unrest among many organizations and architects.⁴ These reasons are just a few for which several organizations have recognized the need for recollection of data, use, and condition of churches, convents, bells, and bell towers in the city. Over the past 25 years, the Venice Project Center as well as students of Worcester Polytechnic Institute have been working with sponsors including UNESCO, Assessorato Urbanistica, and La Soprintendenza all'Archeologia to contribute to the preservation of the ecclesiastical architecture of Venice. In collaboration with a variety of sponsors, previous IQP teams have been able to contribute greatly to the preservation of information of multiple cultural artifacts in Venice. In 2003, a group was able to update UNESCO's catalogues as well as the Venice Project Center's databases for the first time since 1968. The group catalogued 59 convents and how each of them are adaptively being reused, which greatly expanded on UNESCO's catalogues.⁵ More recently, groups from 2012 were able to update databases on church floor artifacts, bells, and bell towers. One group was able to add 139 churches to the Venice Project Center's online databases as well as 2221 church floor artifacts spread throughout the churches of Venice. Simultaneously, another group made vast improvements to bells and bell tower databases, visiting and collecting data on 43 bell towers and their bells.

This year we hope to continue these strides and finalize the work done by past IQP groups, by creating accessible and informative pages on Venipedia. We will strive to make all information pertaining to convents available on Venipedia, which currently is not available. We will also finalize the church pages as well as make information pertaining to eight inaccessible pages on churches. Updated information will include adding information such as missing floor plans to Venipedia pages. In regards to bells, the 2012 team made set the foundation for the Venicebells.com website, however, we will look to update the bells website to include new pictures of the bells as well as updated audio files.

The goal of this project is to preserve and publicize the ecclesiastical architecture and artifacts of Venice. This will be done by creating and expanding web pages as well as creating a mobile application for the ecclesiastical architecture in Venice. We will be collecting pictures of all the churches, convents, bells, and bell towers to be included in the individual web pages for each piece of architecture. Furthermore, new video footage and audio recordings of the bells and bell towers in high definition will be taken. With this, we intend to expand the body of knowledge contained in Venipedia and make this information about Venice available and accessible in the English language.

⁴ Hoey, Kahan, Marchetti, Mazza, *Convents, Churches and Palaces: Transformation of Historic Buildings and the Impact of Venices Neighborhoods*, 23

⁵ Hoey, Kahan, Marchetti, Mazza, *Convents, Churches and Palaces: Transformation of Historic Buildings and the Impact of Venices Neighborhoods*, 25

2. Venetian Convents

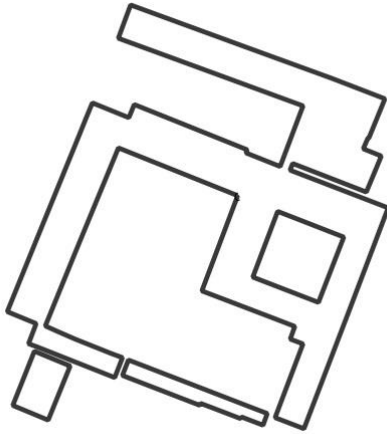


Figure 3: Typical Convent Floor Plan

As the city of Venice flourished and churches were erected as the centroids of communities, convents began to appear within the community to serve as the homes of nuns and monks. These convents became staples of the communities where the sick sought treatment and the homeless and the homeless sought food.

Although convents primarily served the purpose of housing cleric orders, they were essential to the community. Nuns within convents contributed greatly to the surrounding society. Many nuns were medically trained and convents were essentially

hospitals where enough trained nuns were available. Since convents attributed so prominently to society, they held a key role in promoting religion and the church. Convents provided a steady foundation for communities in Italy.⁶

The structure of convents themselves were fairly simple, generally consisting of one or two floors with many common areas including a choir room, work room, school room, recreation room, refectory, the cell, and cloisters. A diagram of a typical convent floor plan can be seen in figure 3. A common feature that all convents share is the cloister, the



Figure 4: Convent of Sant'Elena

courtyard in the center of the convent. A picture of a cloister can be seen in the right image of figure 4, showing the Convent of Sant'Elena. Furthermore, convents were much less ornate than the churches they were associated with, containing far fewer religious art pieces.

As the city of Venice grew, so did the size of the convents. Since the convents held a large influence in the community, affluent families were enthused to send their children to live in monastic orders.

⁶ Hoey, Kahan, Marchetti, Mazza, 24



Figure 3: Map of Convents in Venice

However, in the 1800's, wealthy noblemen began to abuse the religious system, primarily sending daughters to join nunneries to avoid paying a dowry to a prospective husband and his family. Although this provided an influx of nuns, this did not consist of people who would regularly choose to be in the nunneries, which reflected poorly on the

churches and monastic orders. In response to this misuse of convents, in 1810, Napoleon demolished several convents in Venice and reused many others as army barracks and prisons.⁷ Although drastic, the invasion of convents returned respect and power to the convents, replacing irresponsible unfit nuns, with devout ones. A map of the 59 remaining convents can be seen in figure 5 above.

2.1. Adaptive Reuse of Convents

Due to the population shift and decline in Venice and a universal decrease in the religious following, convents have been renovated and reused for other purposes to accommodate the needs of the city. As the city adapts to host more tourists and less residents as well as the decline of monastic orders, most of the convents in Venice have been reused and renovated to be used as buildings such as hotels, museums and government buildings, and apartments. Only 14% of convents in Venice are actually still used convents, which can be seen in figure 6. The simple layout of convents makes reuse and renovation fairly easy. Convents

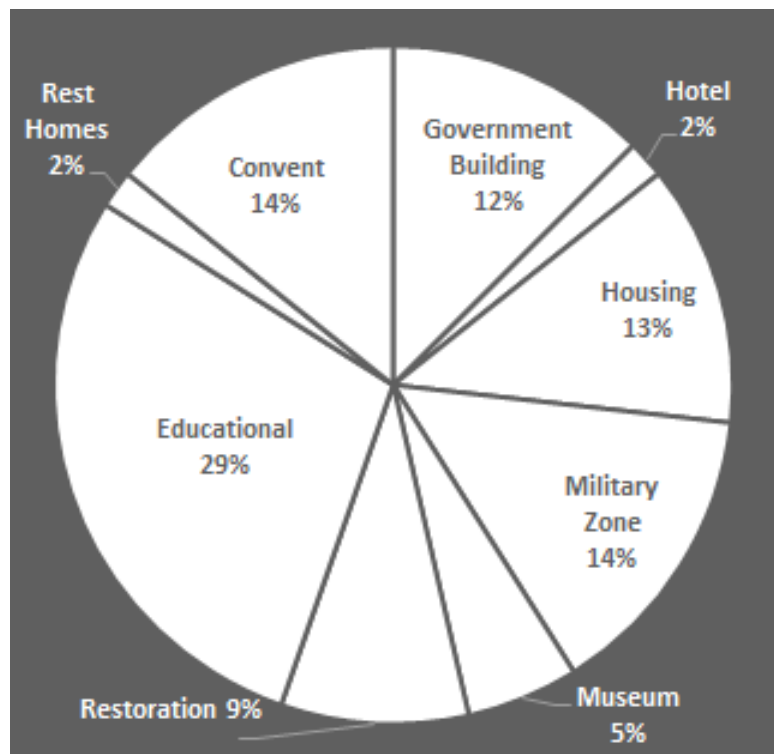


Figure 4: Adaptive Reuse of Convents



generally have fairly large and open rooms on the first floor with much smaller and larger quantity of rooms on the upper levels. This arrangement is ideal for modern uses of buildings such as hospitals and hotels. Figure 7 to the left displays the former convent of the Suore Mantellate, which has been converted into a hotel. The structural conversion of these rooms is fairly simple, however it is more difficult to update utilities such as electricity and plumbing while still maintaining the historic and cultural integrity of the building.⁸

Figure 7: Convent Delle Suore Mantellate

2.2. Management of Convents

Originally, convents were completely managed by the cleric orders that lived within them. All jurisdiction of churches and convents fell completely under these orders. For example, the Church and Convent of the Frari were originally under the control of the Franciscan Order. The order did not fall under the rule of any catholic parish. Due to this independence, monks of these orders were the only individuals permitted to the churches. As time progressed, the orders were either expelled or suppressed from practicing in Venice. As some of these monastic orders lost power, the churches became parishes under the Catholic Church and many of the convents were reused by the government.

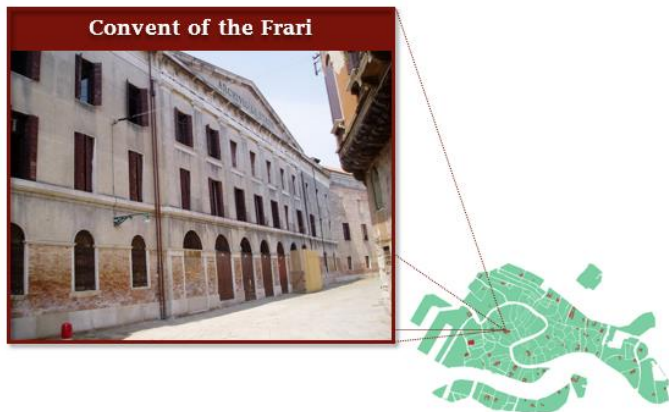


Figure 5: Convent of the Frari

Convents, such as the Convent of the Frari seen in figure 8, have been reused as government archives, hospitals, schools, and museums. As these convents are secularized, the management of them generally falls under the jurisdiction of the Venetian government. If convents and their associated church have been switched to parishes verse monastic orders, they fall under the control of the curia.

⁸ Hoey, Kahan, Marchetti, Mazza, 25

2.3. Updating Convents Data

Since our project required to revisit to past projects, there were some gap in the data that needed to be completed. The last project to address convents was in 2003 and some of the information on the status of these convents was listed either as in restoration or fields were left completed blank. We specifically be revisited the convents labeled as in restoration order to determine the current use. We also used various resources at the Venice Project Center, [Venice and its Lagoon](#), to complete blank data fields.

Existing convents data was saved on compact discs and organized in Microsoft Access. The Microsoft Access files contained multiple tabs that had the details of each convent from the previous convents project in 2003. The images and raw data were also stored on the CD's and were organized by a designated code, a four letter abbreviation of the convent's name, followed by a unique alphanumeric identifier. Once all of the files had compiled, we were able to upload the data the City Knowledge Console in order to publish it on Venipedia. Once the data was uploaded to the console, data can be added and edited directly through the console and automated changes were made to the corresponding Venipedia pages.

