UNIVERSITY OF NOVA GORICA
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FEASIBILITY ANALYSIS OF A RESTORATION IN VENICE: CASE STUDY OF CA' ZENOBIO PALACE

II. LEVEL MASTER'S THESIS

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ABSTRACT

Venice is the city in the world with the largest amount of built heritage in such a small urban development. From the fall of Serenissima (1797), but most of all in the last decades, Venice had to face many difficulties for its survival: environmental, economic and human attacks daily try to undermine its force.
One of the most visited cities ever, Venice has to handle a tourism pressure that often goes over its carrying capacity; inhabitants strangled by high prices move inshore; very little public resources (in the last years almost totally spent for the "*Mose*") produce very few works of urban maintenance; environmental attacks, such as pollution and "*acqua alta*", cause the decay of buildings that often are also abandoned or not maintained.
Many studies have been carried out on Venice on several subjects: history, architecture, urban development, environmental problems, an so on, but very few researches examine the relation among feasibility of buildings' conservation, financial investments, economic and cultural impact of well-organised works of restoration and promotion. A great number of historical palaces have been restored in the last decades often for a new use but more often with a little respect for the building itself or with low results from an economic and financial point of view.
This research focuses on a single case study: a traditional Venetian palace, *ca'* Zenobio, transformed in the 19th century in an Armenian boarding school and nowadays in a cultural centre with some guest rooms. As many other buildings in Venice, lack of maintenance or bad restoration works brought it to a worrying state of conservation: urgent restoration works are needed to guarantee the survival of this historic palace and consequently its use.
Many different elements need to be analysed to understand which is the best process for the management of *ca'* Zenobio: historical and morphological features of the palace; different uses and transformations in different times; architectural and conservation design that has to follow laws and cultural bond's indications; economic and cultural values of the building and of its restoration works; financial and feasibility analysis in order to really understand how much investment is necessary, how to get it and when.
Through the analysis of these matters it would be possible to suggest what are the real possibilities of restoring such a building, in a sustainable way both from a conservative point of view and from an economic and financial one. In fact, on top of it, it is important to know that the ownership of *ca'* Zenobio has limited economic resources to invest in the urgently needed restoration works.
The research on *ca'* Zenobio starts from the problem of its management,

analyzed through its history. The building has been built as a representative palace in the 17th century for a wealthy Veronese family become part of the new nobility of Venice; the cost of membership has been 100.000 ducats, a real fortune. In the half of the 19th century the palace changed its use, becoming a boarding school for Armenian students, coming mainly from the Ottoman Empire. Obviously this transfer in property and use produced important internal transformations of the building, that are still evident and in some way useful: the previous dormitories and rooms for the students have been transformed in guest rooms.

The complete analysis of the current condition is an important step for the architectural and conservation design necessary to guarantee the survival of the building. The starting point is the project already approved by Authorities, Municipal and State Superintendence, that has been analyzed and implemented with new ideas and projects, always in the respect of national and local laws as well as cultural bonds. The final tool is a master plan with guidelines for the conservation and restoration of *ca'* Zenobio, a simple improvement and implementation of actual uses: guest rooms and cultural centre for temporary exhibitions and conferences. On the basis of this master plan and some existing Bill of Quantities a valuation of cost of works has been developed.

On the other hand, actual and future incomes have been checked and these data have been useful for starting a financial analysis on feasibility of the proposed project. The financial analysis has been carried out with the method of Discounted Cash Flow Analysis, that allows to understand what are the cash flows year by year and the correct schedule of investment (considering equity and debt).

This kind of analyses prove the feasibility of a complex project of restoration and conservation when managed in a correct way, valuing every single step in its costs and benefits.

Finally this research stresses the importance of a correct management of the palace, along with respectful ways of working that could give an added value to the building.

This study could be a basis for a more general thought on feasible low cost restoration in Venice: through some general guidelines it could be possible to plan and work in a more respectful and sustainable way, assuring the survival and improvement of these important and unique palaces.

FOREWARD

"Venice is a unique artistic achievement. The city is built on 118 small islands and seems to float on the waters of the lagoon. The influence of Venice on the development of architecture and monumental arts has been considerable. Venice possesses an incomparable series of architectural ensembles illustrating the age of its splendour. It presents a complete typology whose exemplary value goes hand-in-hand with the outstanding character of an urban setting which had to adapt to the special requirements of the site."[1]

But Venice has to face great problems of urban management. Both lack of maintenance and wrong works menace the conservation of one of the most important built and environmental heritage complex of the world. Its most important economic resource, tourism, creates a great pressure[2] on the city with many negative externalities due to the consumption of this cultural good.

Despite specific Laws[3], no-profit organizations[4], public and private investors, the conservation conditions of the city are worrying. Principal problems are the great amount of buildings and heritage to restore, the management of works that are very expensive and difficult to carry out, the lack of coordination between boards in different, but also near, yards. A global project of urban maintenance it is almost impossible to operate. So spread and independent restoration maintenance works are accomplished, even in the same site, without any coordination.

But what is the real matter? Is it only a problem of incorrect management or rather an economic issue? Probably both. Maybe it is possible to answer these questions. In fact Venice is not only a unique achievement for its architectural and environmental features, but also for the economic potentiality due to its cultural value: cultural value increases economic value of a good[5].

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1 Nomination of Venice in the World Heritage List of UNESCO: Venice and its lagoon were inscribed in 1987: http://whc.unesco.org/en/list/394.

2 Many studies have been carried out by COSES (*Consorzio per la Ricerca e la Formazione*) in its section "*Fondaco Turismo*": http://www.coses.it/masterfondaco.html.

3 The most important law is "*Nuovi interventi per la salvaguardia di Venezia. Legge speciale 798/1984*" a tool for safeguarding built and natural heritage of Venice. Many funds were spent in the city from 1984 to 2003; in the last years about all funds deriving from this law were invested in Moses, the huge dam that should protect Venice from tide floods. See TROVO', Francesco, *Nuova Venezia Antica, 1984-2001. L'edilizia provata negli interventi ex lege 798/1984*, Sant'Arcangelo di Romagna (RN), Maggioli, 2010.

4 Many national and International organisations work for the conservation of Venice; among them the most famous are: *Italia Nostra*, Venice in Peril, FAI, UNESCO and ICOMOS.

5 Among others: THROSBY, David, *Economics and culture*, Cambridge, Cambridge University Press, 2001; THROSBY, David, *Paying for the past: Economics, Cultural Heritage and Public Policy*, Lecture delivered at the University of Adelaide, 16 August 2006; KLAMER, Arjo, "Social, cultural and economic values of cultural goods", forthcoming in RAO, Vijayendra, WALTON, Michael (ed.), *Culture and Public Actions*, 2001; GREFFE, Xavier, "Is heritage an asset or a liability?", *Journal of Cultural Heritage* 5 (2004), pp. 301-309.

Venice has a acknowledged cultural value and a great economic flows: 20 millions of tourists each year bring a huge amount of money. But the general feeling is that Venice is exploited for immediate economic returns, without any future plan for maintaining such a delicate and fragile system[6], that almost changed its ways of living for playing along tourism demand[7].
So the question is if it would be possible to apply a different management of the city, investing more money in maintenance and restoration works, conscious that if built and environmental heritage of the city is neglected the intrinsic value of the city decreases, consequentially its cultural value and economic returns.

To develop a general and complete thought on the entire city, it is necessary to deepen the knowledge of some specific cases. This research would like to be a starting point for future studies that could answer to the difficulties of managing such a city.
This research has been developed on a single case study, a Venetian palace. Palaces have always been one of the main features of Venice, because they were symbol of power and wealth of Venetians[8]. Nowadays almost all palaces have changed their use and have been often submitted to works that deeply transformed them.
So the aim of this research is to verify the possibility to carry out very careful restoration and conservation works in an important palace, making them sustainable from an economic point of view.
The case study is *ca'* Zenobio, an important baroque building, that in the 19th century was transformed into an Armenian boarding school and nowadays houses temporary exhibitions of arts (such as Biennale) and manages also some guestrooms.
The main problem consists in its very worrying conservation: an urgent restoration and conservation project, for a general rehabilitation of the palace, is needed. But obviously the economic investment is considerable and the ownership, *Collegio Armeno Moorat – Raphael*, does not have much money to spend for works.
A new Master Plan is proposed for the uses of the palace and even at such

6 ORTALLI, Gherardo, *Venezia in vendita*, Italia Nostra Venezia, Dossier 2011.

7 Venice in Peril verified that almost 80% of employs in Venice are linked to tourism: in LANAPOPPI, Paolo, *La città d'arte che non sa gestirsi*, Italia Nostra Venezia Dossier 2011

8 Even Francesco Sansovino highlighted as no city in the world had so many palaces as Venice: SANSOVINO, Francesco, *Venetia città nobilissima et singolare, descritta in XIIII Libri*, Venetia, presso Jacomo Sansovino 1581 (*ristampa anastatica*, Bergamo, Leading Edizioni, 2002), Libro IX, p. 139.

an early stage it is essential to estimate cost and revenues, to calculate the probable payback period of the entire investment.
The study is divided into three parts: the first part starts with a brief analysis of the main types of re-uses of Venetian palaces, followed by a description of history and transformation of Ca' Zenobio. The second part analyzes the conservation condition of the palace, the granted project and suggests a new Master Plan. The final part consists in the economic and financial analysis that calculates the net present value of investment and possible payback period; finally some different scenarios are suggested to assess the positive and negative factors that can influence the feasibility of the project.

PART 1

PROBLEMS OF MANAGEMENT OF VENETIAN HISTORICAL PALACES

CHAPTER I
VENICE AND ITS PALACES: USE AND RE-USE

"Venice is a unique artistic achievement."[1]

1. VENICE: PRODUCTION AND CONSUMPTION OF THE CITY

Probably considered one of the most beautiful cities in the world, Venice has every year about 20 million of tourists[2]. This means that a huge amount of social, cultural and economic value[3] is in and through the city, which is to all intents and purposes a "cultural good".

But from the perspective both of economics and sociality, Venice is a particular kind of cultural good, that has a complex relationship between consumption and production.

1.1 Venice as a cultural good

Normally a cultural good, as a city in its whole, is considered a "public good". As defined in 1954 by Paul A. Samuelson[4], public goods are "collective consumption goods which all enjoy in common in the sense that each individual's consumption of such a good leads to no subtraction from any other's consumption of that good […]"[5].

Public goods are non-rival and non-excludable, as defined in the complete taxonomy of economic goods:

	Rivalrous	Non-rivalrous
Excludable	PRIVATE GOODS	CLUB GOODS
Non-excludable	COMMON GOODS	**PUBLIC GOODS**

In fact, a pure public good is non-rival since many people can enjoy at the same time of the benefits of that good, without reducing availability for consumption by others, and non-excludable because no one can be effectively excluded from enjoying it .

For its characteristics normally a public good is brought out of the market; this means that there is a market failure for public goods; in fact if the State (through its policies) doesn't make them available no one has economical interest to do it, because there aren't efficient results. The main problem is non-excludability: everybody can enjoy a public good even without paying and consequently

1 This is the start of the nomination of Venice in the World Heritage List of UNESCO: Venice and its lagoon were inscribed in 1987: http://whc.unesco.org/en/list/394.

2 *Italia Nostra* denounced these data to United Nation on July 4, 2011, worried about the tourism pressure in Venice: www.italianostra-venezia.org.

3 For more information see KLAMER, Arjo, *op. cit.*

4 SAMUELSON, Paul A. "The Pure Theory of Public Expenditure" , *Review of Economics and Statistics*, The MIT Press, 36 (4): 387–389.

5 *Ibid*., p. 387.

people try not to pay for this enjoyment ("free rider problem"). So the State intervene with taxation to manage public goods: people must pay even if they do not enjoy directly the good.

Venice is something different, since it has many features in common with all cultural goods, but also some specific ones.

"[…] In common with all cultural goods:

- the production and consumption of Venice produces a series of relevant positive external effects which characterize its evaluation as "non market".
- Venice is a "good", whose preservation for future generations overrides market considerations.

[…] Under this set of general conditions, Venice is also specifically characterized by:

- particular positive externalities on third markets (economically and geographically separated from the Venetian market) such as those which are beneficial to the image and product sales of a cultural sponsor.
- Negative externalities caused by its production, such as pollution and congestion."[6]

The interest of people in visiting Venice is principally due to its artistic and cultural nature. The city had been conceived as a city of arts and as symbol of power and wealth of *Serenissima*. The city increased its wealth with a trade economy based on "superfluous goods"[7] with an high intrinsic value that could pay back the very expensive transports. But "being a city of art is not, for Venice, the cause of her wealth and power but rather the consequence"[8].

For its artistic and cultural characteristics Venice can be compared to a stage, but in fact the whole city has always been "'a performance" in herself"[9], for political and economic necessity.

Nowadays this aspect is almost stressed, because Venice is a living performing art, both for cultural and economic reasons.

In this perspective Venice is not a simply common good but rather a club good, or better, it is a common good formed by many different club goods. In fact "everyone can go to Venice, but only few can watch the 'Marriage with the Sea' from the balconies of the Hotel Danieli"[10].

From this simple example it is quite clear that there is a strict and complex relationship between "cultural" and "non-cultural" consumption and production

6 MOSSETTO, Gianfranco, *A cultural good called Venice*, "Nota di Lavoro", University of Venice, May, 30, 1990, p. 1.

7 *Ibid.*, p. 9.

8 *Ibid.*, p. 3.

9 *Ibid.*, p. 6.

10 *Ibid.*, p. 13.

in Venice. In fact, “the ’non’ cultural consumption of Venice is induced by ‘cultural’ consumption”[11]. But, on the other hand, there are many negative externalities from the “production” of Venice as cultural good principally for tourists and visitors, such as, for example, “the increase in direct maintenance costs of the assets, caused by the progressive decline in population”[12], and congestion[13].

The problem of urban maintenance and buildings’ restoration is one of the most critical for the city. Restoration is necessary for maintaining the city. But costs are very high and it is difficult to organize works. The consumption of the city and consequently its “aging” are faster than restoration works. Venice generally is in a mediocre conservation status, and not only where there is no a direct benefit due to tourism: a clear example of this problem is St. Mark Square where conservation works of façades of principal buildings are few, slow and absolutely non-coordinated to others projects.

So Venice is a cultural good that produces positive and relevant economic effects, but, on the other hand, the consumption of its cultural and economic products brings to negative externalities in conservation of the city.

This general, quite simple, analysis of Venice as a cultural good can be transferred on a category of cultural goods that contribute to create the intrinsic and extrinsic value of the city: its palaces.

2. THE PALACES OF VENICE: USE, RE-USE AND (SOMETIMES) ABUSE

Palaces represent a great amount of buildings in Venice[14] (map 01 and map 02); built for representing the wealth and power of rich and noble families[15], in the last centuries[16] all of them almost changed their use.

First decline probably occurred with the fall of *Serenissima* in 1797, but many rich families maintained their properties and palaces. With large social transformations, such as that between and after the two world wars, the families who could manage, especially from an economic point of view, so great buildings were very few. Consequentially palaces begun to be transformed in

11 *Ibid.*, p. 16.

12 *Ibid.*, p. 20.

13 Compare footnote no. 1

14 Different maps shows the evolution of this phenomenon in TRINCANATO, Egle Renata, FRANZOI, Umberto, *Venise au fil du temps. Atlas historique d’urbanisme et d’architecture*, Boulogne – Billancourt, Editions Joel Cuenot, 1971, VIc, VIIIc, IXc, Xc, XIc, XIIc, XIIIc. Map 01 shows the palaces built in the same century of Ca’ Zenobio.

15 See also chapter II, paragraph 1.

16 Many changes occurred already in ancient times when palaces were transformed for new necessities and architectural styles, as described by: RÖSSLER, Jan-Christoph, *I palazzi veneziani. Storia, architettura, restauri. Il Trecento e il Quattrocento*, Fondazione Giorgio Cini Onlus - Venezia, Trento, Verona, Scripta Edizioni, 2010; but starting from XIX century many Palaces completely changed their use and consequently many characteristics.

Map 01: Palaces built in 17th century (in evidence Ca' Zenobio)

Map 02: Palaces in Venice nowadays.

their uses. This process accelerated in last decades, when many investors understood that Venice was an important real estate market. So palaces were purchased and often completely changed in their interiors, just to meet market demand.

We can argue, without claiming to be exhaustive, seven main different uses that have been "invented" in past or recent times for this palaces: dwellings; museums and exhibition spaces; offices; university or cultural-scientific seats; hotels, B&Bs, guesthouses; rental for parties; mall.

It could be useful to give a brief description on every single use, to understand how and how many palaces have been changed and transformed during last centuries.

2.1 New uses for Venetian palaces

1 - Palaces as dwellings

Very few palaces in Venice maintained the form they had. Even in the few palaces that are still used as dwellings many transformations have surely occurred to adapt them to modern living needs (i.e. running water, bathrooms, heating, etc.). Anyway most of the palaces of residential use underwent to more severe changes, mostly due to the partition of different floors or parts of the building into various flats and properties. In the last centuries these divisions were quite usual, for example due to an inheritance or a purchase. Obviously this caused many transformations to buildings in entrances, staircases and internal distribution. Sometimes more recently even a lift has been inserted, with a few respect of existing wooden beam floors. On the other hand it is reasonable that buildings change responding to new living needs. The problem consists in the way how these transformations have been carried out, often with very little respect of material, artistic and historical values of palaces.

A clear example of of what happened inside an important tenement is represented by *Castelforte San Rocco*, "a rather large rental house built in 1548–50 by the Scuola Grande di San Rocco"[17] that from 4 houses reached 18: "each transformation left a sign, either removing historic material or adding new layers to the ancient structures."[18] The same trend was followed by many palaces, as for example Palazzo Zen, near Gesuiti, built originally for two families, now divided into more than 12 dwellings.

2 - Palaces as museums and exhibition places

One of the most interesting use from a conservative point of view is the

[17] GIANIGHIAN, Giorgio, "Building a Renaissance double house in Venice", *ARQ,* vol. 8, nos 3/4, 2004, p. 303.

[18] GIANIGHIAN, Giorgio, "Building Castelforte", *ARQ,* vol. 9, no 1, 2005, p. 66.

transformation in museums and exhibition places, as has occured in many palaces in Venice. This use is often consistent with the building itself, its structures, materials, history.

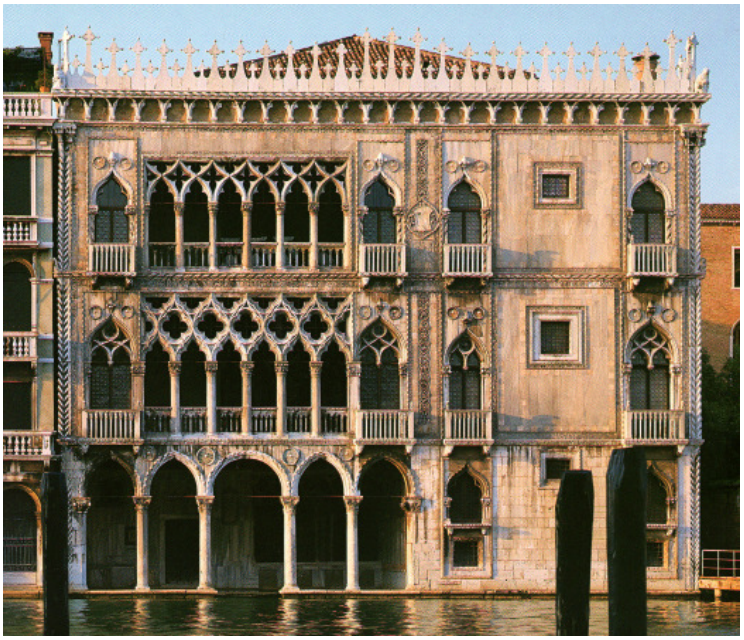

Image 1: *Ca'* d'Oro

In fact palaces are interesting from an architectural and artistic point of view; usually restoration projects try to maintain as much as possible all the characteristics of the building. Unfortunately sometimes complete transformation has happened; but most often provisional settings do not allow to see walls and ceilings in the palace. Being this solution a reversible condition, is all togheter less destructive than the previous.

