Project Number: SJW – VEI3

Safeguarding the Churches of Venice, Italy:

A Computerized Catalogue and Restoration Analysis

An Interactive Qualifying Project

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By

Brian C. Donnelly

Brynn G. Hart

Matthew J. Pilotte

Thomas C. Scherpa

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Approved by:

Professor Fabio Carrera

Professor Stephen J. Weininger

http://www.wpi.edu/~mpilotte/venice/churches.htm

The opinions expressed in this report do not necessarily represent those of the sponsors.

Abstract

The intent of this project was to contribute to the preservation of the churches of Venice. The goal was to develop a comprehensive catalogue of all the churches of Venice, based on the original catalogue produced by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1968. The new catalogue is a searchable database with updated information that is accessible from the World Wide Web. To achieve this goal there were three main objectives: computerization of the existing catalogue, updating the catalogue, and the creation of an Internet version of the catalogue so that the information may be distributed the world over..

Acknowledgements

Throughout this project, there have been several people and organizations that have helped us in many ways. Their contributions have aided us in completing our project goals efficiently and effectively. We would like to thank all of these people for their generosity and support.

First, we must thank our advisor and liaison, Fabio Carrera. Through his efforts, he has helped us to work with our sponsors effectively and to organize our field work. His input helped us to create a project that will be very useful to the city of Venice. Also, his dedication to the success of our project has helped inspire us to produce results that will benefit the city of Venice.

Our sponsor, the UNESCO Liaison Office for the Safeguarding of Venice, has aided us greatly in completing our project. The entire staff of the office was very helpful in gathering any information that we needed in a timely manner. Also, they assisted us by working with the Curia to arrange church visits for interior photography.

We must also thank our advisor Professsor Stephen Weininger for his valuable assistance. He has provided us with numerous comments and suggestions that have helped to greatly improve our report and presentations. Also, he has helped us to focus our efforts efficiently, and he aided us in directing our project to obtain useful results.

We would also like to thank the Eastman-Kodak Corporation for donating a digital camera that was used in our field data collection. This camera greatly simplified our project by reducing the need to have rolls of film developed and then to have the pictures digitally scanned into our database.

Authorship

Each member of our project group contributed equally to the writing, revising, and editing of each chapter of this report.

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1 Introduction

The goal of this project was to contribute to the preservation of the treasures of Venice: its art and architecture, specifically the churches of the city. The intent was to develop a catalogue of all the churches of Venice, based on the original catalogue produced by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in 1968. The new catalogue is a fully searchable database that is accessible from the World Wide Web. This allows people from all types of backgrounds (art historians, theologians, preservationists, art enthusiasts, tourists, etc.) to find the information they desire about the churches of Venice.

To achieve this goal there were three main objectives: computerization of the existing catalogue, updating the data, and the creation of an Internet version of the catalogue. The city of Venice is full of such beauty and history that it is absolutely necessary to identify, catalogue, and track details of the city in order to better preserve it.

1.1 Organization of the Report

The Organization of this report is as follows:

The Executive Summary provides a concise yet complete overview of the project detailed herein, and is contained in Chapter 2

The Background in Chapter 3 presents any relevant information that is necessary for the understanding of this project. This includes information about our sponsor, the original catalogue, and the major architectural styles present in Venetian churches. It also gives a brief description of the natural history of Venice, and the social implications of this project.

The Literature Review is contained in Chapter 4, and provides a listing and description of all the sources that were found to be useful for the completion of this project.

Chapter 5 is the Methodology that was followed for this project. Project goals, rationale, objectives, and the corresponding tasks are discussed in detail. The data that was collected is also contained within this section.

The results of our project work are outlined in Chapter 6. This includes information about the computerized version of the 1968 catalogue, as well as the additional information that was included, such as restoration information and current photographs.

Chapter 7 describes our analysis of the information that we have collected. This chapter focuses on geographical correlations and trends in the data, and it also discusses our method of analyzing the state of conservation information included in the 1968 catalogue.

Chapter 8 contains the Conclusions of the project team, which describes the impact of our project on the restoration process. In addition to this, our recommendations for future projects and implementation of our work is included in Chapter 9.

2 Executive Summary

The churches in Venice are an important part of the Venetian society, and serve as reminders of the unique history of the city and its communities. Many of these churches are several hundred years old, and are in desperate need of restoration. The environmental conditions that are present in Venice are extremely harsh, and over the years, they have taken their toll on the architecture in the city. The goal of our project is to create an electronic catalogue of the churches of Venice that will provide an accurate source of information about the condition of each church.

Our project was sponsored by the United Nations Educational, Scientific and Cultural Organization (UNESCO), and specifically the Liaison office for the Safeguarding of Venice (UVO-LO). In response to the flood of 1966, a catalogue of the churches of Venice was created by UNESCO in 1968 to provide information that would aid in restoration and preservation efforts. This catalogue is a very complete source of information about the churches, but its usefulness is fading quickly because the information is becoming obsolete. One of the objectives of our project was to convert this catalogue into a form that can be updated, accessed, and reproduced more easily than the original paper version.

In order to create a complete computerized catalogue, there were several tasks that had to be completed. The first of these was to set up a database and enter all of the data from the original catalogue. The textual information was directly typed into the new catalogue using database forms, and the photographs were converted to digital images. And, all of the maps were updated with more descriptive and accurate computer-generated maps. In addition to the information from the original catalogue, we also

included a list of restoration projects and expenditures that were completed between 1968 and 1988. In our effort to make the catalogue more complete, we also took new pictures of the façade of each church. And, we visited a few churches to take interior photographs to show their current state of conservation, and also to take pictures of the altars as a pilot for a possible future project.

The most important product of our work is the computerized version of the 1968 catalogue. The new version has many advantages over the original paper version. First, the computerized catalogue is much easier to store, and the information is preserved in a much more stable format. The paper catalogue is already beginning to show its age; pictures are falling off of their pages, and several church records are missing because they may have been borrowed and not returned. With the new catalogue, the information can be stored indefinitely on CD-ROM's, which can be reproduced and distributed very easily. Another major advantage of the database is that it can be continually updated, expanded, and improved. This is very important, because the catalogue can be kept up to date with current restoration information.

One of the greatest advantages of the computerized database is that it can be analyzed much more thoroughly than in the past. The information in the database can be sorted using queries that pull together relevant information from all of the records. And, the information can be exported to other programs for further analysis. We have shown how the data can be manipulated in Microsoft Excel to create charts, tables, and graphs, or in our geographical information system MapInfo to create maps. In addition to this straightforward data analysis, we have investigated the factors used to determine the overall condition of each church by the architects who created the 1968 catalogue.

Our project has contributed to the safeguarding of the churches of Venice by preserving the records of the condition and restoration work performed on the churches. The computerized version of the 1968 catalogue is much more permanent than its paper predecessor, and it is also easier to use and distribute. Copies of the database can be distributed much more easily now, especially via the World Wide Web. We hope that our work will facilitate future restoration projects by creating a source of information that is complete, accurate, and user-friendly.

The task of preserving the churches of Venice is an immense responsibility, which is far out of the reach of any one project or organization. Our project has contributed to the preservation effort, but it was in no way meant to be a concluding work. The work that we have done has exposed many topics that could become future projects for the safeguarding of Venetian churches. Some of these involve expanding our database, and others proceed in entirely new directions. For example, our database can be expanded to include all of the churches in the Venetian lagoon, or a new database can be created to record information about all of the altars in each church. Also, we have given several recommendations on how our database can be used most efficiently to aid in preservation efforts.

3 Background

As the last Ice Age was coming to a close, there was a great deal of melting ice and thus rising water levels all over the Earth. About six thousand years ago in the midst of this rising water, the Venetian Lagoon began to form in northern Italy. The rivers of the Veneto carried sand and soil and deposited it in the lagoon. The sand deposits were formed into bands along the coastline by the currents of the Adriatic Sea. At first, these bands of coastline formed mere sandbars, but over time, they became marshy islands. As mentioned, there was a lot of change occurring in the Venetian Lagoon. The currents of the sea and the rivers of what was once the Po Delta were creating an ever-changing landscape of shallow brackish marshes and islands.

The shallow marshes of the Venetian Lagoon would seem a very unlikely place to build a city, yet Venice exists right in the middle of the Lagoon. The Venetian Republic was formed not out of a desire to brave the marshes and travel constantly in boats, but out of necessity. Between the fifth and seventh centuries the increasing invasions of northern Italy by barbarians en route to Rome caused the mainland inhabitants to seek refuge in the islands of the Venetian Lagoon. The Venetians thus had to develop new and creative ways to survive.

The Venetians transcended mere survival, and became so successful that they built their city up to its current glory. During the building of Venice, churches were built on every island. It seemed that with each milestone reached by the Venetians they would build a church. At the peak of the Venetian Republic there were more than 160 churches. Some decayed, others were torn down, but most of them are much as they were in the Middle Ages.

The churches are in their original locations, but not in their original conditions. They have deteriorated over the many centuries since their building, due in part to the humidity and water that envelopes the city, in part to increased boat traffic, and also to simple age and degradation. Many of the churches of Venice are in urgent need of restoration.

The city of Venice has been continually constructed and reconstructed over the last 700 years, resulting in a myriad of architectural styles and building materials. The age and unique atmosphere of Venice create monumental obstacles for its preservation. High levels of humidity and salinity, due to the aquatic environment, cause many structures to deteriorate rapidly, as described in Section 3.1. Fortunately, the global community has taken great interest in preserving the culturally rich past of Venice. UNESCO (*United Nations Educational, Scientific, and Cultural Organization*) is an organization that allocates private funds for the support of worldwide activities in education, science, and culture. The mission of UNESCO, especially in relation to Venice, is characterized in Section 3.3. This organization is sponsoring our project, which involves creating a computerized version of a catalogue of the Venetian churches that was originally compiled by UNESCO in 1968. The various sections and functions of the catalogue are specified in Section 3.4. In order to understand the project, it is essential to have an understanding of the architectural styles of Venice. The types of Venetian architecture are explicated in Section 3.5.

3.1 The Need for Restoration

The marine environment of Venice is largely responsible for the degradation of the city's churches. The intimate relationship between the city and the sea results in the

failure of many building materials. The salt water and pollution in the canals is often absorbed into the lower levels of masonry and stone, often causing serious deterioration of the walls. The humid air leads to the growth of mold and mildew on statues and in detailed architectural designs. An example of this type of growth on a building can be seen in the façade of San Gallo (Figure 1).

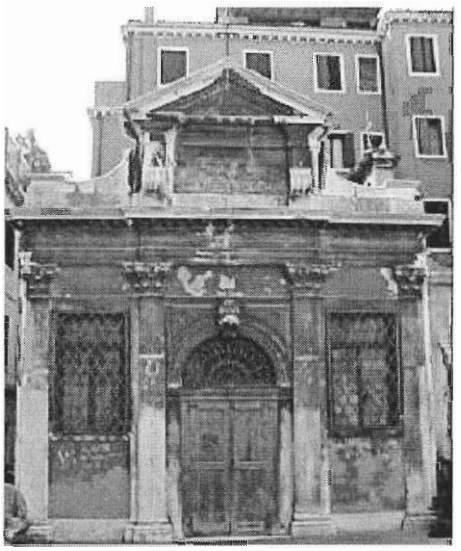

Figure 1: Façade of San Gallo, showing discoloration.

The discoloration of buildings due to mold and pollution is a common problem but does not threaten structural integrity. There are many degrees of structural and cosmetic damage. Some Venetian churches have serious problems that require immediate attention to prevent further damage. In general, the churches of Venice require constant attention and care.

3.2 Social Implications

Flooding in Venice is a major concern for historians, architects, theologians, and tourists throughout the world. The disastrous flood of 1966 in Venice opened everyone's eyes to that fact. In an attempt to save the precious history of the city UNESCO went about the creation of a catalogue of all the churches in Venice. Detailed as it was the catalogue hasn't been updated for over thirty years. The goal of our project is to update this catalogue to provide UNESCO with current information regarding the churches and their state of restoration. The cataloguing of Venetian churches has the potential to greatly benefit Venice. A detailed, computerized record of the churches of Venice will allow for easier tracking and prioritization of

restoration efforts, greater awareness of and access to historical information, current tourism information, and up-to-date data that could likely be useful to many people. Such a system could also save time, effort, and money for anyone who might come in contact with Venetian churches. Venice could make more progress in its preservation efforts with a more current and detailed database. Ideally, this system could act as a model for systems that could be developed for all the buildings and canals of Venice, and could greatly improve the scheduling of maintenance and more accurately track the assets of the city.

The social implications of this project are clear. Creating this new catalogue will allow UNESCO to have an electronic database of current material about the churches of Venice that they can easily update at any time. The logical progression from the electronic database stored on a single computer or CD-ROM is then to provide global access to it, i.e. to put it on the web.

From there the potential number of beneficiaries increases dramatically. An online database of this type could be used by thousands of people for research purposes. The aforementioned historians, theologians, architects, artists, and tourists would be able to access the database from anywhere in the world and be able to search for information on the churches of the city. The historians could easily find information about the churches' past, a catalogue of works of art, and its architectural features, photographs and floor plans.

3.3 Sponsor Information

UNESCO has been working for the preservation of Venice, and the churches in particular, almost since its founding. In a continuation of their efforts in this vein, the

UNESCO Liaison Office for the Safeguarding of Venice (UVO-LO) sponsored the project detailed herein. This organization is devoted to the preservation of cultural heritage in Venice, as well as protecting the natural environment and enhancing cultural development within the city. In 1966, severe floods threatened many historical monuments and works of art throughout the city of Venice. As a result of these floods, members of the Venetian community and many international organizations became more interested in protecting the art and architecture in the city. The UVO-LO was created in 1973 as a result of the *International Campaign for the Safeguarding of Venice*.

The UVO-LO works in conjunction with several other public and private organizations in Venice. The main public office that deals with the preservation of architectural structures is the *Soprintendenza ai Beni Ambientali e Architettonici*. This office is responsible for determining which buildings or monuments should have priority for restoration, and for providing permits for any architectural work that is done in the city. There are also many private organizations that are involved in raising funds for restoration. These organizations work through UNESCO to pool funds, obtain necessary permits, and organize restoration work.

The parishioners, the local community, and especially the church pastor usually voice the need for renovation of specific churches. The pastor usually hires an architect to prepare a restoration proposal. Subsequently, the proposal is passed along to the *Ufficio Chiese della Curia Patriarcale di Venezia*, which is responsible for the maintenance of the churches of Venice. From the requests it receives, the *Curia* sends those that it feels are the most important to the office of the *Soprintendenza* to obtain funding and/or permits.

3.4 The 1968 UNESCO Catalogue of Churches

The state of conservation for all the Venetian churches was assessed in the period 1968 - 1970. UNESCO financed the analysis and compilation of architectural and historical data. The information for each church is broken into five main sections:

- historical information;
- photographs and maps;
- detailed damage descriptions;
- cost assessments;
- and a table displaying the overall state of conservation.

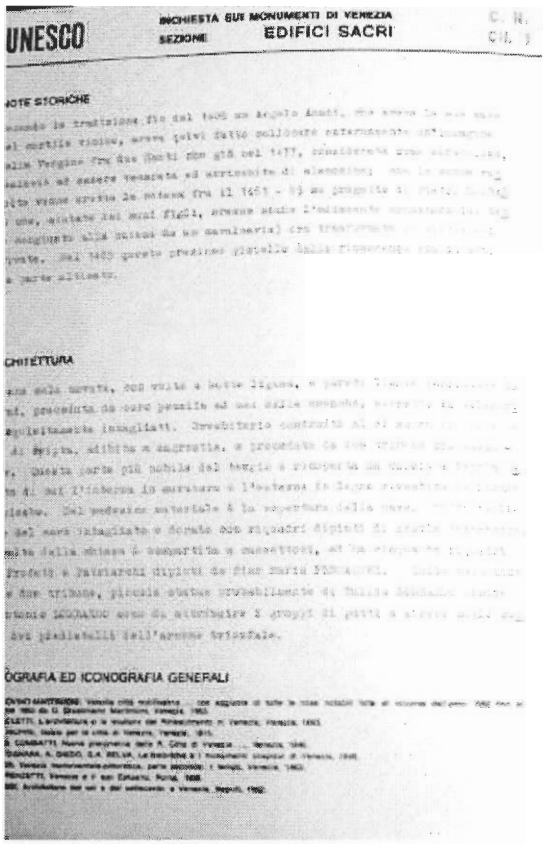
UNESCO
INCHIESTA SUI MONUMENTI DI VENEZIA
SEZIONE EDIFICI SACRI
NOTE STORICHE
CHITETTURA
OGRAFIA ED ICONOGRAFIA GENERALI

Figure 2: Sample from the 1968 catalogue showing the *Note Storiche*, *Architettura*, and *Bibliografia* sections.

section is the bibliography of the references used to develop the catalogue. The bibliography is the same for all the churches.

The next section of the catalogue contains a map of Venice with the location of each church highlighted, as well as several pictures showing specific areas of damage.

Note Storiche (Historical Notes) and *Architettura* (Architecture) make up the historical portion of the catalogue. The first contains a brief description of the history of the church. The second section describes the style of architecture, and usually includes the name of the architect. Both sections are in paragraph form. Also included in this

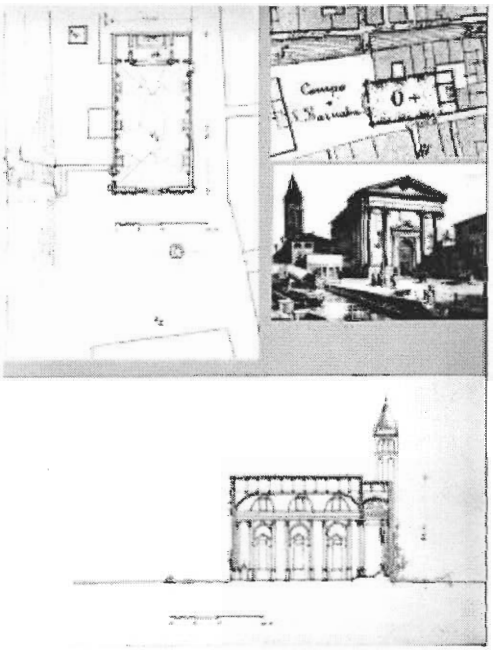

Figure 3: Sample from the 1968 UNESCO catalogue showing the floorplan and sketches of San Barnaba.

This section also includes a floor plan of the church, and usually a sketch of the façade.

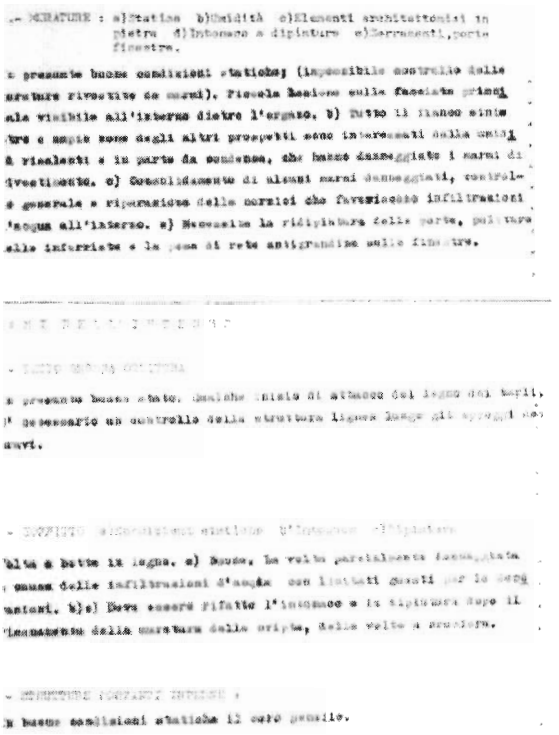

Figure 4: Sample from the 1968 catalogue showing condition details.

The third section describes the condition of individual parts of the church structure. This division is broken down into two main categories, *Esterno* (exterior) and *Interno* (interior).

Under these headings are several specific listings of the major architectural features, including *Tetto* (roof), *Soffito* (ceiling), *Murature* (masonry), *Pavimento* (flooring), and *Illuminazione* (lighting), and specific types of damage.