2.3.1. Creation of Venipedia Pages

Currently on Venipedia there are pages devoted to singular and plural items found in Venice; for instance, the page "Bells" is devoted to all the bells of Venice and provides information on all the Venetian bells collectively. However, the "Bell" page gives all the general information about a bell such as the components to a bell and how the bells are used. We created similar pages on Venipedia dedicated to convents. From these pages, the user can reach individual pages for specific bells in specific bell towers. From these singular pages, the user can generally navigate to more specific pages. For example, when on the bells page, the user can find a navigation pane to explore pages for individual bells in specific bell Towers. We produced a similar and new network of pages this year for the convents of Venice.

The "Convent" and "Convents" pages had to be created manually within Venipedia. Since these pages provide specific information and do not fit into a form like structure, it would have been counterproductive to push these pages through the City Knowledge Console. Alternatively, the pages were produced by logging into Venipedia, creating single pages, and used wiki templates to write the pages. Sample pages can be found in Appendix A The code for these pages can be found in Appendix E.

The creation of individual convent pages began with the organization of data from a previous IQP group who had researched churches, convents, and palaces in 2003. First, data was extracted from Access files and translated. Once the data sets were all converted from Italian to English, a new spreadsheet was created to compile all of the data, which can be seen in Appendix B. Data fields included the name, data founded, monastic order, parish, historical information, code name, geographical coordinates, and several other fields. A .jpeg file for each floor plan was created by extracting individual pictures from converted GIS layers of the floor plans of all of the convents in Venice. In Venice, we also collected images of all of the exteriors of the convents as well as pictures of the cloisters if they were accessible.

2.3.2. Venipedia Pages Available to the Public

The “Convent” page gives a more universal explanation of what a convent it is and how it runs. The page provides a general overview of the background of convents as well as the internal structure and

how convents have historically interacted with the communities they are in. The “Convents” page provides a brief overview of all of the convents and tells how the convents in Venice differ from a convent elsewhere as well as how these convents are being adaptively reused. As

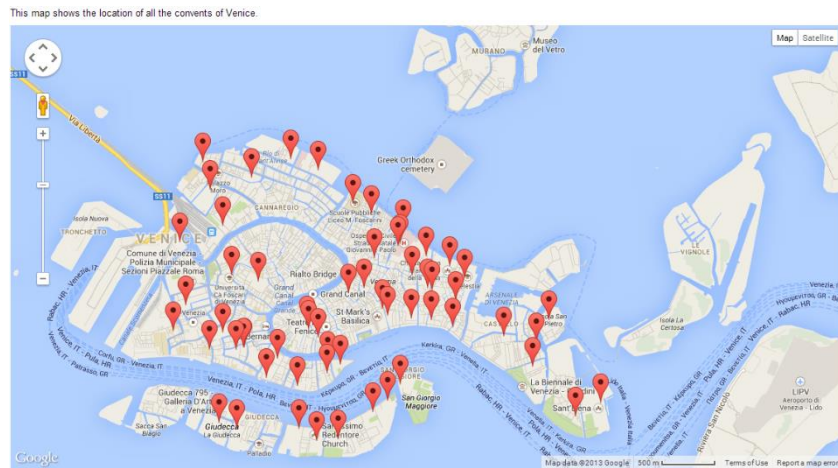


Figure 6: Map of the Convents in Venice

the user scrolls down the “Convents” Venipedia page, both a map a google map and a navigation box will appear. A screen shot of the map can be seen above in figure 9.

The map includes a marker for each convent in Venice and when the marker is selected a link to the corresponding Venipedia page will appear. Furthermore, the navigation box separates the convents by the sestiere each is located in and also allows for the user to access each individual page.

Once the user navigates to an individual page, he/she will be able to find more specific information about each convent. At the top of the page the user will be able to learn when the convent was established and by what order as well as the current use of the convent, whether it be adaptively reused or still functioning as an active convent. Additionally, an information box at the top right of the page displays quick facts about the convent, including a picture of the exterior, the sestiere, street address if available, the monastic order, and the parish church. An image of the information box is shown to the right in figure 10. Technical details including the code name we have assigned the convent can also be seen in the information box. As the user scrolls, down the page a convent specific history is displayed, followed by a map that highlights the convent of the page the user is on and finally at the bottom of the page the user can access the navigation box that was previously described. An example of one of these pages can be found in Appendix A.

Former Convent of the Frari



General Information	
Sestiere	San Polo
Street Address	2556A, 2556B, 2556C, 2556D
Monastic Order	Franciscan
Parish	missing
Technical Details	
Code Name	FRAR
Current Use	Archivio di Stato

Figure 7: Info Box for the Former Convent of the Frari

2.4. Creating an Interactive Map for the Venice Project Center Website

With a new convent icon produced and a form created, an interactive map was pushed through the console and into the ecclesiastical heritage portion of the Venice Project Center Website. This map includes a pop up window where both the exterior and the floor plan of the convent can be seen. There

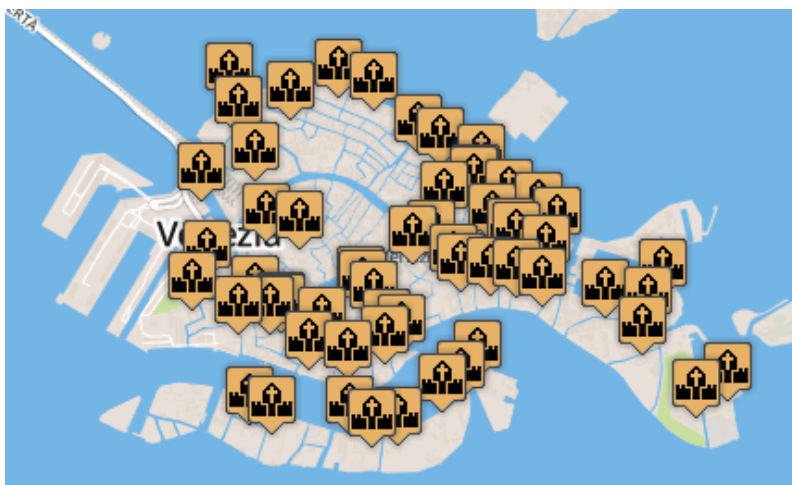


Figure 8: Interactive Map for VPC website

is also a button which will direct the user to additional information pertaining to a specific highlighted convent. A screen shot of the map can be seen below in figure 11.

2.5. Recommendations for Convents

Fortunately, past projects had fairly extensive data relating to convents. All of the information has been uploaded and pages were generated. If a future team decided to continue work on the convents they should just continue improving on the information as best they can and check up on convents that were listed as “In Restoration” to see if there is new information. Some data fields are still left blank, which can be edited directly in the console. The Venipedia template is almost finished, with the exception of “if statements” being implemented for the templates.

3. Venetian Churches

Churches are perhaps the most important of the ecclesiastical architecture in Venice. Each Church is the hub of religious activity in its area and most churches are also connected to the local bell towers and or convents.

Since Italy was a hub of religious activity for many years, the churches became extremely important in the lives of Venetian citizens. There are 144 churches in Venetian lagoon and 121 within the city of Venice. The churches in the city can be seen to the right in figure 12, some of which have existed since the islands were first populated. A zoomed in map of the city can be seen in figure 13 which displays the floor plans of the churches overlaid on the map. Over the years, the churches have maintained prominence in the city but unfortunately some have been destroyed during various conquests. During Napoleon's reign, three of Venice's churches, the Sant'Antonio di Castello, San Domenico, and San Nicolo, were destroyed to make way for public gardens.⁹ These are just a few examples among various other churches that have been destroyed. Despite the destruction and deconsecration of several churches, they still remain a pivotal part of Venetian religious history.



Figure 12: Zoomed in View of Church Floor Plans



Figure 13: Zoomed in View of Church Floor Plans

3.1. Management of Churches

Catholicism is the most prevalent religion within Venice. Each Catholic Church in Venice falls under the rule of the Vatican and the hierarchy of priests and bishops. With such a large number of churches, Venice has a more intricate and expansive hierarchal system than most other cities. The churches themselves break down into two main branches, the priests who oversee a few regions or churches and the several departments that run the affairs and activities related to the church.

⁹ Venipedia.Org

Each church is divided into a region known as a diocese which falls under the jurisdiction of a bishop. A large diocese can be further divided into separate sectors, which would have both an archbishop and archdiocese at the head of control. There are five historically significant archdioceses who are given the name of patriarchate; specifically they are the Diocese of East Indies, Jerusalem, Lisbon, Rome and Venice. Venice holds one of the patriarchates because it has over one hundred consecrated churches within the city. Each parish has one head priest with several priests below them.

Below the priests are several departments that hold specific responsibilities including church functions, philanthropic correspondence and maintenance of church buildings as well as preservation of traditions. The Congregation of the Doctrine of Faith is one of nine congregations under the Roman Curia that oversees preserving catholic faith within the church. The other eight congregations divide the remaining responsibilities within the church.¹⁰

3.2. Churches on Venipedia

To preserve data pertaining to churches and the artifacts within them, Venipedia pages will be updated, or created, along with a floor plan of each church complete with the locations of each floor artifact. To determine what Venipedia entries still need to be made about churches and church floor artifacts, we will go through all of the data on churches and church floor artifacts and determine what has not yet been published along with adding information to Venipedia entries that can be improved. We will also search for floor plans of churches along with the locations of the church floor artifacts in order to map their locations. Two images that would be found in a typical church page, including the floor plan and façade can be seen above in figure 14. By adding the locations of the church floor artifacts, in addition to increasing the information about churches and church floor artifacts in Venipedia, we will help promote the preservation of this data.



Figure 9: Images of the Church of the Madonna dell'Orto

¹⁰ Mandonnet, P. (1911). Order of Preachers. In The Catholic: Robert Appleton Company. Retrieved December 4, 2012 from New Advent: <http://www.newadvent.org/cathen/12354c.htm>

3.2.1. Modification of Plural Church Pages

This page provides further information on churches. This information includes information about the structure of a church, the architecture of a church, and the management of a church. Each individual church page will refer back to the definition page to provide the reader with a more in depth explanation of the church. The Church Venipedia page can be seen in Appendix C.