The property of these palaces is both public and private.

The most important public museums belong to Municipality of Venice and are all managed by *Fondazione Musei Civici Venezia*, that has the aim to develop "the full potential of the immense cultural and artistic heritage […].It encourages the participating partners to join together, both public and private, to contribute to the life of the foundation, supporting and agreeing with its institutional aims."[19] The palaces turned into museum are: *ca'* Rezzonico (Museum of 18th century); *palazzo* Mocenigo (Museum of textiles and Costumes); Carlo Goldoni's House (*ca'* Centanni); *ca'*

Image 2: *Palazzo* Grassi

[19] www.museicivicivenezianі.it

Pesaro (International Gallery of Modern Art and Oriental Art Museum); Fortuny Museum; Glass Museum in Murano; Museum of Natural History in *Fondaco dei Turchi*. Other important public museums hosted into historical palaces are *ca' D'Oro* (image 1) and *palazzo* Grimani.

But there are also many private palaces used as museums or mostly as exhibition places. There are some buildings restored only for this aim: the most famous case is probably *palazzo* Grassi, restored in 1983 by Fiat Group and then bought by François Pinault in 2005, restored by Tadao Ando and now considered one of the most important places for exhibitions of modern art (image 2).

Image 3: *Palazzo* Balbi

But many palaces are used as exhibition sites (of arts, of music, of performance, etc.) even when this is not their principal aim; so many temporary events occur into several different, most private, palaces[20]; among that there is also *ca'* Zenobio, location for the Biennale and temporary exhibitions.

3 - Palaces as offices

Palace have been transformed into offices for institutional use, by the Venice Municipality, the Veneto Region, the Province of Venice, the various Superintendences etc. For example Venice Municipality is hosted in two adjoining palaces, *ca'* Farsetti and *ca'* Loredan, transformed into public offices. Some parts of the buildings were kept in their original features but other parts were totally altered creating rooms and offices, inserting new stairs and elevators. The same thing happened to many other public palaces, as *Palazzo* Balbi, location of *Giunta Regionale del Veneto* (image 3).

In more recent times restoration of palaces as *Palazzo* Soranzo Cappello (seat of *Soprintendenza per i beni architettonici e paesaggistici per le Province di Venezia, Belluno, Padova e Treviso*) were of course kept in a more respectful way, maintaining the main characteristics of the building and keeping the building open to visits.

4 - Palaces as University, cultural and scientific seats

Many Universities and cultural-scientific foundations have their seats in

[20] A complete list of events in Venice is available in the website of *Fondazione di Venezia*: http://www.agendavenezia.org/it/luoghi.htm

Image 4: *Ca'* Foscari

historical palaces. For example University IUAV of Venice owns two palaces: *ca'* Badoer (seat of Department of History of Architecture) and *ca'* Tron (seat of Planning Department). Even University *ca'* Foscari of Venice, with its several departments, owns many palaces, as *ca'* Foscari (image 4), *ca'* Bembo, *ca'* Dolfin, *ca'* Bernardo, *ca'* Bottacin, *ca'* Cappello, *ca'* Dalla Zorza, *palazzo* Cosulich, *palazzo* Vendramin, *palazzo* Minich, *palazzo* Moro, etc.

Also primary and secondary schools are often located in historical palaces, such as Junior High School Caboto in *ca'* Nani, *Liceo Artistico* (School of Arts) in *ca'* Giustinian Recanati, the Academy of Music in *palazzo* Pisani, etc.

Even important foundations stand in historical palaces: UNESCO in *palazzo* Zorzi, *Istituto Veneto di Scienze Lettere e Arti* in *palazzo* Loredan and *palazzo* Franchetti, Foundation Querini Stampalia (which is also a museum) in the homonymous palace (image 5), the *Centre de musique Romantique Française* in *Palazzetto* Bru Zane.

5 - Palaces as hotels, B&Bs and guesthouses

The most common transformation in use for venetian palaces is certainly the one related to tourism purposes. This is also the most invasive and heavy transforming use.

In fact in the last century many investors

Image 5: *Fondazione* Querini Stampalia, on the left

decided to buy and completely convert many historical palaces into luxury hotels, bed and breakfasts, guesthouses.

Image 6: *Palazzo* Vendramin Calergi

Tourism is the main industry for Venice, and in last years the entire city has been transformed principally for answering to the tourists demands.

It is a phenomenon with an old tradition, as in the second half of 19th century some palaces were transformed into hotels, such as *ca'* Giustinian, nowadays one of the seats of Biennale, but once the famous "Hotel de l'Europe" that hosted personalities as Giuseppe Verdi, William Turner and Marcel Proust.

Nowadays, probably the majority of Venetian palaces have been transformed into accommodation facilities.

Some famous example are Hotel Gritti, *Palazzo* Stern, Hotel Bauer Palazzo, Hotel Bonvecchiati, etc. These luxury hotels often changed the interiors of the palaces and create a false and artificial "venetian spirit" with luxury furniture in style, very appreciated by tourists. Anyway these restorations have been usually done in a very little respectful way of the original features of buildings.

Also *ca'* Zenobio is partially already transformed in a guesthouse, utilizing the existent dormitories and rooms, and it has very low prices due to the basic accommodation offered by the management.

6 - Other uses of Palaces

Some private palaces who maintained their principal characteristics were totally or partially restored in a conservative way and usually are rented for parties. There is a great industry for parties, galas and weddings in Venice, often for foreigners. So there are companies specialized in organizing these events.

The most popular palaces are *Ca'* Zenobio, Barbarigo, Pisani Moretta, Nani-Bernardo.

Palaces are particularly very busy in Carnival period but also from Spring to Autumn: this type of use is normally very respectful of existent building,

because it is the beauty itself of the palace the main reason for its rental.
Finally, just a mention to a particular use linked to tourism: it is that of *ca'* Vendramin Calergi (Img. 6), that from 50s of 20th century is the seat of *Casinò di Venezia*, the gambling house.

7 - The palace as commercial mall

The last proposal for the re-use of a great building in Venice, is the one that involves *the Fondaco dei Tedeschi*, recently bought by Benetton Group. It is not a palace, but it is a very special type of building, because it was built to host the German trading community with their goods. It is important to mention this new project because it is a clear symbol of our society, culture and what policies (and dealers) want to create for Venice.
The project, designed by OMA[21] (among the others the architect Rem Koolhaas), transforms this building into a great commercial mall; the palace in the 20th century became the Central Post Office of Venice and was greatly transformed. Now a new transformation will occur, with great escalators and open terraces on the roof (image 7), if the project will be approved.
Inside many and many shops with great coloured advertising posters that will wrap the historical and modern surfaces, along with two escalators built in the courtyard: all this alters dramatically the beautiful *Fondaco*.

2.2. Some thoughts on sustainability and compatibility of re-use and restoration

From the short list of re-uses made in previous paragraph, it is evident that in the last 150 years, mostly after the second World War, finding a new use for venetian palaces has become a necessity.

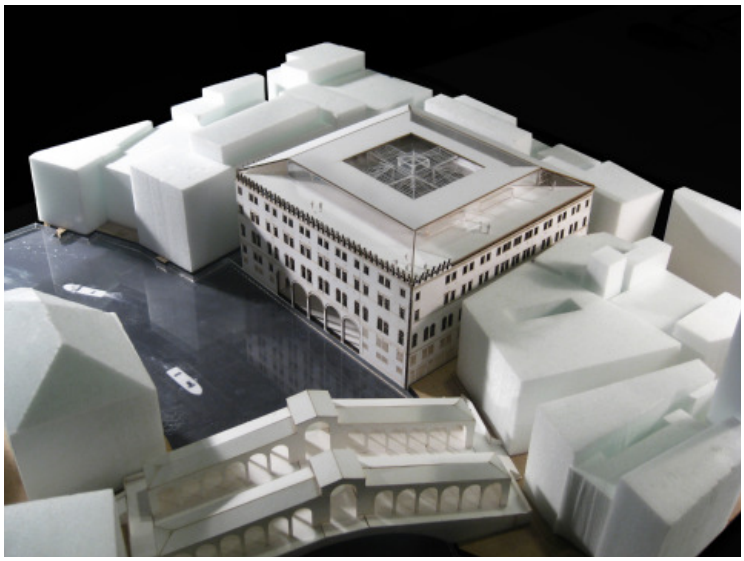

Image 7: Project of *Fondaco dei Tedeschi*

Converting existing buildings into a new use has been always done since ancient times. Its main reason was surely economic; in past times materials were very expensive and it was more convenient maintaining existing structures, often making

21 www.oma.nl

few transformations, just to adapt the construction both to new needs and to artistic styles.

In the early stage of the debate on restoration and conservation, in 19th century, a discussion on the re-use also began: as already underlined, adapting an existing building at new needs of living means making some transformations, more or less heavy. But, on the other hand, during this two last centuries it became evident that when a building is not used, the lack of maintenance will lead it to decay and to ruins. The most important national and international charters, declarations and conventions specify that compatible re-use is the only possibility of keeping a building alive: *Venice Charter* (1964), *Italian Charter on Restoration* (1972), the *Declaration of Amsterdam* (1975), the *Declaration of Rome* (1982), the *Charter on Use Destination of Ecclesiastical Ancient Building* (1987), *the Recommendation of Council of Europe on the Protection and Enhancement of the Rural Architectural Heritage* (1989), the *Charter of Cracow* (2000) are only some of these tools that emphasize this concept.

In fact conservation can be done only through daily use of a building; the main problem to be solved is how this re-use can be organized.

Venice is a clear example of how restoration of buildings can be carried out in very different ways.

In the mentioned examples of re-used palaces it is evident how methodology of restoration can change during times but also in listed or non-listed buildings; surely the importance of the action of the Superintendence in controlling projects and works is crucial. It is well known that till some decades ago there was less respect for existing buildings which were transformed even deeply. In the last three decades this attitude changed and works are conducted in a more conservative way. Two clear examples are two of the Municipality seats, *ca'* Farsetti and *ca'* Loredan, quite altered by restoration works and *Palazzo* Soranzo Cappello, very well conserved in every historical layer.

Anyway it is not strictly a problem of 'what' is the new use but 'how' restoration works are made. Obviously there are some uses that necessary are more transforming than others: for example converting in an hotel an historical palace entails much more changes than just restoring the palace for galas, parties or weddings. But the main problem is the aptitude of the professional (architect, engineer and restorer), that can make a difference in the transformation of an architecture: it is mainly a matter of respect for the existing materials and structures. Otherwise the risk is to "abuse" the building, transforming it into something completely different and new, like for to *Fondaco dei Tedeschi,* that should become a commercial mall.

Another important feature to mention is the question of great investments that have to be made to deal with such a big restoration project.
Normally the funds for the restoration projects are public, private and sometimes both. It depends much on what is the final use of the building: while a luxury hotel can be a financially sustainable investment, with a relative brief payback period, a museum has to rely on public funding, both for restoration and for management.
Sometimes even rich patrons, such as François Pinault for *palazzo* Grassi and *Punta della Dogana* or Madame Bru for *palazzetto* Bru Zane, can finance great restorations. But obviously these cases are limited.
A new way of financing restoration is commercial advertising on scaffoldings; some years ago only few yards had this kind of opportunity, while nowadays Venice is "flooded" by giant, coloured posters.
With well managed advertising campaign an entire big restoration project can be organized, as that of Ducal Palace: in 2008 the façade facing *Rio della Canonica* was wrapped with scaffoldings and big advertising posters; in 2011 conservation works, cost about 1.8 millions euro, are going to be finished without any expenditure of public funds. The restoration has been completely paid by advertising.
But many disputes have been carried out because of these shocking coloured posters: in particular Venice in Peril made an appeal to Italian Minister of Culture: "[…] Only 10 years ago, Venice was a city without large advertisements. Today, they are proliferating. They hit you in the eye and ruin your experience of one of the most beautiful creations of humankind. Their scale dwarfs the fine detail and proportions of the buildings, and now that they are also illuminated, you cannot escape them even by night, when they are the hardest, brightest lights in town by far.
We ask you to imagine the disappointment that the 17.5m visitors to Venice this year will feel. They come to this iconic city with an image of it in their mind's eye and instead they see its famous views grotesquely defaced. To those who say that the money the advertisements bring is necessary to restore those buildings, we remind you that after the great flood of 1966, when Venice was in a much worse state and Italy a much less rich country, no one contemplated using this method to raise funds.
Other ways of financing restoration must be found, otherwise Venice is doomed to be covered in advertisements for the rest of its life because its buildings will always be undergoing work due to their great age and the environmental fragility of the city.
Finally, we remind you that Venice is a Unesco World Heritage Site and that

a preceding government of Italy undertook to protect its essential nature in perpetuity when it accepted this nomination. […]"[22]

It is a difficult matter: funds are necessary and advertising is a way to finance restoration; on the other hand Venice is defaced by these posters, that anyway are consequences of our social and economic culture.

Maybe in few years such kind of advertising won't be profitable anymore and things could change, but today it is difficult to imagine other ways so convenient (and brutal) of financing restorations.

2.3 *Ca'* Zenobio: a palace in Venice

Ca' Zenobio fit in with this complex situation, of an artistic city, exposed to the touristic demand, and where the number of historical palaces is very high.

As we will see in the next chapters *Ca'* Zenobio had big transformation during the centuries, becoming an Armenian boarding school first and later a guesthouse and exhibition place.

The palace is private; the owner is an Armenian religious congregation. But the positive thing is that among so many palaces it is already used for temporary exhibitions (for example the Biennale both Architecture and Arts), for parties, weddings, and also as a guesthouse.

But the current situation is quite difficult: the lack of daily maintenance brought to a conservative condition really worrying, and nowadays not only urgent works but also a general rehabilitation are needed.

Aim of this research is to demonstrate that with a correct management of costs and revenues, dividing works through several years, a correct restoration project is feasible both from a financial point of view and from a cultural and conservation one.

Obviously it is not a simple and linear route: starting from project and arriving to management of the palace there could be many difficulties that could change the hypothetical scenario.

But this research wants to stress the importance of a deep and aware analysis of potentiality and feasibility of a restoration project, in particular from an economic point of view, already from the first planning steps.

22 From "Vast ads in Venice, Venice in Peril appeals to Italian Minister of Culture" http://www.veniceinperil.com/projects/vast-ads-in-venice-appeal

CHAPTER II
CA' ZENOBIO: FROM SYMBOL OF WEALTH TO CULTURAL CENTRE

> "*Il palazzo di Ca' Zenobio era uno dei più belli di Venezia; esso sembrava una reggia. Il canale detto dei Carmini gli passava davanti. Un bel giardino gli abbelliva la vista di dietro. Due viali coperti di alberi fruttiferi formavano il recinto di questo; una vivace fontana di acqua dolce sorgea nel mezzo ed una galleria maestosa gli serviva di prospettiva nel fondo. Alla parte sinistra v'aveano le mura del convento dei Frati del Carmine, a tal che si udivano distintamente le loro salmodie. Dalla parte destra v'era un bell'orto, che per frutta ed erbaggi cedeva di poco a quello di Tempe. In fondo all'orto v'era un bel pergolato che formava uno dei punti di vista del giardino, sotto di cui si vedea la statua di Enea che portava Anchise sopra le spalle, seguito dal picciolo Ascanio […]*"
> Aglaia Anassilide, *Notizie della sua vita scritte da lei medesima,* (XVIII c.)

1. CA' ZENOBIO AS A PALACE: ARCHITECTURE AS SYMBOL OF POWER IN THE 17TH CENTURY

"*Non è Città in Europa, che habbia piu palazzi e di gran circuito, così sul Canal grande come fra terra, di Venetia, i quali noi chiamiamo case per modestia, non havendo nome di Palazzo, altro che quello del Doge. Et certo che se si discorre per le città principali d'Italia, come è Roma, Napoli, Milano, Genova, Fiorenza, Bologna, Padova, Verona, & Pavia, non si troverà che habbiano più di quattro o sei casamenti per una, che meritino titolo di Palazzi. Ma in questa se ne contano poco meno di cento, & tutti, così antichi come moderni, magnifichi & grandi, così nella compositura, come ne gli ornamenti, ne partimenti, & ne luoghi utili per habitare. Et nel vero che non si veggono in parte alcuna edifici, ne piu agiati, ne piu raccolti, ne piu acconci per lo uso humano di questi. Et quantunque i Vinitiani siano stati ristretti in queste Isole circondate dall'acque del mare, si sono però allargati quanto comporta il sito del luogo, suplendo al difetto della natura con l'artificio, onde è cosa manifesta, che se tutti i palazzi & casamenti havessero i Cortili, & gli horti (che molti sono che li hanno) & che le strade fossero larghe & spatiose come in terra ferma, la città sarebbe di gran lunga maggiore di qual si voglia altra al mondo*."[1]

Francesco Sansovino gave an interesting description of Venetian palaces, underlining that in the 16th century they were many and spread in the entire city.

During the fearly days of the city Venetian people didn't build magnificent dwellings, investing money in churches and public buildings; so for a long time

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SANSOVINO, Francesco, *op. cit.* , p. 139.

private houses were quite humble, made of wood, maximum two-storey[2].
But after the Middle Ages, wealth grew in Venice and houses became symbols of power and magnificence; so Venetians started to build rich and sumptuous palaces, with a great display of decorations, especially inside[3]. This trend reached its peak during the baroque period, with volutes, flowers and so on, made with frescoes and stuccoes techniques[4].
Ca' Zenobio is a clear example of an architecture designed to amaze, representing the wealth and power of its owners. But Zenobios had also a political reason for realizing such a great palace: they were a "new" noble family.