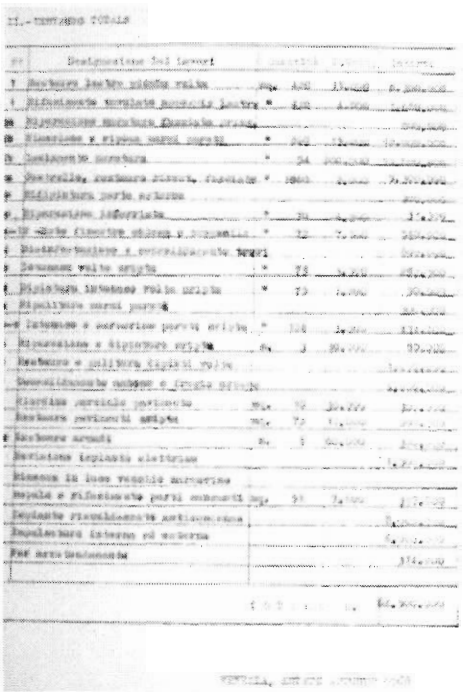

Figure 5: Sample from the 1968 catalogue showing the cost breakdown for the restoration.

The next section of the catalogue contains specific information on the cost of repairing each area of damage noted in the church. This material is divided in two tables, one for immediate restoration and one for total restoration. The costs are estimated based on the size of the area in need of restoration (or the number of pieces), using a standard cost

per unit area. Also, the total costs for immediate intervention and total restoration have been calculated.

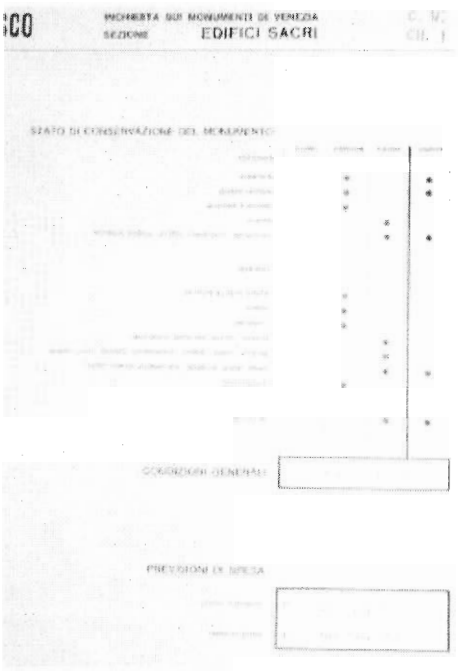

Figure 6: Sample from the 1968 catalogue showing the state of conservation ratings.

The last page of each catalogue includes a table that lists the overall state of conservation for each part of the church. Each part is rated as *Buono, Mediocre,* or *Cattivo* (good, mediocre, or bad). There is also a column labeled *Urgente* to indicate the areas in need of immediate repair. From these evaluations, an overall assessment of the condition of the church (*buono, mediocre,* or *cattivo*) is generated. The totals from the immediate and complete renovation cost tables are also listed on this page.

In order to better understand and follow the UNESCO catalogue, some knowledge of Venetian architecture is indispensable.

3.5 Major Styles of Venetian Architecture

The structure of the city of Venice is very different from the structure of any other city in Europe. As a result, Venetian society has developed differently from that of any other city. While the city of Venice is isolated from the mainland by its lagoon, each small island within Venice is separated from the other islands by canals. Because of this separation, each island developed its own community, and each community needed its

own church.[1] One of the unique aspects of Venetian communities was the lack of separation between the upper and lower classes. Each island community included some members of each class, which resulted in a relatively even distribution of wealth throughout the various islands. Because of the small community size and the even distribution of wealth, many small churches were built rather than a few large cathedrals.

The primary economic philosophy of Venetian society has always been to promote trade with other nations. The city's location high on the Adriatic Sea was ideal for trading throughout the entire Mediterranean, as well as with countries to the North. This location resulted in Venetian society being heavily influenced by many cultures, whose combination created a hybrid culture that was different from that of the rest of Italy and western Europe. The various influences from the North and East helped to create a culture that was truly unique in relation to other European cities which manifested itself in many aspects of Venetian society, especially in art and architecture. The architectural designs of Venice were mainly based on styles that originated in other regions. However, they were modified and adjusted to make a style that is distinctly Venetian.

The following sections will discuss several of the architectural styles that are commonly seen in churches throughout Europe, but most especially in Venice. It will list some of the traditional characteristics of each style that can be used to identify it, as well as any modifications that are specific to Venetian architecture. Although the focus of this section is on church architecture, these styles were employed for all types of structures, including homes, palaces, and civic buildings.

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[1] Adapted from F. Carrera "The Urban Design Politics of Venice, Italy."

3.5.1 Romanesque

From the 6th to the 8th centuries, Romanesque architecture was one of the dominant styles throughout much of Italy. Romanesque buildings resemble fortresses, with high walls and narrow windows. During the Romanesque period, the city of Venice was just being formed. The first buildings in Venice were small houses made primarily of wood because the ground was too unstable to support large or heavy structures. Also, because of the limited building space available, most of the Romanesque buildings that were created in Venice were later destroyed to make room for larger Byzantine structures.

3.5.2 Byzantine

The earliest type of architecture commonly seen in Venetian churches is Byzantine. This style became widely used between the 8th and 12th centuries, which was a period of dramatic growth within the city of Venice. The two characteristics of this style that are most easily recognized are tall, narrow arches and domes. Also, during the Byzantine period the main artistic medium in Venice was mosaic, and many of the buildings of this era contain elaborate mosaics, used primarily to cover arches, walls, and the interior of domes.

The characteristic of Byzantine arches that makes them unique are the sides of the arch that continue to rise vertically from the top of the pillar. Above this vertical section, the arch forms a simple semicircle. These arches can be seen in many Venetian buildings, and they are very distinct because of the narrow opening that is formed.

Perhaps the most prominent features Byzantine churches are the domes, the largest of which is located directly above the center of the church, with wide transepts

leading away from it. Depending on the size of the church, there may be smaller domes located along these transepts. The interiors of Byzantine domes are covered with elaborate mosaics that usually have a central figure or design, with characters depicting a biblical story or event surrounding it.

Figure 7: The interior of *Basilica di San Marco* showing Byzantine architecture styles.

The most elaborate example of Byzantine architecture is St. Mark's Basilica. This church has several large domes, and virtually every interior surface is covered with mosaics (Figure 7). Although the body of this church is Byzantine, its façades (which were added after the building was completed) were constructed in the Gothic style. This building is an excellent example of the transitions that are typical in Venetian architecture. Because of the limited space available in Venice, buildings were frequently expanded and redesigned. In many cases, the original style of the building can be seen in one part of the structure, and the new style can be seen in the additions.

3.5.3 Gothic

After the Byzantine period, the principal architectural style in Venice gradually changed to Gothic. It emerged from a reevaluation of the architectural philosophy of the Catholic Church that occurred during the 12th century, and endured until the advent of the

Renaissance style in the 15th century. In the Byzantine era, the Church used architecture to emphasize the mysterious and supernatural aspects of God and religion. This was accomplished by creating small spaces within the churches, and by covering the ceilings, domes, and arches with elaborate mosaics that depict miracles and other biblical events. However, in the Gothic period, the Church's philosophy changed dramatically. Instead of accentuating the internalization of religion with small, dark churches, the Gothic style created large, open spaces filled with light and vibrancy, highlighting the more externalized display of religious devotion.

By changing the design of the churches, the religious emphasis was changed. Instead of concentrating on the separation of God from man and earthly activities, the focus was the role of God in everyday life and in personal interaction. Rather than having the people look up to admire the elaborate mosaics, the paintings were placed at eye level. Also, instead of using metallic gold as a main color, as in Byzantine art and mosaics, the art of the Gothic era used more natural pigments.

Some of the main architectural structures that were common in Gothic buildings were tall spires and large windows. In the rest of Europe, Gothic architecture was characterized by massive cathedrals supported by flying buttresses. In Venice, however, the unstable ground limited the size of buildings, and made the use of flying buttresses impractical. Gothic arches were different from Byzantine arches in many

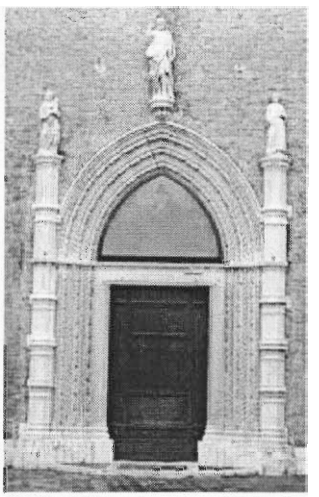

Figure 8: Facade of *I Frari* showing a gothic arch

ways. The curve of a Gothic arch began directly at the top of the pillar, and the arch came to a point in the center (Figure 8).

An excellent example of Gothic architecture is the façade of St. Mark's Basilica. Although the main church is Byzantine, the facades were added during the Gothic period. At the top of the façade are several tall spires, which are placed between large Gothic arches. Whereas Byzantine architecture needed mosaics to cover the plain surfaces of domes and arches, Gothic architecture is generally much more elaborate, and does not require further decoration.

The two largest Gothic churches in Venice are Santa Maria Gloriosa dei Frari (*I Frari*) and Santi Giovanni e Paolo (*San Zanipolo*). These churches were built by the Franciscans and the Dominicans orders, respectively. They are very similar in design. Unlike St. Mark's Basilica with its marble exterior, *I Frari* and *San Zanipolo* churches are constructed of brick with marble trim. Also, the campanile of *I Frari* is the second highest in Venice (83 meters, 15.5 meters shorter than the campanile of *San Marco*).

3.5.4 Renaissance

Around the end of the 15th century, the dominant style of architecture in Venice began to change from Gothic to Renaissance. The main characteristic of Renaissance architecture is a return to the classical styles of Roman buildings. The Renaissance movement began in northern Italy in the late 14th century, and spread throughout Europe. This movement was slow to reach Venice, though, because of the heavy influence of Byzantine and Gothic art and architecture in the city. This period was an era of enlightenment, when people throughout Europe began to abandon some of the traditions of the middle ages in favor of new ideas and occupations. During this period, people also

began to look back to the styles and ideals of ancient Roman civilization. The word Renaissance, which means 'rebirth', accurately describes the style of architecture it represents; it is a 'rebirth' of Roman architectural designs, combined with some aspects of Byzantine and Gothic architecture.

In both Byzantine and Gothic styles, there was usually one feature that dominated the architecture of a building. In Byzantine churches it was usually domes; in Gothic architecture it was usually a large ornate window or a tall spire. In the Renaissance style, each part of the building was meant to complement the other parts. Therefore, there was not one dominant feature in a building. If domes or spires were used, they would be skillfully included in the overall design so that the smaller details of the structure were not overlooked. Many Renaissance churches have a Byzantine feel because of the domes, but the interaction of the dome and the other architectural features makes the design distinctly Renaissance.

One of the distinguishing features of Renaissance architecture was the use of pediments as opposed to arches over many windows and doorways. Where arches were used, they were semicircular, without the vertical rise that was characteristic of Byzantine arches. In general, the design of the architecture was simple and symmetric, referring back to the traditions of ancient Rome. Also, many church designs incorporated the style of the Roman Pantheon, giving them the appearance of classical temples. These buildings often incorporated classical columns such as the Corinthian.

3.5.5 Mannerist

Mannerism is characterized by an extension of the classical Renaissance style to include decorative and innovative designs. The Mannerist style is very similar to the

Renaissance style in that they both focus on symmetry and harmony. The focus on simplicity was abandoned in Mannerist architecture, allowing for more decorative structures. This allows the buildings of this period to achieve new designs that were not possible in the traditional Renaissance style. One of the challenges facing Venetian architects was to adapt the Renaissance designs to fit the Latin cross floor plan, which included a large central hall with smaller areas along the side. At the altar end of the hall, two other smaller halls branched off forming a cross. The Renaissance style used the designs that had been applied to simple rectangular temples, and these designs did not transfer well to the new floor plan.

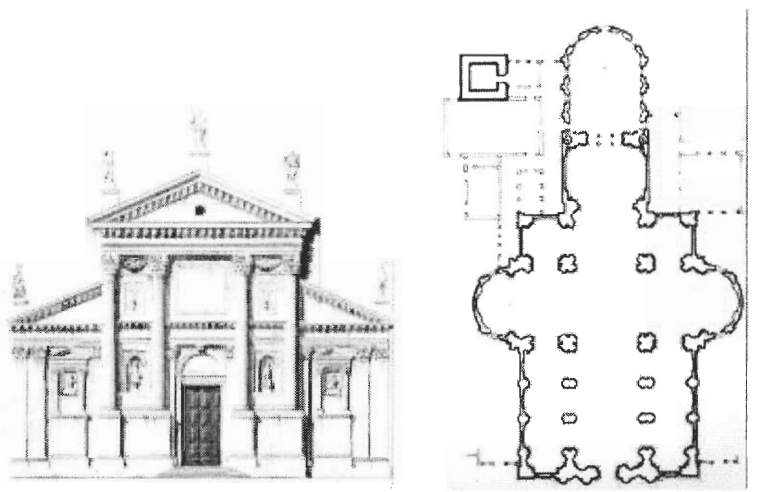

Figure 9: Façade and Latin cross floor plan of San Giorgio Maggiore.

Andrea Palladio, one of the most famous Mannerist architects of Venice, developed the solution to this problem. His design used two pediments, and integrated them to form a high central hallway with smaller side areas. His design is best seen in the church of *San Giorgio Maggiore*. This design uses the Renaissance tradition of large pediments, and adapts it to suit the floor plan of the Latin cross. The façade and the Latin cross layout of this church can be seen in Figure 9. Palladio designed many churches throughout Venice, but he is most famous for his work

with villas that incorporate the functionality of a farmhouse with the elegance of a palace. He also wrote the *Quattro Libri*, which were four books that outline the design principles behind his architecture.

One of the most important aspects of Mannerism is that it breaks drastically from the Byzantine style that is visible elsewhere in the city. In the Renaissance, many architects used Byzantine designs as a starting point for their plans. This allowed these newer churches to complement the existing architecture in Venice. The Mannerist style, however, did not refer back to Byzantine traditions at all. The designs for the Mannerist churches were intended to be unique. They were originally intended to differ from the architecture of the time; however, the Mannerist style has come to complement the older architecture of the city.

Figure 10: Main Façade of the Redentore.

The most famous Mannerist churches in Venice are *San Giorgio Maggiore* and the *Redentore*, both built by Palladio. The church of *San Giorgio Maggiore* was built in the mid-16th century, and is the first church to use the overlapping temple design to fit the Latin cross floor plan. The Redentore (Figure 10) was begun in 1577 to commemorate the end of the plague of 1576. Its main function was to serve as the destination for the doge's annual procession to commemorate the end of the plague.

3.5.6 Baroque

The Baroque style draws heavily on the form of the Renaissance, but it incorporates elaborate sculptures and ornamentation. Baroque architecture is characterized by the use of detailed ornamentation on windows, pediments, domes, and just about every other architectural structure. The main purpose of Baroque architecture is to overwhelm the observer with the sheer complexity of the building and its decoration. Although most Baroque buildings are based on Renaissance structures, the details of the building show a dramatic break from the simplicity of the Renaissance style.

The Baroque style emerged from the late Renaissance and Mannerist works of architects like Palladio and Sansovino. Both of these styles were very conservative, emphasizing the grace and strength of the building itself. Baroque designs used many of the same structural elements as the Renaissance style, but they also included some Byzantine design features, especially large domes. However, the Baroque style was much less conservative than its predecessors, especially with respect to the use of sculptures and decoration.

An excellent example of Baroque architecture is the church of Santa Maria della Salute (Figure 11) which was built to celebrate the end of the Plague of 1630. Along the base of the main dome lay several giant spirals, each topped by a full statue. The basic form of the building draws from the Byzantine style due to the large dome, but the elaborate decoration makes it distinctively Baroque.

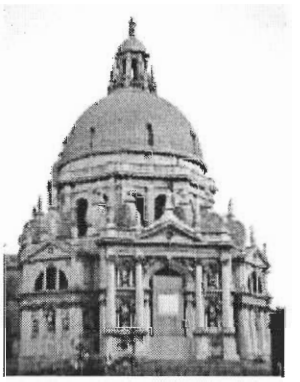

Figure 11: Santa Maria della Salute

3.5.7 Neoclassical

The Neoclassical style was simply a return to the simplicity of Renaissance and Byzantine architecture, after the elaborate Baroque period. Many buildings of this period are hard to distinguish from those that they imitate. In addition to returning to simpler techniques and designs, Neoclassical architects combined different aspects of the various eras with new ideas and designs. This period was much more subdued than the Baroque.

The most prominent Venetian Neoclassical architect was Giorgio Massari. His works show a return to Palladian architecture, without the lavish decoration of the Baroque period. One of his most famous works is the church of *Santa Maria del Rosario* (also called *I Gesuati*), constructed in 1726. This church uses the traditional pediment façade, supported by half columns. This design is much simpler than the Baroque designs, and shows an elegant simplicity that is characteristic of the Renaissance.

3.6 Conclusion

The architectural styles listed here are seen in many aspects of Venetian architecture, and especially in the churches. Many of the churches contain characteristics of several styles throughout the different areas of the structure, due to renovation or redesign.

Venetian culture has been created through a combination of many different influences. Similarly, the architectural designs present in many of Venice's churches are the result of a conglomeration of styles and influences. Each church is a unique creation, which is symbolic of the culture and the influences that were dominant in the community during the church's construction. In some cases, the churches show a chronology of the different influences that were present throughout the course of their construction. These

churches are an important part of Venetian history and culture, and it is important to work toward preserving them.

4 Literature Review

Aldrich, Brian, Kevin Shea, and David Youkstetter. *Churches of Venice, Italy.* An Interactive Qualifying Project for Worcester Polytechnic Institute, 1993.

This IQP was our most useful background source. It supplied us with a foundation for our project and a skeleton for our database. The format and results served as a useful reference. However, the data in this IQP are not complete. Our IQP will make all the data current and more accessible.

Arslan, Edoardo. *Gothic Architecture in Venice.* London: Phaidon Press, 1971.

This book was useful for historical and technical background of the Gothic architecture in Venice. The book focused on styles and trends particular to Venetian Gothic.

Babic, Kristopher T., Grant G. Leeds, Stylianos Sidiroglou, and Michael Borek. *Analysis of Sewer Holes and Canal Wall Damage in Venice, Italy.* An Interactive Qualifying Project for Worcester Polytechnic Institute, 1998.

This IQP was used as a reference for format and content.

Boccato, Alessandra. *Churches of Venice.* Verona: Arsenale Editrice, 1998.

This guidebook highlights 54 churches in the Venetian lagoon, 50 of which are in Venice. The book includes a brief history, photographs, and a description of the artwork within the church. Despite the fact that not all the Venetian churches are included, this book was very helpful in finding façade photographs and historical information.

Boulton, Susie and Christopher Catling. *Venice and the Veneto*. London: Dorling Kindersley, 1995.

This guidebook provided us with the addresses, phone numbers and operating hours of the Venetian churches. It was easy to find information because of the simple layout and well-organized sections.

Carrera, Fabio. *The Urban Design Politics of Venice, Italy*. Cambridge: MIT Press, 1996.

This paper, written for an Urban Studies class at the Massachusetts Institute of Technology, discusses the origins of the city of Venice as well as its unique physical attributes. The local political system is also addressed in this paper.

Carrera, Fabio. *What cultural heritage do we preserve and why?*. Cambridge: MIT Press, 1997.

This paper discusses how people weigh different attributes in determining whether or not something is pleasing to them. Aspects such as age, historical significance, restorability, uniqueness, etc. are included in order to suggest a method for developing a priority system. We were able to use this paper to formulate our ideas about how restorations are prioritized and the weight that each characteristic carries in making the decisions.

Carrera, Fabio.*Campo Santa Maria Formosa, Venice, Italy: A case study of the application of visual, dynamic and scale-invariant analyses for the description, interpretation and evaluation of City Form*. Cambridge: MIT Press, 1997.

This paper addresses the concepts of form and functionality in a city, the *Campo Santa Maria Formosa* is used as an example to discuss the theories of the author. We were able to use it in developing our analysis of the Churches of Venice, specifically in organizing a priority list for restoration.

Carrera, Fabio.*The Image of a Good City.* Cambridge: MIT Press, 1998.
This paper is a collection of commentaries on papers and presentations made at the seminar *Imaging the City: The Place of Media in City Design and Development* held at the Deptartment of Urban Studies and Planning, Massachusetts Institute of Technology.

Carrera, Fabio. *Architectural Form and Urban Context: A visual preference study.* Cambridge: MIT Press, 1998.
This paper is based on a study that was conducted to determine how individuals categorize different aspects of a building as well as how a structure contributes the area around it. We were able to use the information in this paper to better understand which attributes of buildings are generally considered aesthetically pleasing, and how an 'attractive' building has the potential to be raised on a priority list when restoration become necessary.