3.3. Church Altars



Figure 10: Typical Church Altar

Altars are found in all churches and are where the Eucharistic sacrifice takes place during mass. Altars can range from being simple tables to intricate stone pieces with carved figures on the front and sides. An example of a church altar can be seen to the left in figure 15. These figures typically depict biblical figures or stories. The main altar of a church is a focal point of the interior. Larger churches may have additional smaller side altars in addition to the main altar, where masses can be held in a more intimate setting.

Owning side altars was important for the established guilds in Venice. Although they had limited financial resources, guild members were highly religious and generally displayed a strongly devotional character of their communal life. For this reason, each guild acquired a side altar displaying their patron saint in their community's church before trying to acquire anything else.

The focal point of guild life was not usually the meeting-house, but the church altar, and it was here that the guilds tended to naturally concentrate their energies. Virtually all of them would have



Figure 11: Side Altars at Madonna dell'Orto

acquired patronage rights to a side altar and as well as providing funds for a priest to officiate at religious ceremonies by the fifteenth century. They also normally undertook to provide the altar with liturgical accessories and a fitting decoration. Only the very smallest and poorest of guilds that could not afford altars

would commission some sort of painted altar-piece. Whatever the size of the guild, the most pressing property was to secure rights to a church altar and a burial place for its members, and only when that had been achieved could it contemplate acquiring a meeting-house of its own.¹¹ Two examples of side altars found in the Church of Madonna dell'Orto can be seen above in figure 16. Both a stone and a painted altar can be seen in this figure.

3.3.1. Feasibility Study on Cataloguing Side Altars

To catalogue altars in churches, we first need to determine what churches to be visited and then create a form for what data we are going to collect once we visit them. We will also take high quality photographs and get the location of each altar within the church. Once we have collected the data, we will enter the data in the City Knowledge Console and then import the data into Venipedia. In Venipedia we will link the data about altars to their respective churches in order to consolidate the data and make it easily accessible.

¹¹ Humfrey, Peter, and Richard MacKenney. 1986. The Venetian Trade Guilds as Patrons of Art in the Renaissance. 128 (998):317-330.

3.3.2. Creation of Altars Pages

This page provides information on altars. This information includes information about what altars are, their use, the material they are made of, the different types of altars and the guilds commissioned most of the altars. Each individual altar page will refer back to the definition page to provide the reader with a more in depth explanation of the altar. The Altar Venipedia page code can be seen in Appendix D.

After taking information on several altars within the churches we visited, we compiled all of the information we had on them and input it into the console. From the console we created two Venipedia pages for future groups to base their information and work off of. The information that we initially gathered can be seen in Figure 17 to the right. As you can see, not all of the data is available and future projects will complete these fields as well as provide new information. We hope to have given a clear basis for altars to be completed in the future.

VENIPEDIA

Altar of the Madonna of the Rosary



Information	
Creator	Gian Maria Morlaiter
Guild Association	missing
Level of Damage	0
Location	Cannaregio
Patron Saint	The Virgin with Child

Figure 12: Info Box for Altars Pages

3.4. Church Floor Artifacts

Most of Venice's churches date back to the early renaissance period. From this time and onward, the churches were decorated with displays of art and history. One easily overlooked display happened to be the floors of the churches. The floors would serve as a home to plaques commemorating the benefactors that helped fund the church as well as the architects that built them. The map in figure 18 shows as spread of the amount of artifacts per church in Venice. However, since the time that the artifacts have been in place, there

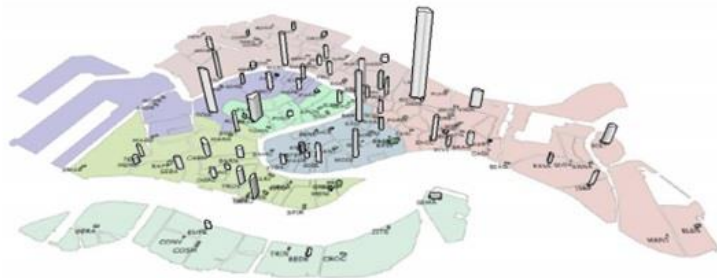


Figure 13: Number of Artifacts per Church

has been significant damage done to them. These artifacts are important pieces of history that reflect the important people of the time and for them to degrade would be a shame to the city of Venice.

While the architectural value of Venetian churches is high, the floors of these churches are a rich treasure trove of historical data. There are 2221 artifacts embedded within the floors of Venice’s churches and they range everywhere from tombstones to plaques.¹² These artifacts are broken into two general groups, plaques and tombstones. A breakdown of the amount of each can be seen below in figure 19.

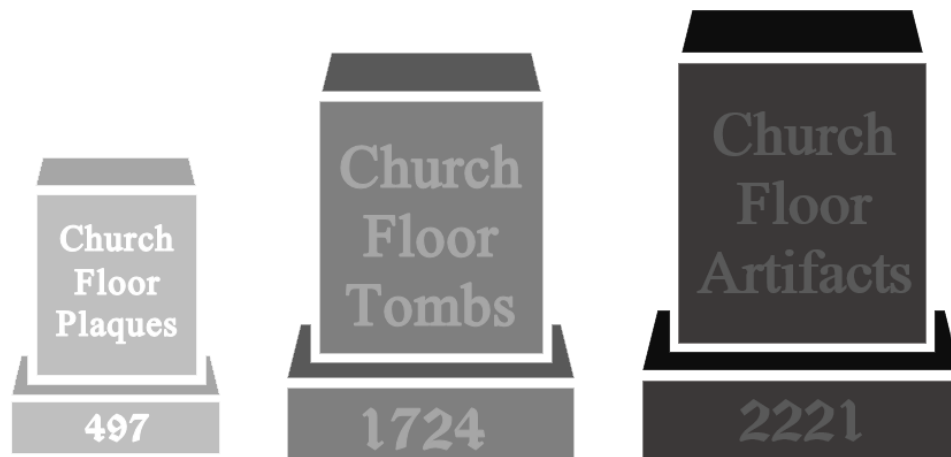


Figure 14: Breakdown of Church Floor Artifacts

3.4.1. Preservation of Church Floor Artifacts

While preserving church floor artifacts is important, restoration can be expensive, time consuming, and potentially dangerous to the value of the artifact itself. In order to preserve an artifact, experts must assess an artifact’s value and determine the priority of it to be restored by determining its historical significance and if it is in need of immediate aid. An example of a poorly preserved artifact can be seen in figure 20. The preservation of artifacts is important because, as Francesco Sirvano said in an interview, “the world’s urban heritage is shrinking dramatically and that there is sufficient evidence to



Figure 15: Highly Damaged Floor Artifact

¹² Dechaine, Danielle, Meghan Hennessey, Jeffrey Orszulak, and Kevin Rullmann. 2013. Treasures Underfoot: Preserving Venice’s Church Floor Artifacts. Venice Project Center: Worcester Polytechnic Institute. 7

state that our great grandchildren may not see much of it left.”¹³ The preservation of church floor artifacts in Venice is particularly important because the yearly floods and rising sea levels continuously damage them.

The process to preserve artifacts starts with La Soprintendenza creating a list of high priority restoration and preservation projects for various churches across Italy for that year and then giving that list to UNESCO, who coordinates La Soprintendenza’s requests with donors to see what projects they can fund. La Soprintendenza is a branch of the Ministry of Heritage and Cultural Activities, which is an Italian government organization that oversees all restoration efforts involving culturally significant artifacts across Italy and therefore, churches and church floors are under their jurisdiction. The list of high priority restoration and preservation projects that La Soprintendenza releases annually typically includes several small projects around Venice, along with many other projects throughout the rest of Italy. While La Soprintendenza receives some funding mostly through tax donations, it is not enough funding considering the number of churches that they are responsible for restoring, so UNESCO helps provide additional funding for church restoration. After UNESCO receives La Soprintendenza’s request list, it sends the list to approximately twenty private organizations around the world which are dedicated to funding preservation projects for Venice. These organizations determine which projects they wish to fund and then UNESCO acts as the middle man, receiving the donations, handling the paperwork and observing the logistics of the restoration processes onsite.¹⁴

¹³ Matero, Frank. “Historic Cities and their Survival in a Globalized World.” *Changes Over Time*. Vol. 1 Issue 1. Spring 2011. pp. 110 – 127. <http://muse.jhu.edu/journals/change_over_time/v001/1.1.siravo.html>

¹⁴ Soprintendenza B.A.P. di Venezia e Laguna. 2012. 7 Oct 2012e<<http://www.soprintendenza.venezia.beniculturali.it/>>

3.4.2. Investigation of Church Floor Artifacts

To investigate church floor artifacts, we will evaluate the accuracy of the previous damage measurement method. To do this, we will visit artifacts in different damage categories and determine if they seem to be in the appropriately rated. We aim to go to churches with numerous artifacts in order to maximize the number of artifacts we can see and compare. An example of several artifacts in the Church of the Madonna dell'Orto can be seen in figure



Figure 16: Examples of artifacts in the Church of the Madonna dell'Orto

21. After evaluating the artifacts ourselves, we will compare our results to last year's results and determine whether their formula was a good method to determine the level of damage for each artifact.

3.4.3. Venipedia Pages

Previous groups had generated fairly complete Venipedia pages for the churches, so our main goal was to finalize and complete these pages. This included making five individual church pages available that were not previously created on Venipedia. Our main task was to finalize these pages and make five unavailable pages exist on Venipedia. We were able to make all pages available as well as link church pages to their corresponding bell towers if they existed.

3.5. Recommendations for Churches

Looking through our data, we have found that the majority of information regarding churches is complete. For future teams working on the churches of Venice we would recommend focusing on the altars and the artifacts. We determined that there is enough information to be gained that a separate project just for altars is also feasible and suggested. The artifact information needs to be completed and updated within the scope of Venipedia and each artifact page should be better linked to the appropriate church. Also, a project with a higher focus on preservation and restoration of the artifacts would be highly recommended. As of right now there are artifacts that are underneath pews and on walkways. The preservation project would focus on finding alternative methods of preserving the artifacts and then implement them.

4. Bell Towers and Bells

Due to Venice's unique history and culture, there is an abundance of bell towers and bells in Venice that is unparalleled by any other city. Also, being the only vertical elements of a fairly horizontal city, the bell towers as well as the sound they create are exceptionally noticeable. Their dominance of the skyline makes the views from the tops of the bell towers are difficult, if not impossible to attain by any other method and provides an unmatched view of the city.