1.1. Zenobio family: new nobles and patrons

The 10th March 1647 Pietro Zenobio (1579-1662) was inscribed in the "*Libro d'Oro*" (Golden Book) of Noble Venetian Families Patricians[5].
For centuries the access to the Venetian Patriciate was only a birth-right. But during Candia war (1645-1669) the State's coffers were empty and there was a desperate need to finance military expeditions in the Eastern Mediterranean; so the Government decided to open the inscription to "*Libro d'Oro*" to certain rich families on payment of 100.000 ducats, a really huge amount of money.
Pietro Zenobio, born in Verona the 23rd December 1579[6], was a very wealthy landowner[7] and was one of the first to buy the access to Patriciate: he paid 60.000 ducats cash and 40.000 ducats in revenues of deposit[8] for the inscription.
But his power and wealth were even greater: "another title was acquired in 1649, when the Austrian archduke, to restitute a loan of nothing less than 200.000 ducats, bestowed upon the Zenobio the title of Counts of the Empire. Two years before that, the investiture of four castles with adjoining lands in Tirol, Königsberg (Monreale), Salorno, Enn and Kaldiff (Caldivo) had been

2 MOLMENTI, Pompeo, *La storia di Venezia nella vita privata. Dalle Origini alla caduta della Repubblica*, V ed., 3 volumes, Bergamo, Istituto Italiano D'Arti Grafiche, 1910, vol. I, pp. 84-94.
3 MOLMENTI, *La Storia*, *op. cit.*, vol. II, pp. 329-330.
4 MOLMENTI, *La Storia*, *op. cit.*, vol. III, pp. 303-330.
5 BASSI, Elena, *Architettura del Sei e Settecento a Venezia*, Edizioni Scientifiche Italiane, Napoli, 1962, p. 254; BASSI, Elena, *Palazzi di Venezia. Admiranda Urbis Venetae*, La Stamperia di Venezia Editrice, Venezia, 1976, p. 348; AIKEMA, Bernard, "Patronage in late baroque Venice: The Zenobio" *Overdruk uit de Mededelingen van het Nederlands Instituut te Rome*, Deel XLI - Nova Series 6 – 1979, p. 209.
6 COGGIOLA PITTONI, Laura, "Luigi Dorigny e i suoi freschi Veneziani", *Rivista di Venezia*, gennaio-febbraio 1935, pag. 10.
7 GUIDARELLI, Gianmario, "L'architettura civile", in ROCA DE AMICIS, Augusto (ed.), *Storia dell'architettura nel Veneto. Il Seicento*, Regione del Veneto, Venezia, Marsilio, 2008, p. 236.
8 ASVE, *Avogaria de Comun*, "Nobili creati dal maggior consiglio", fasc. 16: from IENI, Giulio, *Complesso architettonico di Palazzo Zenobio. Progetto di restauro conservativo. Relazione storica*, arch. Michael Carapetian, arch. Fulvio Caputo, 1993, p. 3.

granted."[9]

Pietro Zenobio had an only son, Zuan Carlo (1616-1675), who had many sons and daughters; his daughter Margherita married in 1664 a son of the patrician family Donà. In the same year, the 14th of April, Carlo bought a palace from Elena Morosini, *née* Corner: "*Palazzo […] posto in questa città in Contrà dell'Angelo Raffael sopra le Fondamenta de Carmine, che discorre, et vicina à S. Maria del Soccorso*"[10].

The aim of the family was clear: they wanted to have in the capital a palace worthy of their wealth and power. In fact, traditional Venetian nobles thought that new nobles were *parvenus*, and so many of them wanted to demonstrate their richness with magnificent dwellings. "The very rich Zenobio—in the land registry of 1722 they figured among the ten biggest land owners of Venice and their wealth became proverbial in the eighteenth century—were the first, […], to carry this tendency into the sphere of interior decoration, at the same time turning away decidedly from the Venetian traditions towards the most modern foreign trends".[11]

The purchased Morosini Palace was probably a quite simple gothic building not suitable for the family. The only image of this palace is the rear represented in the bird's eye view of Venice ascribed to Jacopo De Barbari (1500; image 8).

Carlo Zenobio died before seeing the Palace transformed in something new: his sons Verità (1642-1682) and Pietro (1656-1702) commissioned Antonio Gaspari, a Longhena's pupil, the complete restoration of their property[12]. In fact they called a group of young and innovative artists that created something new, modern, of Roman style[13].

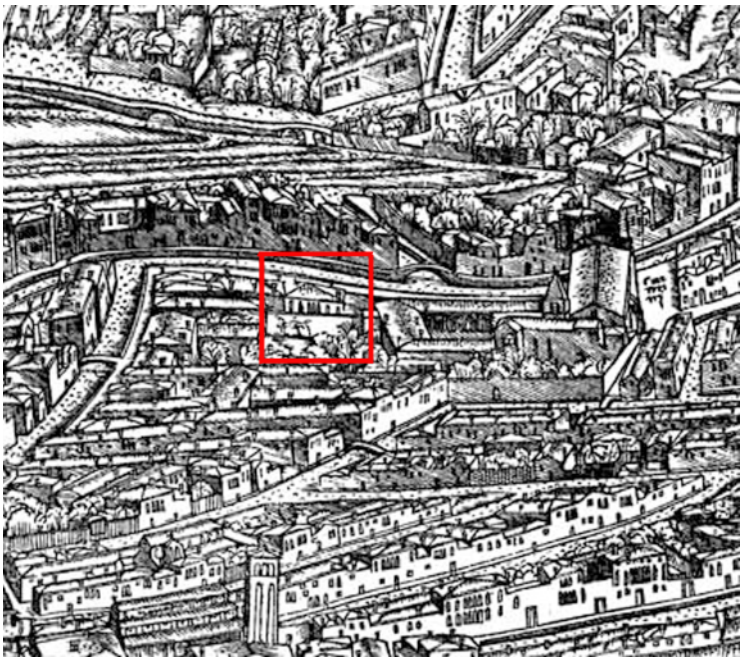

Image 8: Jacopo De Barbari, 1500

9 AIKEMA, "Patronage…", *op. cit.*, p. 210.

10 Archive Rubin de Cervin, già Albrizzi, Fondo Zenobio, busta 16, p. 72: from IENI, *op. cit.* p. 4; AIKEMA, "Patronage…", *op. cit.*, p. 210 and p. 216.

11 *Ibid.*, p. 214.

12 *Ibid.*, p. 210.

13 AIKEMA, Bernard, "'Il famoso Abondio': Abbondio Stazio e la decorazione a stucco

The intention of the Zenobios, as of many other new nobles, was probably to demonstrate both wealth and cultural power, using a new and modern language in the major public symbol that is the palace. In fact, "the city-centre palazzo had thus now become a power-base of a rather different sort from its original function as a *palazzo-fòntego*. It still served as the focal point of a large extended family, but now its principal purpose was for social life and entertainment, the direct if superficial expression of the wealth and social position of its owner."[14]

They pursued this aims with a group of young architects, painters and stucco-workers, that invented one of the most significant example of baroque in Venice, breaking some traditions and rules of a conservative society.

1.2 The young artists who invented *ca'* Zenobio

The four principal artists that really invented this new architecture and its decorations were an architect, Antonio Gaspari, a frescoes painter, Louis Dorigny, a stucco-worker, Abbondio Stazio and a canvas painter, Luca Carlevarijs.

The architect Antonio Gaspari was born around 1660[15] and became a close collaborator of Baldassarre Longhena, one of the most famous architects of that period. He studied classical architecture but also modern and contemporary artists, such as Palladio, Vignola, Scamozzi, Sansovino and Vittoria; this sculptor, in particular, clearly influenced Gaspari's interest for decorations and mostly for stuccoes. But the architect studied also non local artists and he was really interested in the works of Borromini and Bernini[16]. For his passion for an architectural language so different from the traditions of the Lagoon he was seriously criticised; anyway he was also appreciated for his attention to decorations, such as those of *palazzo Albrizzi* in Venice[17].

The artist of the amazing frescoes of ballroom and *portego* at the first noble floor is Louis Dorigny, a French painter[18]. He was born on July the 14th of 1654;

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dei Palazzi Veneziani, circa 1685-1750", *Saggi e Memorie di Storia dell'Arte*, v. 21, 1997, p. 87, 89; AIKEMA, "Patronage*", op. cit.*, p. 214; BASSI, Elena, *Palazzi, op. cit.*, p. 349.

14 GOY, Richard J., *Venetian Vernacular Architecture. Traditional housing in Venetian lagoon*, Cambridge, Cambridge University Press, 1989, p. 146.

15 AIKEMA, Bernard, "'Il famoso…'", *op. cit.,* p. 89.

16 BASSI, Elena, "Episodi dell'architettura veneta nell'opera di Antonio Gaspari", *Saggi e Memorie di Storia dell'Arte*, n. 3, 1963?, pp. 95-98.

17 For further information FAVILLA, Massimo, RUGOLO, Ruggero, "La verità sul caso Gaspari", *Studi Veneziani*, N.S., XLV (2003), pp. 243-262.

18 For information on his life and style: FAVILLA, Massimo, RUGOLO, Ruggero, "Colpo d'occhio su Dorigny", *Verona illustrata*, n.17, 2004, pp. 87-114; FAVILLA, Massimo, RUGOLO, Ruggero, "Un pittore reale: riflessioni su Louis Dorigny, *Studi Veneziani*, N.S., 50 (2005), pp. 138-171; PEDROCCO, Filippo (ed.), *Gli affreschi nei Palazzi e nelle ville venete dal '500 al '700*, Schio (VI), Sassi Editore, 2008.

son of a painter, Michel, and grandson of the most famous Simon Vouet, he was an apprentice of Charles Lebrun in 1671 -1672. Then he moved to Rome, where he studied at the local Academy for the next four years. During his stay in the world capital of arts he won many awards and studied classical arts but also contemporary artists that influenced him[19]. In 1678 he went to Venice, where he married the daughter of a local jeweller; he soon became famous for his abilities as frescoes painter. He moved in 1690 to Verona with his family but he maintained some works in Venice; among them there was surely also the decoration of *ca'* Zenobio, recently dated to 1695[20].

The author of the magnificent stuccoes of the dance hall has been generally identified as Mazzetti Tencalla[21] or Mengalli[22]; more recent studies ascribe the work to Abbondio Stazio[23]. This artist was born in Massagno, near Lugano, in 1663 and made his studies in Rome, where he could see Borromini's and Bernini's decorations. Then he moved to Venice, where for about fifty years he was one of the most requested *stuccatore*, until his death in 1743. In Venice he had some relatives who in 1653 were admitted to the Patriciate; surely his family knew the Zenobios and probably this knowledge was crucial for one of his first works in the Lagoon.

An other young active artist who worked for the Zenobios was Luca Carlevarijs, born in Udine in 1663. He moved to Venice in 1679 with his sister, having become orphans. He didn't have a real apprenticeship, but he was very talented. The Zenobio family was one of his major supporters, so that the artist was called "*Luca da Ca' Zenobio"*[24]. He painted the three big canvas that are still conserved in the *portego* of the Palace and in 1703 the two etchings depicting the new Palace from the canal and from the garden.[25]

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19 COGGIOLA PITTONI, Laura, "Luigi Dorigny…" *op. cit.*, p. 2-4.

20 FOSSALUZZA, Giorgio, "Novità e considerazioni su Louis Dorigny disegnatore", *Arte Veneta*, n. 53, II, 1998, p. 60 and note 3 pp. 65-66.

21 The attribution of these frescoes to Louis Dorigny has been made by Gian Alfonso Oldelli in his "*Dizionario storico ragionato degli uomini illustri del canton Ticino, Lugano 1807*"; major researchers accepted this attribution until Bernard Aikema has proposed something new.

22 COGGIOLA PITTONI, "Luigi Dorigny…" *op. cit.*, p. 14 .

23 AIKEMA, Bernard, "'Il famoso…'", *op. cit.*, pagg. 209-218, 309-320; COGGIOLA PITTONI, Laura, *op. cit.*, pag. 14.

24 REALE, Isabella (ed.), *Luca Carlevarijs. Le Fabriche e Vedute di Venetia*, Catalogo della mostra a Udine 4 dicembre 1995 – 20 gennaio 1996, Marsilio, Venezia, 1995, pp. 142-143.

25 *Ibid.*; BASSI, "Episodi …", *op. cit.*, p. 74.

1.3 The design of *ca'* Zenobio

There are no historical documents giving clearly the schedule of the design and of the construction of this building on the earlier Morosini palace; probably works started in the 80s of the 17th century and were already finished in 1700-1703, when Carlevarijs published his etchings showing the Palace both from the canal (image 9) and from the rear garden (image 10). There are some very interesting drawings of Antonio Gaspari, kept in the archive of Museo Correr in Venice that can help not to date but to understand how the building was conceived.

Image 9: Luca Carlevarijs,
Le Fabriche, e Vedute di Venetia (1703)

These drawings show two main things: first, there is a partial survey of the ground floor of the former palace Morosini, and second, there are many different solutions and proposals of arrangement of the new building.

No information is available about the Morosini palace; the only image, as already stressed, is the bird-eye view by De Barbari, that represents a building with a hipped roof (image 8).

Normally a gothic palace was characterized by "the universal adoption of the tripartite plan. The vestige of the central *loggia* remained in the form of a great multi-light window, usually extending for the full width of the *pòrtego*, the central one-third of the façade; behind it, the *pòrtego* itself ran back for the full depth of the house, with all of the other accommodation

Image 10: Luca Carlevarijs,
Le Fabriche, e Vedute di Venetia (1703)

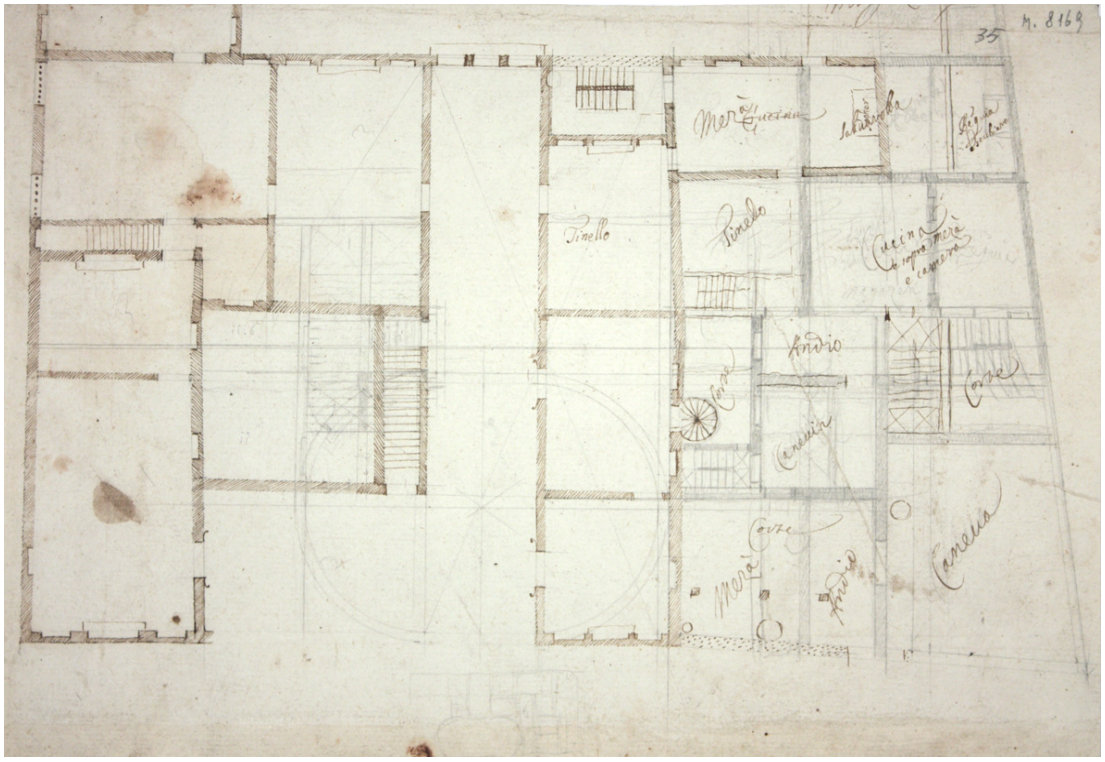

Image 11: Antonio Gaspari, survey of Morosini Palace and sketches for Ca' Zenobio - ground floor (XVII century)

leading directly form it. [..] All the principal family rooms were located on the *piano nobile*, including those for receiving and entertaining guests. The plan precisely echoed that of the ground floor, with the *pòrtego* or great hall directly above the *androne*. The hall was the focal axis for the entire household and was often very large indeed; however, since it was usually still very long in proportion to its width, it was lit at both ends by full-height and full-width windows, each in the form of a group containing between four and seven lights. On the other side of the *pòrtego* the two other important rooms were those at the front overlooking the canal, and these nearly always retained the two single-light windows that we saw in the later Veneto-Byzantine houses"[26].

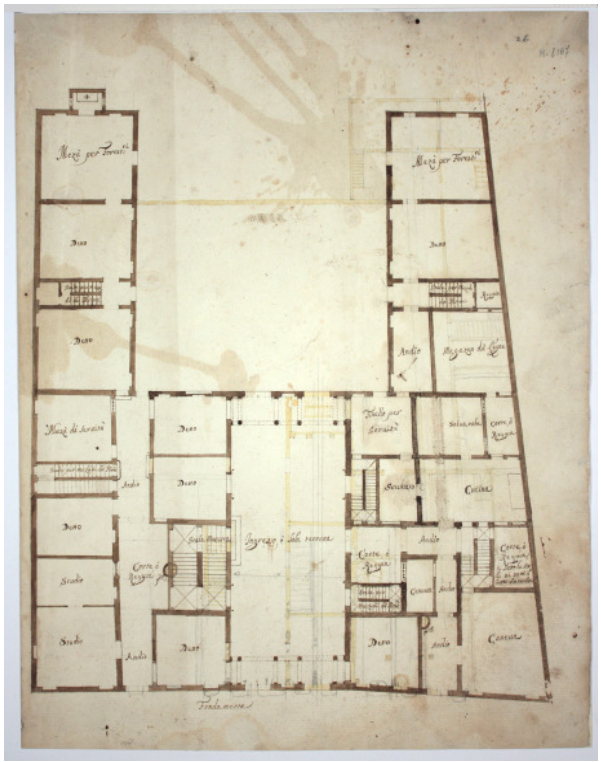

Image 12: Antonio Gaspari, project for Ca' Zenobio - ground floor (XVII century)

The survey made by Antonio

[26] GOY, *Venetian …*, *op. cit.*, p. 131.