Carrera, Fabio. *Enforming the Sensate: Measuring and Representing the Perception of Change of Place over Time.* Cambridge: MIT Press, 1999.
This paper is a summary of Prof. Carrera's past papers. It includes excerpts from *The Image of a Good City, Architectural Form and Urban Context,* and *Campo Santa Maria*

Formosa, Venice, Italy. The central themes are urban design, architectural meaning, and personal assessment and impression of buildings.

Concina, Ennio. *A History of Venetian Architecture.* Cambridge, U. K.: Cambridge University Press, 1998.

This source gave us a chronological history of Venetian architecture. This book mostly focused on the people and global events that impacted the styles of Venetian architecture.

Curia Patriarcale. *Il Patriarcato di Venezia.* Pubblicazione offerta dalla Banca Cattolica del Veneto, 1962.

This book is a publication of the Catholic Church. It contains a list of everyone who has held a position in the local parishes, as well as the regional Church structure. We used to book to find information about specific parishes within Venice.

Goy, Richard. *Venice: The City and Its Architecture.* London: Phaidon Press, 1997.

This book was filled with gorgeous pictures and examples of Venetian artwork and architecture. The book is full of details and in-depth explanations of different eras of style.

Howard, Deborah. *The Architectural History of Venice.* London: B. J. Batsford, 1980.

This book has a fairly complete glossary for Italian architecture. Each architectural style is given an entire section of the book with many pictorial examples. Our background is patterned similarly to this reference.

Raffaëlli, Laura, ed. *Venice.* New York: Alfred A. Knopf, Inc., 1993.

This book is part of the Knopf Guides collection. Detailed pictures and information are given about most churches, arranged by sestieri. Architectural examples of the Byzantine, Gothic and Renaissance style are shown on pages 100-103.

Ruskin, John. *The Stones of Venice, Volumes 1-3.* New York: John W. Lovell Company, 1907.

These volumes are highly technical and primarily focus on specific aspects of Venetian architecture. The books have good introductions to the different styles of architecture.

Salvadori, Antonio. *Architect's Guide to Venice.* London; Boston: Butterworth Architecture, 1990.

This book provided us with the original dates of foundation for many of the Venetian churches. It also helped to define the architectural styles of the various churches.

Save Venice Inc. *Save Venice 1968-1998: Venetian Treasures Restored & Preserved.* Venezia: Grafiche Veneziane, 1998.

This pamphlet is a publication of Save Venice Incorporated, highlighting all of the committee's restoration efforts in the Venetian churches. In addition to photos of each project, there is detailed cost, sponsor, and labor information.

United Nations Educational, Scientific, and Cultural Organization (UNESCO). *The Conservation of Cities.* London: Croom Helm, 1975.

This book is a collection of documents from around the world. There is a small section written about the deterioration of Venice. The book contains many facts and figures about the population, economic standings, and restoration of the city of Venice. Most of the noted restorations have taken place in the twentieth century.

UNESCO. *Venice Restored.* Paris: UNESCO, 1978

This is a small catalogue that gives an overview of all the restorations, architectural and artistic, that have happened in Venice. There is a lot of information about the damaged areas of Venice, but it does not go into much detail about the specific churches.

UNESCO. *Venice Restored: 1966-1968.* Milano: Electa, 1991.

This book contains information about restoration projects that have taken place within Venice. Most of the entries focus on art renovation and partial church restorations.

UNESCO Venice Office (UVO). *Annual Activities Report.* UNESCO: Italy, 1998

This pamphlet is the annual report for the UNESCO Venice Office. It contains brief summaries of work completed, begun, and in progress for the fiscal year, as well as future proposals.

5 Methodology

Described herein are the goals of this project, the associated tasks necessary to achieve these goals, and the methods by which these tasks were completed.

The goal of this project was to contribute to the preservation of the treasures of Venice: its art and architecture, specifically the churches of the city. Our intent was to develop a computerized catalogue of all the churches of Venice, based on the original catalogue produced by UNESCO in 1968 (described in the Background). The new catalogue is a fully searchable database that will allow people from all types of backgrounds (art historians, theologians, preservationists, art enthusiasts, tourists, etc.) to find the information they desire about the churches of Venice.

To achieve this goal there were three main objectives: computerizing the existing catalogue; updating the catalogue with additional geographic, photographic, and restoration data; and creating version of the catalogue to be viewed via the World Wide Web. The city of Venice is full of such beauty and history that it is absolutely necessary to organize and track details of the city to aid the preservation process.

5.1 Catalogue Computerization

The first step to realizing a new catalogue of Venetian churches was to computerize the existing UNESCO catalogue. Creating a database of the existing material served many purposes. It provided a starting point for the project and simultaneously ensured preservation of the original catalogue by placing it in electronic form. The information is in a format that is easily searchable, and from which data can be extracted and utilized. The database allowed for time-based analysis of the preservation of the churches. The objective was to make the information more easily accessible and better organized than in the original catalogue. Most of this work was completed during the first three weeks of the project in Venice to ensure that there would be enough time for collection of complementary data in the field.

There were three main tasks in computerizing the catalogue. The first task was to set up a format for the database in Microsoft Access®, and a coding scheme to easily link the data between Access and the Geographical Information System MapInfo®. The

database allowed the data to be entered, used, and, most importantly, easily understood. The historical information, architectural notes, assessment of states of conservation in 1968, and the corresponding cost projections were entered initially. The information in the catalogue was broken down into four different categories:

- Textual descriptions;
- Photographs.
- State of conservation;
- Recommended restoration;

The textual material entered into the database consisted of the historical notes, architectural notes, and the description of the recommended restoration for each church as found in the 1968 catalogue. Structural analyses of the roof, walls, doorways, lighting, etceteras are part of the restoration data. Most of the churches contain precise structural descriptions; however, some churches are critiqued briefly or not at all. The inconsistency seems to be based primarily on the architect who provided the analysis for each church.

At the end of each catalogue, there is a table describing the state of conservation in 1968. This information was entered into the database and was useful in determining the general condition of the church.

The final step needed to complete the computerized version was to digitize the photographs taken for the 1968 catalogue. All the photographs were scanned into the computer and then placed into a database that associated each page containing pictures with the church from which it was taken. Scanning these photographs proved to have greater value beyond the creation of the new electronic version of the 1968 catalogue; once digitized, the photographs become immune to degradation (as does the rest of the catalogue). It is now possible to easily compare any photos of the current state of restoration to the original photographs.

All the material from 1968 was entered for two reasons: to preserve the original catalogue for posterity, and more importantly, to allow an analysis of the restoration work done over the past thirty years. In addition to the original photographs, pictures of the church façades were taken in order to update the 1968 photographs. After the data were entered, it was possible to reorganize the database along thematic lines. This involved

separating the overall database into smaller, more manageable pieces as seen in Figure 12. Several tables were created, containing architectural, historical, restoration, and tourist information.

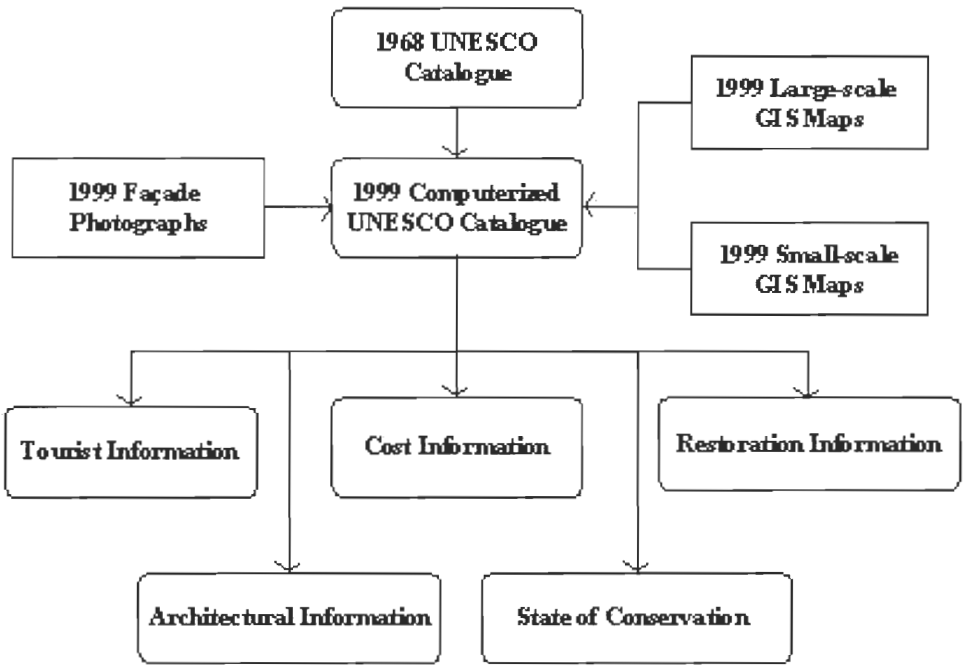

Figure 12: A flowchart showing database organization

The architectural database contains specific notes on all the churches, focusing on unique structural features, architectural style, architect, and functional descriptions. The restoration database contains descriptions of the structural damage within each church, structural measurements, and architectural features. The tourist database has information of a non-specialist nature: a brief history of the church, architectural type, hours of operation, location, entrance fee (if applicable), and a façade photograph. Appendix H shows the structures of the databases created for this project as well as detailed descriptions of the types of information in each table. Appendix F contains a few examples of the look of the new catalogue. The complete computerized catalogue can be found on the project CD. A complete copy of the catalogue can be printed from that file.

5.2 Catalogue Update

The major field effort of this project was to update the existing catalogue. We visited 105 churches and took pictures of the façade. This improved the 1968 catalogue by documenting façade condition and assisting in church identification. We were also able to photograph existing damage and altars in few churches (these photos will be used by future project groups). We also developed the existing catalogue by adding general and specific maps created by a Geographical Imaging System. The final addition to the 1968 catalogue was the compilation of restoration records, as given to us by the UVO.

5.2.1 Field Recording

The first stage in the fieldwork of this project was to take façade photographs of all the churches in Venice. The 1968 catalogue does not include a complete collection of façade photographs, so this seemed to be the logical place to start; UNESCO endorsed this starting point.

Stage two of the fieldwork process involved shifting the focus of the project from the structural condition of the entire church (1968 catalogue) to the state of the altars within the churches. While visiting the churches, we photographed altars for future WPI projects.

Special permissions were granted from the *Curia* and the *Soprintendenza*'s office to enter the churches and to photograph visible damage and altars. It was necessary to obtain permission from the *Curia*, because most of the churches in Venice prohibit photography inside the church.

Initially all four members of the project team went to a few churches together to establish a uniform method of documenting the internal damage and altars. Once a standard level of photo documentation and recording was established the team broke up into pairs so that more churches could be covered and a larger amount of information would be collected. A simple form was used to record the data. One side of the form was table for noting picture number, digital photo number, and a brief written description. The form also included a floor plan of the specific church for recording photo number and picture direction.

5.2.2 Geographical Imaging

The maps provided in the 1968 catalogue have historic value, but they are not current or precise. Many of the maps are hard to read or misleading, as seen Figure 13. Using MapInfo, new general and specific maps were added to the catalogue.

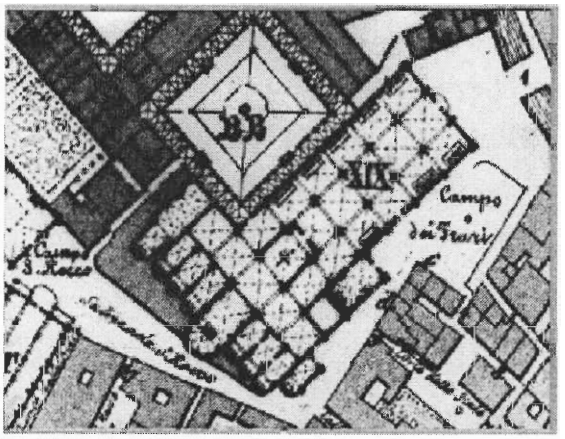

Figure 13: Etching of the area surrounding I Frari.

The general maps are color-coded by sestieri and show the current geography of Venice, as seen in Figure 14. The specific maps show the highlighted church, the surrounding buildings, streets, canals and bridges. This map, seen in Figure 15 is more practical and effective, as well as being up to date.

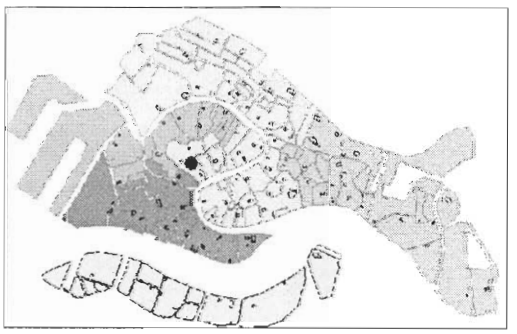

Figure 14: GIS-generated large-scale map.

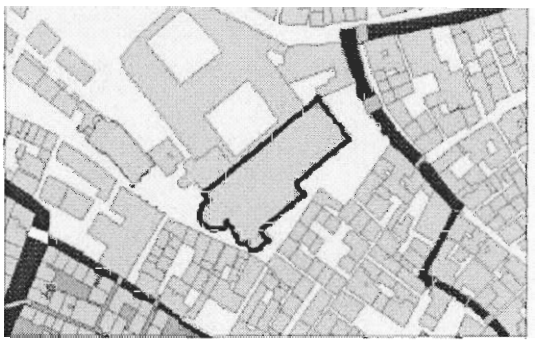

Figure 15: Small-scale map generated with the GIS for the sake of accurately locating the church.

5.2.3 Investigation of Past Restoration Work

When the information from the original catalogue had been entered into the database, we decided to determine what restoration (if any) had been carried out since 1968. UNESCO was able to provide a rather extensive list of all the restoration work that had been done by the Private Committees. A database was created to organize all the information in the restoration records provided by UNESCO, which contained the following basic information:

- Description of labor
- Date of restoration
- Sponsoring committee
- Actual cost of restoration

With all of the restoration information in the database, it was then possible to extract specific information and find trends in the data. The results from these queries can be found in Chapter 6.

5.3 Scheduling

The ideal nature of this project required that all one hundred twenty churches of Venice be visited. A schedule was devised to provide the priests with a reasonably accurate time frame for when we would take the interior photographs. Times were chosen so that there was sufficient time to take the necessary photos and account for transfer to the next church. The project group was divided into two teams so that we could visit as many churches as possible.

In our original proposal, we planned to visit all the churches within three weeks. However, due to time constraints we only visited seven churches. We are hopeful that another group of students from Worcester Polytechnic Institute will continue this project.

5.4 Instrumentation

In order to collect all the data necessary to properly document the churches of Venice, some basic tools were essential.

5.4.1 Photography

Photographs were taken of each church using a combination of digital and standard 35mm cameras. Digital cameras were supposed to be used exclusively, but in some of the locations it was rather difficult to capture the entire image with a standard lens. As a result, standard 35mm cameras with wide-angle (18-30mm) lenses were used to take these photos. Narrow streets, awkwardly placed awnings and scaffolding were some of the obstacles that were encountered.

On the first pass, one photograph was taken of the church façade to complete the 1968 catalogue. Many of the records in that catalogue lacked façade photographs, making each church difficult to identify by looking at only the interior photos. Once authorization from the *Soprintendenza* and the *Curia* was received, a second pass was made through some of the churches and more detailed photographs that directly related to the structure and restorations of the altars were taken.[2] Taking the second round of photographs was especially important because it provided our first opportunity to document the state of the altars. Since the main purpose of the catalogue is to track restoration and record deterioration of the churches, it is useful to take photographs that show interior damage, especially related to the altars. As stated earlier, the focus of this project shifted slightly once all the information in the 1968 catalogue was entered into the computer. The shift was from an attempt to predict the structural damage of the entire church, to focusing exclusively on capturing the current state of conservation of the altars. Time did not allow us to reassess the state of conservation for the entire church, so focusing on a detailed system exclusively for the altars seemed like the logical course of action. These photographs combined with the data collected on each of the altars will greatly aid in any restoration efforts for the churches of Venice.

5.4.2 Digitization of Images

All images taken for the 1968 UNESCO catalog were scanned to develop a complete electronic version of the catalog. Façade photographs were taken using digital and 35mm cameras, which significantly reduced scanning time. The digital photos could easily be downloaded to the laptop computers and then inserted into the photo database. All photos are included in the online version of the catalog.

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[2] Time was a factor here. Because the authorization letter arrived halfway through our stay in Venice, we were unable to revisit all the churches to take more detailed photographs of their interiors. The limited time was utilized to focus on a smaller number of churches and to refine the visual estimation method.

5.5 Design of the Online Catalogue

The last, yet perhaps most important objective of this project involved the creation of the online version of the catalogue. The idea was to amass all the information into a user-friendly reference that can be accessed via the Internet. An online database makes the information available to anyone around the globe. Due to the large number of churches in Venice, detailed pages were created for only a few in order to initiate construction of the online database. This project is ongoing, so future teams can follow our standard to create the completed online catalogue of all the churches.

5.6 Data Manipulation and Presentation

In order for the results of this project to be useful, it is necessary to develop a logical system for the collection, organization, manipulation, and presentation of data. This was done through the use of spreadsheets and maps.

The 1968 catalogue was entered into the primary database via data entry forms and scanned images. Additional photographs were digitized and organized in another database. The primary database is organized by category: architectural, historical, restoration, state of conservation, and tourist information. The photographs are organized by sestieri, church name and photograph type.

The manipulation of the data depends on three main tasks. The first of these is to understand the different types of information (structural damage, state of conservation, restoration work etc.) that has been collected about the churches, and the methods used to collect them. The second task is to understand how the data is organized within the databases (both in the current database and the 1993 WPI church database[3]). This process included learning the coding systems that were used, as well as the relationships between data values. Examples of these relationships can be found in the analysis section of Chapter 6. The third task is to determine what information needs to be included in the electronic version of the catalogue and the clearest way to present it. One of the

[3] A WPI student project group established the original database of Venetian churches. We used their structure as an outline for our database.

important aspects of this step is to determine the target audience, and what information will be of particular value to that group.

5.6.1 Church Histories

Various forms of historical data have been compiled for each church. These data include important dates in the church history, the original construction date and the dates of any significant renovations. This category also includes information on the prior uses of the building, if it was used for any purpose other than as a church.

5.6.2 Architectural Form

One of the most important categories of information is the architectural data for each church. This includes the style of architecture, the architect, the floor plan, the façade, and the campanile (if applicable). Much of this data had already been collected through the 1993 WPI project on the churches of Venice.

5.6.3 Current Condition of the Churches

The material in this section was divided into two parts: overall condition of the church, and specific areas that are in need of repair. This information is extremely important in evaluating the amount of restoration work that needs to be done on each church, and the urgency of this restoration. The 1968 UNESCO church catalogue contains many details on the aspects of the churches that need repair. The new electronic format makes it possible to easily update this data through field evaluations of each church. The overall condition data that is shown in this section is a valuable aid in the allocation of funds for future restoration.

5.6.4 Visitors' Information

This section contains information that will be of practical use to tourists and church visitors, such as the church phone number, location, and hours of operation. Other information may include the current use of the building, and dress codes for visitors.

5.7 Summary

This section has described the tasks we have performed to complete this project. These tasks included computerizing the 1968 catalogue, updating the catalogue with façade photographs and new maps, and compiling the past restoration information. The methods used to complete each task, along with the tools used to gather the data, were described in detail. The following chapters will discuss the results obtained from this project, and the ways in which the information was analyzed.

6 Results

6.1 Computerization of the 1968 UNESCO catalogue

The primary goal of this project was the computerization of the 1968 UNESCO catalogue. This goal was completed, resulting in a fully digitized version containing all the facets of the 1968 catalogue. This version of the catalogue has many advantages over the original. Previously it was necessary for anyone interested in using the catalogue to travel to Venice and use the original paper version of the catalogue to complete their research. Now that the catalogue is easily stored on a computer, it can be reproduced endlessly and distributed easily. Furthermore, the original record was somewhat deteriorated due to thirty years of use. The digital version will last indefinitely, and can be easily updated with new information.

The computerized version of the UNESCO catalog is a great improvement over the original paper version. The information contained in the catalog is extremely important, and its preservation is essential for the maintenance and restoration of the churches of Venice. Although paper catalogs may seem relatively permanent, they have some serious drawbacks. One problem that we have found in our work is that several of the church records were missing from the catalog, probably because someone who borrowed them did not return them. With the electronic version, the catalog can be reproduced without sacrificing quality, so parts of the original catalog do not have to be given out and possibly lost. Also, the computerized catalog can be distributed electronically, through e-mails, file transfers, CD-ROM's, or web pages.