4.1. Background of Bell Towers

Bell Towers are the visual symbol of local parishes all around the world. In Venice, each island started as a separate parish, they are not an uncommon sight. Bells came from China and crossed into Europe, becoming popular during the Dark Ages. Bells were used to signal the local community about anything from the time of day, to executions. Churches used them to call mass, placing them in towers to allow the sound to travel further. This practice continues today, however, sometimes bells have been replaced by speakers.

4.1.1. Bell Towers of Venice

Bell towers consist of four main elements, the base, the shaft, the belfry, and the spire as seen in Figure 22. Each of these is integral in both the style and strength of the tower. The base is the foundation of the structure, bearing the weight of the tower and transferring it to the ground below. In Venice, this is often made from non-porous materials to resist the salt water and to be strong enough to support the weight of the tower. The shaft is often the largest part of the tower in terms of height and contains the stairs, ramps, and landings that lead up to the bell. In larger towers, like St. Mark's Campanile, elevators were later installed to ease transportation.

The belfry sits atop the shaft and contains the bells. The belfry may also contain a landing. The exterior of the belfry is often decorated is usually the most ornate part of tower. Belfrys also tend to have arched windows that let the light in and may be covered by nets to prevent pigeons from roosting. Above the belfry is the spire and

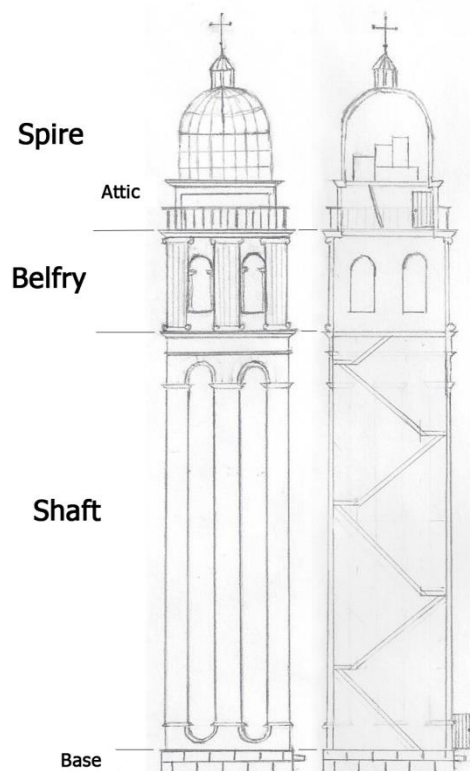


Figure 17: A Typical Bell Tower and its Composing Elements

this may have an attic for additional storage in the tower or access to the roof for maintenance. Some attics access not only a roof, but a balustrade around the top of the tower that provides an unhindered view of the surrounding area.

Due to decreasing sizes of congregations and an increasing number of means of attaining information, bell towers are falling into disuse. Even the bell towers still in use are used less frequently and are often equipped with automated ringers, further decreasing the number of people that even enter the bell towers. This disuse has led to the decay of the towers and often the only signs of this are subtle and inside the towers.

This decay coupled with natural factors like sinking clay beneath the foundations, rising tide waters, and disasters like earthquakes cause many bell towers to tilt or even collapse. The tides are a problem for all structures across Venice, where the salt water erodes the bricks as well as shifting the silt under the foundations, threatening even modest dwellings. The bell towers are the only vertical elements in the city, broadcasting the small shifting of foundations that is difficult to see on many of the smaller buildings. With such a large, shifting mass at the top of these towers, even the smallest changes in angle become critical to the building's integrity.

Bell towers collapsing are not unheard of in Venice. There are at least two visible lower halves of bell towers that have collapsed in Venice. Many churches that should have bell towers, like the Church of San Paolo, do not; the absence almost certainly caused by bell tower collapse than by having never been built. Some of these are caused by earthquakes, which are not uncommon in Italy. Recently, Italy has experienced many earthquakes that have destroyed towers, namely an earthquake in 2012 destroyed the clock tower of the nearby municipality, Finale Emilia.

There is significance to the bell towers to the Italian people, and especially to the venetians who also use the bell towers for navigation around the city. After some of the bell tower collapses, many were either repaired to their former state or replaced, sometimes with a different structure called an *Avela*, or Roman bell tower. These *Avela* are similar to a wall with bells hanging in the arches as seen in Figure 23.

Some bell towers around Venice contain clocks, and their condition is largely unknown. Similar to the bell towers themselves, the clocks have largely become obsolete from the prevalence of watches and phones. The clocks then suffer the same fate as the bell towers as they fall into disrepair. Even if

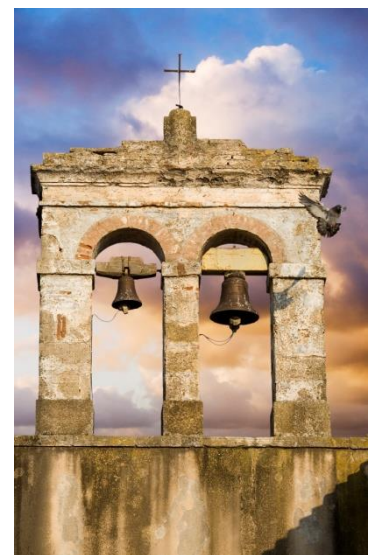


Figure 18: An Example of an Avela

automated systems have been installed, the machinery behind clocks is vastly more complex than bells, and tends to not be as accurate as modern watches.

4.1.2. Data Collection of Bell Towers

In order to determine what bell towers have not been visited, we scoured Venipedia for information from past projects about which towers they were unable to access and what data needed to be filled in. We considered these bell towers as a high priority for visitation and data collection. We also looked through past projects and altered the forms used for data collection to better suit our needs. After identifying the missing data from past projects about each of the bell towers, we gathered data to remedy this knowledge gap. While many of the towers were inaccessible, we collected data on as many as we were able. We used a Zoom H1 audio recorder to capture new sound recordings, digital camera for panoramic views and general imagery, and a GoPro video camera for video clips, which can be seen to the right in figure 24.



Figure 19: Image of the GoPro Camera used

Our primary method of collecting data was the forms created by the 2004 Bells team. These forms, however, are quite extensive and make it difficult to assess the overall condition due to the torrent of data they create. To simplify the process, we looked over the forms and revised them in a way pertinent to our project. Since reuse of bell towers was a large part of our project we assessed the stairs for safety and quality. For the bells, we looked at the condition, e.g. rust and chipping, to see if work needs to be done to make them more presentable. Since we only gained access into two bell towers and the Venice Project Center only had data on 43 of the 98 bell towers in Venice and we travelled to some of the unvisited towers to expand the current database. We also visited some of the towers that we already had information to update it to accurately reflect its current state.

4.1.3. Investigation of Alternate Use of Bell Towers

The principal alternate use we investigated for the bell towers for is tourism. To determine if the bell towers can be used for tourism, we determined how accessible the tops of the bell towers are. This means that we assessed the quality of the stairs/ramps in the towers or investigated other accessibility

solutions. An example of one of these alternate solutions would be having an elevator installed like in St. Mark's Campanile.

4.1.4. Data Collection of Bell Tower Clocks

Since we were only granted permission into two bell towers to assess the condition, the best we were able to do in most cases was to record whether or not the clock is still functional and if it is accurate. Since one of the bell towers we gained access to had a clock, we were able view the mechanism. We then determined a preliminary data collection method for these mechanisms which will greatly need to be expanded and modified due to not being able to compare mechanisms to create a more general template.

4.1.5. Improvement of Venipedia Pages

Another large contribution was the organization of the pages. Before we had access to the pages, they were just semi-organized data fields. The information that had been collected was just listed off with a label telling the user what it pertained to. We managed to take the information that was present and use it within pre-constructed sentences so that when any page loads, the specific information pertaining to that tower replaced the code. However, this was only a partial solution. There is more information about some bell towers than others and this lead to some pages looking incomplete or confusing when less information was available. To solve this issue we implemented conditional statements within the page template. By implementing these statements we could change a paragraph that might contain a "missing" segment and either omit the entire paragraph, or mention that the information is missing or incomplete in a coherent manner. An example of an updated and complete information box can be seen to the right in figure 25

VENIPEDIA

Bell Tower of San Giobbe e Barnardino



Basic Information	
Construction year	1464
Church name	Church of San Giobbe
Sestiere	Cannaregio
Proprietor	Curia
Architect	Antonio Gambello

Technical Information	
Tower height (m)	46
Latitude	45.444338
Longitude	12.320756
Building Material	Brick

Figure 20: Information Box for a Bell Tower page

Lastly, we needed to make sure that these pages were appropriately connected to each other and to other relevant pages on Venipedia. For us, this meant creating a navigation box at the bottom of the bell tower pages. The box contains links to all of the bell tower pages, making it easier to look at all the bell towers easier. Another connection that we made was fixing the links between the bell towers and their respective churches. Clicking the church name link directs you to its Venipedia for easier access to information. Finally, we utilized the latitude and longitude of each bell tower and put them into a map which can be found at the bottom of the page. The map highlights the current bell tower page you are viewing and shows the other bell towers, their locations, and a link to the page.

4.1.6. Creation of Bell Tower Panoramas

Since there are few real panoramas, panoramas generated from Google Earth for select towers around Venice to provide a total view of the city. These views are available at bells.veniceprojectcenter.org. A screenshot of the app can be seen below in figure 26.

As we collected panoramas of bell towers we were able to incorporate them into a mobile application in which the user has the capability to access a 360 degree view of the skyline from the belfry of the bell tower. We were able to produce three panoramas for the application. A screenshot of the view in the application from the Bell Tower of San Giorgio Maggiore can be seen below in figure 26.



Figure 21: Screenshot of bell tower panorama web application

Since our access to bell towers was limited, we were only able to produce a few panoramas. To appease this we created several virtual panoramas by stitching together views from google earth and using the same method as the real images to place them into the mobile application. How the panoramas and application were created can be seen in Appendix F.

4.2. Background on Bells

The bells in Venice are hung in the belfry in one of two ways, using either an A frame or an H frame. An A frame supports the bell from the floor on both sides by using an A shaped support. The bell is then attached to a cross beam between the two supports. This type of frame can be seen in Figure 27. An H frame consists of a single H shaped support with the bell suspended from the cross bar of the H. An example of this can be seen Figure 28.