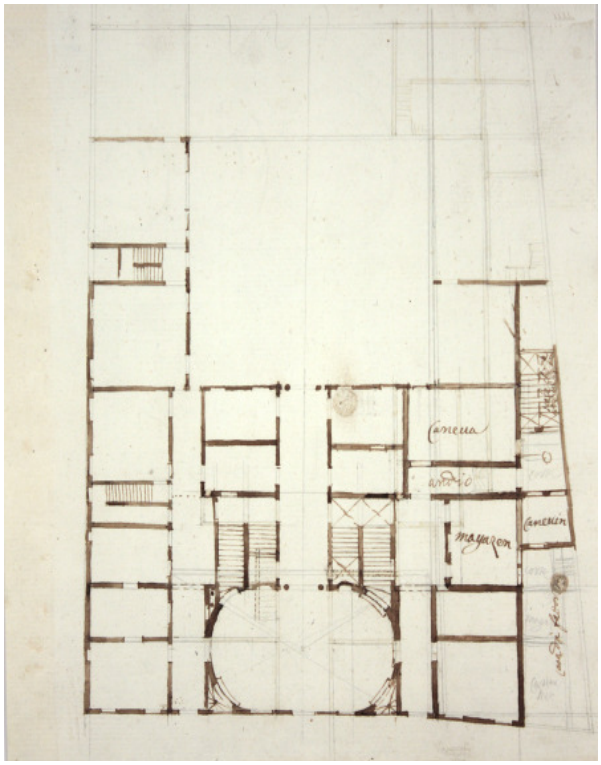

Image 13: Antonio Gaspari, project for Ca' Zenobio - first floor (XVII century)

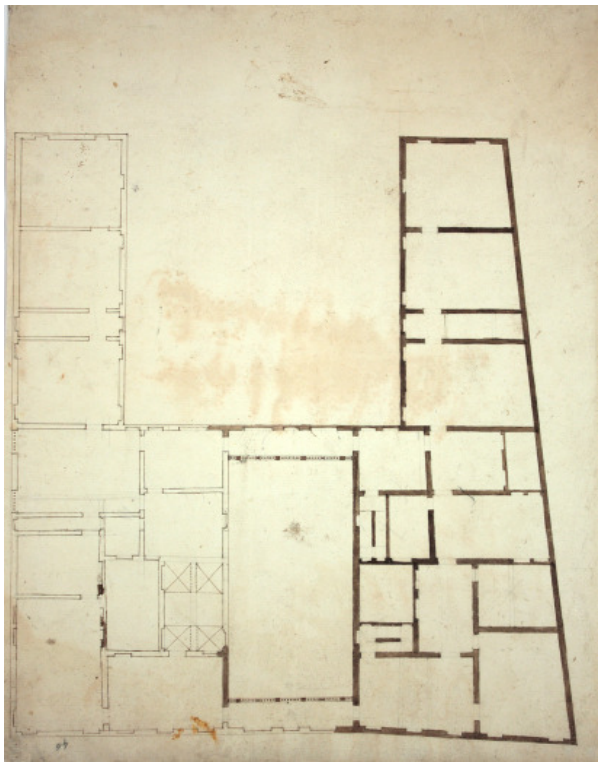

Image 14: Antonio Gaspari, project for Ca' Zenobio - first floor (XVII century)

Gaspari[27] of Palazzo Morosini (image 11) allows us to understand that the plan of the palace was quite similar, in dimensions, to the current one. It is interesting to see that there was a narrow central *portego* facing the rear garden and it was partially maintained by Gaspari, in the south part of the building. On the left of the entrance, there was the main staircase and on the right a little spiral staircase in a courtyard; three more stairs were placed east, south and west. The ground floor was principally used as services area: kitchens, stores, cellars and servant's quarter are marked on the drawings. Interestingly, the survey shows two later wings: researchers tend to underline that the two wings are an innovation for Venetian architecture[28] realized by Antonio Gaspari, or even later[29]. But this survey and others[30] (images 12, 13) show that probably something similar already existed and the architect recreated the same plan with a new, renovated form and use.

Other drawings[31] (Images 12, 13, 14) portay some different ideas for the internal layout of the Palace. The main idea, that finally Gaspari

27 Antonio Gaspari, Studies for *ca'* Zenobio, vol. III, n. 35, Museo Correr, Venice.

28 BASSI, *Architettura…*, *op. cit.*, p. 254; BASS, *Palazzi…*, *op. cit.*, p. 348;

29 HOPKINS, Andrew, "Venezia e il suo Dominio", in SCOTTI TOSINI, Aurora (ed.), *Storia dell'architettura italiana. Il Seicento*, Milano, Electa, 2003, p. 412.

30 Museo Correr: Vol. III n. 26; Vol. III n. 94.

31 Museo Correr: Vol. III n. 24r; Vol. III n. 24v; Vol. III n. 26; Vol. III n. 46; Vol. III n. 94.

realized, was to create a great ballroom at the first noble floor and a correspondent entrance at the ground floor: these rooms are developed transversely, parallel to the main façade. This solution creates, with the linked narrow *portego,* a "T" shaped room that strongly characterizes the building. Probably it is a quotation to the ancient *crozzola*[32], used in Byzantine palaces.

There are also two drawings showing what should be the final solution for ground floor (image 15) and first noble floor[33] (image 16), since they are very similar to the present status of the building, at least in its central part. The most important information given by these drawings is that Gaspari maintains some of the principal walls, such as that of the main façade and of the *portego*. At the ground floor these two walls are transformed into pairs of columns supporting the wooden beam floor of the ballroom. The maintenance of some of the existing walls and beams for the new Palace is directly visible nowadays in the last floor, over the ballroom (see chapter III, paragraphs 2.5 and 3.1).

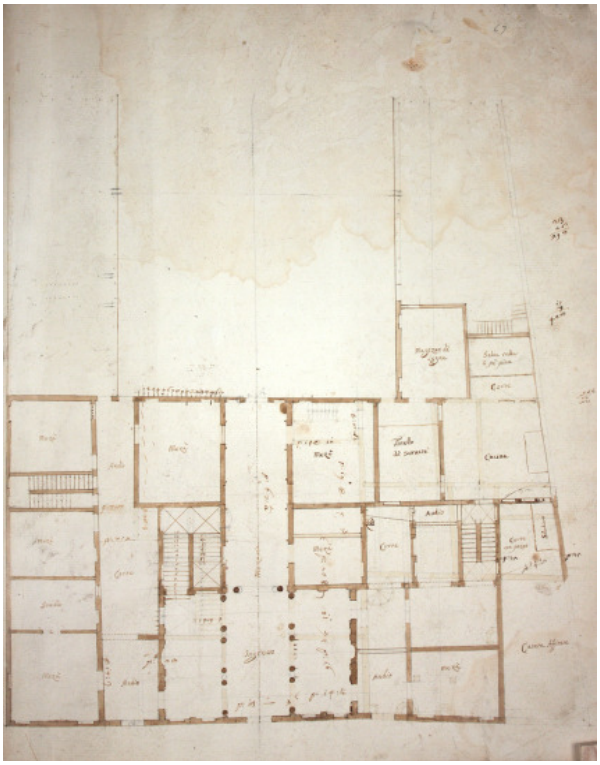

Image 15: Antonio Gaspari, final project for Ca' Zenobio - ground floor (XVII century)

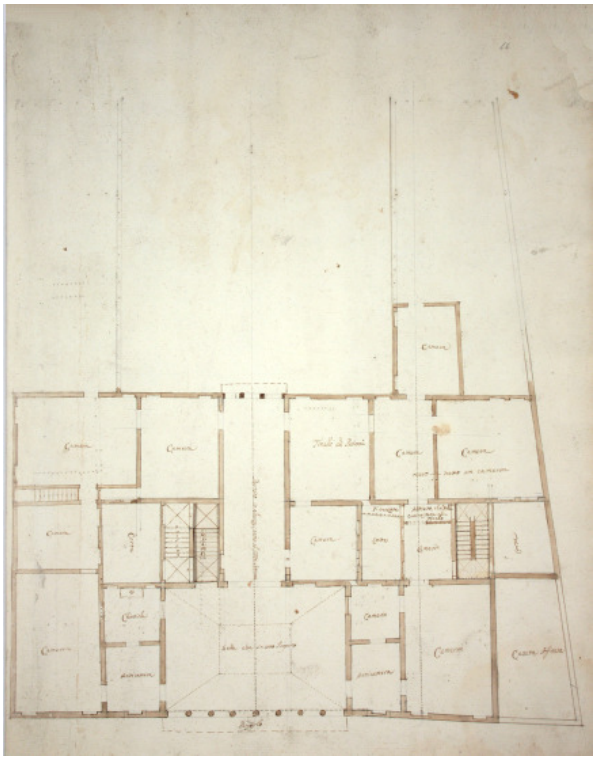

Image 16: Antonio Gaspari, final project for Ca' Zenobio - first floor (XVII century)

At the ground floor the main staircase is shown on the left of the principal entrance, as it still is, but the start was in the northern side and not directly from the *androne* as it is today. The

32 See: Sansovino, *op.cit.*, p. 245.

33 Museo Correr: Vol. III n. 66; Vol. III n. 67.

principal uses of the ground floor, in the former palace, were kitchens, store, cellar, servants' quarter and also guest rooms, particularly in the side wings.
The first floor is a representative area, so in the drawing the rooms are principally *"camere"* a part for the ballroom that is marked as "*Sala che sta sotto il coperto*" that means "room under the roof", as if the first noble floor should have been the last one. Some projection lines indicate that a vault, probably a false ceiling, was planned in the ballroom: the final result is different from what had been sketched in the drawing but surely the idea was similar to what finally had been made.
The appearance the palace had when it was built can be only imagined, because the building has been subjected to many transformations; anyway, some areas have still the original characters, such as "symmetrical plan with a central hall or *androne* and an elevational treatment which […] clearly expresses the spatial structure behind the façade."[34]
In fact "the tripartite form which had already evolved in the early gothic period was to remain the most fundamental basis of the house-planning throughout the city and its lagunar satellites. […] The structural form of the house was equally simple and logical; [..]. The plan that thus developed was remarkably flexible and adaptable given the restraints imposed by these four parallel walls"[35].
The main façade (image 17), entirely plastered with *marmorino*, is characterized by the regularity of the windows that doesn't suggest the double height of the ballroom of the first noble floor; anyway, the central important room is stressed by the presence of a balcony and large arched windows, studied in detail by Antonio Gaspari (image 18). The main entrance is also in the middle of the elevation, with an important portal, under the balcony (image 19); at the last floor a quite rare arched gable crowned the great stone coat-of-arms of the Zenobio family (now positioned on the eastern wing, facing the internal courtyard).
The ground floor is

Image 17: Ca' Zenobio, principal façade

34 GOY, *Venetian …*, *op. cit.*, p. 172.
35 *Ibid.*, p. 149

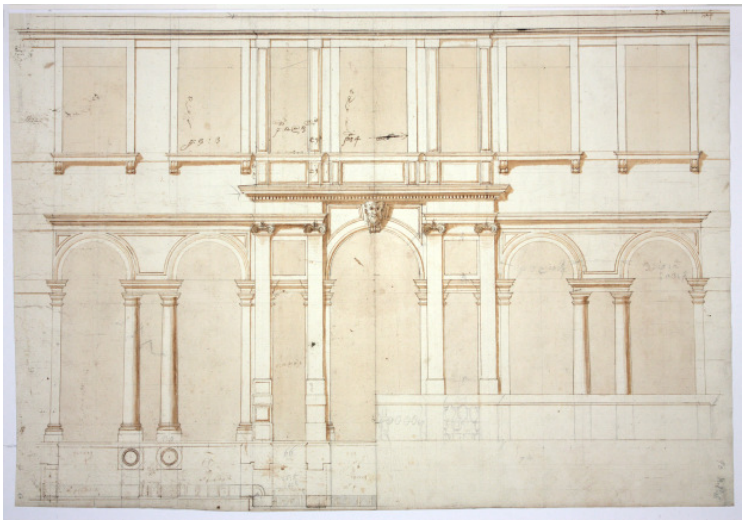

Image 18: Antonio Gaspari, study of the balcony of Ca' Zenobio - first floor (XVII century)

Image 19: Antonio Gaspari, study of the portal of Ca' Zenobio - ground floor (XVII century)

Image 20: Main entrance of Ca' Zenobio (20th century)

mainly marked by the entrance with a "T" shape (image 20), pairs of columns and a classical pavement with white and red stone-tiles (Istrian stone and *Rosso Verona* marble). Probably the wooden beams were decorated and the walls plastered with some nice decorative effect. The narrow *androne* has at his rear a large glass door as a passage to the courtyard, where at least two well heads and cisterns were located. From the paved courtyard a large wrought iron gate introduced to the rich garden, probably ornamented by baroque decorations, as portrayed in one of the Carlevarjis etchings (image 10), that "fills the whole width of the gardens with curvilinear forms, perhaps laid out in coloured earths (gardeners who are working on them seem to be tidying the material within each arabesque) while potted plants are ranged around the

Image 21: Ca' Zenobio, Garden and *Casino*

edges where more gardeners are at work."[36]. There were no buildings at the rear of the garden, where finally in 1777 Tomaso Temanza built its *Casino* (image 21) and the garden was totally modified, as shown in a historical plan (image 22): "now it has four simple beds around a small central and circular pool, each quadrant taking the form of probably a grassed area, with a bush or small tree at its centre, and surrounded by beds or low hedges broken elegantly on each side to allow access to the middle"[37] (see also chapter III paragraph 2.6).

The main staircase starts from the eastern side of the *androne*: it was surely decorated both with coloured and precious marbles in the landings and coloured glasses on doors an windows; the steps are in Istrian stone and probably the walls were plastered with *marmorino*, maybe decorated; even vaults were surely painted or decorated (image 23).

The staircase leads to all the three floors of the palace; the first flight

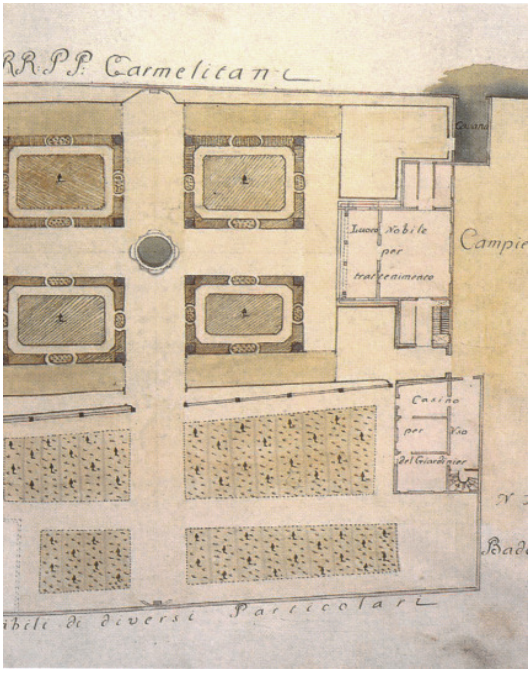

Image 22: Ca' Zenobio, Garden and *Casino*

[36] DIXON HUNT, John, *The Venetian City Garden. Place, Typology, and Perception*, Basel, Boston, Berlin, Birkhauser, 2009, p. 129-130.

[37] *Ibid.*, p. 130.

Image 23: Principal staircase

Image 24: *Portego*

reaches the *portego* of the first noble floor, through a magnificent walnut door. The narrow *portego* overlooks the garden with a balcony and a large arched window (image 24); on the north side a stone portal topped by a Serliana introduces to the great ballroom (image 25), a spectacular room, set in parallel to the principal façade.

The entire first floor was probably a representative area with many *camere*. Following the main staircase we reach the second floor in the *portego*. This room has the same dimensions of the lower one and faces the great ballroom with a wooden balcony where an orchestra used to play during parties and balls. Toward the garden the *portego* has a large window and a balcony.

Image 25: *Portego*

This floor was probably dedicated to bedrooms: at least it is still visible an alcove, later transformed into a chapel; maybe it is the same alcove that Gaspari studied in his drawings (image 26)

The last floor, under the roof was surely completely different from what we can see today: the only existing area was that in correspondence with the central

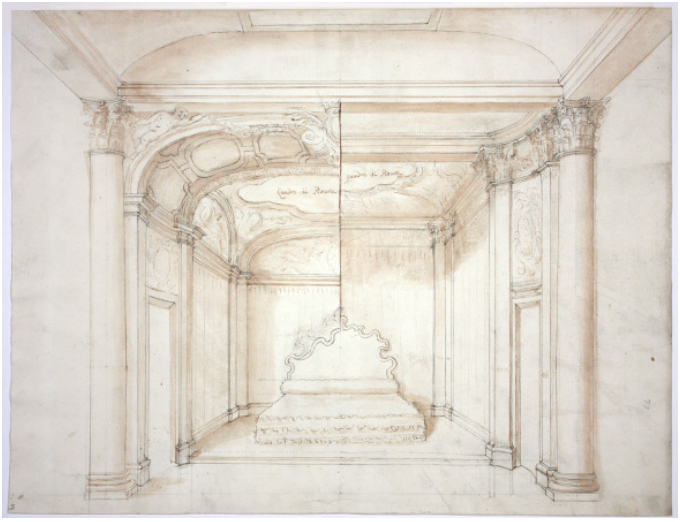

Image 26: Antonio Gaspari, project
for an alcove in Ca' Zenobio (XVII century)

part of the Palace. As one can see from the Carlevarjis etching (image 10) the two parts between the Palace and the two wings were present only in the area of principal façade[38]. Anyway this floor was surely used by servants.

As for the two rear lateral wings of the palace, as already described, there are two other staircases, one for each wing; on the ground floor there were the service rooms, and on the upper floor representative rooms or alcoves.

1.4 The decoration of *ca'* Zenobio

The architecture of *ca'* Zenobio was quite innovative for the period, but the family chose to show off their wealth and power with a luxurious decoration. Unfortunately nowadays only a few parts of these legendary decorations are conserved but they offer nevertheless a clear sample of the past magnificence of the building.

In fact the decoration of *portego* and ballroom, at the first noble floor, is astonishing: nowadays it has still maintained its charm but probably once the colours were more vivid and everything looked even more amazing. These two rooms where the most important of the all Palace, being the representative rooms, where parties and balls took place; their decoration had to be the most impressive as possible, as symbol of the power, wealth and cultural activity of Zenobios. Here architecture, painting and stuccoes are planned in every single

Image 27: Louis Dorigny, decoration of false ceiling in the *portego*

[38] See chapter III, paragraph 2.5

detail to create a majestic effect.
So it is interesting to describe them in detail for understanding also the iconographical scheme that was the basis for the entire project.
The *portego*, a narrow and not high room, is the filter of entrance in the huge ballroom. When the visitor enters the *portego* he is immediately attracted by the decorations of the ceiling and the canvas on the walls. The false ceiling has three niches framed with white and pink stuccoes; the internal parts are decorated with frescoes by Louis Dorigny depicting virtue overcoming vice (images 27, 28, 29, 30).

Image 28: Louis Dorigny, *Merito, Prudenza, Ragione* and *Fama Buona*

"The first of these 'niches', as d'Argenville calls them […], shows *Merito* in the guise of a sitting young

Image 29: Louis Dorigny, *Virtù, Fama, Giustizia e Nobiltà*

man, accompanied by *Prudenza* and, possibly, *Ragione* (with a lion); over the figure of *Merito* hovers a daringly foreshortened personification of *Fama Buona*. The middle compartment, the largest of the three […], contains, in the background, *Virtù* in the guise of a woman; next to her, we see *Fama*, blowing a double trumpet. Closer to the onlooker, seated on heavy clouds, are female allegorical figures, the two on the right representing *Giustizia* and *Nobiltà*. The third fresco, of the same size as the first one […], depicts the *'plusieurs Vices. . . foudroyés*', among whom we may recognize *Superbia* (in the shape of a woman with a peacock) and *Arroganza* (a man with donkey's ears)."[39]

Image 30: Louis Dorigny, *Falling Vices*

The walls are decorated with three canvas by Luca Carlevarijs (images 31, 32), depicting a landscape, a seaside sight and a seaport; probably these are the

Image 31: Western wall of the *portego*

Image 32: Eastern wall of the *portego*

[39] AIKEMA, "Patronage…", *op. cit.*, p. 212.

Image 33: Cupids with musical instruments

Image 34: Cupids reading and writing

Image 35: Cupids sculpting

Image 36: Cupids painting

first works of the painter and can be dated at the last decade of the 17th century. The floor nowadays is a simple Venetian *terrazzo* but probably the room had a more richly decorated *terrazzo*. The doors are luxurious, made of walnut wood, with adorned handles. Over them there are little monochrome fresco-paintings representing arts: little cupids with musical instruments (eastern wall, left – image 33), little cupids reading and writing (eastern wall, right – image 34), little cupids sculpting (western wall, left – image 35) and cupids painting (western wall, right – image 36).

The big *Serliana*, made in Istrian stone, introduces to the ballroom (image 37): the general effect is astonishing. The double height of the room, the decorated false ceiling and walls, the large mirrors reflecting the light, the row of windows overlooking the canal, create an amazing effect.

Image 37: Ballroom

The decoration, both with frescoes and stuccoes, is complex, rich and variated.