6.2 Database Structure and Contents

The database that was designed for this project was based not only on the 1968 UNESCO catalogue but also on a database designed in a previous WPI project on the churches of Venice. Thus, in addition to containing information taken directly from the 1968 catalogue, the database includes more general information about the churches, and even incorporates churches that were not in the UNESCO version. In actuality, there are four databases. Three of the databases, ***Carte Geografiche***, ***Fotografie***, and ***1968 Fotografie***, are used simply to store images of each of the churches.[4] ***Carte Geografiche*** holds maps that allow for easy location of the churches. ***Fotografie*** contains photographs of the façade of every church. ***1968 Fotografie*** includes all the photographs that were in the original catalogue. The fourth database, ***ChurchesOfVenice,*** retains the bulk of the information. The main tables of interest within are *Informazioni Turistiche, Informazioni Architettoniche, Informazioni Restauro, Costi Restauro, Restauri,* and *Stato di Conservazione*.[5] From these individual tables, the information that was a part of the 1968 catalogue can be extracted so that the original reports can be generated directly from the database. Each section of the catalogue has its own separate report, and the individual sections are then compiled into a master report.

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[4] It was necessary to develop different databases for each type of image, due to the massive size of image databases in Microsoft Access.

[5] For more detailed information on the structure of the database see Appendix C.

6.3 Restoration Information

Prior to this project there was no organized system for documentation of church restoration work already completed. The restoration records of UNESCO consist mostly of invoices and receipts from work done on the churches. The invoices contained only the name of the church, the type of work (structural or painting), the private committee that sponsored the intervention, and the overall cost. This information was compiled for use in analyzing the restoration decision-making process. It must be noted that this restoration data was obtained directly from UNESCO, and is by no means a complete listing of Venetian church restoration. Much of the money used for restoration is obtained from the Italian government, and is not reflected in our chronicle of restoration.[6]

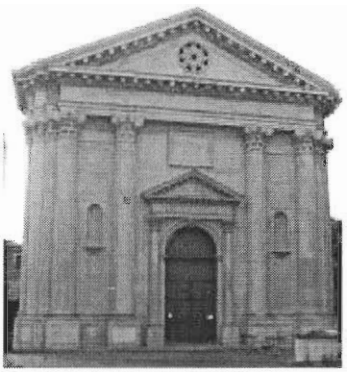

Figure 16 Façade photograph of San Barnaba

6.4 Current Information and Photographs

Although the 1968 catalogue was quite thorough, it had several limitations. One important item that was lacking from each church catalogue was a photograph of the façade. A few catalogues contained artistic renderings of the church façades, but these sketches were not practical for accurate church identification. In order to create a

[6] The rationale for not including complete restoration data was the fact that the 1968 catalogue was developed by UNESCO. Therefore, UNESCO would use the catalogue as a source for deciding restoration priority, whereas the office of the *Soprintendenza* would likely not utilize the catalogue. We expected to see a direct correlation between restoration work completed through UNESCO, and the state of conservation data collected in 1968.

more useful catalogue, façade photographs were taken of each church and included in the database.

The maps contained in the original catalogue were vague at best. Thus, all the maps were replaced with Geographical Information System-generated maps. However, the street maps in the 1968 catalogue are of historical value so they have been retained.

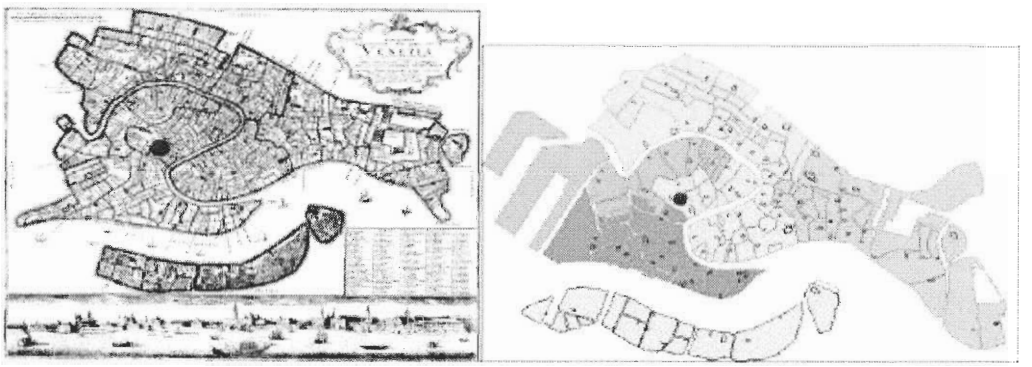

Figure 18: Maps used in locating I Frari. On the left, the historical map from the 1968 catalogue. On the right is the GIS map now included in the digital version of the catalogue.

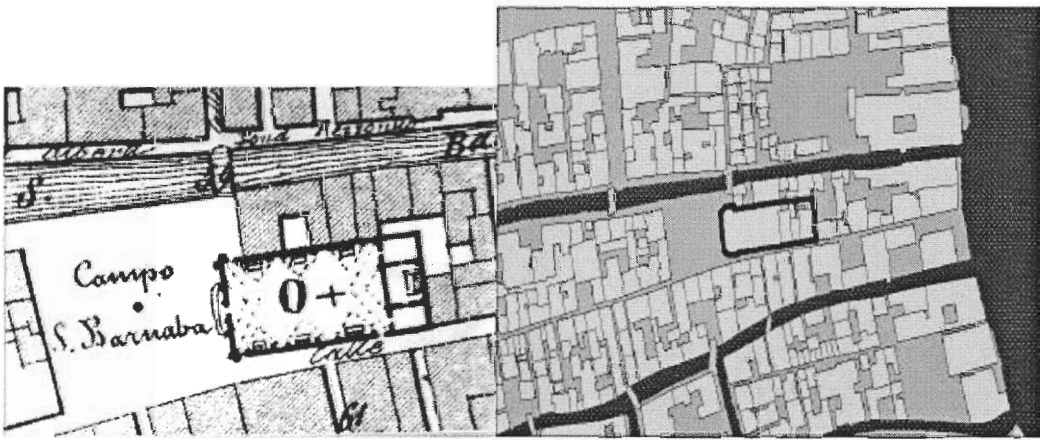

Figure 17: Maps from the catalogue of San Barnaba. On the left is a hand-drawn map from the original catalogue. On the right is a GIS-generated small-scale map.

The churches are pinpointed on two maps having different scales: a large scale map that shows the position of the church within Venice, and a small scale one that shows the

church and the surrounding streets. An example of each of these maps is shown in Figure 18 and Figure 19. The differences are apparent with a cursory evaluation of the maps. In the large-scale maps one will notice the differences in island shapes. This is due in large part to the fact that Venice has changed in some respects since the creation of the antique maps.

6.5 Data Extraction

Although the databases are very large, it is simple to compile the desired information into a concise table or report. This is done through queries, which allow only a specific subset of the data to be displayed.

Nome Ufficiale	Secolo	Stile Facciata	Architetto
Santa Maria Gloriosa dei Frari	14	Late Gothic	Friar Scipione Bon
San Simeone Profeta	10	Neoclassical	Massari
Santissimo Nome di Gesù	9	Neoclassical	Selva, Diedo
San Simeon e Giuda	18	Neoclassical	Giovanni
San Rocco	15	Renaissance	Giovanni
Santa Maria della Salute	17	Baroque	Baldassare
San Eustachio	17	Neoclassical	Giovanni Grossi
San Nicolò da Tolentino	16	Veneto-Neoclassical	Scamozzi, Tirali

Table 1: Access-generated table showing the century of construction, style of façade, and architect of some churches.

6.6 Photographic Documentation

Photographs were used to document the state of a few churches. In order to maintain consistency throughout the database, a specific set of pictures was taken for each church. This set includes the exterior of the church (façade), the interior architecture (main hall), and the altars. In addition to this basic set, pictures were also taken of any specific areas of noticeable damage in the church.

7 Analysis

7.1 Map Analysis

A Geographical Information System, MapInfo, was used to correlate information in the database with the location of the churches in Venice. Starting first with a map of Venice and the map of the churches overlaid, we were able to show church location, façade style, and the areas of Venice that contain the churches which are in most need of repair.

Being able to correlate information in the database with a church symbol on the map of Venice makes the information easier to understand, and

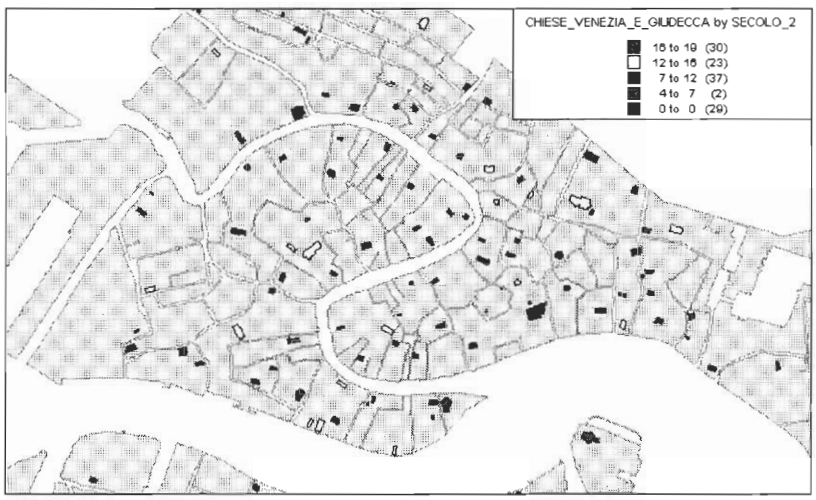

Figure 19: Map showing the century in which each church was built.

it makes comparisons among different data types clearer. An example of a typical map created with MapInfo is shown Figure 19. It shows the churches of Venice, color-coded by the century in which each was built.

For more detailed mapping analysis, see Appendix A.

7.2 State of Conservation Analysis

In addition to the geographical analysis of the data, we also focused our attention on analysis of the state of conservation information that was included in the 1968 catalogue. This information was organized in the original catalogue in the form of a chart that lists several major components of the church, along with three columns describing the condition of that component and one column to show whether or not restoration was urgently needed. At the end of the chart, there was also one field that was used to describe the overall condition of the church (*buono*, *mediocre*, or *cattivo*) based on the ratings of the individual components. Our analysis focused on finding the weight given to each component in deciding the overall state of conservation. For example, if the category *strutture portanti interne* (internal load-bearing structure) were in *cattivo urgente* (bad, urgent) state, it would likely weigh more into the decision of the overall state of conservation than would the *illuminazione* (lighting) in *cattivo urgente* state. The reason for this is that a load-bearing column keeps the church from collapsing, whereas the lighting would not be detrimental if not repaired immediately. The idea was to see if there was a correlation between the evaluation of each component, and the architect's decision as to the overall state of conservation.

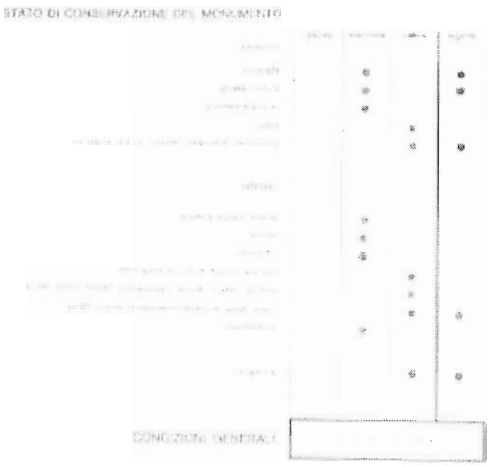

Figure 20: State of Conservation chart from the 1968 catalogue.

The first step in determining the weighting system was to assign values to the various states of conservation that were used in the catalogue. Since there are three description levels (buono, mediocre, or cattivo) and one urgency factor, there are a total of six possible condition states for each component (Table 2). Although there are actually six states, it is not really possible to have something in urgent and good condition. Therefore, the five conditions used in our database are: *buono*, *mediocre*, *cattivo*, *mediocre urgente*, and *cattivo urgente* (good, mediocre, bad, mediocre urgent, and bad urgent). Each of these states was assigned a number between one and five that describes the relative restoration priority of that state.

Condition state	**Assigned Value**
Buono	1
Mediocre	2
Cattivo	3
Mediocre Urgente	4
Cattivo Urgente	5

Table 2: Values assigned to the states of conservation.

Once each state was assigned its corresponding numeric value, we performed Multiple Linear Regression (MLR) analysis to determine the relative importance of the condition of each component with respect to the overall assessment of the condition of the church. The regression analysis indicates a poor fit (R^2 value is 0.4) which suggests the possibility that the architects carrying out the evaluations of the churches did not have a distinct weighting system. Nevertheless, simply ordering the coefficients does allow the determination of the implicit importance attributed to the various components of the churches (Table 1). Those factors highlighted in yellow are those that seem significant based on their t Stat's, which are indicators of the level of confidence in the statistical significance of the coefficients.[7] It was discovered that if only those churches rated generally as *cattive* were used in an MLR analysis, there does exist a statistically significant pattern (R2 value of 0.7) in the decision-making process.

R Square	0.403619572	
	Coefficients	*t Stat*
muratura	0.172895419	2.417533371
decorazioni	0.137152653	1.979130909
arredo	0.130857509	1.989820148
grondaie e pluviali	0.101898514	2.326194906
pareti interne	0.09117615	1.785684633
strutture portanti interne	0.088134973	1.752521345
soffitto	0.064850224	1.394333753
pavimento	0.037476932	0.751124396
cupola	0.030170808	0.65592324
grossa orditura	0.023656495	0.424068423
illuminazione	-0.0043238	-0.054910701
copertura	-0.040937755	-0.841910111
campanile	-0.058187638	-1.405313336
Intercept	0.154380834	0.476569525

Table 3: Results from the MLR analysis in ranking order.

A straightforward MLR analysis unfortunately does not adequately characterize the entire decision-making process involved in evaluating the overall state of conservation. There are factors that cannot be illustrated by using only the components

of the state of conservation. Since 14 professional architects assessed the churches it is quite likely that their opinions and systems of rating were divergent. Furthermore, there are aspects that are obviously not quantifiable in the decisions of the professional architects. Categories that are considered, perhaps subconsciously, are those such as the danger of loss, artistic merit, and uniqueness of each church.[8]

7.3 Conclusions

This project has made many accomplishments toward furthering the restoration of the churches of Venice. The computerization of the 1968 UNESCO catalogue will make the data more accessible, and thus more useful. Furthermore, the analysis of our information has the potential to be revolutionary in the field of restoration and conservation analysis.

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[7] T-Stat's greater than 1.6 relate to above 90% confidence, in effect, there is only a 10% probability that the correlation is purely random.
[8] Adapted and simplified from F. Carrera *What cultural heritage do we preserve and why?*, 1997.

8 Conclusions

The goal of our project was to contribute to the safeguarding of the artistic and architectural treasures in the city of Venice, specifically the churches. Through the development of a computerized catalogue of churches, we have facilitated the organization of the material that is necessary for restoration work. This newly created source of information will help to preserve the churches of Venice for years to come.

Our project has produced a database that contains a vast amount of information that can be used in analyzing the overall condition of each individual church. Also, we have included a list of restoration work that has been done through the UNESCO/Private Committees collaboration during the period 1967-1988. In doing this, we have created a source of current restoration information, and a form that can be used to keep the information up to date.

Throughout the course of this project, we have seen that many of the churches in Venice are in desperate need of restoration. Our fieldwork focused on photographing this damage so that restorations can be performed in a timely manner. Also, this collection of photographs can draw attention to some of the churches that may have been overlooked in past restoration efforts.

Many of the organizations that have contributed greatly to the restoration of churches are from countries other than Italy. Some of these groups donate money to a general fund to repair any church in need of restoration, and others 'adopt' a specific church to restore continuously. The problem prior to our project was that the information in the original catalogue was difficult to reproduce and distribute. As a result many of these groups may have limited knowledge about the actual conditions of all of the

churches. Now that the catalogue has been computerized, the state of conservation information regarding each church is much more accessible. We were able to show by the use of examples how much easier it is for students, theologians, art historians, preservationists, etc. to use the electronic version of the catalogue.

It is now also possible to access the information in the updated version of the catalogue by visiting the web page that was produced as part of this project. The need to photocopy those parts of the 1968 catalogue and ship them to whoever requests them is no longer necessary. A simple click of the mouse and the information about any of the churches in Venice[9] can be accessed from the convenience of a computer thousands of miles away.

We have also revealed some interesting facts about the order of priority in which restoration work is performed. We were able to show that there are many factors that are considered in determining restoration priorities. These include the age and historical significance of the church, its artistic appeal or uniqueness, and the severity and urgency of damage found within it. Everyone doesn't judge the weight of each of these characteristics equally however. We all have a natural tendency to rate beauty or unattractiveness in generally the same way[10], but the grey area in between those two extremes was where we chose to focus our analysis. The results show that each church has its own unique qualities and those individuals deciding which churches are restored (and those which aren't) don't have a homogeneous system of weighing each one of

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[9] Our project was only able to produce a preliminary version of the web page. It is limited to information about only a few churches in Venice. It is hoped that future projects will be able to complete the web version of this catalogue.

[10] F. Carrera. *Architectural Form and Urban Context*. Jan. 1998

those characteristics. These differences show that the decision to restore a church is more than just a looking at a few simple factors before making the final decision.

Although our project has aided in the restoration efforts, there is still a great deal of work that can be done. We have opened the door for future projects to continue our work and to branch off in new directions. Future projects can work towards expanding the collection of information on churches, or they can apply the techniques developed here to other objects such as altars, scuole, or synagogues.

The flood of 1966 alerted the world to the fragile condition of the buildings in Venice, and to the restoration work needed to preserve them. Through our project, we hope to again draw attention to this issue. Our project has updated a thirty-year old record whose usefulness was fading quickly. By converting it into electronic format, this incredible source of information has been given a breath of new life. Hopefully, this will inspire more groups to take an interest in the preservation of the churches of Venice, just as the completion of the original catalogue did in 1968.

9 Recommendations

The preservation and restoration of the churches of Venice is a major responsibility, which is far above the scope of any single undertaking. Starting with the 1990 Churches of Venice IQP,[11] this work has developed over the course of multiple student efforts. Our project was in no way intended to be a concluding chapter in this series; it is intended to build on the work of the previous projects and open doors into new ways of safeguarding the churches of Venice. In this respect, our project may raise more questions than it answers. This section outlines some of the possible ways that our work can be continued, either through future WPI projects, or through implementation of the tools that we have created.

9.1 Implementation of our project

The information that we have gathered throughout this project can be used in many ways to help protect the churches of Venice. To achieve the greatest possible impact, the information that we have compiled must be used, distributed, and updated efficiently. One of the main goals of this project was to produce an electronic version of the 1968 UNESCO catalogue so that the information can be easily reproduced and updated. Hopefully, the new database format will allow the information to be used more efficiently than in the past. This section contains suggestions on how this can be done.

[11] The *Interactive Qualifying Project (IQP)* is a degree requirement for all students attending Worcester Polytechnic Institute in Worcester, Massachusetts. The students apply their knowledge of engineering to a humanitarian cause.

9.2 Using and distributing the database

One of the major advantages of the computerized catalogue is that it is much easier to distribute than the paper version. If someone needs the entire catalog for researching purposes, it can be sent in the form of a few CD-ROM's. These are relatively easy to produce, and can be shipped globally. The only software required to view the catalogue is Microsoft Access, which is included in the professional edition Microsoft Office package. If a small portion of the database is needed, it can be transferred electronically, such as in an e-mail attachment, or downloaded via the World Wide Web. Also, paper copies of the original (1968) and/or updated (1999) versions of the catalogue can be printed directly from the database.

The computerized version of the 1968 UNESCO catalogue is much easier to access and manipulate. The database structure allows for a more detailed analysis of the information. Several queries have been included with the database; their purpose is to pull together specific types of information from various tables, and to investigate data correlation.

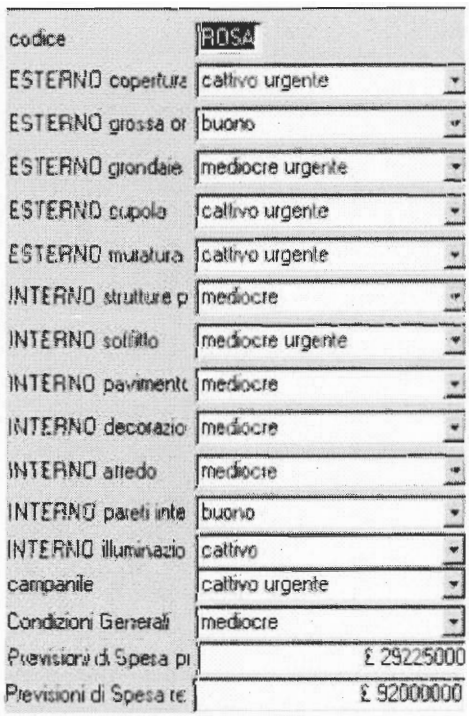

Figure 21: A data entry form used to enter state of conservation information.