Figure 22: A Bell Hanging in an A Frame

The two methods of ringing a bell are either by swinging or hammering. By swinging, the whole bell structure causing a clapper inside the bell to hit the bell. If the swinging mechanism is imbalanced, the clapper may skid along the inside of the bell, which can be seen as a shiny line. This imbalance may lead to increased structure damage and is incredible important that it is corrected as soon as possible.

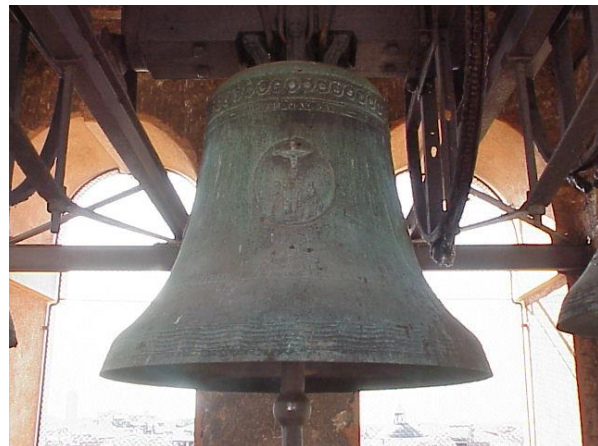


Figure 23: A Bell Hanging in an H Frame

The other method of ringing is by keeping the bell stationary and striking the outside of the bell with a hammer. This is a method commonly employed by many automated ringing systems. This system does not cause damage to the structure like the swinging might, but after many strikes, the bell may become dented, possibly changing the sound of the bell.

4.2.1. Creation of Bells.veniceprojectcenter.org

Bells.veniceprojectcenter.org was created to consolidate the information on bell towers with the sounds of the bells ringing and the panoramic views for each bell tower. The main page of the website features a map with markers where all the bell towers are in Venice and its lagoon. If you click on a

marker, a few key pieces of information are shown about the bell tower in addition to letting you play the sound of the bells of that bell tower ringing if it has been collected, a link to that bell tower's Venipedia page, and a more info button that

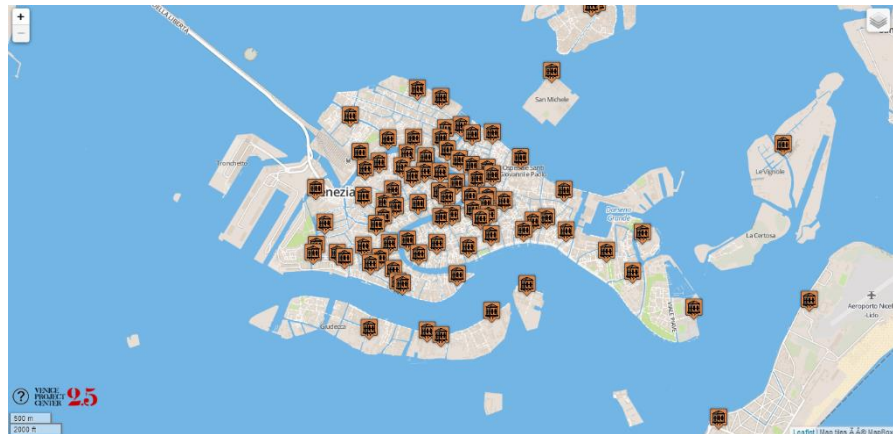


Figure 24: Screenshot of bells.veniceprojectcenter.org

brings you to a page with more detailed information about the bell tower. On the more info page of the bell tower, the more detailed information about the bell tower is shown in addition to an interactive panoramic view from that bell tower if it has been collected. From the more info page, you can choose to go back to the map page. A screen shot of the app can be seen above in figure 29.

4.3. Recommendations for Bell Towers

After we completed the data collection and generated all of our products for our project we determined there were several recommendations to be given to future teams who would work on bell towers. The primary focus for a future team should be to continue collecting information from bell towers that we have not visited before. There are still a total of 46 bell towers that we have not visited and collecting information and organizing it is of vital importance. Along with these visits, collecting more information on clocks and trying to organize restoration of towers should be considered for a focus.

5. Conclusions

Since the project on convents had not been revisited since 2003, we primarily focused on taking the information they had collected and making it all available on Venipedia. Once we gathered the necessary information, we uploaded it all into the console along with photos and generated the necessary pages. Thanks to our efforts, we have determined that the information on convents is relatively complete and should not need to be revisited by the VPC except to check for inconsistencies as the city changes and grows.

As we began to look at churches we realized that the Venipedia pages were incomplete and several did not exist. We managed to fix everything and also succeeded in linking the appropriate bell tower pages to their respective churches. Along with cleaning and organizing the pages, we also completed a feasibility study on the altars within the churches. We captured photos and gathered information on several churches and put them into Venipedia pages. This successfully paves the way for future groups to continue our work and we highly recommend that it is continued because we believe it will be a lucrative and information rich project.

Lastly, we contributed greatly to the information that we previously had on bell towers. Unfortunately, as mentioned earlier, we were only able to visit two bell towers, one of which had been visited by past teams. This led to us not generating much new data to be put into Venipedia and the console. However, we did manage to make up for this lack of new data by massively reorganizing and constructing the old information on bell towers. The pages that are on Venipedia are now much more user friendly and we have updated the previous Venice bells website to be more interactive. We also managed to complete a feasibility study on clocks within bell towers and generated pages to be followed up on in the future.

In conclusion, we successfully contributed to the preservation of ecclesiastical architecture by making the information more available to the public. Through the use of Venipedia and our web app, anyone interested in the ecclesiastical heritage of Venice will find a wealth of knowledge at their disposal.

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7. Appendices

7.1. Appendix A: Sample Convents Venipedia Pages

Convent:

[Create account](#) [Log in](#)

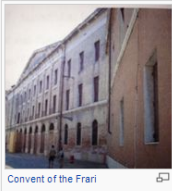
Page Discussion

Read View source View history

Convent

this page is a description of a typical Venetian convent. For information pertaining to the convents, see Convents

Background




Convent of the Friari

A convent is a piece of religious architecture dedicated to housing cleric orders of the catholic church, specifically, monasteries and nunneries. The construction of convents in Venice began as early as the 800's, built in association with a neighboring church. Some convents were attached to the church, while others were not. While churches are highly ornate, decorated with beautiful ceiling paintings, engraved floor tombstones and plaques and decorated altars, the convents are much less extravagant. Although some convents had a few paintings within them or sculptures in the courtyard, the majority of convents were boasted a rather simplistic style, both inside and out. A picture of the facade of the Convent of the Friari can be seen to the left.

As Venice developed as a city, island communities developed and centralized around a church and convent. The cleric orders contributed greatly to the development and functionality of communities. As the convents became more recognized, wealthy families often sent their daughters to live within them. However, the motives for these families sending their daughters were questionable. In reality, daughters were sent to convents to avoid paying dowry to the family of a potential husband. Due to this admittance into convents, the nuns were noticeable less devout than previously and their faithfulness was questioned. During the Napoleonic wars, Napoleon decided to act on this new development on convents by destroying many of them and disbanding cleric orders in the late 1700's.

Structure

A convent has several distinctive features which include a fairly basic shape as well as the presence of at least one cloister in the convent. Cloisters are the courtyards at the center of the convents. Convents generally had one or two floors with several common areas. Common areas generally included a choir room, work room, school room, recreation room, a refectory and a cell. A typical convent floor plan can be seen to the right. The large, blue, square section in the center of the diagram is the cloister. At the top, it is visible that the convent is attached to a church, which can be seen in yellow. Many of the churches in Venice have a cross like floor plan. The diagram also includes the refectory (shown in red), a large room where the nuns and monks dine, as well as the several other rooms within the convent.



Convents:

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Page Discussion

Read View source View history

Convents


This page is an overview of all the convents in Venice. For a typical convent, see Convent or the Wikipedia page | Convent

Convents, or *conventi* in Italian, often accompanied the churches located on the islands of the lagoon. There are 59 known convents located in Venice, which can be seen in the map to the right. Only eight of these convents still actively house monastic orders. Today, 51 of these convents have been secularized and reused, leaving only 8 convents as practicing monastic orders.

Contents [hide]

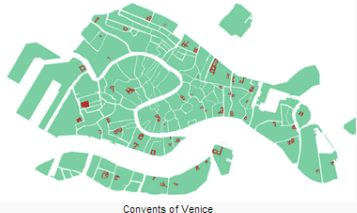
- 1 History
- 2 Adaptive Reuse
- 3 Map
- 4 See Also
- 5 References

History



As the city of Venice expanded and developed, the size of the convents also increased. As staples in the community, providing care for the sick and a gathering place for citizens, affluent families were apt to send their children to live in monastic orders. However, civilians began to abuse the religious system, primarily sending daughters to join nunneries to avoid paying a dowry to a prospective husband and his family. Although this provided an influx of nuns, this population did not consist of individuals who would regularly be admitted to the nunneries, which reflected poorly on the churches and monastic orders. In response to this misuse of convents, in 1810, Napoleon demolished 6 convents in Venice and reused others as army barracks and prisons. Although drastic the invasion of convents helped return

Convents




Convents of Venice

Total Number of Convents	59
Total Number in Cannaregio	9
Total Number in Castello	19
Total Number in Dorsoduro	13
Total Number in Giudecca	6
Total Number in San Marco	6
Total Number in San Polo	1
Total Number in Santa Croce	3
Active Convents	8

www.venipedia.org/wiki/index.php?title=Venipedia:Community portal

Specific Convent Page:



[Create account](#) [Log in](#)

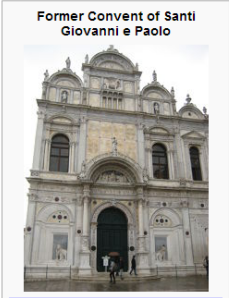
Page [Discussion](#)
Read [View source](#) [View history](#)

Former Convent of Santi Giovanni e Paolo

This convent was established in 1293 by the Dominican Order. Today, the building is being used as a Hospital .