Image 38: False ceiling of the ballroom

The great ceiling is characterized by a *quadratura*[40], an element of Roman paintings; probably Louis Dorigny saw it during his studies in that city: in 1672 Domenico Maria Canuti was painting a great ceiling in the church of *SS. Domenico e Sisto* in Rome and a big *quadratura* was painted as a frame by Enrico Haffner[41].

The subject chosen for the large ceiling of *ca'* Zenobio is strictly related to the patrons: the triumph of Zenobia or Dawn (image 38). "The winged female figure in the centre of the composition represents Aurora. Behind her, from the left, the chariot of the Sun approaches. Hovering above Aurora, two putti, with a torch and a bowl turned upside down, water sprinkling out of it, and a bright star above them, represent *Crepusculo della Mattina*, the dusk of the morning. The architectural setting of the scene contains *ignudi* holding garlands."[42]

A famous art critic of the 18th century, Pierre Mariette, asserted that Louis Dorign wasn't used to making sketches of his works[43]; but Fossaluzza[44] has recently demonstrated that he used to prepare some drawings before starting

40 "In Baroque interiors and derivatives, painted architecture, often continuing the three-dimensional trim, executed by specialists in calculated perspective." [*Dictionary of Architecture & Construction,* IV edition, Mc Graw Hill, 2006, p. 781]

41 AIKEMA, "Patronage…", *op. cit.*, p. 212.

42 *Ibid.*, p. 211.

43 "Il étoit devenu si grand praticien, qu'il n'avoit presque jamais besoin de faire des dessins pour les ouvrages qu'il avoit a peindre, même ceux qui étoient les plus composés. La plus légère esquisse lui suffissi. De là il partoit, le pinceau à la main; il composoit er rédigeoit sur le mur ce qu'il vouloit exprimer" MARIETTE, Jean Pierre, *Abecedario*, Paris, 1766

44 FOSSALUZZA, "Novità…", *op. cit.*

Image 39: Louis Dorigny, *Sketch*

Image 40: Louis Dorigny, *Sketch*

the frescoes. In particular, the italian researcher found two sketches in Puskin Museum in Moscow that are clearly related to the ceiling of *ca'* Zenobio (image 39, 40).

Probably Dorigny, to paint the *quadratura*, used some specialized artists that created a very complex and realistic architecture. "Over the balcony at the entrance side, painted in an illusionistic way, musical instruments and a score of notes are shown. This is where the orchestra used to play during festivities in the *salone.* In the corners we see two coats-of-arms of the Zenobio[45], and two monograms (of Verità Zenobio?) […]. The fresco is continued in the upper wall-area."[46] (image 41, 42). It is decorated with some figures, representing Arts, Science and Muses and two *capriccios*. Starting from the northern wall clockwise (images 43, 44, 45, 46): *Atena* [1]*, Parca Atropo*[2], *Tersicore* [3] (Muse of dancing), *Polimnia* [4] (Muse of mime), *Erato* [5] (Muse of love poetry), *Calliope* [6] (Muse of mith), *Urania* [7] (Muse of astronomy), a dwarf [8] (smoking a pipe), a monkey [9], the representation of arts [10] (painting, sculpture, architecture), *Clio* [11] (Muse of history), *Talia* [12] (Muse of Comedy), *Melpomene* [13] (Muse of Tragedy), *Euterpe* [14] (Muse of lyric poetry).

Image 41: Coat-of-arms

Image 42: Monogram

[45] The coat of arms of the family shows a rampant lion, an eagle and St. Bernard (DI CUSTOZA, Eugenio Morando, *Armoriale Veronese*, Verona, 1976)

[46] AIKEMA, "Patronage…", *op. cit.*, p. 211.

Image 43: Northern elevation

Image 44: Eastern elevation

Image 45: Western elevation

Image 46: Southern elevation

Image 47: Fall of Phaeton

Image 48: The Death of the Children of Niobe

The northern wall has a row of seven windows, in line with the openings of the ground floor; on the eastern wall two windows (facing to the alcove) are now closed by wooden panels decorated as windows; on the western wall the two corresponding windows are painted on the wall with frescoes technique.

"At the short ends, over huge mirrors, two oval monochromes represent *The Fall of Phaeton* and *The Death of the Children of Niobe* […]. Over the doors, slightly below, four stuccoed gilt medallions represent four more myths concerning Apollo: the god and Daphne, Apollo and Marsyas playing their instruments […], Marsyas being flayed, and, presumably, Apollo and Chion."[47] (images 47, 48, 49, 50, 51, 52).

Under the area of frescoes, the walls are decorated with stuccoes by Abbondio Stazio; they are based on three colours: white, pink (in almost two shades) and

Image 49: Apollo and Daphne

Image 50: Apollo and Marsyas

Image 51: Marsyas being flayed

Image 52: Apollo and Chion

47 AIKEMA, "Patronage…", *op. cit.*, p. 211.

Image 53: *Sala Putti*

gold. On the northern wall there is a complex three-dimensional decoration with a military subject; on the other walls there are the rich frames of the mirrors with *putti* and pilaster with Corinthian capitals. Maybe inside these magnificent frames there were some paintings with portraits of Zenobios[48], but mirrors were often placed in this kind of ballrooms.

As in the *portego,* the floor in a simple Venetian *terrazzo,* probably it replaces a richer, earlier floor.

Portego and ballroom are not the only decorated rooms of the Palace; on the contrary, it is probable that almost all rooms were embellished by frescoes, paintings, stuccoes and so on. The palazzo has been spoiled of its paintings, sculptures, furniture, frescoes and stuccoes. For example, it is sure that in 1700 Lazzarini painted a ceiling with "Ceres and Bacchus"[49].

Nowadays there are many rooms still decorated, as the two rooms siding the great hall; but one of the most astonishing is that on the second floor, the so called "*Sala Putti*" (image 53): "Highly interesting are two connected rooms (one actually being an alcove), recently very well restored, adorned with most extraordinary *stucchi* […]. *Putti* seem to jump out of the walls and are playing with a garland on the ceiling where the two rooms merge. A comparison of this work with the *stucchi* executed in 1705 or shortly after in Palazzo Widmann […] makes it clear that both decorations are by the same author: Abbondio Stazio".[50]

Image 54: *Chapel*

Another interesting evidence of the possible original decoration of rooms, is the alcove, now transformed in chapel (image 54), where "we find some of the most refined *stucchi* Stazio—we may assume he is the author—ever executed in Venice. Surrounded by elegant arabesques

48 BASSI, Elena, "Episodi..:", *op. cit.*, pag. 75.
49 *Ibid.*, pag. 74.
50 AIKEMA, "Patronage…", *op. cit.*, p. 214.

and slender, curving frames, the middle compartment shows Aurora on her chariot […]. Over the entrance to the alcove, two *putti* are playfully holding a crest". Unfortunately it is in a very worrying conservation status and an urgent work is needed; anyway this work still shows its magnificence.
Also in other rooms of the palace decorations are still visible, such as in the *portego* of the second floor, some stuccoes on different ceilings, and painted beams and wooden cornices.

2. CA' ZENOBIO AS AN ARMENIAN BOARDING SCHOOL: COLLEGIO ARMENO MOORAT-RAPHAEL

For about one and a half century *ca'* Zenobio was a representative dwelling of the family. In 1817 count Alvise Zenobio, last of his line, died in London: he had been a traveller and a patron of arts. The palace was inherited by Alba Zenobia, his sister, wife of Gian Battista Albrizzi; she transferred all the collection of art and archives to the Albrizzi palace, where they lived. In 1844 she decided to sell *ca'* Zenobio.

2.1 The purchases of *ca'* Zenobio

Alba Albrizzi sold the palace to count Salvi from Vicenza in 1844; he was a rich man who started a renovation of the old palace, both inside and in the garden. No much information is available about this restoration works[51] but it is clear that much of the original decoration has disappeared[52]. In fact in the only existing inventory of the properties in the Palace dated 1838 many paintings, sculptures, luxury object are mentioned. "Beside the paintings and other objects mentioned here we know from Desaillier d'Argenville, [...], that Dorigny executed in a room *'deux plafonds: l'un est un Mercure avec plusieurs symboles de la Vertu, dans Fautre ce sont les trois Déesses qui se dispusent la Pomme d'Or'*"[53].

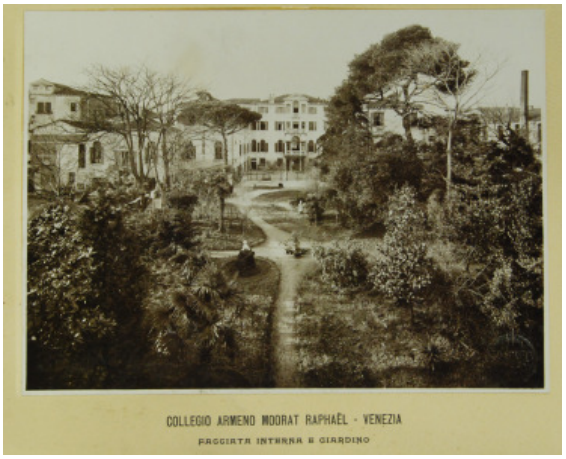

Image 55: Garden designed by architect Negrin

51 "*Nel 1844 il conte Gio. Battista Salvi di Vicenza che aveva la proprietà di questo edifizio, ne ordinava un radicale ristauro, poiché molto era deperito per il tempo lungo e il soverchio abbandono*" FONTANA, Gian Jacopo, *Cento palazzi di Venezia*, Venezia, Scarabellin, 1934, p. 289.
52 AIKEMA, "Patronage…", *op. cit.*, p. 214.
53 *Ibid.*, note 40, p. 217

In 1848-49 the architect Antonio Caregaro Negrin (1821-1898)[54], famous landscape gardener, created a new garden in romantic style (image 55) : two little hills and a bridge are still evident on the western side of the garden. In many photographs one can see the new look with many tall trees and winding paths.

Probably due to the political situation of that period, despite the money invested in restoring the building, Count Salvi sold the palace in 1850 to the *Congregazione Armena Mechitarista*, that is still the owner.

2.2 From palace to boarding school: the new life of *ca'* Zenobio

The relations between Venice and Armenians[55] have been lasting for about a millennium, starting from the 11th century. Armenians have always lived in the city, and in the 18th century a renaissance of culture and religion took place in Venice, thanks to Abbot Mechitar and the foundation of his monastic Congregation, that in 1717 obtained from the *Serenissima* the allocation of the island of San Lazzaro[56]. Mechitar moved in the Lagoon in 1715, after the acknowledgment of his Order by the Pope.

In 1834[57] in Padua a first Armenian boarding school had been opened and dedicated to Aga Samuel Megrdich Moorat who left in 1816, at his death, a huge amount of money to *Congregazione Armena Mechitarista*. In 1836 a second boarding school was opened in Venice in *Palazzo Pesaro[58]*; it was dedicated to an other benefactor, Edward Raphael.

In 1851 the boarding school was moved to *ca'* Zenobio, probably chosen

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54 CUNICO, Mariapia, *Il giardino Veneziano. La storia. L'architettura. La botanica*, Venezia, Albrizzi Editore, 1989, pp. 92-95.

55 ZEKIYAN, Levon, FERRARI, Aldo, *Gli armeni e Venezia. Dagli Sceriman a Mechitar: il momento culminante di una consuetudine millenaria*, Venezia, Istituto Veneto di Scienze, Lettere ed Arti, 2004

56 "*[…] i pp. Armeni Mechitaristi, […] fino dalla metà del secolo XIII, ottennero sulle lagune dal doge Ziani privilegi di culto e di commercio, e i quali furono quivi ospitati, quando fuggivano col benemerito padre Mechitar dal convento di Modone, poiché fu invasa la Morea delle armi Ottomane. Già il Senato aveva con affittanze rinnovate ad ogni ventennio, accomodata ad essi tutta l'isola di s. Lazzaro, non chiesto che il tributo di alquante libbre di cera, quasi per non occultare il genio di gradirne il soggiorno, e conservarsi il diritto del possesso, ch'ebbero in seguito al cadere assoluto della Repubblica*" from FONTANA, *Cento…*, *op. cit.*, p. 289.

57 Information taken by the web site of *Palazzo Zenobio*: www.collegioarmeno.it

58 "[…] *Istituito poi nel 1836 da Odoardo Raphael, negoziante armeno di Madras nelle Indie, il rinomato collegio, a cui sono filiali gl'Istituti di educazione, che sono sapientemente condotti a Parigi, a Costantinopoli, a Trebisonda e ad Elisabetopoli, lo fecero fiorire, per anni molti, nel palazzo Pesaro a s. Eustachio, sotto gli auspici di un dotto e benemerito arcivescovo, indi lo trapiantavano in questi recinti, ove la nostra città gode di avere ospiti de' suoi lidi i prediletti monaci, di aspetto elegante insieme e maestoso, fiore di ogni dottrina e gentilezza, la vita esemplare dei quali scorre nell'austera, ma affettuosa semplicità dei costumi patriarcali. Così, a mezzo di questo palazzo e dell'isola di s. Lazzaro, è Venezia l'anello prezioso, per cui diffondesi la civiltà agl'indigeni delle regioni dell'Asia Minore e del bel ciclo dell'Armenia, antico teatro de' più solenni avvenimenti del mondo*" FONTANA, *Cento…*, *op.cit.*, p. 289

for the large and spacious garden; in 1871 the two boarding schools were merged into a unique institution "*Collegio Armeno Moorat-Raphael*".
The two benefactors meant to create a place where young Armenian could study, so giving thrust to the diffusion of Armenian culture. And so it happened for about a century and a half, up to 1997. Many students, thanks to the legacy of Raphael and Moorat could attend the boarding school for free[59].
In 1896 "*Collegio Armeno Moorat-Raphael*" became an "*ente morale*", a no-profit organisation, which is directly linked and controlled by the Vatican.
Surely after its change of ownership the palace had been transformed in order to be more suitable for the new use: so during many decades classrooms (images 56, 57,58), dormitories (image 59), kitchen (image 60) and refectory were built. In the palace lived the students, for about 9 months a year, the teachers (many of them priests), the cook, the porter and all the people necessary for the management of the boarding school.
The top floor of the palace has undergone the major transformations of the entire complex, probably related to the enlargement of the dormitories, at the beginning of the 20th century. Those alterations have

Image 56: Classroom

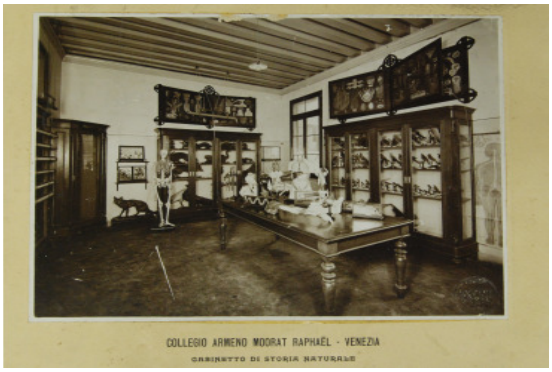


Image 57: Classroom

Image 58: Classroom

[59] Much of this and following information has been given by Mr. Samuel Baghdassarian, director of the *Collegio Armeno*.

Image 59: Kitchen

Image 60: Dormitories

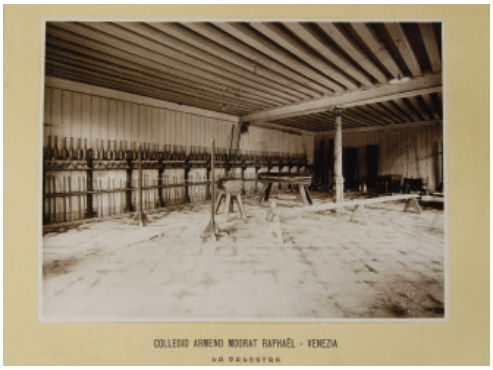


Image 61: Gymnasium

Image 62: Playground

not been studied yet, but it is reasonable to suppose that, when the classrooms of the Collegio Armeno were transferred from the nearby palace to Cà Zenobio, there was a lack of space for a newly managed boarding school with its classrooms in the same building.

Comparing the print representing the south elevation of cà Zenobio, engraved by Luca Carlevarijs, with the present situation, it is clear what happened. The forth floor of the palace was not rectangular but "T" shaped, with the two portions behind the ailes three storeys high for half of the thickness of the plan of the palace, and raising to four floors just from the part of the roof facing North to the ridge, in order to have the magnificent and grand northern elevation four floors high, crowned by the straight line of the gutter. The solution invented to obtain more area has been the infill of two new volumes on each side of the palace roof, starting from the two ends of the South front, the ones enriched by the Istrian stone volutes. The top floor underwent many other changes, in order to improve sleeping accommodations and toilet facilities, improvements that are still being carried out.

Other transformations of the palace have been the addiction of a new building next to the eastern wing to create gymnasium, kitchens and refectory and the transformation of the garden, maintaining in the eastern part the romantic shapes and creating a simple parterre with straight path in the western area[60].

60 CUNICO, *Il giardino…*, *op. cit.*, p. 95.

Image 63: Playground

Image 64: Ballroom

Image 65: Office

Image 66: Theatre

The ground floor, in the western main building, was a representative area, while the two wings were used for the gymnasium (image 61) and stores. In the garden, in front of the new eastern wing, there was a large playground and on the eastern wall a building for the laundry (images 62, 63).

The first noble floor maintained the principal rooms as representative areas (image 64) while others were used as offices (image 65); there was also a little theatre in the last north-eastern room (image 66). In the new western wing there was the refectory with the great kitchen.

The second floor was mainly used for school activities, and many rooms had been transformed into classrooms or offices. In the western wing there were teachers' rooms. The former alcove, in the eastern part of the building had been transformed into a chapel (image 54).

The third floor was mainly dedicated to dormitories and students rooms with common bathrooms.

Not much maintenance has been made in the palace during those years; students fees were not enough to cover maintenace works, and these were possible only with legacies from benefactors.

In 1997 there were still 52 students in four classes of senior high school, specializing in science education and modern languages. Students came from seven different countries and lessons were in Italian, Armenian, English and French. But the boarding school was hardly sustainable both from an economic and management point of view, so the new administration decided to close it.

3. A NEW CA' ZENOBIO: CULTURAL CENTRE AND GUEST HOUSE

When the decision of closing the boarding school was taken, the first problem to face with was how to maintain this great, important but expensive palace.
Many different ideas were examined. One of the most attractive was that of transforming *ca'* Zenobio into a luxury hotel[61]; Venice is mainly based on tourism and in the neighbouring area no other exclusive structures are available.
According to the wills of the founders, the palace can't be sold; so an external company could only take over the all management of the palace, while *Collegio Armeno* should have only immediate revenues. But this meant a complete transformation of the building and moreover the complete loss of a cultural reference point, both Armenian and Venetian.

3.1 The present management of the Palace

The administration of *Collegio Armeno* finally decided differently: adapting the Palace to a more suitable use, that can have some relevance from a cultural point of view, but that can also guarantee an economic sustainability.
The palace became a cultural centre for temporary exhibitions, mainly of contemporary arts, and also a guest house (Drawings from S.01 to S.02).
Since 1994 *ca'* Zenobio was occasionally let out for parties or wedding: the wonderful ballroom and the garden are a perfect setting for important ceremonies. After the closing of the boarding school, these activities increased and then the palace started to be let for temporary art exhibitions; in particular in the last years it became a "pavilion" of Biennale (Arts and Architecture). For example this year (2011) it hosts the "Mediterranean Approach" of the 53rd Biennale of Arts.
With very few works, dormitories of the third floor were transformed into guest rooms that are let to students and tourists. Fees are very low, as accommodations are very basic, but the request, during the Venetian high season, is very high. The guest house works with a bed and breakfast formula, but it has no permission to cook for guests, so only packaged food can be given.
Some of the personnel managing the palace (keepers, handymen, etc.) live in the building.
Nowadays there is a complete promiscuity of different uses: wedding are celebrated in the ballroom, while Biennale is in progress; at the same time at the second floor some lectures of a "Summer Academy" take place; guests can easily go through the palace without any particular control. But, in some way, this is also one of the peculiarity that makes the place fascinating.