9.3 Updating the information

One of the driving forces behind this project is the fact that the 1968 UNESCO catalog has become dated. The restoration, damage, and cost information for each church are constantly changing; the computerized catalogue was created so that it could easily be updated. Included in our database

are the forms that we used to enter the data from the original catalogue and restoration records. These forms can be used to keep the restoration information current, and to update the costs included in the original catalogue. Also, the database can be expanded to include any future restoration estimates or restoration costs.

To use our database effectively, it is necessary to understand how it is organized. A description of the database structure is included in Appendix C. A description of the contents of each table is found in Appendix B. We also used a specific coding scheme to organize pictures, floorplans, and scanned images. These codes are explained in the *Iconographic Coding* text file that is included in the image directory of our CD.

A problem that exists with the present form of the database is that there are many text fields in the tables. The only problem with storing the information in this manner is that it isn't possible to query an entire paragraph of information. The solution to this problem would be to extract the specific information from these paragraphs and place them into fields of their own. Prime examples of fields in the database that could benefit extensively from this would be the large text fields in the *Informazioni Architettoniche* and *Informazioni Turistiche* tables.

Another step in continuing to update the catalogue would be to complete the information concerning any restoration work that has been completed in each church. The present catalogue only contains restoration data from 1967 to 1988. Entering the restoration data from 1989 to the present into the database will produce more accurate results when conducting queries. The added information will also allow for a clearer view of the current state of the churches in Venice.

9.4 Web access

One of the best ways to advertise and distribute the catalogue information is to create an attractive and useful web page. In the final phase of our project we have created the basic outline for a web page. Unfortunately, due to the very large size of our database it is impractical (at this point at least) to make the entire database available on the Web. The updated version of the 1968 catalogue is available for viewing and printing on our project CD.

Now that a web page has been created, it is important for it to be maintained and updated. Also, it is necessary to advertise it so that interested persons can find the information about the churches of Venice. A simple and effective way to make the web page available would be to provide a link from UNESCO's homepage to the catalogue page.

9.5 Future Project Possibilities

Throughout this project, we encountered several points at which our work could have branched off into a new direction. In deciding on a single path to take, these options were left unexplored due to our lack of expertise in a specific field, or because there was not enough time to cover them entirely. Many of these directions have the potential to become future projects. The following section lists several possible project ideas that could continue along the theme of *Safeguarding the Churches of Venice*.

9.5.1 Creation of a database of altar information

During our visits to the churches, we began taking photographs of altars as part of a pilot for future projects. One possibility for such a project would be to create a

database for all of the altars in Venice. The specific information that would be collected is the history behind the altars, the architects or artisans who designed them, and what artists or sculptors worked on the altarpieces. Currently, no record of this information exists.

A catalogue of altars and altarpieces would be very useful to a very wide variety of people. Like our database, it would be valuable to art historians, theologians, and other scholars. Many altars contain famous works of art, so it is very important to have an accurate record of their condition in order to prioritize restoration.

This project would be very labor intensive, and would require a fairly good understanding of the Italian language for pulling together the necessary information from the available records found primarily in each individual church. Some of the main project tasks would include photographing each altar, recording any visible damage present, and collecting historical information from the church records.

9.5.2 Continuation of Damage Assessment

Due to time constraints in our project, we were not able to visit all of the churches in Venice to collect complete damage information. However, in the churches that we were able to visit we collected data that would serve as a good starting point for a future project. In order to implement this project, it would be necessary to streamline the data collection and organization method. This work could also be expanded to include churches on all of the other islands in the Venetian lagoon.

9.5.3 Scuole, Convents, Synagogues, and Palaces

The scope of the computerization and data entry that we have done is specifically limited to the churches of Venice. However, the same technique can be directly applied to other building types throughout the city, specifically scuole, convents, synagogues, and palaces. The UNESCO catalogue that our database is created from contains information on many of these other buildings, and it would not be difficult to create a new database with this information. The fieldwork would be slightly different, because of the difference between the layouts of churches and these other buildings.

9.5.4 Bell Towers

A previous project conducted in 1994 by students of Worcester Polytechnic Institute focused on the development of a database that contained information about all the bell towers in the city of Venice. Each one of these bell towers is located near a church. It would be a logical step to include this information in our database of the churches. Future projects could focus on integrating these two databases. Maps could also be created showing the location of each bell tower throughout the city. An interesting piece of information that could be drawn from the database once the bell towers information is integrated would be to answer questions such as: Did the condition of a church's bell tower factor in when making a restoration decision? Which bell towers were restored? Where they restored at the same time as the church? Did location and visibility weigh heavily in the decision? Are there Private Committees that focus solely on the restoration of bell towers?

9.5.5 Floorplan and Altar Piece Mapping

Our project began the process of using a Geographical Information System to create floorplan maps and the relative altar piece locations in each church. Unfortunately time limited the number of churches that could be done. The completed maps in this project reflect the churches that we were able to visit and document the current (1999) state of conservation. Future projects on the churches of Venice will hopefully follow our lead and complete these maps. Architects and other individuals involved in the restoration process will benefit from these detailed floorplan maps because they won't have to come to Venice to evaluate the layout of a church firsthand. Plans for the restoration of individual areas of the churches could be done thousands of miles from Venice. As with the rest of the information of the churches of Venice, it is hoped that the floorplan information will also become available on the Web and some future date.

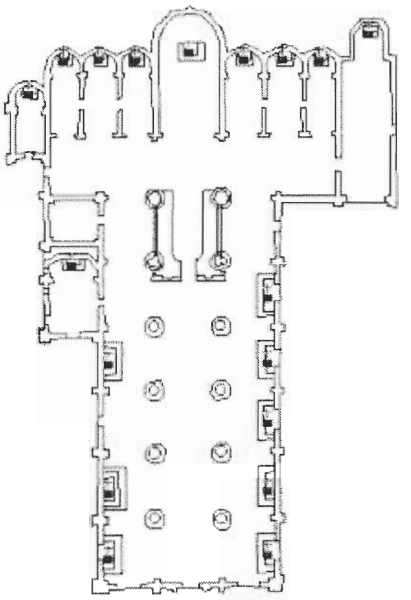

Figure 22: Floorplan and altars of I Frari.

9.5.6 User-Friendly Interface

In its present condition the database of church information is difficult to use and manipulate without a certain level of knowledge about Microsoft Access. Considering that the majority of the people who will be interested in the information contained in our database aren't computer scientists, the development of a Graphical User Interface is recommended. Such an interface would make updating the information in the catalogue

much easier. Querying out relationships in the data could also be a less complicated process given the proper design.

Other possibilities for the GUI could be the ability to translate the church information from its tabular form in the database to a Geographical Information System. A single interface that provides in simple clear steps the correlation, between the number of Gothic churches for example, and the locations of those churches on a map of Venice, would be a useful feature compared to the current method. Searching or querying could also be implemented in a very clear manner. Query design would be unnecessary, the only information that would be required for searching the database would be the relevant material relating the churches.

The development of the web page for this project is in a way the midway point between the database and a full-featured GUI. The web page allows for all the information in the updated catalogue to be viewed, but it cannot be queried in order to draw relationships between the churches.

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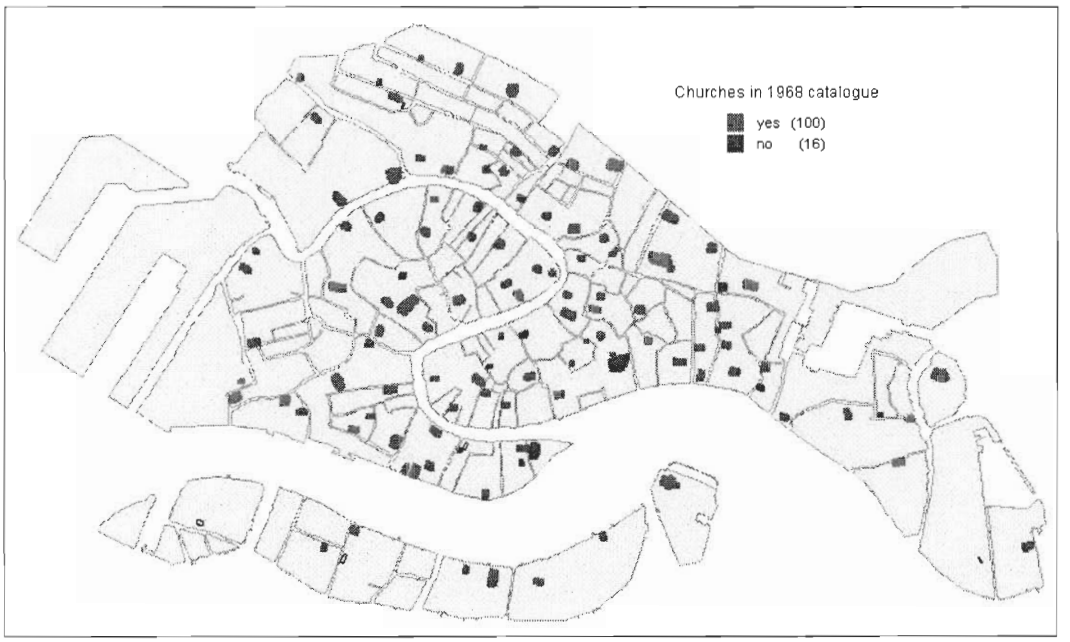
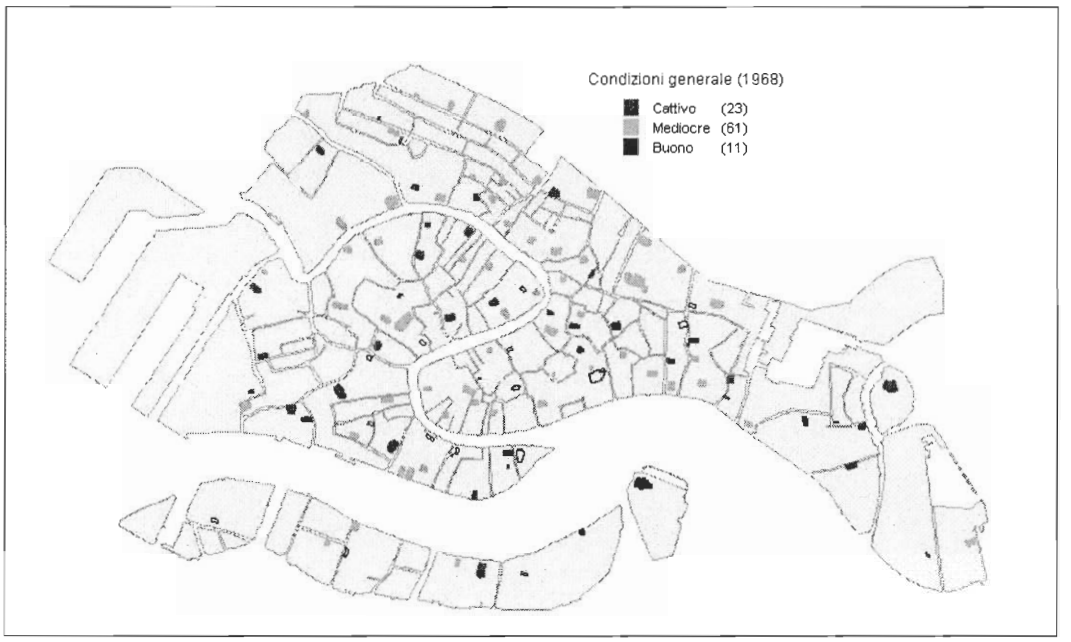
Appendix A: Description of Thematic Maps



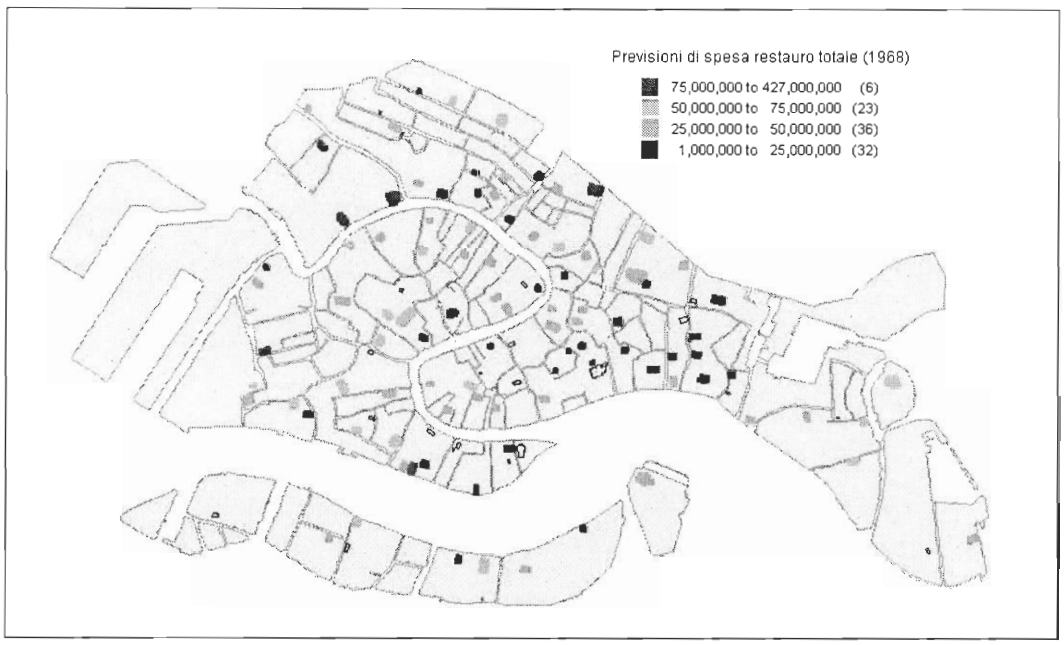
Map 1

Map 1 distinguishes the churches in Venice that are included in the 1968 UNESCO catalogue from those that are not. The churches that are highlighted in green were included as part of the original catalogue, and those highlighted in red were not.

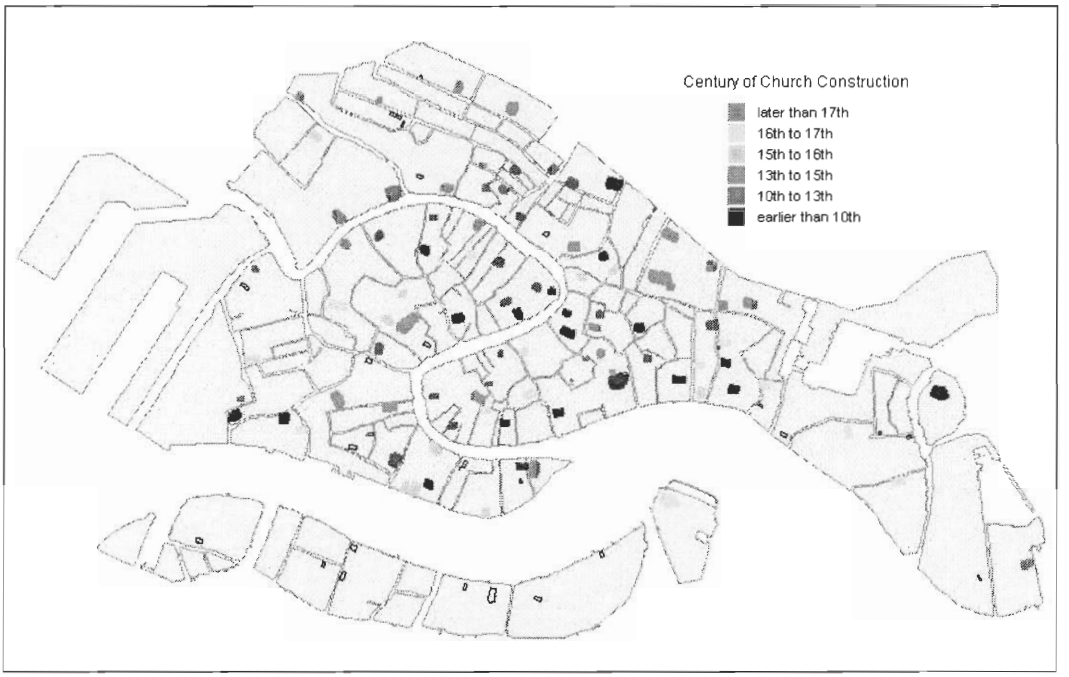


9.6 Map 2

Map 2 shows the overall state of conservation of each church, as described in the 1968 catalogue. This is a very simple example showing how the data from the computerized catalogue can be represented in maps. Another example of this type of correlation is shown below in Map 3, where the cost estimate for complete restoration (as indicated in the 1968 catalogue) is given.


Previsioni di spesa restauro totale (1968)
75,000,000 to 427,000,000 (6)
50,000,000 to 75,000,000 (23)
25,000,000 to 50,000,000 (36)
1,000,000 to 25,000,000 (32)

Map 3

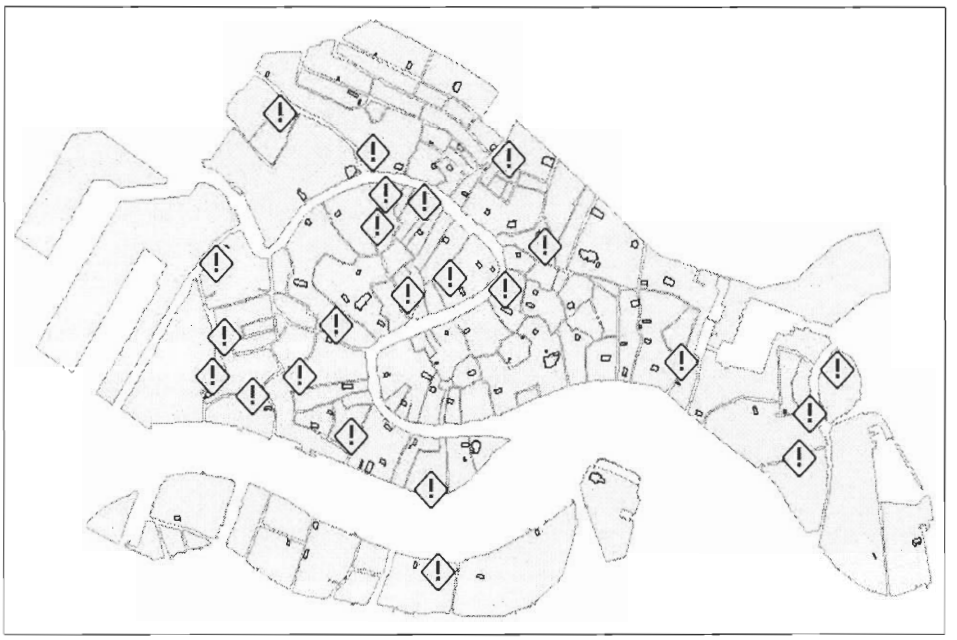


Map 4

Map 4 shows the century during which each church was initially constructed. It is separated into six century ranges; each range roughly correlates to one of the major architectural styles used for church construction. These correlations are shown in the following table:

Century range	Architectural style
Earlier than 10^{th}	Romanesque
10^{th} to 13^{th}	Byzantine
13^{th} to 15^{th}	Gothic
15^{th} to 16^{th}	Renaissance

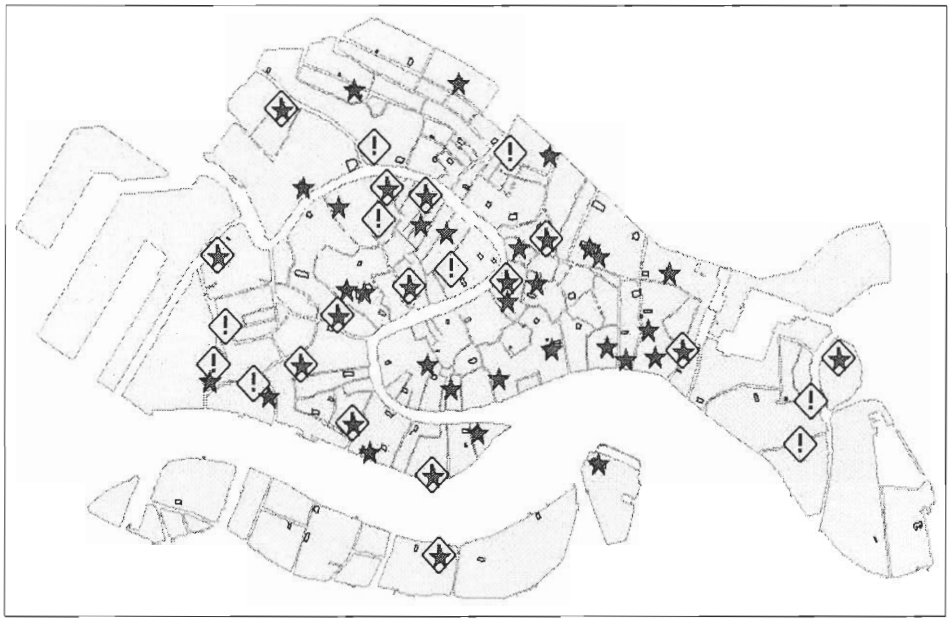
16^{th} to 17^{th}	Baroque
Later than 17^{th}	Neoclassical



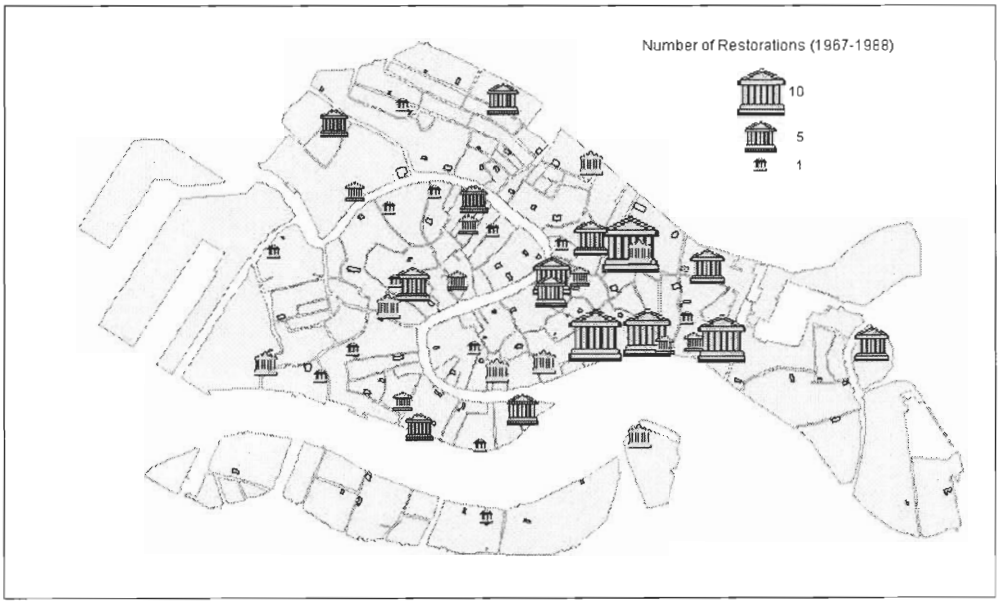
9.7 Map 5

Map 5 highlights the churches that were rated in cattive condition in the 1968 catalogue. It was combined with information from the restoration database to show which of these churches had been restored. Map 6 shows this combination of data, where the urgent churches are still highlighted, and the churches that have had restoration are

indicated with a blue star.