Contents [hide]

- 1 History
- 2 Architectural Details
 - 2.1 Floor Plan
 - 2.2 Windows
 - 2.3 Access Ways
- 3 Map
- 4 See Also
- 5 References



Former Convent of Santi Giovanni e Paolo

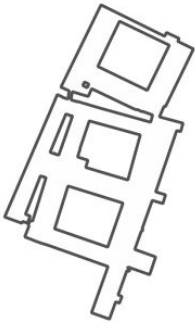
History

In 1234, the followers of Saint Dominic obtained swamp land to build a convent and church which were built in 1293. The building stands out for its notable architecture, magnificent cloisters, and rich library. The convent originally boasted famous paintings by Paolo Veronese, which were replaced with paintings by Titian. In 1809, the convent was reused as a military hospital. It was later used as a Printer's school. In 1642, the School of L'brai was constructed in the second cloister. In 1819 the convent was converted to a civil hospital and still functions as the main hospital in Venice.

Architectural Details

The facade in place today can be seen in the image at the top of the page.

Floor Plan



General Information	
Sestiere	Castello
Street Address	missing
Monastic Order	Dominican
Parish	SS. Giovanni e Paolo
Technical Details	
Code Name	GIOV
Current Use	Hospital

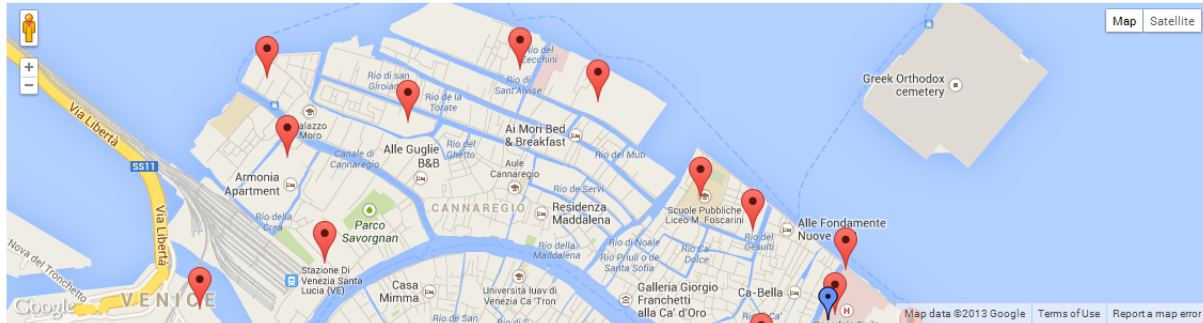
Windows

Floor	East Facing Wall	North Facing Wall	South Facing Wall	West Facing Wall
1st	17	0	0	0
2nd	15	22	0	0
3rd	16	25	0	0
4th	0	25	0	0

Access Ways

Access Type	East Facing Wall	North Facing Wall	South Facing Wall	West Facing Wall
Canal	0	missing	0	0
Street	0	3	0	3

Map



See Also


- Convent
- Convents
- Churches


v · d · e Convents of Venice [hide]	
Cannaregio	Former Convent of San Alvise · Former Convent of Gesuiti · Former Convent of Santa Giobbe · Former Convent of San Girolamo · Former Convent of Santa Maria delle Penitenti · Former Convent of Santa Maria dei Miracoli · Former Convent of Madonna dell'Orto · Former Convent of Santa Caterina · Former Convent of Santa Maria di Nazareth di Scalzi
Castello	Former Convent of Santa Anna · Convent of Santa Apollonia · Former Convent of the Ca' di Dio · Former Convent della Celestia · Convent of Sant'Elena · Former Convent de la Fava · Former Convent of Santi Giovanni e Paolo · Convent of Santa Giustina · Former Convent of Sant'Isopo · Former Convent of Pieta Santa Maria della Visitazione · Former Convent of San Giovanni in Laterno · Former Convent of San Lorenzo · Former Convent of San Giovanni in Malta · Former Convent delle Suore Mantellate · Former Convent di Mendicanti · Former Convent of F. da Paula · Former Convent of Santa Maria del Pianto · Former Convent of the Muneghette · Former Convent of San Pietro · Former Convent of San Francesco de la Vigna · Former Convent of San Zaccaria
Dorsoduro	Former Convent of Santa Maria della Carità · Former Convent of Santa Maria del Carmine · Former Convent of San Gregorio · Former Convent di Catecumeni · Former Convent of the Eremitane · Former Seminary di Salute · Former Convent of San Sebastiano · Former Convent of Spirito Santo · Former Convent of Santa Teresa · Convent of Santa Maria della Visitazione
Giudecca	Former Convent di Convertere · Former Convent of Santa Cosmo · Former Convent della Croce · Convent of Redentore · Former Convent of SS. Trinita · Former Convent of San Giovanni Batista
San Marco	Former Convent of San Salvador · Convent of San Maurizio · Convent of San Giorgio Maggiore · Former Convent of San Stefano · Former Convent of San Teodoro · Former Convent of Santa Maria del Giglio
San Polo	Former Convent of the Frari
Santa Croce	Former Convent of Santa Chiara · Former Convent of Santa Maggiore · Former Convent of San Nicola di Tolentino

7.2. Appendix B: Convents Data Spreadsheet

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U			
1	Code Name	Sestiere	Full Name	Page Title	Year Foun	Current U	Historic Bi	Monastic	Parish	Longitude	Latitude	C Street Adi	North Acc	East Acc	South Acc	West Acc	North Acc	East Acc	South Acc	West Acc	1st Fl		
2	ALVI	Cannaregi	Convento	Former Convent of S	Instituto Figlie della Carita	Conossiane				12.32965	45.4473	5206, 5207									3		
3	ANNA	Castello	Convento	Former Convent of S	In Restoration	Servites				12.35817	45.43242												
4	APOL	Castello	Convento	Convent c	1160	Museum / In the Ninth Century	S. Zaccaria			12.34094	45.43462								1				
5	ASSU	Cannaregi	Convento	Former Cc	1155	Guardia di	This convent was for SS. Aposto			12.33904	45.44277	4876, 4876A, 4877, 4878, 4882			2						6		
6	CADI	Castello	Convento	Former Cc	700	closed	This convent was bu S. Martinc			12.34844	45.43361								3				
7	CARI	Dorsodurc	Convento	Former Cc	1120	Accademi	In 1120, th Canons Pc S. Trovaso			12.32811	45.43109	1050A					1			3	4		
8	CARM	Dorsodurc	Convento	Former Cc	1627	Instituto F	The consti Carmelite S. Maria d			12.32181	45.43319	2615, 2612							3	1	1		
9	CELE	Castello	Convento	Former Convent dell	Universita Degli Studia					12.34987	45.4376									2			
10	CHIA	Santa Croc	Convento	Former Convent of S	Police Station					12.31681	45.44055								2		7		
11	CONV	Giudecca	Convento	Former Convent di C	Instituti Penali Femiminili	Venezia				12.3213	45.42587	712, 713											
12	COSM	Giudecca	Convento	Former Convent of S	Pantakin da Venezia / Associazione Cultu					12.32341	45.42538	622, 620A							3				
13	ELEN	Castello	Convento	Convent c	1300	Convent	Very limit Friars Oliv S. Elena			12.36559	45.42749											1	
14	FAVA	Castello	Convento	Former Convent de l	Housing					12.33816	45.43681									2	2	2	
15	FRAR	San Polo	Convento	Former Cc	1332	Archivo di Stato	Franciscan			12.32593	45.43734	2556A, 2556B, 2556C, 2556D								8		2	
16	GIGL	San Marcc	Convento	Former Convent of S	Housing					12.33286	45.43278								1		3		
17	GIOB	Cannaregi	Convento	Former Cc	1493	Housing	In the fifth Observan S. Geremi			12.32032	45.44484	620											2
18	GIOV	Castello	Convento	Former Cc	1293	Hospital	In 1234, th Dominical SS. Giovan			12.34207	45.44027				0	0	0	3		0	0	3	
19	GIRO	Cannaregi	Convento	Former Convent of S	Prison					12.34233	45.44042	2928, 2929, 2930, 2931, 2932, 2933										2	
20	GIUS	Castello	Convento	Convent c	1500	Convent	The monastery and c San Giuse			12.32515	45.44582	2839, 2840, 2841, 2841A, 2835							2			5	
21	GREG	Dorsodurc	Convento	Former Cc	806	Home	Benedictine			12.33397	45.43093	172A, 172B								1		2	
22	ISEP	Castello	Convento	Former Convent of S	School					12.35774	45.43045	787, 787A, 785, 784A								2		2	
23	LACR	Giudecca	Convento	Former Convent dell	Casa Circondariale Venezia Giudecca / Pri					12.33513	45.42454	123										1	
24	LAPI	Castello	Convento	Former Convent of F	Circolo di Presidio Esercho					12.34601	45.43425											1	
25	LATE	Castello	Convento	Former Convent of S	Instituto F	The chapè Lateran Cc SS. Giovan				12.34377	45.43784	6395			2						2	2	
26	LEPE	Cannaregi	Convento	Former Convent of S	In Restoration					12.31949	45.44706	6393								2		2	
27	LORE	Castello	Convento	Former Cc	854	Library	In 854, the Benedicti S. Giovan			12.3455	45.43684									1		4	
28	MAGG	Santa Croc	Convento	Former Cc	1500	Male Prison				12.31747	45.43543	324											

7.3. Appendix C: Church Venipedia Page



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Church

A Venetian church, or *chiesa* in Italian, is a house of worship for believers of the Christian faith. Churches are named after the patron saint for which they are built.

Contents [hide]

- 1 Church Structure
 - 1.1 Narthex
 - 1.2 Nave
 - 1.3 Crossing
 - 1.4 Transept
 - 1.5 Chancel
 - 1.6 Altar
 - 1.7 Sacristy
- 2 Church Architecture
- 3 Management



Church of Santa Maria della Visitazione

Church Structure

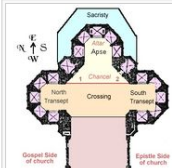
The basic structure of a church can be broken down into several sections: the Narthex, Nave, Crossing, Transept, Sanctuary, and Altar.

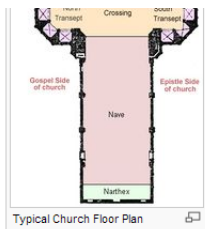
Narthex

The narthex or vestibule of a church is the entranceway into the main hall or nave. Narthexes are traditionally located on the western side of a church across from the main altar. Narthexes can be located inside or outside a church and, in the case of the latter, they are usually little more than a covered porch area.

Nave

Traditionally characterized by high ceilings and home to the pew, the nave refers to the main body of the church. This is the area of the church that is home to most of the floor artifacts in Venetian churches and, being the most inhabited, poses the most danger to these works of art.