[61] See also Chapter IV, paragraph 3.1.

The "*Collegio Armeno Moorat-Raphael*" still exists as association and it is still an "*ente morale*" (no-profit organization) who has to answer to the Vatican.
The main problems that the current management has to face is the very worrying conservation condition of the palace. During many decades only essential works were carried out: this means that sometimes no conservation was possible anymore, but only renovation.
The management of *ca'* Zenobio as a cultural centre and guest house is positive: in the last years the balance sheet made a profit. But now some important decisions have to be taken: if no maintenance, conservation and rehabilitation works are carried out it is probable that in a few years some sectors of the palace won't be usable any more. So the economic revenues could stop. On the other hand, obviously, this continuous lack of maintenance brings to a loss of value, cultural, artistic, historical, social and so on.
But starting a complete restoration and conservation project is difficult, mainly from an economic point of view. So a thorough and precise analysis on the possibility to sustain such works is of paramount importance.

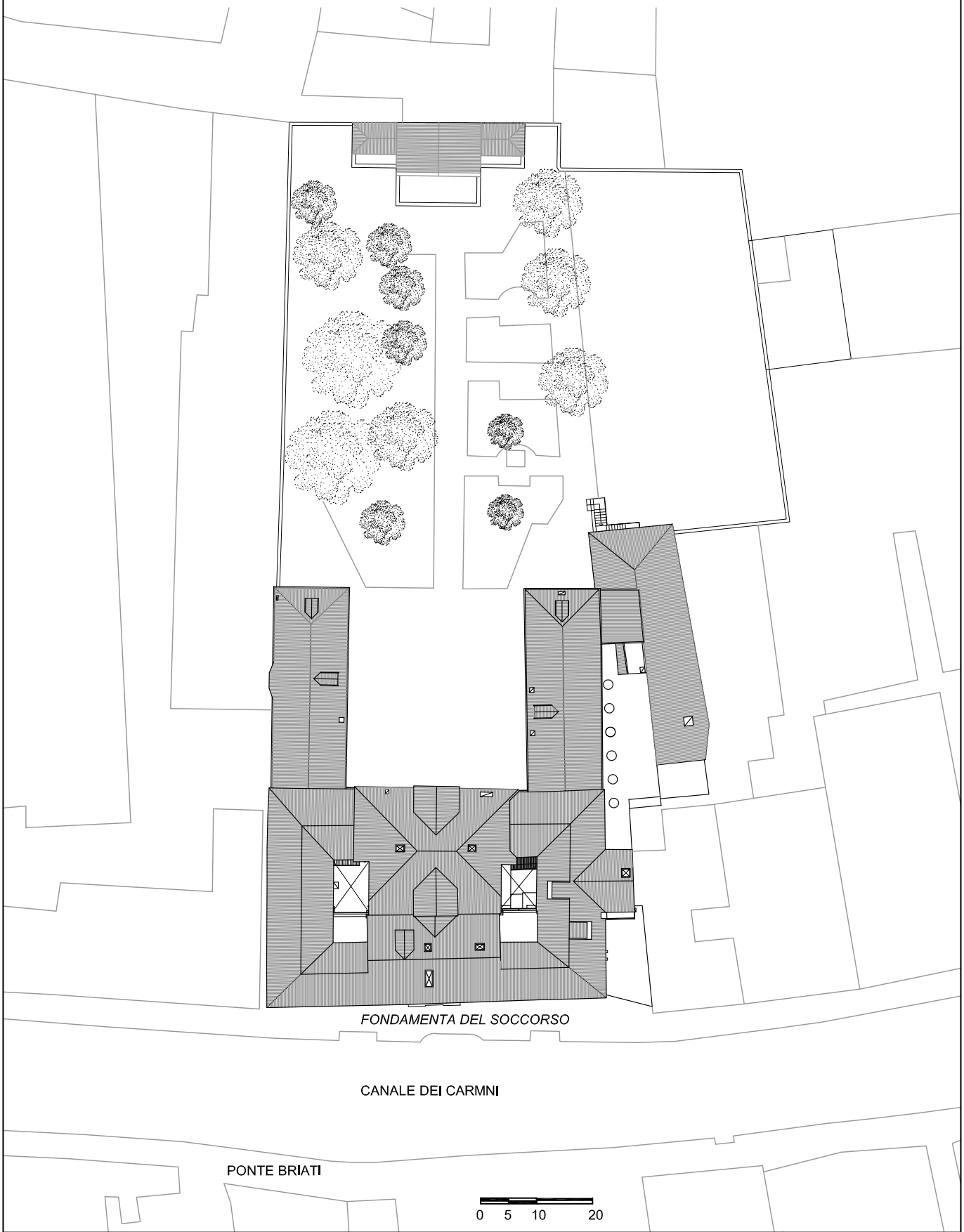
4. SURVEY OF CA' ZENOBIO

List of drawings:

- S.01 General view
- S.02 Ground Floor
- S.03 First Floor
- S.04 Second Floor
- S.05 Third Floor
- S.06 Elevations
- S.07 Sections