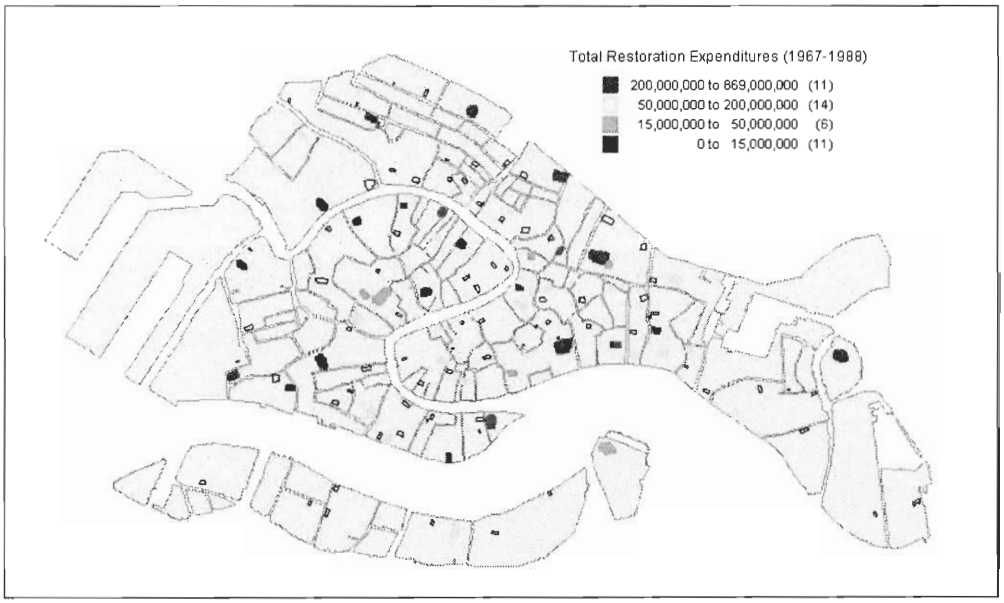


9.8 Map 6



9.9 Map 7

Map 7 is a representation of the number of restoration projects that have been completed on each church. However, since the extent of these restoration projects varies widely, this cannot be used as an indication of which churches have received the most restoration funds. Instead, this is shown in Map 8, which is a map of the total restoration expenditures for each church.


Total Restoration Expenditures (1967-1988)
200,000,000 to 869,000,000 (11)
50,000,000 to 200,000,000 (14)
15,000,000 to 50,000,000 (6)
0 to 15,000,000 (11)

9.10 Map 8

Appendix B: Database Descriptions

This Appendix describes all the tables, forms, and reports that are included as part of the Churches of Venice (ChurchesofVenice.mdb, Microsoft Access format) database. No discussion is provided about queries; all relevant information that was discovered as a result of queries was converted to a table. All field names in the Churches of Venice database are in Italian. For a complete list of Italian → English translations for the entire list of fields in the database consult Appendix G.2: Database Glossary.

All the tables created for this project contain a field called *Codice.* This field contains a four-digit code that is used to represent each church in the database as well as in the Geographical Information System (GIS) Mapinfo. For example, Santa Maria Gloriosa dei Frari would be coded in the database as FRAR. All images are named using the church code then an underscore and a two character letter-number combination to indicate what type of photo it is (façade, floorplan, raw scanned image, map, etc.). For a complete description of the coding system see the Iconographic Coding section of the Appendix.

Tables

Comitati Privati

This table contains information about the Private Committees[12] that raise money for different aspects of restoration for the churches of Venice. Examples of information found in this

[12] Private Committees exist throughout the world. These committees raise money in order to aid in the restoration efforts of all the churches of Venice. Offices such as our sponsor UVO/LO and the *Soprintendenza*'s office organize these funds, keep records, and authorize all the restorations.

table are; the individual code assigned to each committee, it's country of affiliation, and it's formal name.

Costi Restauro

This table contains detailed information about the damages in the churches. Also included in this table are the cost estimates for any damage repairs as well as a rating that tells whether or not the indicated repair is urgent. Cost is given in per unit as well as a total value.

Informazioni Architettoniche

This table contains architectural based information. A large text field describes the architectural characteristics of each church. Other fields extrapolate information from this large text field. Some examples of information extracted from this field are the century the church was built, the architect who designed the church, and the styles (Renaissance, Gothic, Mannerist, etc.) of the façade, interior, and the dome (if one exists).

Informazioni Restauro

This table includes most of the information that was entered from the 1968 catalogue. Here all of the structural damage and condition data can be found. All the field names indicate a specific type of damage.

Informazioni Turistiche

This table includes the types of information that an average tourist visiting Venice would need to know. All the church names (official and colloquial) can be found in this table as well as the parrocchia and campo names. The churches' sestiere is also included to make locating a

church in the table (and in Venice) easier. Current uses for the churches as well as times when they can be visited can also be found here.

Restauri

This table contains information about any restorations that have been done on the churches of Venice and where funded through UNESCO or its Private Committees. The table has information on the type of restoration that was done, the specific item that was restored, the committee that sponsored the restoration, and the overall cost.

Stato di Consevazione

This table describes each church's state of conservation according to the information in the 1968 catalogue. Items such as the roof, floor, columns, and lighting are given ratings (buono, mediocre, and cattivo) depending on their condition in 1968. An overall condition is also given by weighing each of the individual factors. More information on the weighting system can be found in Chapter 6 Results and Analysis.

Fotografie

This table includes all of the church façade photographs.

Carte Geografiche Grande

This table includes maps created with the GIS Mapinfo. Specifically, the maps show all of Venice with a large dot indicating the location of each church in the city.

Carte Geografiche Piccoli

Much like the *Carte Geografiche Grande* table, this table contains maps (again created with our GIS Mapinfo) of all the churches of Venice. These maps are zoomed in to an

approximate 0.2-mile scale to show more detail around each church. The churches are indicated by a bold outline of their exterior wall. In some cases, the floorplan of the church is visible at this level.

Forms

We used forms to speed up our catalogue data entry into our database software, Microsoft Access. Below is a description of each one of the forms. This information is included here so that when future information is added to the catalog it can be entered more quickly.

Catalogo 1968

This form was used to enter the historical and architecture notes as well as the specific state of conservation information from the 1968 catalogue. Most of the material entered using this form can be found in the *Costi Restauro* table while the rest is included in the *Informazioni Turistiche* table.

Costi Restauro Form

This form was used to enter all the information about the damages and cost for repairs from the 1968 catalogue. It can be viewed by opening the *Costi Restauro* table.

Forma di Comitati privati

This form was used to enter information about the Private Committees, it can be viewed by opening the *Comitati privati* table.

Forma di Restauri

This form was used to enter specifics about restorations. The type and object that was restored was part of the information included when entering this data. The cost of the restoration

as well as the committee that sponsored the restoration is also part of this form. This information that was entered to the database using this form can be found in the *Restauri* table.

Stato di Conservazione

This table was used to enter the 1968 state of conservation information about the churches. All information can be analyzed using the *Stato di Conservazione* table.

Reports

The reports generated from the database comprise of all the expanded information of the 1968 UNESCO catalogue.

Appendix C: Database Structure Listing

C:\E99_Churches\database\ChurchesOfVenice.mdb Thursday, 29 July, 1999

Table: 1968 UNESCO fotografie

Columns

Name	Type	Size
Codice	Text	4
Fotografie	OLE Object	-
numero della foto	Number (Integer)	2

Table Indexes

Name	Number of Fields
numero della foto	1
Fields:	numero della foto, Ascending

Columns

Name	Type	Size
Codice	Text	4
Pianto	OLE Object	-

Table Indexes

Name	Number of Fields
PrimaryKey	1
Fields:	Codice, Ascending

Columns

Name	Type	Size
Codice	Text	4
Pianto	OLE Object	-

Table Indexes

Name	Number of Fields
PrimaryKey	1
Fields:	Codice, Ascending

Columns

Name	Type	Size
Codice	Text	50
Paese	Text	100
Breve nome	Text	50
Formal nome	Text	100

Table Indexes

Name	Number of Fields
PrimaryKey	1
Fields:	Codice, Ascending

Columns

Name	Type	Size
Codice	Text	4
Pronto Intervento?	Yes/No	1
Numero	Number (Integer)	2
Lettera	Text	1
Designazione dei Lavori	Memo	-
Quantità	Text	12
Per unit	Currency	8
Importo	Currency	8

Table Indexes

Name	Number of Fields
Costi RestauroLettera	1
Fields:	Lettera, Ascending
Costi RestauroNumero	1
Fields:	Numero, Ascending
Stato di ConservazioneCosti Restauro	1
Fields:	Codice, Ascending
Stato di ConservazioneCosti Restauro1	1
Fields:	Codice, Ascending

Columns

Name	Type	Size
Codice	Text	4
Sestiere	Text	2
Nome Ufficiale	Text	40
photo taken?	Yes/No	1
Facciata	OLE Object	-
notes	Text	50

Table Indexes

Name	Number of Fields
PrimaryKey	1
Fields:	Codice, Ascending

Columns

Name	Type	Size
Codice	Text	4
Architettura	Memo	-
Secolo	Number (Double)	8
Architetto	Text	20
Stile Facciata	Text	20
Stile Pianto	Text	20
Stile Campanile	Text	20

Table Indexes

Name	Number of Fields
Informazioni RestauroInformazioni	1
Fields:	Codice, Ascending
Informazioni RestauroInformazioni	1
Fields:	Codice, Ascending
PrimaryKey	1
Fields:	Codice, Ascending

Columns

Name	Type	Size
Codice	Text	4
Scheda	Text	6
Responsabile settore chiese	Text	50
Curatore	Text	100
Tetto (esterno)	Memo	-
Grondaie e Pluviali	Memo	-
Murature Statica	Memo	-
Murature Umidità	Memo	-
Murature Elementi architettonici in pietra	Memo	-
Murature Intonaco e dipinture	Memo	-
Murature Serramenti, porte finestre	Memo	-
Tetto Grossa orditura	Memo	-
Soffitto Condizione statiche	Memo	-
Soffitto Intonaco	Memo	-
Soffitto Dipintura	Memo	-
Strutture portanti interne	Memo	-
Pareti Interne Zoccolature in pietra	Memo	-
Pareti Interne Intonaco	Memo	-
Pareti Interne Dipinture	Memo	-

Pareti Interne Porte	Memo	-
Pareti Interne Altari, ecc	Memo	-
Decorazioni	Memo	-
Pavimento	Memo	-
Arredo Dossali	Memo	-
Arredo Confessionali	Memo	-
Arredo Armadi, ecc	Memo	-
Illuminazione	Memo	-
Cupola E Campanile	Memo	-
Varie	Memo	-
Date Ricostruzione	Number (Double)	8
Date Restauro	Number (Double)	8
Date Restauro Parziale	Text	20
Materiale Esterno	Text	40
Materiale Tetto	Text	20
Campanile Y/N	Yes/No	1
Campanile	Text	1
Cupola Y/N	Yes/No	1
Cupola	Text	1
Lunghezza	Text	7
Larghezza	Text	7
Altezza	Text	8

Table Indexes

Name	Number of Fields

Informazioni TuristicheInformazioni 1

Fields: Codice, Ascending

Informazioni TuristicheInformazioni 1

Fields: Codice, Ascending

PrimaryKey	1	
Fields:	Codice, Ascending	
Scheda	1	
Fields:	Scheda, Ascending	

Columns

Name	Type	Size
Codice	Text	4
Sestiere	Text	2
Parrocchia	Text	50
Campo	Text	25
Nome Ufficiale	Text	40
Altro Nome	Text	40
Uso Attuale	Text	50
Note Storiche	Memo	-
Sacre Y/N	Yes/No	1
Sacre	Text	50
Ora Aperture	Date/Time	8
Ora Chiusure	Date/Time	8
Ora Chiusure Pranzo	Date/Time	8
Ora Aperture Pranzo	Date/Time	8
Orario	Text	30

Table Indexes

Name	Number of Fields
PrimaryKey	1

Fields: Codice, Ascending

Sestiere nome lungoInformazioni 1

Fields: Sestiere, Ascending

Sestiere nome lungoInformazioni 1

Fields: Sestiere, Ascending

Columns

Name	Type	Size
Codice	Text	4
Tipo restauro	Text	50
Cosa restauro	Text	250
Codice di comitato	Text	100
Anno	Number (Long)	4
Totale	Currency	8

Columns

Name	Type	Size
Codice	Text	4
ESTERNO copertura	Text	50
ESTERNO grossa orditura	Text	50
ESTERNO grondaie e pluviali	Text	50
ESTERNO cupola	Text	50
ESTERNO muratura	Text	50
INTERNO strutture portanti interne	Text	50
INTERNO soffitto	Text	50
INTERNO pavimento	Text	50
INTERNO decorazioni	Text	50
INTERNO arredo	Text	50
INTERNO pareti interne	Text	50
INTERNO illuminazione	Text	50
campanile	Text	50
Condizioni Generali	Text	50
Previsioni di Spesa pronto intervento	Currency	8
Previsioni di Spesa restauro totale	Currency	8

Table Indexes

Name	Number of Fields
Informazioni ArchitettonicheStato di	1
Fields:	Codice, Ascending
Informazioni ArchitetturaStato di	1
Fields:	Codice, Ascending
PrimaryKey	1
Fields:	Codice, Ascending

Properties

Count:	29	Date Created:	18/07/99 7:55:56 PM
DateGrouping:	Use System Settings	Fast Laser Printing:	True
FilterOn:	False	Grid X:	10
Grid Y:	10	GrpKeepTogether:	1
HasModule:	False	HelpContextId:	0
Last Updated:	27/07/99 3:09:08 PM	Layout for Print:	True
LogicalPageWidth:		9070	Max Button: True
Min Button:	True	OrderByOn:	False
Owner:	admin	Page Footer:	All Pages
Page Header:	All Pages	Palette Source:	(Default)
Picture:	(none)	PictureAlignment:	Always
PicturePages:	Form.	PictureSizeMode:	Clip
PictureTiling:	False	PictureType:	0
Record Locks:	No Locks	Record Source:	0 Riporto cover page query
Visible:	True	Width:	9060

Objects

Group Level 0

Control Source:		Sestiere lungo GroupFooter:	False
GroupHeader:	False	GroupInterval:	1

GroupOn: Each Value Keep Together: No

SortOrder: False

Group Level 1

Control Source: Scheda GroupFooter: False

GroupHeader: False GroupInterval: 1

GroupOn: Each Value Keep Together: No

SortOrder: False

Section: Detail

Back Color: 16777215 Can Grow: True

Can Shrink: False Display When: Always

Event Proc Prefix: Detail Force New Page: None

Height: 8220 In Selection: False

Keep Together: True Name: Detail

NewRowOrCol: None Special Effect: Flat

Visible: True

Section: PageFooter

Back Color: 16777215 Display When: Always

Event Proc Prefix: PageFooter Height: 1134

In Selection: False Name: PageFooter

Special Effect: Flat Visible: True

Section: PageHeader

Back Color: 16777215 Display When: Always

Event Proc Prefix: PageHeader Height: 2070

In Selection: False Name: PageHeader

Special Effect:	Flat	Visible:	True

Subform/Subreport: 0 Riporto cover page

Border Color:	0	Border Line Style:	Solid
Border Style: All Pages		Border Width:	Hairline

Can Grow: True Can Shrink: False

ControlType: 112 Event Proc Prefix: Ctl0_Riporto_cover_page

Height: 569 Left: 15

Link Child Fields: Scheda;Sestiere lungo Link Master Fields:

Scheda;Sestiere lungo

Name: 0 Riporto cover page Section: 0

Source Object: Report.0 Riporto cover page Special Effect:

Flat

Top: 15 Visible: True

Width: 9030

Subform/Subreport: 1 Riporto Note Storiche e

Border Color: 0 Border Line Style: Solid

Border Style: All Pages Border Width: Hairline

Can Grow: True Can Shrink: True

ControlType: 112 Event Proc Prefix:

Ctl1_Riporto_Note_Storiche_e_Caratteristiche_Architettoniche

Height: 569 Left: 15

Link Child Fields: Scheda;Sestiere lungo Link Master Fields:

Scheda;Sestiere lungo

Name: 1 Riporto Note Storiche e Caratteristiche Architettoniche Section: 0

Source Object: Report.1 Riporto Note Storiche e Special Effect: Flat

Caratteristiche Architettoniche

Top: 1140 Visible: True

Width: 9036

Subform/Subreport: 2 Riporto Carte Geografiche

Border Color: 0 Border Line Style: Solid

Border Style: All Pages Border Width: Hairline

Can Grow: True Can Shrink: False

ControlType: 112 Event Proc Prefix:

Ctl2_Riporto_Carte_Geografiche

Height: 584 Left: 15

Link Child Fields: Sestiere lungo;Scheda Link Master Fields:

Sestiere lungo;Scheda

Name: 2 Riporto Carte Geografiche Section: 0

Source Object: Report.2 Riporto Carte Geografiche Special Effect: Flat

Top: 2265 Visible: True

Width: 9030

Subform/Subreport: 3 Riporto 1968 UNESCO

Border Color: 0 Border Line Style: Solid

Border Style: All Pages Border Width: Hairline

Can Grow: True Can Shrink: True

ControlType: 112 Event Proc Prefix:

Ctl3_Riporto_1968_UNESCO_fotografie

Height: 569 Left: 0

Link Child Fields: Sestiere lungo;Scheda Link Master Fields:

Sestiere lungo;Scheda

Name: 3 Riporto 1968 UNESCO fotografie Section: 0

Source Object: Report.3 Riporto 1968 UNESCO Special

Effect: Flat

fotografie

Top: 3405 Visible: True

Width: 9051

Subform/Subreport: 4 Riporto Esame Degli Esterno

Border Color: 0 Border Line Style: Solid

Border Style: All Pages Border Width: Hairline

Can Grow: True Can Shrink: False

ControlType: 112 Event Proc Prefix:

Ctl4_Riporto_Esame_Degli_Esterno_e_I

nterno

Height: 585 Left: 15

Link Child Fields: Sestiere lungo;Scheda Link Master Fields:

Sestiere lungo;Scheda

Name: 4 Riporto Esame Degli Esterno e Interno Section: 0

Source Object: Report.4 Riporto Esame Degli Esterno e

Special Effect: Flat

Interno

Top: 4530 Visible: True

Width: 9036

Subform/Subreport: 5 Riporto Costi Restauro

Border Color: 0 Border Line Style: Solid

Border Style: All Pages Border Width: Hairline

Can Grow: True Can Shrink: False

ControlType: 112 Event Proc Prefix:

Ctl5_Riporto_Costi_Restauro

Height: 572 Left: 0

Link Child Fields: Sestiere lungo;Scheda Link Master Fields:

Sestiere lungo;Scheda

Name: 5 Riporto Costi Restauro Section: 0

Source Object: Report.5 Riporto Costi Restauro Special

Effect: Flat

Top: 6240 Visible: True

Width: 9030

Subform/Subreport: 6 Riporto Stato di

Border Color: 0 Border Line Style: Solid

Border Style: All Pages Border Width: Hairline

Can Grow: True Can Shrink: True

ControlType: 112 Event Proc Prefix:

Ctl6_Riporto_Stato_di_Conservazione

Height: 824 Left: 30

Link Child Fields: Sestiere lungo;Scheda Link Master Fields: Sestiere lungo;Scheda

Name: 6 Riporto Stato di Conservazione Section: 0

Source Object: Report.6 Riporto Stato di Special Effect: Flat

Top: 7365 Visible: True

Width: 9030

Image: Image39

Back Color: 16777215 Back Style: Normal

Border Color: 0 Border Line Style: Solid

Border Style: All Pages Border Width: Hairline

ControlType: 103 Event Proc Prefix: Image39

Height: 1935 ImageHeight: 1949

ImageWidth: 2174 Left: 0

Name: Image39 Picture: C:\E99_Churches\text\figures\UNESCO logo.jpg

PictureAlignment: Always PictureType: 0

Section: 3 Size Mode: Clip

Special Effect: Flat Top: 0

Visible: True Width: 2160

Label: Label15

Back Color: 16777215 Back Style: Transparent

Border Color: 0 Border Line Style: Solid

Border Style: All Pages Border Width: Hairline

Caption:	Inchiesta sui monumenti	ControlType:	100
Event Proc Prefix:		Label15	Font Bold: No
Font Italic:	False	Font Name:	Times New Roman
Font Size:	12	Font Underline:	False
Font Weight:	Normal	ForeColor:	0
Height:	360	Left:	2130
Name:	Label15	Section:	3
Special Effect:		Flat	Text Align: Right
Text Font Char Set:		0	Top: 15
Visible:	True	Width:	2400

Label: Label16

Back Color:	16777215	Back Style:	Transparent
Border Color:		0	Border Line Style: Solid
Border Style:	All Pages	Border Width:	Hairline

Caption:	Sezione	ControlType:	100
Event Proc Prefix:		Label16 Font Bold:	No
Font Italic:	False	Font Name:	Times New Roman
Font Size:	12	Font Underline:	False
Font Weight:	Normal	ForeColor:	0
Height:	315	Left:	2835
Name:	Label16	Section:	3
Special Effect:		Flat Text Align:	Right
Text Font Char Set:		0 Top:	420
Visible:	True	Width:	1695

Label: Label18

Back Color:	16777215	Back Style:	Transparent
Border Color:		0 Border Line Style:	Solid
Border Style:	All Pages	Border Width:	Hairline
Caption:	EDIFICI SACRI	ControlType:	100
Event Proc Prefix:		Label18 Font Bold:	No
Font Italic:	False	Font Name:	Times New Roman
Font Size:	14	Font Underline:	False
Font Weight:	Normal	ForeColor:	0
Height:	300	Left:	4635
Name:	Label18	Section:	3

Special Effect:	Flat	Text Align:	General
Text Font Char Set:	0	Top:	420
Visible:	True	Width:	2160

Label: Label19

Back Color:	16777215	Back Style:	Transparent
Border Color:	0	Border Line Style:	Solid
Border Style:	All Pages	Border Width:	Hairline
Caption:	VENEZIA	ControlType:	100
Event Proc Prefix:	Label19	Font Bold:	No
Font Italic:	False	Font Name:	Times New Roman
Font Size:	14	Font Underline:	False
Font Weight:	Normal	ForeColor:	0
Height:	345	Left:	4635
Name:	Label19	Section:	3
Special Effect:	Flat	Text Align:	General
Text Font Char Set:	0	Top:	15
Visible:	True	Width:	1545

Label: Label20

Back Color:	16777215	Back Style:	Transparent
Border Color:	0	Border Line Style:	Solid
Border Style:	All Pages	Border Width:	Hairline
Caption:	Sestiere lungo:	ControlType:	100
Event Proc Prefix:	Label20	Font Bold:	No

Font Italic:	False	Font Name:	Times New Roman
Font Size:	12	Font Underline:	False
Font Weight:	Normal	ForeColor:	0
Height:	315	Left:	2835
Name:	Label20	Section:	3
Special Effect:		Flat	Text Align: Right
Text Font Char Set:		0	Top: 795
Visible:	True	Width:	1695

Label: Label26

Back Color:	16777215	Back Style:	Transparent
Border Color:		0	Border Line Style: Solid
Border Style:	All Pages	Border Width:	Hairline
Caption:	Pronto Intervento	ControlType:	100
Event Proc Prefix:		Label26	Font Bold: No
Font Italic:	False	Font Name:	Times New Roman
Font Size:	10	Font Underline:	False
Font Weight:	Normal	ForeColor:	0
Height:	570	Left:	0
Name:	Label26	Section:	0
Special Effect:		Flat	Text Align: Center
Text Font Char Set:		0	Top: 5670
Visible:	True	Width:	975

Label: Label27

Back Color:	16777215	Back Style:	Transparent
Border Color:		0	Border Line Style: Solid
Border Style:	All Pages	Border Width:	Hairline
Caption:	Designazione dei Lavori	ControlType:	100
Event Proc Prefix:		Label27	Font Bold: No
Font Italic:	False	Font Name:	Times New Roman
Font Size:	10	Font Underline:	False

Font Weight:	Normal	ForeColor:	0
Height:	285	Left:	2145
Name:	Label27	Section:	0
Special Effect:		Flat	Text Align: Center
Text Font Char Set:		0	Top: 5670
Visible:	True	Width:	2190

Label: Label28

Back Color:	16777215	Back Style:	Transparent
Border Color:		0	Border Line Style: Solid
Border Style:	All Pages	Border Width:	Hairline
Caption:	Quantità	ControlType:	100
Event Proc Prefix:		Label28	Font Bold: No
Font Italic:	False	Font Name:	Times New Roman
Font Size:	10	Font Underline:	False
Font Weight:	Normal	ForeColor:	0
Height:	285	Left:	4515
Name:	Label28	Section:	0
Special Effect:		Flat	Text Align: Center
Text Font Char Set:		0	Top: 5670
Visible:	True	Width:	1125

Label: Label29

Back Color:	16777215	Back Style:	Transparent
Border Color:		0	Border Line Style: Solid

Border Style:	All Pages	Border Width:	Hairline
Caption:	Per unit	ControlType:	100
Event Proc Prefix:		Label29 Font Bold:	No
Font Italic:	False	Font Name:	Times New Roman
Font Size:	10	Font Underline:	False
Font Weight:	Normal	ForeColor:	0
Height:	285	Left:	5760
Name:	Label29	Section:	0
Special Effect:		Flat Text Align:	Center
Text Font Char Set:		0 Top:	5670

Visible:	True	Width:	1275

Label: Label3

Back Color:	16777215	Back Style:	Transparent
Border Color:		0	Border Line Style: Solid
Border Style:	All Pages	Border Width:	Hairline
Caption:	Scheda:	ControlType:	100
Event Proc Prefix:		Label3	Font Bold: No
Font Italic:	False	Font Name:	Times New Roman
Font Size:	12	Font Underline:	False
Font Weight:	Normal	ForeColor:	0
Height:	345	Left:	2835
Name:	Label3	Section:	3
Special Effect:		Flat	Text Align: Right
Text Font Char Set:		0	Top: 1185

Visible:	True	Width:	1695

Label: Label30

Back Color:	16777215	Back Style:	Transparent
Border Color:		0	Border Line Style: Solid
Border Style:	All Pages	Border Width:	Hairline
Caption:	Importo	ControlType:	100
Event Proc Prefix:		Label30	Font Bold: No

Font Italic:	False	Font Name:	Times New Roman
Font Size:	10	Font Underline:	False
Font Weight:	Normal	ForeColor:	0
Height:	285	Left:	7170
Name:	Label30	Section:	0
Special Effect:		Flat	Text Align: Center
Text Font Char Set:		0	Top: 5670
Visible:	True	Width:	1845

Label: Label31

Back Color:	16777215	Back Style:	Transparent
Border Color:		0	Border Line Style: Solid
Border Style:	All Pages	Border Width:	Hairline
Caption:	Zona	ControlType:	100
Event Proc Prefix:		Label31	Font Bold: No
Font Italic:	False	Font Name:	Times New Roman
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Border Style:	First Page	Border Width:	2 pt
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Line Slant:	False	Name:	Line41
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Top:	1980	Visible:	True
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ControlType: 118 Event Proc Prefix: PageBreak33

Left: 0 Name: PageBreak33

Section: 0 Top: 735

Visible: True

Page Break: PageBreak34

ControlType: 118 Event Proc Prefix: PageBreak34

Left: 0 Name: PageBreak34

Section: 0 Top: 1905

Visible: True

Page Break: PageBreak35

ControlType: 118 Event Proc Prefix: PageBreak35

Left: 0 Name: PageBreak35

Section: 0 Top: 3060

Visible: True

Page Break: PageBreak36

ControlType: 118 Event Proc Prefix: PageBreak36

Left: 0 Name: PageBreak36

Section: 0 Top: 4140

Visible: True

Page Break: PageBreak37

ControlType: 118 Event Proc Prefix: PageBreak37

Left:	0	Name:	PageBreak37
Section:	0	Top:	5265
Visible:	True		

Page Break: PageBreak38

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Text Box: Scheda

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Decimal Places:		Auto	Event Proc Prefix: Scheda
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Border Color:	0	Border Line Style:	Solid
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Width:	2091		

Appendix D: Database and Catalogue Glossary

Altari	altars
Altezza	height
Anno	year
Architetto	architect
Area	area
Armadi	cabinets
Arredo	furnishings
Buono	good
Campanile	bell tower
Campo	square
Caratteristiche architettoniche	architectual characteristics
Cattivo	bad
Chiese	church
Codice	code
Comitati privati	private committees
Comitato	committee
Condizione statiche	
Condizioni generale	general condition
Confessionali	confessional
Cosa restauro	restored item

Costi restauro	restoration cost
Cupola	dome
Curatore	curator
Decorazioni	decoration
Descriptio	description
Designazione dei lavori	designation of work
Dipinture	painting
Direzione	directors
Dossali	
Esame degli esterno e interno	examination of exterior and interior
Esterno	exterior
Fcomune	
Flotteria	
Fmagistrat	
Foglio	
Formal nome	formal name
Francia	France
Fregione	
Grondaie e pluviali	gutters and downspouts
Illuminazione	lights
Importo	total amount

Imprese	concern? Manager?
Informazion turistiche	tourist information
Informazioni architettoniche	architectural information
Informazioni restauro	restoration information
Interno	internal
Intonaco	plaster
Isole	island
Italia	Italy
Larghezza	width
Lastrebu (last rebuilt)	last rebuilt
Lastrest (last restoration)	last restoration
Lettera	letter
Locale nome	local/familiar name
Lunghezza	length
Lussemburgo	Luxembourg
Mappale	map
Materiale	materiale
Mediocre	mediocre
Murature elementi architettonici in pietra	architectural elements of masonry in stone
Murature intonaco e dipinture	masonry of plaster and paintings
Murature serramenti, porte finestre	masonry of shutter, doors and windows

Murature statica	masonry state
Murature umidità	masonry effected by humidity
Note storiche	historical notes
Numero	number
Numero casa	house number
Numero e stato	number and state
Olanda	Holland
Ora aperture	opening hour
Ora chiusure	closing hour
Orario	schedule
Oratorio	oratory
Paesi bassi	Netherlands
Pareti interne	internal
Parrocchia	parish
Pastrest (past restoration)	past restoration
Pavimento	flooring
Per unit	per unit
Perimeter	perimeter
Pietra	stone
Pittoriche	pictures/paintings
Porte	door
Previsioni di spesa pronto intervento	predicted cost for prompt restoration

Previsioni di spesa restaro totale	predicted cost for total restoration
Progetto	project
Pronto	quick, prompt
Quantità	quanitity
Regno unito	United Kingdom
Repubblica Federale di Germania	Germany
Responsabile settore chiese	responsible for church section (referring to a specific person)
Restauri/o	restoration
Restauro parziale	partial restoration
Ricostruzione	reconstruction
Riporto	report
Sacre	sacred
Scheda	chapter
Sculture	sculpture
Secolo	century
Sestieri	sestieri
Sestieri nome lungo	long name of sestieri
Situazione	situation
Soffitto	ceiling
Soprintendenza ai Beni Ambientalí e Architettonici	supervisor of environment and architecture
Stati Uniti	United States

Stato di conservazione	conservation state
Stilecampa (stile campanile)	style of bell tower
Stilefacci (stile facciata)	style of façade
Stilepiant (stile pianto)	style of floor plan
Strutture portanti interne	internal load-bearing walls
Stucchi	stucco
Svezia	Sweden
Svezzera	Switzerland
Tetto	roof
Tetto grossa orditura	large, supporting cross-beams
Tipo restauro	type of restoration
Totale	total
Ufficio Chiese della Curia Patriarcale di Venezia	an office of the Catholic church in Venice (Curia)
Urgente	urgent
Usare	use
Uso attuale	actual use
Varie	varied
Vicariato	Vicar
Zoccolature in pietra	wear on stone due to pedestrian traffic

Appendix E Expanded and Updated 1968 UNESCO Catalogue

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI

VENICE OFFICE

Catalogo delle Chiese di Venezia

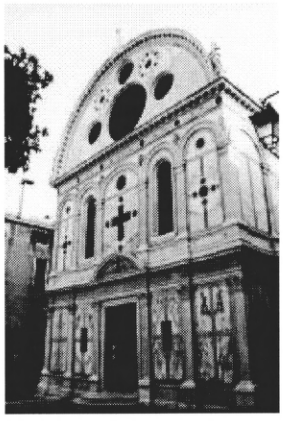
Cannaregio

Catalogo delle Chiese di Venezia

VENICE OFFICE

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH01

Nome Ufficiale: Santa Maria dei Miracoli
Altro Nome: I Miracoli
Parrocchia:
Uso Attuale: chiesa



Previsioni di Spesa

pronto intervento £ 21,420,000
restauro totale £ 62,500,000

settembre 1968

coordinatore della ricerca Prof. arch. Piero Gazzola
soprintendente ai monumente Prof. arch. Mario Guiotto
responsabile di sezione Dott. arch. Renato Padoan
responsabile settore chiese Dott. arch. Renato Padoan
curatore della scheda Dott. arch.Nestor Acuna

VENICE OFFICE

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH01

Note Storiche: Secondo la tradizione fin dal 1408 un Angelo Amadi, che aveva le sue case hel cortile vicino, aveva quivi fatto collocare esternamente un'immagine della Vergine fra due Santi che gia nel 1477, considerata come miracolosa, comincio ad essere venerata ad arrichitadi elemosine; con le somme raccolte venne eretta la chiesa fra il 1481-89 su progetto di Pietro LOMBARDO che, aiutato dai suoi figli, eresse anche l'adiacente monastero (un tempo congiunto alla chiesa da un cavalcavia) ora trasformato in abitazioni private. Nel 1489 questo presiozo gioello della rinascenza era in ogni sua parte ultimato.

Architettura: Ad una sola navata, con volta a botte lignea, a pareti liscie incrostate di marmi, preceduta dal coro pensile ad uso delle monache, sorretto da pilastrini squisitamente intagliati. Presbiterio costruito al di sopra di una specie di cripta, adibita a sagrestia, e preceduto da due tribune con balaustre. Questa parte piu nobile del tempio e ricoperta da cupola a doppia calotta di cui l'interna in muratura e l'estenna in legno rivestita da lastre di piombo. Del medesimo materiale e la copertura della nave. Soffitto ligneo del coro intagliato e dorato con riquadri dipinti di scuola tizianesca. La volta della ciesa e compartita a cassetoni, ed ha cinquanta riquadri con Profeti e Patriarchi dipinti da Pier Maria PENNACCHI. Sulle Balaustre delle due tribune, piccole statue probabilmente di Tullio LOMBARDO mentre ad Antonio LOMBARDO sono da attribuire I gruppi di putti e sirene sugli zoccoli dei piedistalli dell'arcone trionfale.

UNESCO

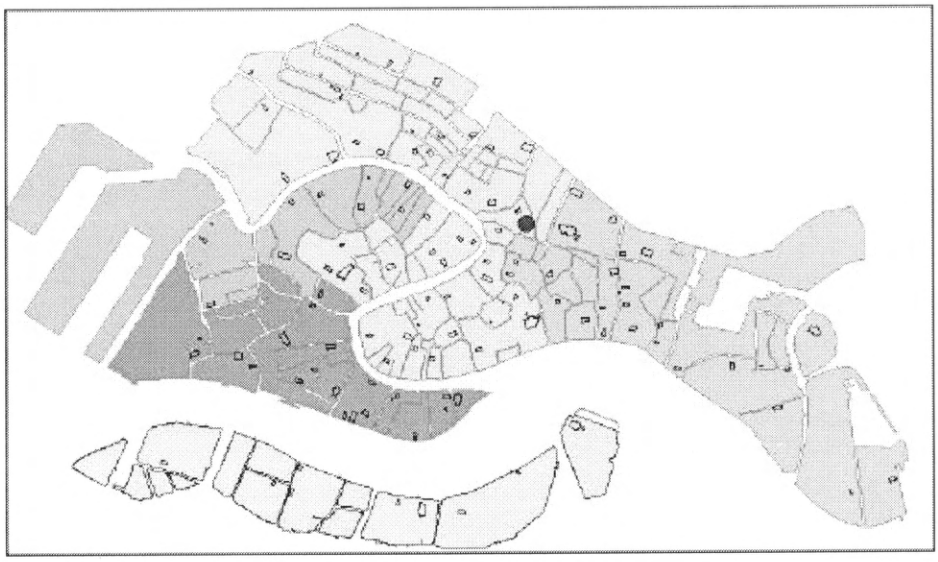
VENICE OFFICE

Inchiesta sui monumenti VENEZIA

Sezione EDIFICI SACRI

Sestiere lungo: Cannaregio

Scheda: CNCH01



VENICE OFFICE

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH01

nome della foto
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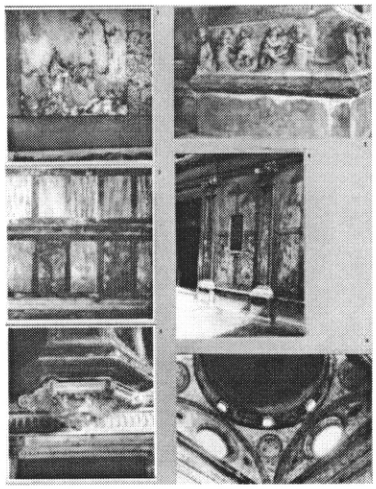
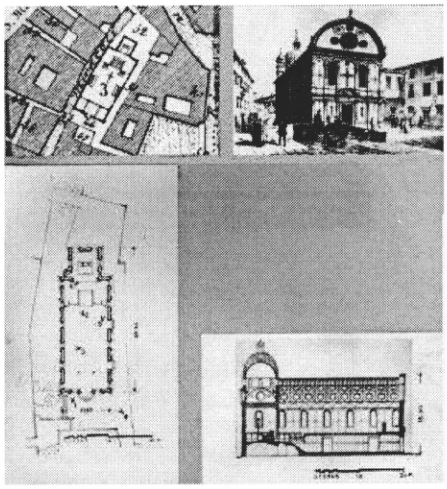


nome della foto
MIRA _S 0



VENICE OFFICE

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH01

ESAME DELL'ESTERNO

TETTO (tegole, tavelle e piccola orditura

In lastre di piembo. L'insufficiente sovrappesizione di questo provoca infiltrazioni d'acqua che danneggiano anche la sottostante volta e le decorazioni. La piccola orditura presenta un attacco di tarli.