Nave

Traditionally characterized by high ceilings and home to the pew, the nave refers to the main body of the church. This is the area of the church that is home to most of the floor artifacts in Venetian churches and, being the most inhabited, poses the most danger to these works of art.

Crossing

The crossing of a church is the oft domed area of the church where the transepts, chancel, and nave all intersect.

Transept

The transept is located across the line formed by the nave and chancel, separating the two. The transept is divided into the north and south transept with each one serving a different purpose specific to the church.

Chancel

The chancel refers to the east-most part of a church. This area is home to the main altar of the church and is where a church official would conduct mass and to give the eucharist. A separate section for the choir is present in some churches but is still located within the chancel.

Altar

The main altar of a church is where the ritual of the eucharist is performed. It is located in the eastern section of the church to symbolize the coming of Christ in the rising of the sun and this is the reason churches are built facing the east.

Sacristy

The sacristy is located behind the apse and is where the materials for communion are stored. This is also where the priest will enter from and exit to before and after a mass.

Church Architecture

The churches of Venice vary in many ways, but one subtle form is the layout of the floor. There are two variants of floor design, namely the latin cross and the greek cross. The latin cross is characterized by forming a traditional cross where the transept intersects the nave and chancel. The transepts are much smaller compared to the nave and located closer to the chancel. The greek cross has equal area for all floor sections and the transept intersects closer to the center of the nave and chancel.

A more visible difference in Venetian churches is shown in the many different architectural styles including Gothic, Byzantine, Baroque, and Renaissance. Due to Venice's close proximity to more middle eastern areas it is no surprise that influences of architectural style were allowed to mix. Churches can express characteristics of one or more styles separating Venetian churches from the mostly western designs of Europe.

Many churches in Venice also function as more than a traditional church. There are often convents or bell towers attached, or in close proximity to, the churches.

Church Architecture

The churches of Venice vary in many ways, but one subtle form is the layout of the floor. There are two variants of floor design, namely the latin cross and the greek cross. The latin cross is characterized by forming a traditional cross where the transept intersects the nave and chancel. The transepts are much smaller compared to the nave and located closer to the chancel. The greek cross has equal area for all floor sections and the transept intersects closer to the center of the nave and chancel.

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Many churches in Venice also function as more than a traditional church. There are often convents or bell towers attached, or in close proximity to, the churches.

Management

A church is often home to and operated by one or more priests. They conduct masses and are responsible for the general well-being of the church. Also before the age of automation, they were in charge of ringing the bells if the church had a bell tower. When a church is connected to a convent, the members of the convent would also be responsible for the affiliated church.

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I am highly knowledgeable about this topic (optional)

7.4. Appendix D: Altars Template

```
<includeonly>
{{Infobox
|above = <firebase url='{{{url}}}/birth_certificate/birthID' />
<!--|title = <firebase url='{{{url}}}/birth_certificate/birthID' />-->
|titlestyle =
|imagestyle =
|headerstyle = background:#ccf;
|labelstyle = background:#ddf;
|datastyle =

|image = {{#firebaseraw:{{{url}}}/media/images/{{#firebaseraw:{{{url}}}/data/Final Altar
Pictures}}/thumb}}

|header3 = Information

|label9 = Creator
|data9 = <firebase url='{{{url}}}/data/Creator' />

|label13 = Guild Association
|data13 = <firebase url='{{{url}}}/data/Guild Association' />

|label15 = Level of Damage
|data15 = <firebase url='{{{url}}}/data/Level of Damage' />

|label17 = Location
|data17 = <firebase url='{{{url}}}/data/Location' />

|label23 = Patron Saint
|data23 = <firebase url='{{{url}}}/data/Patron Saint' />
```

```
}}
```

```
<div>The <firebase url='{{{url}}}/data/Name' /> was built by <firebase url='{{{url}}}/data/Creator' /> and  
is located in the <firebase url='{{{url}}}/data/Church in which it is located' />. The patron saint for this  
altar is <firebase url='{{{url}}}/data/Patron Saint' />. </div>
```

```
==Information==
```

```
{|
```

```
| Altar Code: || <firebase url='{{{url}}}/data/Altar Code' />
```

```
|-
```

```
<!--| Church in which it is located: || <firebase url='{{{url}}}/data/Church in which it is located' />
```

```
|-
```

```
| Creator: || <firebase url='{{{url}}}/data/Creator' />
```

```
|-
```

```
| Date Visited: || <firebase url='{{{url}}}/data/Date Visited' />
```

```
|--->
```

```
| Guild Association: || <firebase url='{{{url}}}/data/Guild Association' />
```

```
|-
```

```
| Level of Damage: || <firebase url='{{{url}}}/data/Level of Damage' />
```

```
|-
```

```
| Location: || <firebase url='{{{url}}}/data/Location' />
```

```
|-
```

```
<!--| Name: || <firebase url='{{{url}}}/data/Name' />
```

```
|-
```

```
| Notes: || <firebase url='{{{url}}}/data/Notes' />
```

```
|-
```

```
| Patron Saint: || <firebase url='{{{url}}}/data/Patron Saint' />
```

```
|--->
```

```
| Year Assessed: || <firebase url='{{{url}}}/data/Year Assessed' />
```

```
|-
```

```
|}
```

[[Category:Altars]]

[[Category:CK-data]]

</includeonly>

7.5. Appendix E: Convents Venipedia Pages Code

```
<includeonly>
```

```
<div> This convent was established in <firebase url='{{{url}}}/data/Year Founded'/> by the <firebase url='{{{url}}}/data/Monastic Order'/> Order. Today, the building is being used as a <firebase url='{{{url}}}/data/Current Use'/>. </div>
```

```
{{Infobox
```

```
|above = <firebase url='{{{url}}}/birth_certificate/birthID' />
```

```
<!--|title = <firebase url='{{{url}}}/birth_certificate/birthID' />-->
```

```
|titlestyle =
```

```
|imagestyle =
```

```
|headerstyle = background:#ccf;
```

```
|labelstyle = background:#ddf;
```

```
|datastyle =
```

```
|image = {{#firebaseraw:{{{url}}}/media/images/{{#firebaseraw:{{{url}}}/merged-media-ids/images/convents facade images}}/thumb}}
```

```
|header1 = General Information
```

```
|label2 = Sestiere
```

```
|data2 = <firebase url='{{{url}}}/data/Sestiere' />
```

```
|label3 = Street Address
```

```
|data3 = <firebase url='{{{url}}}/data/Street Address' />
```

```
|label4 = Monastic Order
```

```
|data4 = <firebase url='{{{url}}}/data/Monastic Order' />
```

```
|label5= Parish
```

```
|data5 = <firebase url='{{{url}}}/data/Parish' />
```


|header6 = Technical Details

|label7 = Code Name

|data7 = <firebase url='{{{url}}}/data/Code Name' />

|label39 = Current Use

|data39 = <firebase url='{{{url}}}/data/Current Use' />

<!--|label45 = Full Name

|data45 = <firebase url='{{{url}}}/data/Full Name' />

|label49 = Latitude Coordinate

|data49 = <firebase url='{{{url}}}/data/Latitude Coordinate' />

|label51 = Longitude Coordinate

|data51 = <firebase url='{{{url}}}/data/Longitude Coordinate' />

|label53 = Monastic Order

|data53 = <firebase url='{{{url}}}/data/Monastic Order' />

|label61 = Parish

|data61 = <firebase url='{{{url}}}/data/Parish' />

|label69 = Street Address

|data69 = <firebase url='{{{url}}}/data/Street Address' />

|label75 = Year Founded

|data75 = <firebase url='{{{url}}}/data/Year Founded' />

|label77 = depth

```
|data77 = <firebase url='{{{url}}}/data/depth' />
```

```
|label79 = exif
```

```
|data79 = <firebase url='{{{url}}}/data/exif' />
```

```
|label81 = filename
```

```
|data81 = <firebase url='{{{url}}}/data/filename' />
```

```
|label83 = filesize
```

```
|data83 = <firebase url='{{{url}}}/data/filesize' />
```

```
|label85 = format
```

```
|data85 = <firebase url='{{{url}}}/data/format' />
```

```
|label87 = height
```

```
|data87 = <firebase url='{{{url}}}/data/height' />
```

```
|label89 = width
```

```
|data89 = <firebase url='{{{url}}}/data/width' />-->
```

```
}}
```

```
==History==
```

```
{|
```

```
|<firebase url='{{{url}}}/data/Historic Background' />
```

```
|-
```

```
|}
```

```
==Architectural Details==
```

```
{|
```

The facade in place today can be seen in the image at the top of the page.

```
===Floor Plan===
```

{{#firebaseraw:{{url}}}/media/images/{{#firebaseraw:{{url}}}/merged-media-ids/images/convent floor plans}}/thumb}}

===Windows===

```
{| class="wikitable"
|-
! Floor !! East Facing Wall !! North Facing Wall !! South Facing Wall !! West Facing Wall
|-
| 1st || <firebase url='{{url}}/data/1st Floor Windows East' /> || <firebase url='{{url}}/data/1st Floor Windows North' /> || <firebase url='{{url}}/data/1st Floor Windows South' /> || <firebase url='{{url}}/data/1st Floor Windows West' />
|-
| 2nd || <firebase url='{{url}}/data/2nd Floor Windows East' /> || <firebase url='{{url}}/data/2nd Floor Windows North' /> || <firebase url='{{url}}/data/2nd Floor Windows South' /> || <firebase url='{{url}}/data/2nd Floor Windows West' />
|-
| 3rd || <firebase url='{{url}}/data/3rd Floor Windows East' /> || <firebase url='{{url}}/data/3rd Floor Windows North' /> || <firebase url='{{url}}/data/3rd Floor Windows South' /> || <firebase url='{{url}}/data/3rd Floor Windows West' />
|-
| 4th || <firebase url='{{url}}/data/4th Floor Windows East' /> || <firebase url='{{url}}/data/4th Floor Windows North' /> || <firebase url='{{url}}/data/4th Floor Windows South' /> || <firebase url='{{url}}/data/4th Floor Windows West' />
|}
```