Feasibility Analysis of a Restoration in Venice: Ca' Zenobio

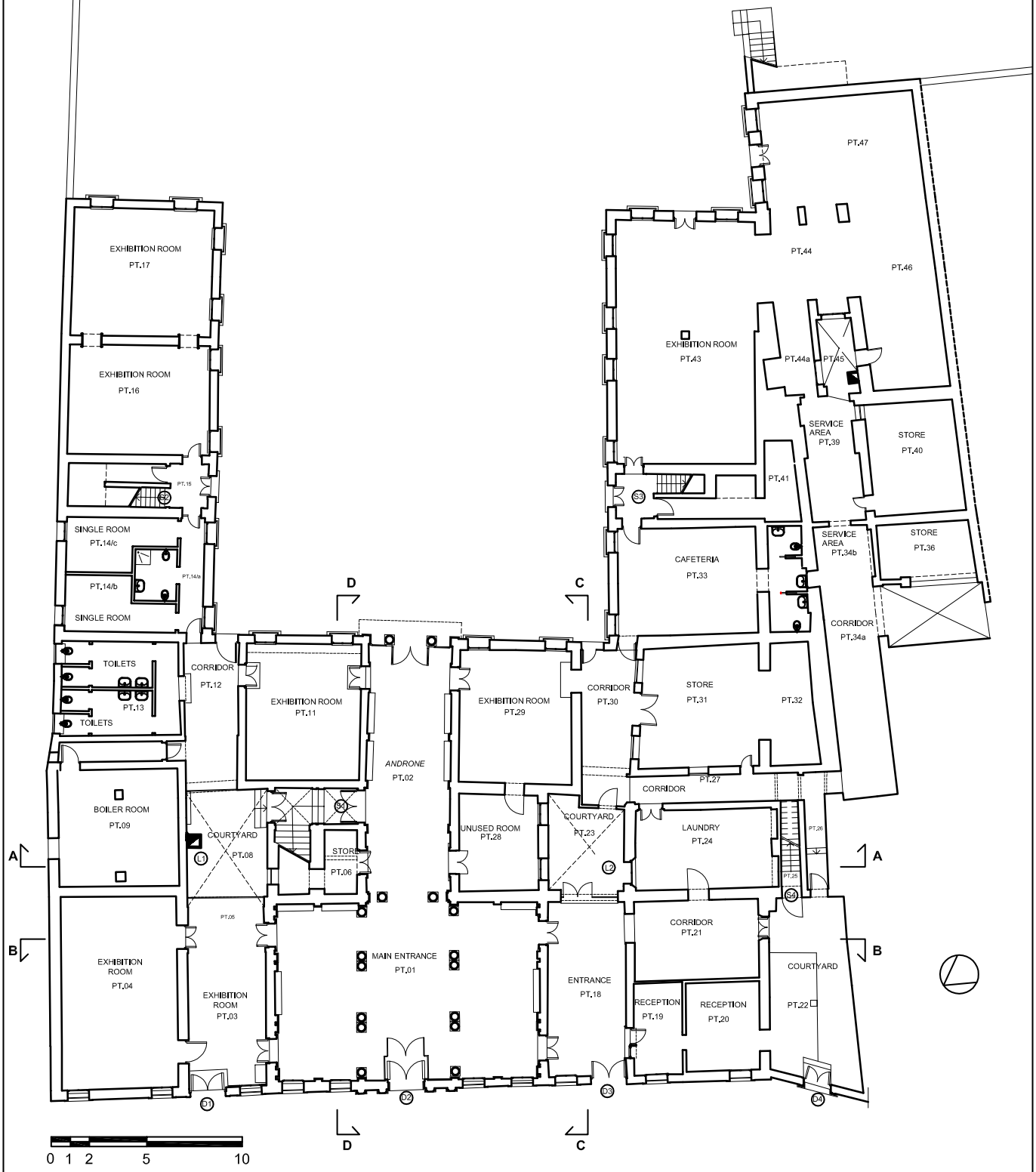
ARCHITECTURAL SURVEY



GENERAL VIEW

S.01

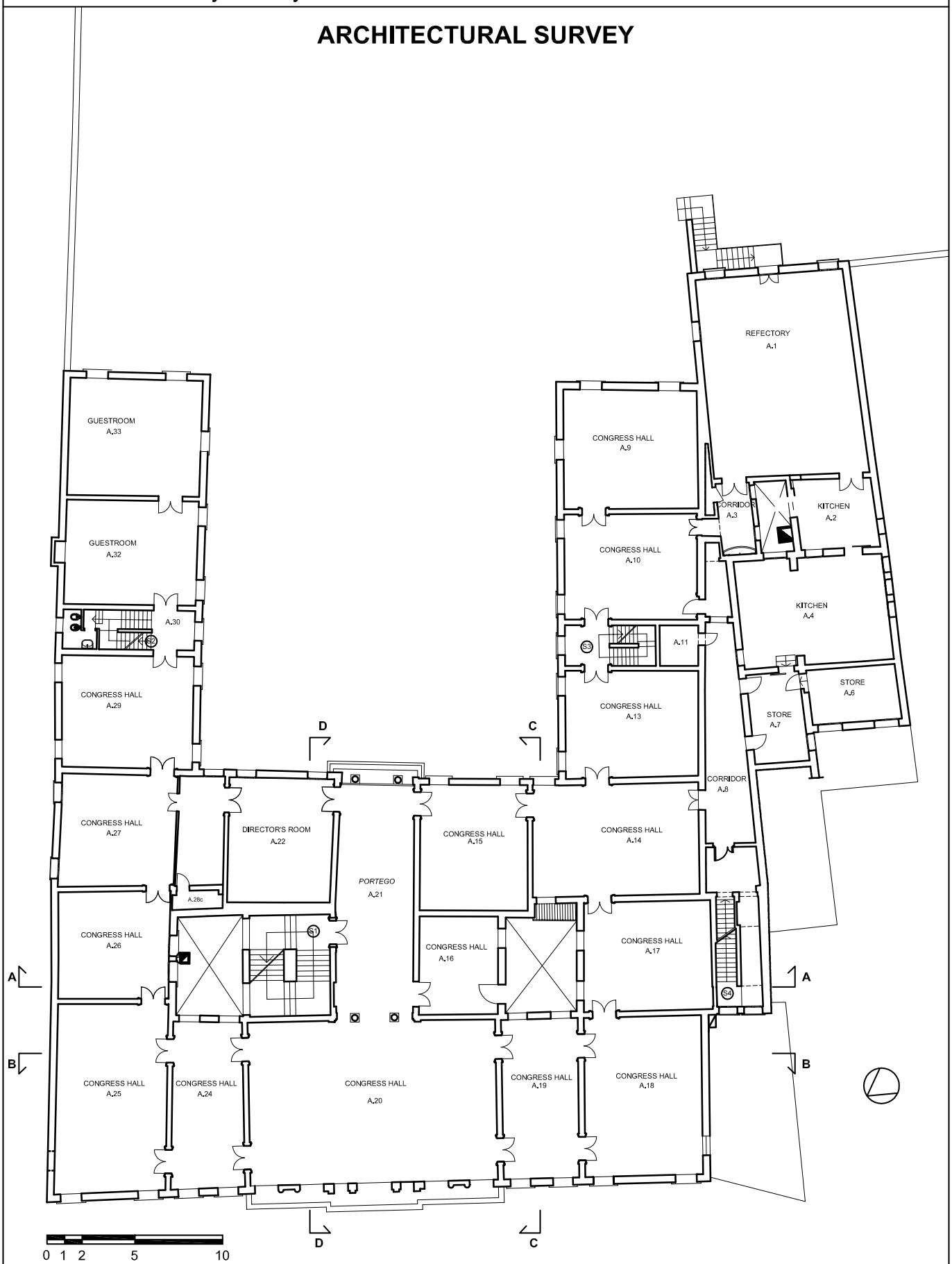
ARCHITECTURAL SURVEY



GROUND FLOOR

S.02

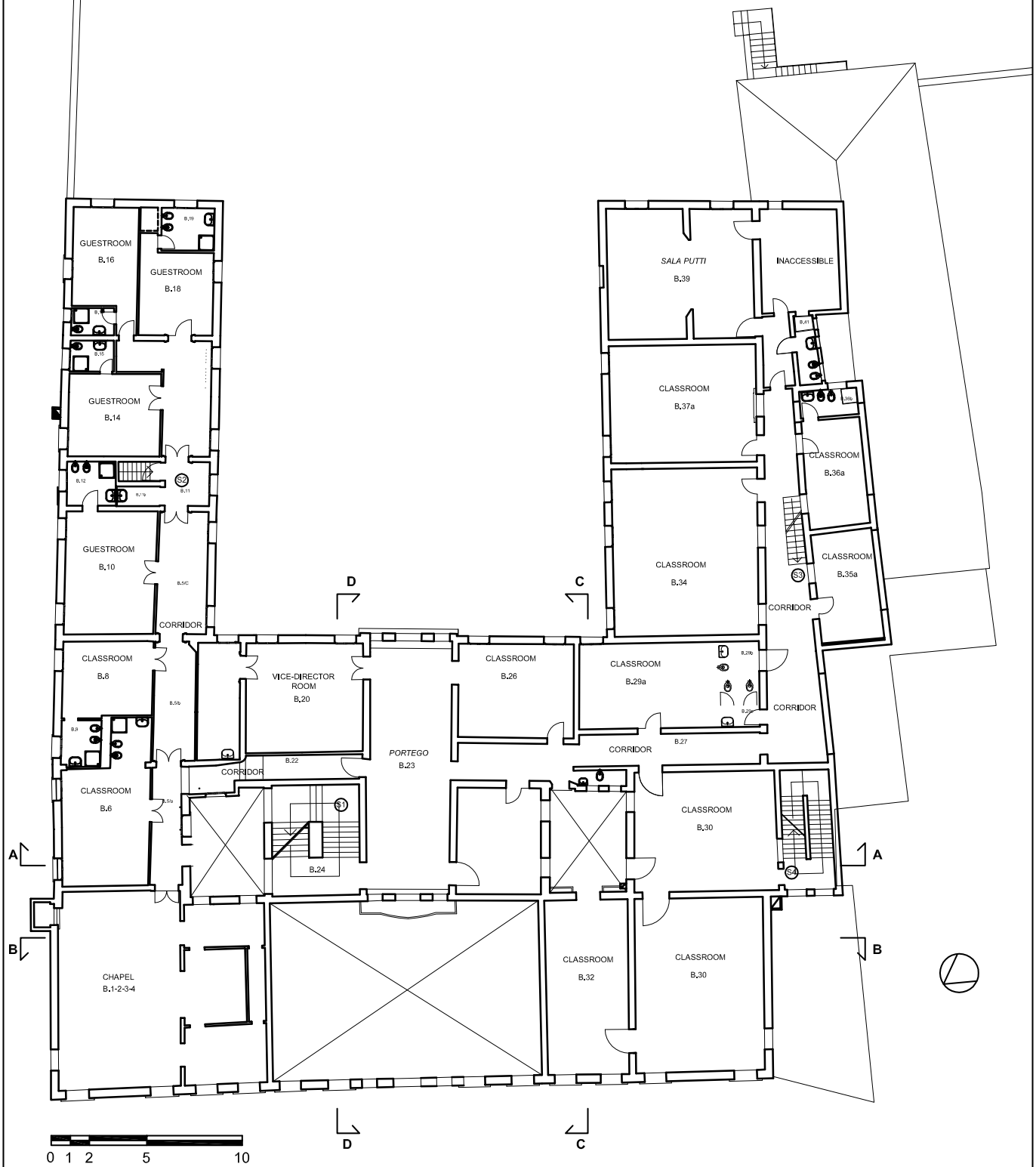
ARCHITECTURAL SURVEY



FIRST FLOOR

S.03

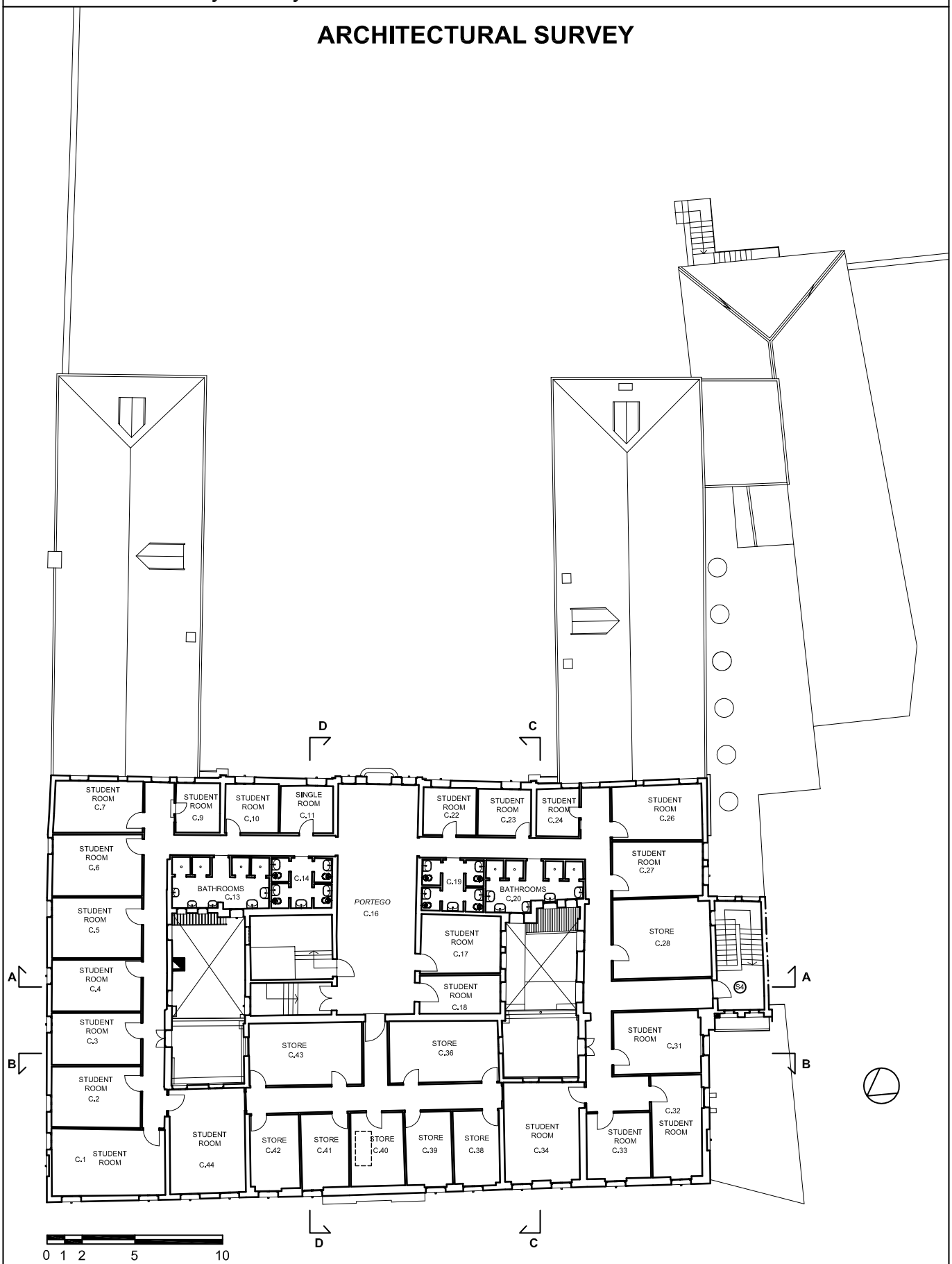
ARCHITECTURAL SURVEY



SECOND FLOOR

S.04

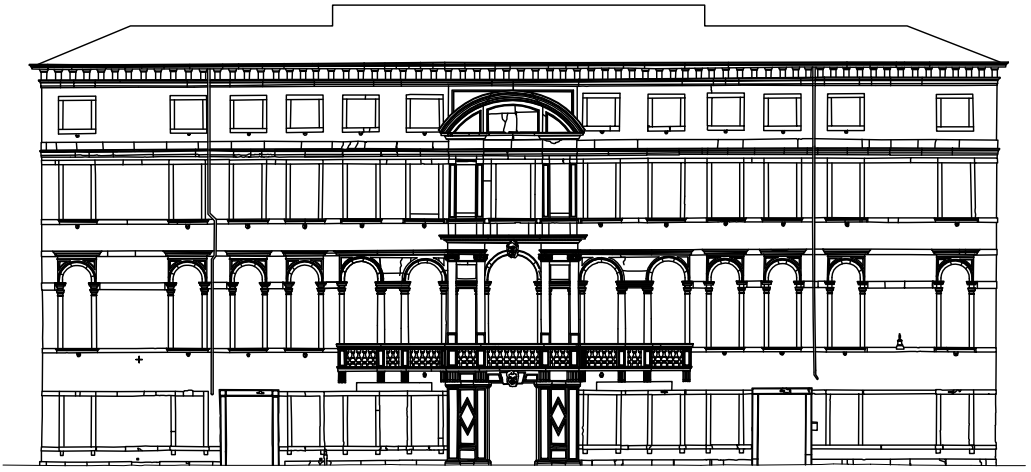
ARCHITECTURAL SURVEY



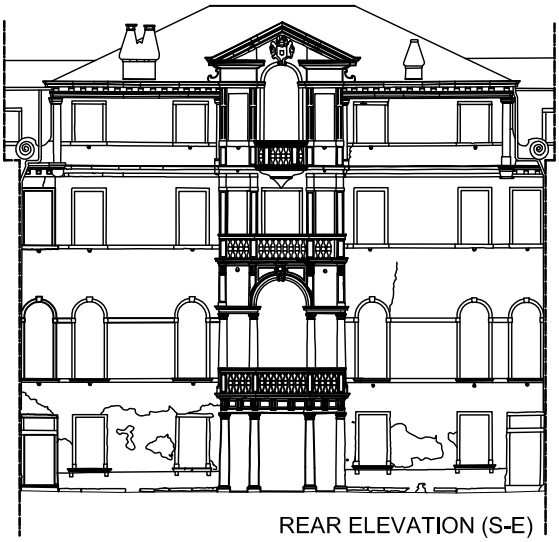
THIRD FLOOR

S.05

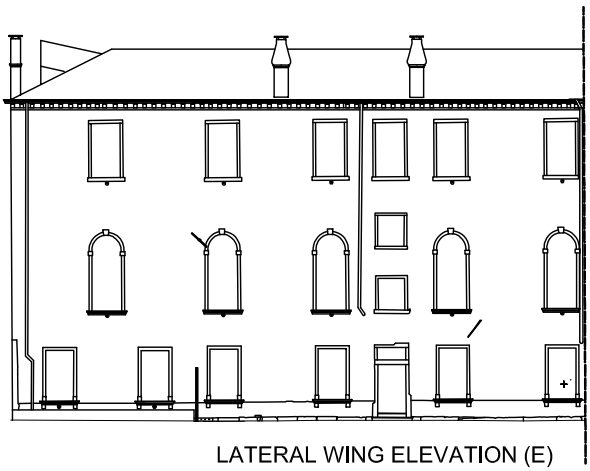
ARCHITECTURAL SURVEY



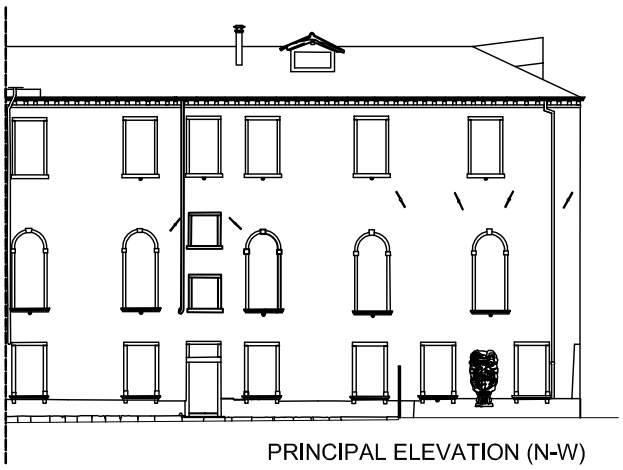
PRINCIPAL ELEVATION (N-W)



REAR ELEVATION (S-E)



LATERAL WING ELEVATION (E)



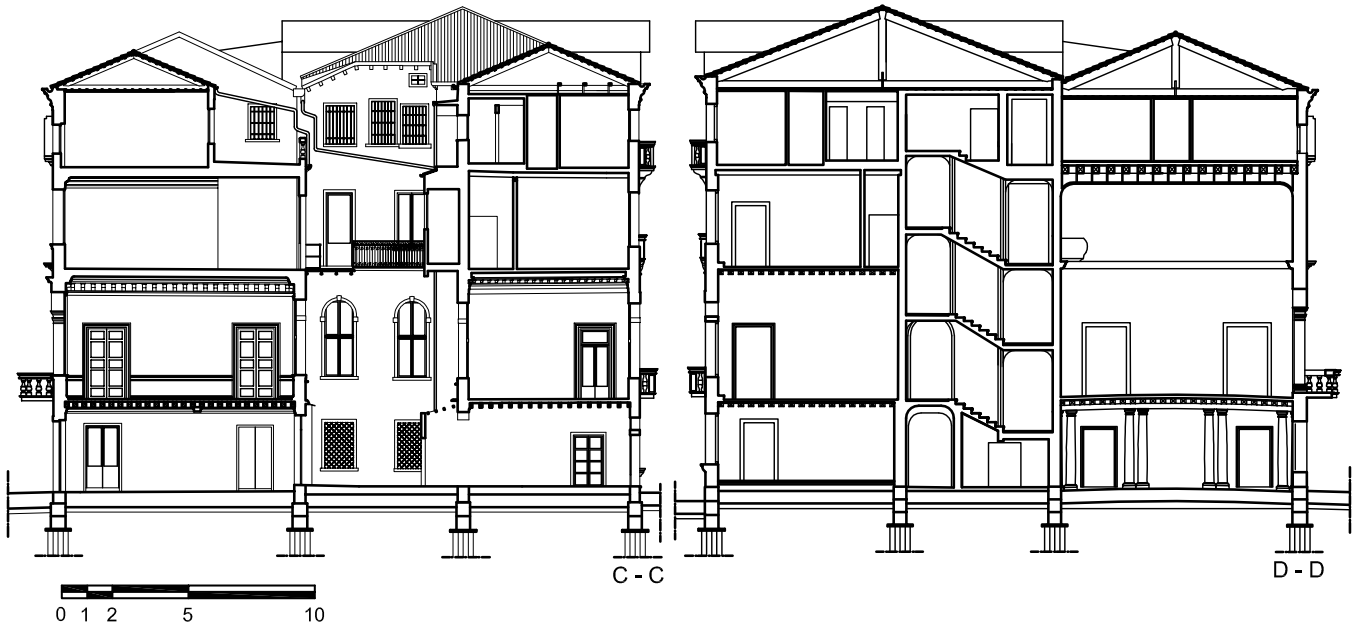
PRINCIPAL ELEVATION (N-W)

0 1 2 5 10

ARCHITECTURAL SURVEY

A - A

B - B



C - C

D - D

0 1 2 5 10

SECTIONS

S.07

PART 2

POSSIBLE FUTURE(S) FOR CA' ZENOBIO

CHAPTER III
PROBLEMS FOR THE SURVIVAL OF THE BUILDING

"What we have ourselves built, we are at liberty to throw down; but what other men gave their strength and wealth and life to accomplish, their right over does not pass away with their death; still less is the right to the use of what they have left vested in us only. It belongs to all their successors."
John Ruskin, *Seven Lamps of Architecture,* New York,Wiley, 1865, p. 163

1. LACK OF MAINTENANCE AND CONSERVATION PROBLEMS

The condition of *ca'* Zenobio is worrying: the lack of daily maintenance produced a general decay of the building, that in some case is so serious that an urgent work is needed.

In retrospect it is difficult to understand how it has been possible to reach this situation. Single small works have been made but always when the decay was already serious and with little consciousness of the value and importance of every single material and part of the building.

Anyway it is useless to weep on what has happened in the past centuries. But it is necessary, as a crucial starting point of the project, an analysis of conservation condition of the building.

Both the granted plan (see chapter IV, paragraph 2) and the guidelines of the master plan suggested in the present research (see chapter IV, paragraph 3.3) are at a medium level (preliminary project and final); but in case of working design a deeper knowledge should be carried out on every single room, wall and floor (decay analysis).

In general we can say that there are two great levels of decay concerning the building: surfaces decays and structural problems.

2. SURFACE DECAY

Venice is a city where environmental conditions play an important role in conservation of surface decay. There are three main problems to approach: flood tides, marine spray, pollution.

Flood tides, and in particular the event of "*acqua alta*", interest *ca'* Zenobio, since the palace is just about 95 - 100 cm on the medium sea level. This means that during winter and spring months the ground floor is flooded several times (image 68). The walls get very wet and the raising dampness reaches easily the first noble floor. But it is not simply a problem of dampness but also of efflorescence: in fact lagoon water contains some types of dissolved salts.

Image 68: Ordinary maintenance after flood tides

In case of *acqua alta*, the humidity "climbs up" the walls, carrying the salts inside them. At a certain level water starts to evaporate and salts crystallize causing tensions to the materials that often break[1].

Marine spray is a problem that involves the external façades: winds carry around the water in very little drops as a spray or an aerosol. These drops cause decay to the surface of buildings because of mechanical force (when wind blows) and also because of salts that are deposited on the materials producing an efflorescence, as explained before.

Atmospheric pollution is the main factor of decay of surfaces. In particular Venice is mainly constructed with lime-based materials: Istrian stone (the most used type of stone in the city) but also traditional plasters and mortars are natural or artificial limestone. This type of material has a chemical reaction when carbon particulate is deposited by wind and atmospheric agents: a more or less thick black crust is formed and calcium carbonate is transformed into gypsum. This is a very bad reaction because it means that an erosion of the materials, often a loss, occurs.

Over and above these environmental causes of decay, it is important to underline that in general there are two other causes of decay of buildings: time and human actions. Often this two causes are strictly linked.

[1] CARBONARA, Giovanni (ed.), *Atlante del restauro*, Grande Atlante di Architettura, Torino, UTET, 2004; LAZZARINI, Lorenzo, Tabasso Laurenzi, Marisa, *Il restauro della pietra*, Padova, Cedam, 1986; ZEVI, Luca (ed.), *Il manuale del restauro architettonico*, Roma, Mancosu Editore, 2002 .

As a living being, a building suffers of the passing of time: all its materials, more or less, "age" and they need some conservation and maintenance works to survive longer. So, obviously, human behaviour plays a crucial role: when constant maintenance is carried out, obsolescence of materials is slackened. On the other way, lack of maintenance brings to a faster ageing, sometimes "death", of some parts of the building or even to complete ruin.

In the case of *ca'* Zenobio a complex of causes has produced the actual worrying situation: surely environmental questions were important, but the biggest problem, as already underlined, has been the lack of methodical maintenance.

Image 69: Main elevation, 1962

The superficial decay involves in general all the building, but, because of their particular nature, the most ruined surfaces are the decorated ones[2].

In case of working design a serious analysis of condition is necessary, as that already carried out for the decorated false ceiling of the ballroom (see chapter IV paragraph 5 *et seq*.).

2.1 Principal façades condition

The façades have been restored in the Sixties and Seventies of the 20th century: the plasters were remade but probably the stones haven't been cleaned.

For the principal façade, it is interesting to compare some photographs published in different times. In 1962 Elena Bassi published her *Architettura del Sei e Settecento a Venezia*[3], with some pictures of the palace (image 69). The main façade presents spread lack of plaster and both deposits and black crusts. In a following book, dated 1976[4], the façade is perfectly plastered with a white *marmorino* (image 70); some leakages under the windows are visible: this can suggests that new plasters had been made some years earlier. The same type of decay is evident in a later photograph of 1979 by Aikema[5] (image 71). In all these pictures stones are aggressed by a very thick black crust.

Today the elevation main decay is loss of plaster in the lower part of the wall,

2 See chapter IV, paragraph 4.

3 BASSI, Elena, *Architettura...*, *op. cit.*, p. 250, image n. 175.

4 BASSI, Elena, *Palazzi...*, *op. cit.*, p. 353, image n. 481.

5 AIKEMA, Bernard, "Patronage ...", *op. cit.*, p. 309, plate 61, image 1.

Image 70: Main elevation, 1976

Image 71: Main elevation, 1979

Image 72: Main elevation, 2011

Image 73: Black crust

corresponding to the first floor; it is interesting to notice that the left side of the façade shows a larger loss than the right one (image 72). Probably this is due to the presence of the canal flowing just opposite of the left side of the palace. From this, a great amount of marine spray comes and causes a major decay, compared to that of raising dampness. All the external bricks of the lower part of the masonry of the façade have been already substituted by new ones and a dampness barrier has been inserted, maybe during the last restoration works. Another evident problem of the plaster, but of easier solution, is a spread biopatina that gives a gray colour to the surface.

All stone elements still present a thick black crust, indicating that no maintenance or conservation works have ever been carried out on these surfaces (image 73).

Also the rear façades have been restored, probably together with the main elevation. Here walls were plastered with "*cocciopesto*", a yellow (for the principal block) or red (for the two wings) lime plaster made with brick powder (image 74). In the lower part of masonries a raising dampness barrier has been inserted, but also in these elevations humidity caused the falling down of the lower part

Image 74: Rear façade

of plasters and the presence of visible efflorescence. But human actions probably contributed to speed up the decay, with some detachment and lacuna: on the south western façade, when the palace was a boarding school, students used to play basketball and the ball hitting the wall helped the falling down of plaster, even at the second floor level.

Stones are interested by black crust much less than the principal façade, probably because of different facing of elevations: in the rear the air pollution and consequently carbon particulates are less aggressive than along the canal, where boats with their loads continuously pass by.

2.2 Ground floor condition

The main problems of the ground floor are due to flood tides and to raising dampness: the walls of main entrance don't have any render because it would fall down for humidity and efflorescence (image 75). As for the main façade, the bricks have been replaced with new ones and the problem is that the mortar is cement-based. In this way the wall transpire less and raising damp reaches the first noble floor, where salts damage the *marmorino* plasters.

Many other rooms have plasterboard or wooden lining and false ceilings, to cover walls and floors and to hide how much they are deteriorated by humidity and efflorescence.

Several rooms of the ground floor, such as porter's lodge or rooms used for temporary exhibitions, have been raised of one, two or three steps (from 15 to 45 cm) to avoid "*acqua alta*". This raising is impossible for the main entrance that has the original floor made of stone tiles (Istrian Stone and *Rosso Verona* marble) and 12 columns that prop up the wooden beam floor of the ballroom. So this room and the next *androne* have problems of erosion and humidity both of the floor and of the walls.

Image 75: Internal wall at ground floor

At the ground floor some

seepages from upstairs damaged some stuccoes-decorated false ceiling, such as that of room PT.17: this is another worrying problem.


Image 76: Crack of false ceiling in the *portego*

2.3 First noble floor condition

The first noble floor has maintained more than others its characteristics both spatial and decorative. In fact here, as opposite to ground or upper floors, fewer transformations have occurred (see chapter II paragraph 1.4).

But the conditions of rooms' surfaces are really worrying. As better explained in chapter IV paragraph 4, walls are decorated by frescoes and stuccoes and no maintenance has been done for a long time.

The worst conditions are that of the decorated false ceilings: the *portego* (A.21), the ballroom (A.20) and the two side rooms (A.19 and A.24) have false ceilings painted with frescoes technique and some stucco frames[6]. As one can see in detail for the ballroom [7], these ceilings are interested mainly by general detachments with deep fractures and cracks (images 76-77). Except for these, there are no severe problems, only some areas of erosion and efflorescence due to seepages from the roof or the upper floor.

Anyway, urgent works are needed: in the ceiling of the ballroom some little parts of plaster have already fallen down and in the side room A.19, as better explained later on in paragraph 3.2, there is already a wooden frame to support the ceiling that threatens collapse (image 78).

The walls of these rooms are decorated with frescoes and stuccoes that have been repainted with some tempera many years ago: the condition is not so worrying as that of ceilings but anyway some consolidations and a general cleaning would be needed.


Image 77: Crack of the false ceiling in the ballroom

The restoration of ceilings and walls of these central rooms are necessarily linked to the restoration of the windows, that suffer a lack of maintenance both

6 See for a detailed description chapter II paragraph 1.4.

7 Chapter IV paragraph 5 *et seq.*

Image 78: Structural problem of the false ceiling in room A.19

of head jambs and glasses: from many of them water enters and damages the decorations.

The floors of this area are Venetian *terrazzo* and they need a general maintenance work, but, apart from some small missing parts, they all are in a reasonable conservation condition.

Also the beautiful walnut doors enjoys a good conservation level.

The ceilings of other rooms have decorated beams and wooden cornices and generally they are well conserved.

2.4 Second floor condition

The second floor was subjected to more modifications than the first one: here many classrooms and guest rooms were created, probably when the palace was purchased by the Armenians. In particular, the eastern wing of the building suffered many transformations, mostly for the insertion of toilets in the guest rooms.