GRONDAIE E PLUVIALI

Non esistono. Cio provoca maggior danni di umidita alla parete verso il canale

MURATURE

Statica

In presunte buono condizioni statiche; (impossible controllo delle murature rivestite da marmi). Piccola lesione sulla facciata principale visible all'interno dietro l'organo.

Umidità

Tutto il fianco sinistro e ampie zone degli altrizi prospetti sono interessati dalla umidita risalenti e in parte da condensa, che hanno danneggiato I marmi di rivestimento.

Elementi architettonici in pietra

Consolidamento di aluoni marmi danneggiati, controllo generale e riparazione delle cornici che favoriscono infiltrazioni d'acqua all'interno.

Intonaco e dipinture

Serramenti, porte, finestre

Necessita la ridipintura delle porte, pulitura delle inferriate e la posa di rete antigrandine sulle finestre.

TETTO GROSSA ORDITURA

In presunto buono stato. Qualche inizio di attacco del legno dai tarli. E necessario un controllo della struttura lignea lungo gli appoggi dei travi.

SOFFITTO

Condizioni statiche

Volta a botte in legno. Buone. La volta parzialmente danneggiata a causa delle infiltrazioni.

Intonaco

Deve essere rifatto l'intonaco e la dipintura dopo il risanamento della muratura della cripta, delle volte a crociera.

Dipintura

Deve essere rifatto l'intonaco e la dipintura dopo il risanamento della muratura della cripta, delle volte a crociera

STRUTTURE PORTANTI INTERNE

In buone condizioni statiche il coro pensile.

PARETI INTERNE

Zoccolature in pietra

Necessitarepulitura dei rivestimenti in marmo dopo il risanamento della muratura.

Intonaco

Risante le pareti dellla cripta, deve essere rifatto l'intonaco e la rifinitura.

Dipinture

Risante le pareti dellla cripta, deve essere rifatto l'intonaco e la rifinitura

Porte

Riparare e ridipingere le porte

Altari, ecc.

VENICE OFFICE

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH01

DECORAZIONI PITTORICHE, STUCCHI, SCULTURE, IMMOBILI PER DESTINAZIO

Restaure di alcuni dipinti dei cassettoni della volta. Consolidamente dell'ambone di sinistra danneggiate dal depositarsi di umidita di condensa. Consolidamento del fregio con gruppi di putti e sirene dello zoccole del piedistalle di sinistra dell'arcone trionfale.

PAVIMENTO

In marmo di diversi colori e motivi. Fascia staccata in prossimita dell'ingresso. Necessita restauro totale di quello della cripta.

ARREDO

Dossali

Confessionali

Armadi, ecc.

Da restaurare armadi della sagrestia

ILLUMINAZIONE

Rifacimento dell'impianto elettrico che, a causa dell'umidita e della sua vetusta presenta degli inconvenienti.

CUPOLA E CAMPANILE

Nella calotta interna della muratura deve essere rimossa la dipintua azzura con stella e ripristinate il probabile marmorino settostante. Porre rete di protezione centro I piccioni finestre campanile, e riaprire quella muratura.

VARIE

Porre reti di protezione sfiati del sottotette della volta e prevedere un idoneo impiante di riscaldamento per evitare ulteriore danni nelle interne del monumento provocati dall'umidita di condensa.

VENICE OFFICE

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH01

Pronto Intervento	Zona	Designazione dei Lavori	Quantità	Per unit	Importo
☑		Impalcatura interna ed esterna		£	£ 6,000,000
☐		Per arrotondamento		£	£ 374,200
☑	1	Rifacimento tavolatol appoggio lastre	420 mq.	£ 4,000	£ 1,680,000
☑	1	Restauro lastre piombo volta	420 mq.	£ 15,000	£ 6,300,000
☑	3 a	Riparazione muratura facciata principale		£	£ 800,000
☐	3 b	Rimosiome e riposa marmi pareti	800 mq.	£ 15,000	£ 12,000,000
☐	3 b	Isolamento muratura	54 mq.	£ 200,000	£ 10,800,000
☑	3 c	Controllo, restauro rivestimento facciate	1060 mq.	£ 5,000	£ 5,300,000
☑	3 e	Rete finestre chiesa e campanile	72 mq.	£ 7,500	£ 540,000
☐	3 e	Ridipintura porte esterne		£	£ 300,000
☐	3 e	Riparazione inferriate	70 mq.	£ 4,500	£ 31,500
☑	4	Disinfestazione e concoledamento travi		£	£ 800,000

☐	5 b	Intonaco volte cripta	75 mq.	£ 3,500	£ 262,500
☐	5 c	Dipintura intonaco volta cripta	75 mq.	£ 1,200	£ 90,000
☐	7 a	Ripulitura marmi pareti		£	£ 300,000
☐	7 b	Intonaco e marmorino pareti cripta	124 mq.	£ 3,500	£ 434,000
☐	7 d	Riparazione e dipintura cripta	n.3	£ 30,000	£ 90,000
☐	8	Restauro e pulitura dipinti volta		£	£ 1,000,000
☐	8	Consolidamento ambone e fregio arcone		£	£ 4,000,000
☐	9	Riordino parziale pavimento	10 mq.	£ 30,000	£ 300,000
☐	9	Restauro pavimenti cripta	75 mq.	£ 12,000	£ 900,000
☐	10 c	Restauro armadi	n.5	£ 60,000	£ 300,000
☐	11	Revisione impianto elettrico		£	£ 1,500,000
☐	12	Rimessa in luce vecchio marmorino cupola e rifacimento parti mancanti	51 mq.	£ 7,800	£ 397,800
☐	13	Impianto riscaldamento anticondensa		£	£ 8,000,000

VENICE OFFICE

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH01

ESTERNO	
copertura	mediocre urgente
grossa orditura	mediocre urgente
grondaie e pluviali	mediocre
cupola	cattivo
muratura	cattivo urgente
INTERNO	
strutture portanti interne	mediocre
soffitto	mediocre
pavimento	mediocre
decorazioni	cattivo
arredo	cattivo
pareti interne	cattivo urgente
illuminazione	mediocre
campanile	cattivo urgente

CONDIZIONI GENERALI cattive

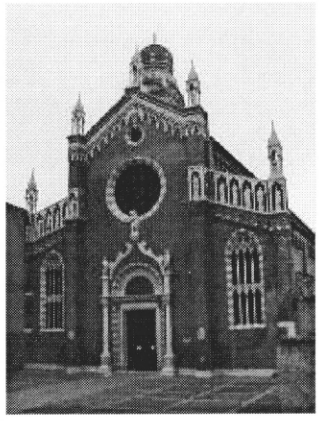
PREVISIONI DI SPESA

pronto intervento	£ 21,420,000
restauro totale	£ 62,500,000

VENICE OFFICE

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH02

Nome Ufficiale: San Cristoforo Martire
Altro Nome: La Madonna dell'Orto
Parrocchia: Madonna dell'Orto
Uso Attuale: chiesa



Previsioni di Spesa

pronto intervento £ 600,500
restauro totale £ 52,500,000

settembre 1968

coordinatore della ricerca Prof. arch. Piero Gazzola
soprintendente ai monumente Prof. arch. Mario Guiotto
responsabile di sezione Dott. arch. Renato Padoan
responsabile settore chiese Dott. arch. Renato Padoan
curatore della scheda Dott. arch.Gonzalo Villa

VENICE OFFICE

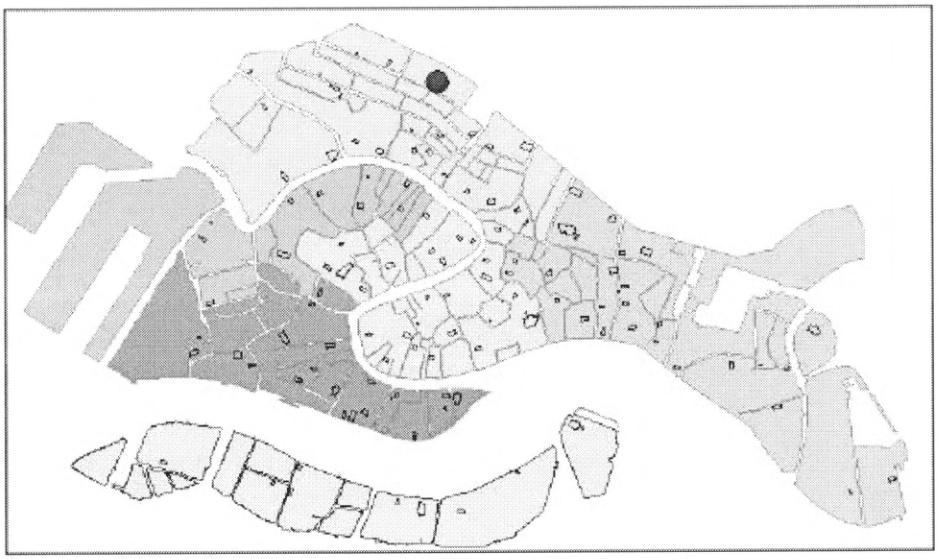
Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH02

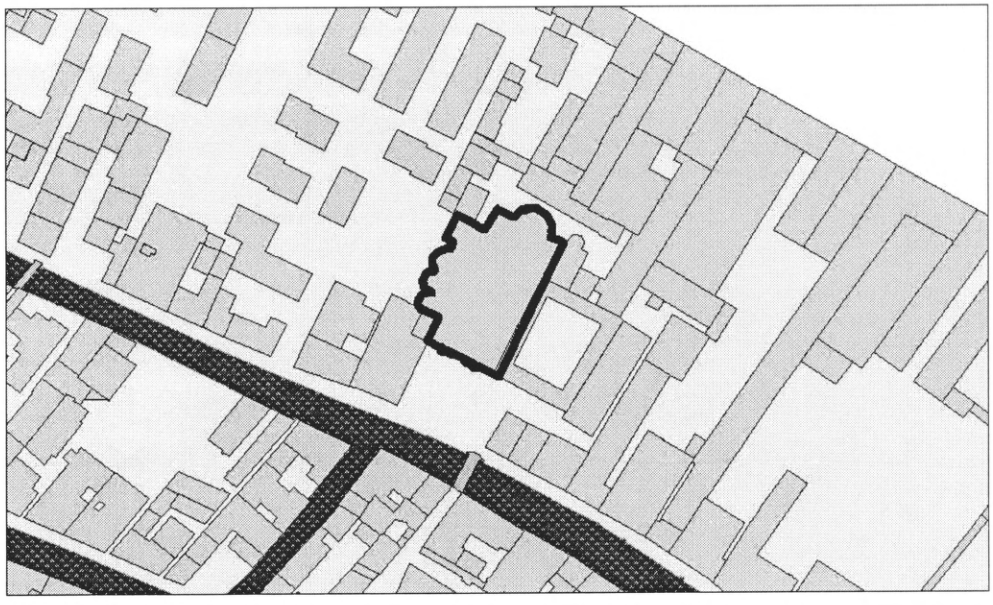
Note Storiche: Eretto verso la meta del '300 da Fra Tiberio DA PARMA con il titolo di S. Cristoforo, mutato poi in quello di Madonna dell'Orto per il trasferimento in chiesa di un'antica immagine miracolosa della Virgine, trovata in un orto vicino. La chiesa venne recostruita all'inizio del XV sec. E proseguita per tutto il quattrocento (usando parte del preesistente materiale) riuscendo una delle piu tipiche fabbriche gotiche religiose veneziane. Tra le opere pittoriche che racchiude il monumento, ricordiamo le eccezionali tele di Jac. TINTORETTO, nella cui chiesaebbe sepoltura assieme ai suoi familiari.

Architettura: Pianta basilicale a tre navate, con corrispondenti cappelle absidali, difise da due serie di colonne di marmo greco. Nel fondo si apre il presbiterio con abside pentagonale. La facciata ricorda nel suo organismo tripartito il prospetto delle costruzioni basilicali a tre navate a coronamento lineare, a timpano mediano e a doppio spiovente ai lati. Caratteristica la serie di nicchie con statue dei DELLE MASEGNE disposte lungo gli spioventi delle navate laterali, derivate dalle forme romaniche.

VENICE OFFICE

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH02

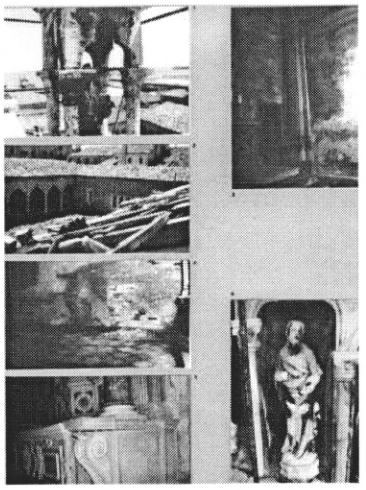




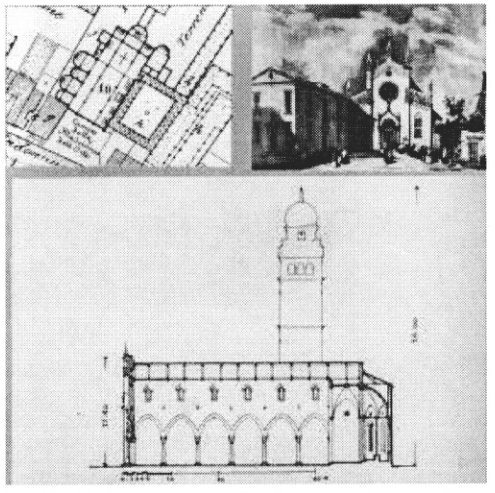
VENICE OFFICE

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH02

nome della foto
ORTO _S 2



nome della foto
ORTO _S 1



VENICE OFFICE

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH02

nome della foto
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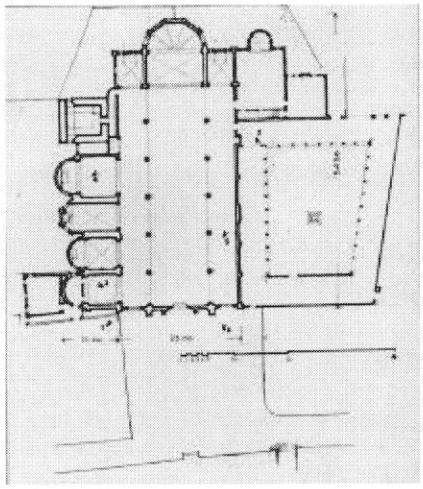

ESAME DELL'ESTERNO

TETTO (tegole, tavelle e piccola orditura

Tetto in tegole. Necessita il ripasso della copertura della navata centrale, dell'oratorio, e della sagrestia. In corso di restauro il tetto delle navate laterali.

GRONDAIE E PLUVIALI

In pietra d'Istria in buono stato. Necessita solo qualche stuccatura. Sostituire qualche tratto di grondaia in zinco dell'oratorio e della sagrestia. I pluviali del fianco sinistro con cappelle e della parete di fondo con absidi devono essere sostituiti. (presunto loro prossimo rifacimento).

MURATURE

Statica

Buona. Da riprendere solamente la lesione nell'angolo destro dell'oratorio.

Umidità

In corso di esecuzione l'isolamento e il risanamento dellle murature.

Elementi architettonici in pietra

In buono stato. Necessita solo il consolidamento e la protezione delle sculture della facciata.

Intonaco e dipinture

Da rifare l'intonaco delle cappelle e della zona absidale e successiva sua rifinitura.

Serramenti, porte, finestre

Ridipingere le porte. Da rifare le finestre alte della navata centale le altre solo da riparare. Ripulire le inferriate e fornire la rete di rame.

TETTO GROSSA ORDITURA

In buono stato

SOFFITTO

Condizioni statiche

Soffito in legno in buone condizioni. Richiede solo piccole riparazioni

Intonaco

Soffito in legno in buone condizioni. Richiede solo piccole riparazioni

Dipintura

Soffito in legno in buone condizioni. Richiede solo piccole riparazioni

STRUTTURE PORTANTI INTERNE

In buone condizioni. Spostamento della prima colonna di sinistra (consolidamento da tempo eseguito)

PARETI INTERNE

Zoccolature in pietra

Intonaco

Da rifare l'intonaco e la successiva rifinitura sulla parete laterale navata destra e nelle cappelle di sinistra

Dipinture

Da rifare l'intonaco e la successiva rifinitura sulla parete laterale navata destra e nelle cappelle di sinistra

Porte

Altari, ecc.

Riparazione e pulitura altari

DECORAZIONI PITTORICHE, STUCCHI, SCULTURE, IMMOBILI PER DESTINAZIO

Gli intradossi degli archi sono affrescati e necessitano piccole riparazioni. Le sculture della facciata sono danneggiate dagli agenti atmosferici. (vedi voce 3c)

PAVIMENTO

In condizioni sufficientemente buone. Necessitano solo piccoli riparazioni in chiesa. Da sostituire in cemento della sagrestia.

ARREDO

Dossali

Confessionali

Confessionali, panche, inginocchiatoi, da restaurare.

Armadi, ecc.

ILLUMINAZIONE

Inadeguata. Da tener presente la necessita di valorizzare le tele;

CUPOLA E CAMPANILE

Da ridipingere la piccola cupola della cappella della "Salute". Nel 1939 sono state poste delle spie su una lesione, ora rotte. Necessita controllare l'esistenza tuttora del dissesto.

VARIE

Ripristinare la cappella di S.M. della Salute nelle sue proporzioni e forme originali. L'oratorio della Nativita, sul fianco sinistro della chiesa, ha subito delle modifiche che ne alterano il significato; necessita un intervento di ripristino.

VENICE OFFICE

Inchiesta sui monumenti VENEZIA
Sezione EDIFICI SACRI
Sestiere lungo: Cannaregio
Scheda: CNCH02

Pronto Intervento	Zona	Designazione dei Lavori	Quantità	Per unit	Importo
☑		Impalcature interne ed esterne		£	£ 2,300,000
☐		Impalcature interne ed esterne chiesa e campanile		£	£ 4,500,000
☐		Impalcature interne ed esterne chiesa e campanile		£	£ 4,500,000
☐		Per arrotondamento		£	£ 325,000
☑	1	Riordino tetto navata centrale	750 mq.	£ 1,400	£ 1,050,000
☑	2	Stuccatura grondaie pietra	50 ml.	£ 3,200	£ 160,000
☑	2	Rifacimento grondaie zinco	75 ml.	£ 4,000	£ 300,000
☑	2	Rifacimento pluviali	280 ml.	£ 2,500	£ 700,000
☐	3 a	Consolidamento muratura oratorio		£	£ 450,000
☐	3 c	Consolidamento e protezione sculture facciata		£	£ 5,000,000
☐	3 d	Intonaco cotto pareti esterne	2300 mq.	£ 3,500	£ 8,050,000
☐	3 d	Rifinitura a calce rasata intonaco	2300 mq.	£ 1,500	£ 3,450,000

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☑	3 e	Nuova rete rame	70 mq.	£ 4,500	£ 315,000
☑	3 e	Nuovi serramenti finestre	36 mq.	£ 30,000	£ 1,080,000
☐	3 e	Dipintura porte	n.6	£ 40,000	£ 240,000
☐	3 e	Riordino inferriate		£	£ 80,000
☐	5 a	Controllo soffitto navata centrale		£	£ 300,000
☐	7 b	Intonaco cotto pareti interne	1800 mq.	£ 3,500	£ 6,300,000
☐	7 c	Rifinitura a calce rasata intonaco	1800 mq.	£ 3,500	£ 6,300,000
☐	7 e	Riordino altari		£	£ 1,500,000
☐	8	Restauro decorazioni archi		£	£ 400,000
☐	9	Riparazione pavimento		£	£ 200,000
☐	9	Rifacimento pavimento sagrestia	50 mq.	£ 12,000	£ 600,000
☐	10	Restauro arredo		£	£ 600,000
☐	11	Riordino impianto elettrico		£	£ 3,500,000

☑	12	Collocazione spie campanile	£	£ 100,000
☐	13	Ripristino cappella "Salute"	£	£ 7,000,000

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ESTERNO	
copertura	mediocre urgente
grossa orditura	buono
grondaie e pluviali	mediocre urgente
cupola	mediocre
muratura	mediocre urgente
INTERNO	
strutture portanti interne	mediocre
soffitto	mediocre
pavimento	buono
decorazioni	buono
arredo	mediocre
pareti interne	cattivo urgente
illuminazione	cattivo
campanile	mediocre urgente

CONDIZIONI GENERALI mediocre

PREVISIONI DI SPESA

pronto intervento	£ 600,500
restauro totale	£ 52,500,000