===Access Ways===

```
{| class="wikitable"
|-
! Access Type !! East Facing Wall !! North Facing Wall !! South Facing Wall !! West Facing Wall
|-
```

```

| Canal | | <firebase url='{{{url}}}/data/East Access Ways from Canal' /> | | <firebase
url='{{{url}}}/data/North Access Ways from Canal' /> | | <firebase url='{{{url}}}/data/South Access Ways
from Canal' /> | | <firebase url='{{{url}}}/data/West Access Ways from Canal' />
|-
| Street | | <firebase url='{{{url}}}/data/East Access Ways from Street' /> | | <firebase
url='{{{url}}}/data/North Access Ways from Street' /> | | <firebase url='{{{url}}}/data/South Access Ways
from Street' /> | | <firebase url='{{{url}}}/data/West Access Ways from Street' />
|}

```

==Map==

```

<fb-map height='300px' list='https://cityknowledge.firebaseio.com/groups/Venice Convents/members'
root='https://cityknowledge.firebaseio.com/data' highlights='{{{url}}}/birth_certificate/ckID'
tooltip='/birth_certificate/birthID' />

```

==See Also==

*[[Convent]]

*[[Convents]]

*[[Churches]]

{{Navbox

|name = Venetian Convents navbox

|title = Convents of Venice

|group1 = Cannaregio

```

|list1 = [[Former Convent of San Alvise | Former Convent of San Alvise]]{{w}}[[Former Convent of Gesuiti
| Former Convent of Gesuiti]]{{w}}[[Former Convent of Santa Giobbe | Former Convent of Santa
Giobbe]]{{w}}[[Former Convent of San Girolamo | Former Convent of San Girolamo]]{{w}}[[Former
Convent of Santa Maria delle Penitenti | Former Convent of Santa Maria delle Penitenti]]{{w}}[[Former
Convent of Santa Maria dei Miracoli | Former Convent of Santa Maria dei Miracoli]]{{w}}[[Former
Convent of Madonna dell'Orto | Former Convent of Madonna dell'Orto]]{{w}}[[Former Convent of Santa
Caterina | Former Convent of Santa Caterina]]{{w}}[[Former Convent of Santa Maria di Nazareth di Scalzi
| Former Convent of Santa Maria di Nazareth di Scalzi]]

```

|group2 = Castello

|list2 = [[Former Convent of Santa Anna | Former Convent of Santa Anna]]{{w}}[[Convent of Santa Apollonia | Convent of Santa Apollonia]]{{w}}[[Former Convent of the Ca' di Dio | Former Convent of the Ca' di Dio]]{{w}}[[Former Convent della Celestia | Former Convent della Celestia]]{{w}}[[Convent of Sant Elena | Convent of Sant Elena]]{{w}}[[Former Convent de la Fava | Former Convent de la Fava]]{{w}}[[Former Convent of Santi Giovanni e Paolo | Former Convent of Santi Giovanni e Paolo]]{{w}}[[Convent of Santa Giustina | Convent of Santa Giustina]]{{w}}[[Former Convent of Sant'Isepo | Former Convent of Sant'Isepo]]{{w}}[[Former Convent of Pietà Santa Maria della Visitazione | Former Convent of Pietà Santa Maria della Visitazione]]{{w}}[[Former Convent of San Giovanni in Laterno | Former Convent of San Giovanni in Laterno]]{{w}}[[Former Convent of San Lorenzo | Former Convent of San Lorenzo]]{{w}}[[Former Convent of San Giovanni in Malta | Former Convent of San Giovanni in Malta]]{{w}}[[Former Convent delle Suore Mantellate | Former Convent delle Suore Mantellate]]{{w}}[[Former Convent di Mendicanti | Former Convent di Mendicanti]]{{w}}[[Former Convent of F. da Paula | Former Convent of F. da Paula]]{{w}}[[Former Convent of Santa Maria del Pianto | Former Convent of Santa Maria del Pianto]]{{w}}[[Former Convent of the Muneghette | Former Convent of the Muneghette]]{{w}}[[Former Convent of San Pietro | Former Convent of San Pietro]]{{w}}[[Former Convent of San Francesco de la Vigna | Former Convent of San Francesco de la Vigna]]{{w}}[[Former Convent of San Zaccaria | Former Convent of San Zaccaria]]

|group3 = Dorsoduro

|list3 = [[Former Convent of Santa Maria della Carità | Former Convent of Santa Maria della Carità]]{{w}}[[Former Convent of Santa Maria del Carmine | Former Convent of Santa Maria del Carmine]]{{w}}[[Former Convent of San Gregorio | Former Convent of San Gregorio]]{{w}}[[Former Convent di Catecumeni | Former Convent di Catecumeni]]{{w}}[[Former Convent of the Eremitane | Former Convent of the Eremitane]]{{w}}[[Former Seminary di Salute | Former Seminary di Salute]]{{w}}[[Former Convent of San Sebastiano | Former Convent of San Sebastiano]]{{w}}[[Former Convent of Spirito Santo | Former Convent of Spirito Santo]]{{w}}[[Former Convent of Santa Teresa | Former Convent of Santa Teresa]]{{w}}[[Convent of Santa Maria della Visitazione | Convent of Santa Maria della Visitazione]]

|group4 = Giudecca

|list4 = [[Former Convent di Convertite | Former Convent di Convertite]]{{w}}[[Former Convent of Santa Cosmo | Former Convent of Santa Cosmo]]{{w}}[[Former Convent della Croce | Former Convent della Croce]]{{w}}[[Convent of the Redentore | Convent of Redentore]]{{w}}[[Former Convent of SS. Trinita |

Former Convent of SS. Trinita]]{{w}}[[Former Convent of San Giovanni Batista | Former Convent of San Giovanni Batista]]

|group5 = San Marco

|list5 = [[Former Convent of San Salvador | Former Convent of San Salvador]]{{w}}[[Convent of San Maurizio | Convent of San Maurizio]]{{w}}[[Convent of San Giorgio Maggiore | Convent of San Giorgio Maggiore]]{{w}}[[Former Convent of San Stefano | Former Convent of San Stefano]]{{w}}[[Former Convent of San Teodoro | Former Convent of San Teodoro]]{{w}}[[Former Convent of Santa Maria del Giglio | Former Convent of Santa Maria del Giglio]]

|group6 = San Polo

|list6 = [[Former Convent of the Frari | Former Convent of the Frari]]

|group7 = Santa Croce

|list7 = [[Former Convent of Santa Chiara | Former Convent of Santa Chiara]]{{w}}[[Former Convent of Santa Maria Maggiore | Former Convent of Santa Maggiore]]{{w}}[[Former Convent of San Nicola di Tolentino | Former Convent of San Nicola di Tolentino]]

}}

==References==

*Hoey, Kahan, Marchetti, Mazza. 2003. "Convents, Churches and Palaces: Transformation of Historic Buildings and the Impact of Venices Neighborhoods"

*Howard, D., and S. Quill. 2002. The Architectural History of Venice: Yale University Press.

*Lorenzetti, Giulio. 1975. Venice and its Lagoon. Trieste. Italy : Deizioni LINT Trieste S.R.L.

*Heinricher, Kahn, Maitland, Manor. 2013. "Ecclesiastical Architecture of Venice: Preserving Convents, Churches, Bells, and Bell Towers"

[[Category:Venice Convents]]

[[Category:CK-data]]

</includeonly>

7.6. Appendix F: Creating the Interactive Panoramas

The panoramas used in the 360 Degree Panorama application were generated using a program called hugin, a free, fully featured photo stitcher. This program uses lens data to correct the warping of the photographs used to create the best images possible. This program also allows manual modification and creation of control points to improve the generated image. The program also gives a rating of the image before it generates it, the better the rating, fewer artifacts appear in the image. To get the best image possible, ample overlap is required. A good rule of thumb is that at least half of the image should be overlapped. While smaller overlap is possible, especially with higher resolution cameras, this amount allows for a generous number of control points to create the best image possible. After creating the image, it needs to be put in the correct ratio to appear properly on the webpage. To not be distorted, the image must maintain a ration of 16:10, width by height. It is recommended to use a gradient from a light, centered horizontal line to dark along the top and bottom edges to give a sense of location above and below the image. Lastly, it needs to be placed in a webpage. To do this, we used the Google StreetView JavaScriptv3 API because it offered mobile support. The code used can be seen in Appendix G. When viewed from a browser, the panorama can be navigated around like in Google StreetView. It is recommended to reduce the resolution of the panorama to decrease the loading times.

7.7. Appendix G: Creating the Interactive Panoramas

```
<!DOCTYPE html>
<html>
  <head>
    <title>View From the Bell Tower di San Giorgio Maggiore</title>
    <meta charset="utf-8">
    <style>
      html, body, #map-canvas {
        height: 100%;
        margin: 0px;
        padding: 0px
      }
    </style>
    <script src="https://maps.googleapis.com/maps/api/js?v=3.exp&sensor=false"></script>
  </script>
```

```

function initialize() {
    // Set up Street View and initially set it visible. Register the
    // custom panorama provider function. Set the StreetView to display
    // the custom panorama 'view' which we check for below.
    var panoOptions = {
        pano: 'view',
        visible: true,
        panoProvider: getCustomPanorama
    };

    var panorama = new google.maps.StreetViewPanorama(
        document.getElementById('map-canvas'), panoOptions);
}

// Return a pano image given the panoID.
function getCustomPanoramaTileUrl(pano, zoom, tileX, tileY) {
    // Note: robust custom panorama methods would require tiled pano data.
    // Here we're just using a single tile, set to the tile size and equal
    // to the pano "world" size.
    return 'Images/GIMA_View.png'; //panoramic image
}

// Construct the appropriate StreetViewPanoramaData given
// the passed pano IDs.
function getCustomPanorama(pano, zoom, tileX, tileY) {
    if (pano == 'view') {
        return {
            location: {
                pano: 'view',
                description: 'Bell Tower di San Giorgio Maggiore'
            },
            links: [],

```



```
// The text for the copyright control.
copyright: 'Imagery (c) 2013 WPI VPC',
// The definition of the tiles for this panorama.
tiles: {
  tileSize: new google.maps.Size(1024, 512),
  worldSize: new google.maps.Size(1024, 512),
  // The heading in degrees at the origin of the panorama
  // tile set.
  centerHeading: 130,
  getTileUrl: getCustomPanoramaTileUrl
}
};
}
}

google.maps.event.addDomListener(window, 'load', initialize);

</script>
</head>
<body>
  <div id="map-canvas"></div>
</body>
</html>
```