Some rooms of this floor have maintained beautiful decorations, such as the "*Sala Putti*", already described in chapter II, paragraph 1.4.

Also the *portego*, that overlooks the ballroom of the noble floor with the wooden balcony for the Orchestra, preserves some interesting stuccoes with drapes and frames. Some seepages and efflorescence partially spoilt the western wall of the *portego* and the false ceiling (image 79).

Other rooms, such as for example B.34, B.31, B.32, still have some decorations that embellish walls and false ceilings; generally they have a sufficient conservation level. Where there are no decorations, rooms have simply white

plastered walls and white false ceilings, both wooden and plasterboard ones.

Image 79: Seepages

The other decorated rooms are B.1, B.2, B.3, B.4, that once were an alcove, and then were transformed into a chapel: here both false ceilings and walls are decorated with stuccoes but the conditions are really worrying. A great seepage damaged the *putti* that decorate the arch of room B.2, where the altar is. A pre-consolidation work has already been done with gauzes and resin, but it would be important to make a complete restoration as soon as possible (image 80).

Some other decorations in stuccoes are visible in the corridors but usually they have been repainted with tempera.

Floors are generally in Venetian *terrazzo* and in a fairly good condition of conservation, except for some rooms were also some structural problems have occurred, as in room B.31 and B.32[8].

Image 80: Pre-consolidation of stuccoes

[8] See in this chapter paragraph 3.4

2.5 Third floor condition

The third and last floor is the most recent and the one subjected to more transformations[9].

It has been completely transformed, with many rooms and few common bathrooms. Everything is in a very bad conservation condition: it needs a general restoration, starting from a very damaged Venetian *terrazzo* to the electrical and mechanical plants.

The area on top of the ballroom was transformed in dormitories with wooden linings: today the entire area is abandoned because of serious structural decay[10].

The roof has been restored few years ago, so at the moment there are no evident problems of seepages. Apparently no isolation has been done for loss of heat.

2.6 Garden condition

Ca' Zenobio is famous for its beautiful garden, that nowadays is really different from the original one that decorated the palace and even from that of 1846, created by the new owner Count Salvi from Vicenza.

Probably the first garden had a baroque aspect, as already described (chapter II paragraph 1.3). In 1777 a *Casino* (an outer pavilion) was built by Tomaso Temanza at the end of the garden, so changing its characteristics[11].

In 1846 the palace was purchased to Count Salvi[12] that made a new romantic garden, with two hills and a little bridge, still existent in the eastern part of the garden, near the wall. Many historical photographs portray the garden before this restoration (images 81, 82).

Nowadays the garden has a "parterre" design, with narrow gravel paths and regular lawns. Some statues decorate the garden (image 83).

In front of the new wing, where the kitchen and the refectory are located, there is a play field with a green lawn.

Image 81: Garden before restoration

9 See chapter II, paragraph 2.2.
10 See paragraph 3.1 in this chapter.
11 DIXON, *The Venetian…*, *op. cit.,* p. 130.
12 CUNICO, *Il giardino..., op. cit.*, pp. 92-95.

Image 82: Garden before restoration


Image 83: Garden today

The garden is separated from the paved courtyard by a high gate, positioned in the place of two well-heads. In fact the paved area corresponds to the cistern collecting raining water[13]. Unfortunately, these cisterns were not registered in the census made by the Municipality of Venice in 1858 - 1862[14], so we don't have information about them.

The paving is in a quite good condition, but some of the *masegni* (the stone blocks made of *trachite*) have been substituted by concrete stones.

"*Acqua alta*" often floods this courtyard and when tide start to rise, water comes out from the *pilelle* (perforated stone slabs): this means that the underground cistern, made of waterproofing clay, is broken.

3. STRUCTURAL DECAY

From what it is possible to understand at the moment, with a visual analysis but without specific tests that would be needed in case of a working plan, the main structural problems involve four parts:

a. the wooden beam floor that supports the decorated false ceiling of the ballroom (rooms C.36, C.37, C.38, C.39, C.40, C.41, C.42, C.43);
b. the south eastern wall of room A.19.
c. The north-western wall of room A.19 and the façade next to it
d. The floor of room B.31

Moreover, there are some fractures and cracks of brick masonries but nothing so important as the problems mentioned above.

[13] For more information about water harvesting in Venice: GIANIGHIAN, Giorgio, "Scarichi Veneziani in epoca moderna: canoni da acqua – canoni da necessario", *Studi Veneziani*, n.s. VII (1983), pp. 161-182;GIANIGHIAN, Giorgio, "Building...", *op. cit.,* pp. 299-301.

[14] GUERZONI, Stefano, TAGLIAPIETRA, Davide (ed.), *Atlante della laguna, Venezia tra terra e mare*, Venezia, Marsilio, 2006.

There are different motivation for each decay and it is important to understand what is going on. At this level of analysis, it is possible to make only some hypothesis based on direct survey and observation, but in case of working plan it is crucial to organize a monitoring and some specific structural tests in different areas of the palace, trying to understand the mechanical and dynamic behaviour of the building. This is a necessary step for a correct project.

3.1 Wooden beam floor above the ballroom

The wooden beam floor, corresponding to rooms C.36, C.37, C.38, C.39, C.40, C.41, C.42, C.43, has been surveyed in detail[15] (image 84 - 85 - 86) to understand what could be the reason of an important lowering of its central part, that caused great cracks and fractures to the false ceiling below in the ballroom (see chapter IV paragraph 5 et seq.).

The floor is a complex structure made up of five different layers of wooden beams, hooked up with some steel tie rods. It is evident that many beams of the first and second layer have been reused from a previous structure. As stressed in chapter II, the palace was constructed on a former building, *ca'* Morosini and probably Gaspari decided to re-use all wooden beams in a good state of conservation. The tie beams of the previous trusses have all been reused as it is clearly shown by the marks of earlier joints.

The evident problem of the floor is a lowering in the central part of a transversal beam, that is the third of second framing, starting from south-eastern load bearing wall. Consequentially it caused the lowering of a part of the fifth layer, the lower one. This sagging brought on a great fracture on the false decorated ceiling that has been already repaired with some *patera*, some decades ago.

It is quite sure that this cave-in has occurred many decades ago but it is impossible to know exactly when. One of the tie rods has been moved from the centre of the floor to the correspondence of the sagging. But more recently, anyway many years ago, the roof beam that carried this tie rod has been removed for letting some plants pass by.

Even with a so shallow analysis it is evident that the wooden beam floor must be urgently strengthened. Obviously with these premises, as already underlined, specific structural analysis should be carried out for a working plan and a more complete understanding of the mechanical behaviour linked to the general behaviour of the palace.

[15] Survey by Architech for ArCo Architecture and Conservation srl.

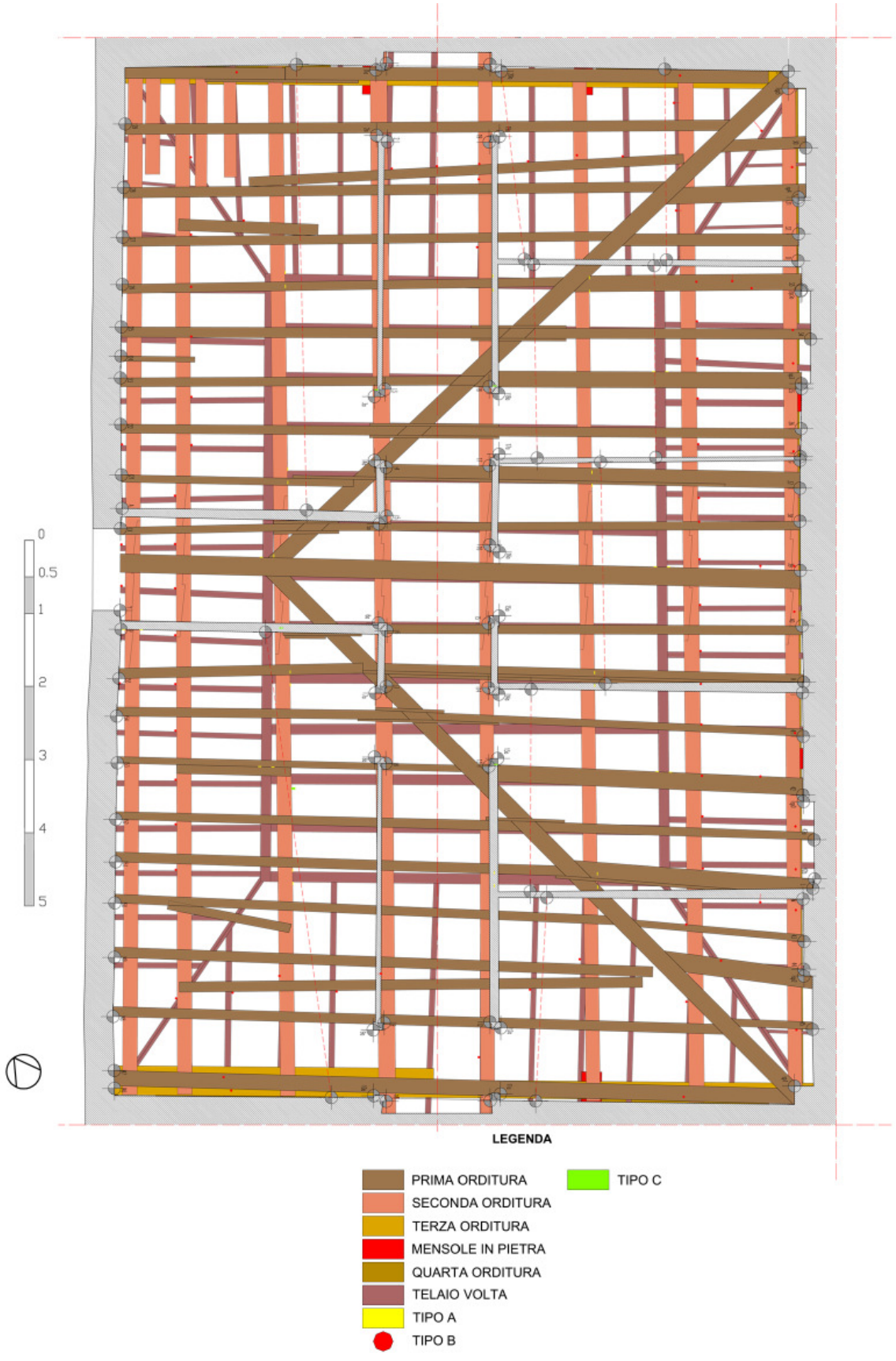


Image 84: Survey of the wooden beam floor

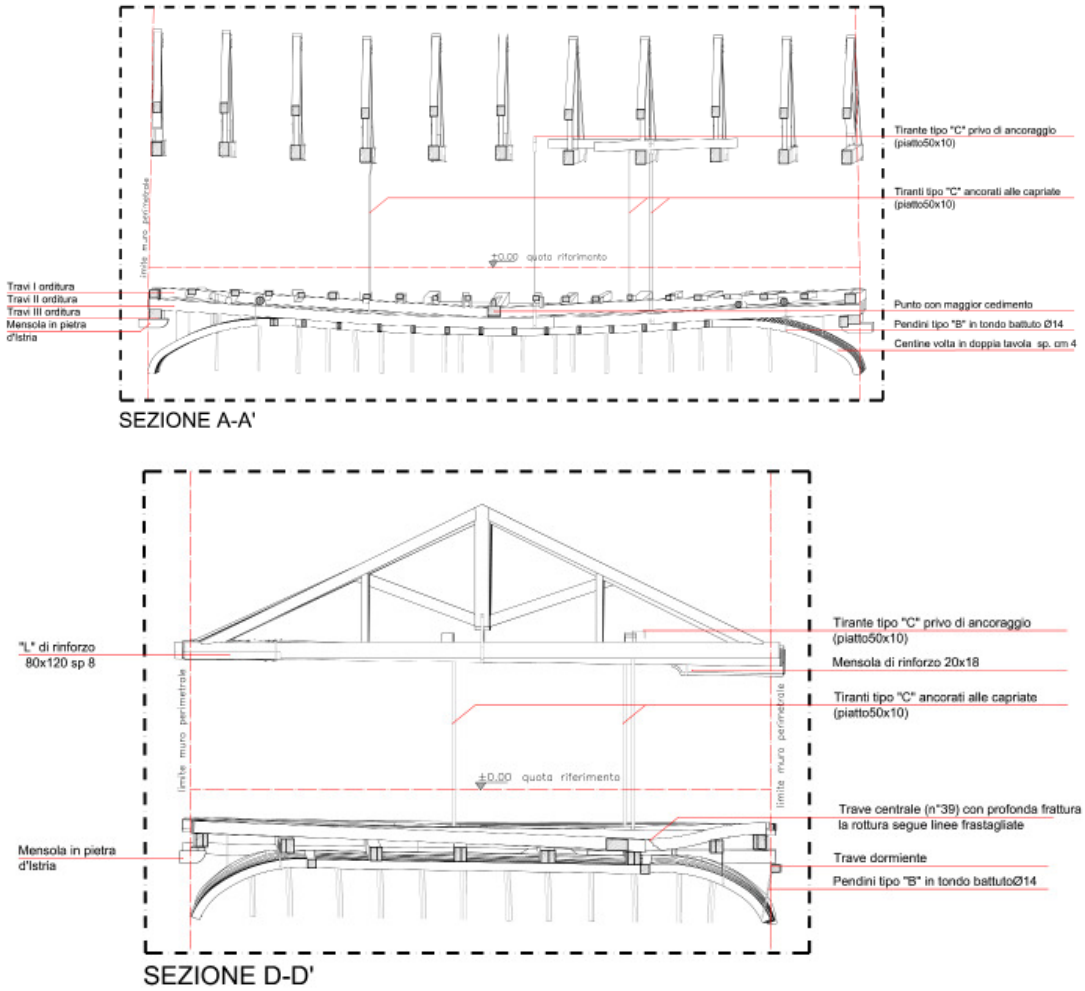


Image 85: Sections of wooden beam floor

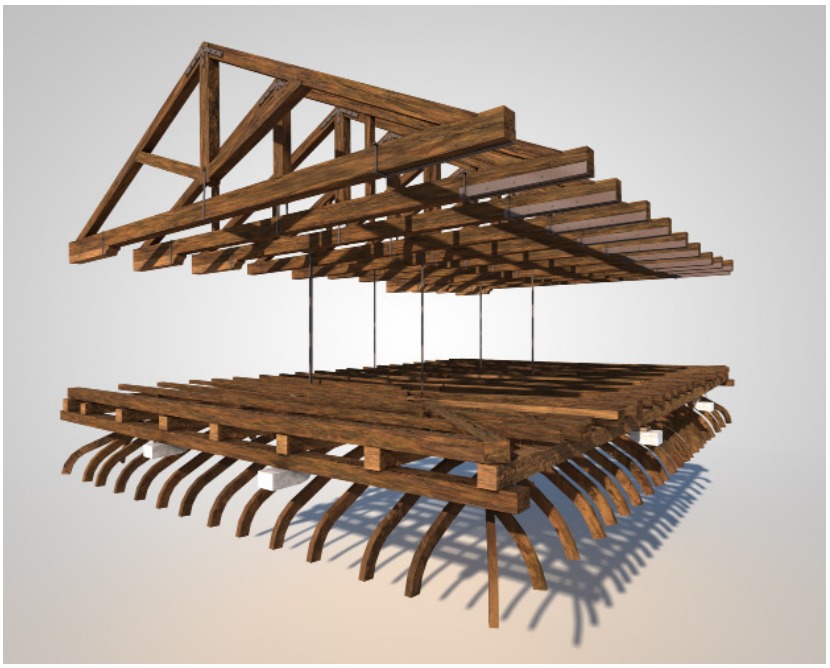


Image 86: Render of wooden beam floor and trusses

3.2 South eastern wall of room A.19 at first noble floor

Image 87: Cantilevered gallery

The room near the ballroom in the western wing of the palace has many decorations on the walls and on the false ceiling. In the joint between south-eastern wall and ceiling, there is an evident fracture that has been already pre-consolidated with some wooden boards. As in the above case, a simple visual analysis can help to understand what is going on.

The wall looks onto a courtyard (PT.23) that is the only access to the room above (B.32); originally this room was accessible from the room nearby (B.31) through two doors that have been walled up. A new access to room B.32 has been built in the courtyard with a cantilevered gallery (image 87). It has a structure made by beams of galvanized iron supporting metallic and wooden boards forming the floor; this balcony is enclosed by a wrought iron railing. Because of humidity the beams' heads inserted externally in the south eastern wall of room A.19 went rusty: the pressure had been so high that the masonry fractured vertically and the false ceiling has been pushed aside.

The first urgent work would be the removal of this structure and consequently the strengthening works needed both for masonry and for the false ceiling.

3.3 The north-western wall of room A.19 at first noble floor and the façade

In the same room there is also an other problem in the north western corner of western wall: a crosswise fracture is above the door nest to the principal elevation and the right door jamb is completely detached from the wall (image 88). On the principal façade there is a vertical crack next to this wall that cross all the masonry from the bottom to the top (image 89). This means that the structural decay that is visible in room A.19 is strictly linked to a general mechanical behaviour of the building. We can just suppose that a foundations sagging had occurred: in Venice the soil is very poor and weak and it is quite normal that a building

Image 88: Door jamb detached

Image 89: Cracks of principal elevation

has some structural adjustment. Moreover it is very probable that when Antonio Gaspari reconstructed the palace he decided to maintain the existent foundations and also some walls. In fact, as demonstrated by several studies[16], building a foundation in Venice is one of the most expensive (and difficult) work of the entire construction. So in past times when a foundation already existed it was reused for the new building.

In this case it is highly probable that many walls of the Morosini palace have been kept. This idea is supported by archival documentation and also by existing marks in the building. The survey of Morosini palace drawn by Antonio Gaspari shows that the main bearing walls have been kept in the transformation of the building. Moreover from the last floor above the ballroom it is possible to see some walled up windows or some consoles that clearly refer to the previous palace. It is important to stress that in past times it was absolutely normal reusing existing materials when in good conditions since they were expensive; in Venice this necessity of recycling was even more felt because the city did not have any local building material and everything had to come from abroad, even overseas.

In a global project of conservation and restoration of the palace, as already underlined, it would be important trying to relate the structural decay above described in the general mechanical behaviour of the building, because it is meaningless to analyse a single problem without a general view and knowledge of the palace.

16 GIANIGHIAN, Giorgio, PAVANINI, Paola (ed.), *Dietro i Palazzi. Tre secoli di architettura minore a Venezia: 1492-1803*, Venezia, Arsenale Editrice, 1984; GIANIGHIAN, Giorgio, “Building ...”, *op. cit.*, pp. 299-312; GIANIGHIAN, Giorgio, “Building Castelforte”, *op. cit.*, pp. 51-68; GIANIGHIAN, Giorgio, “La costruzione della casa doppia nella Venezia del Rinascimento”, *Méfrim,* 120/1, 2008, pp. 77-107.

3.4 The floor of room B.31 at the second floor

In fact it is likely that even the structural degradation of the floor of the room B.31, which is situated above room A.19, is in some way connected with the previous problem.

In this room the Venetian *terrazzo* has a great detachment, with fractures and cracks, near the perimeter walls. From below, the wooden beam are visible and apparently nothing particular occurred but from above the sagging of the entire floor is evident. Probably, in the general movement interesting this part of the building, starting from the foundations, the joints between wooden beams and perimeter walls had some lowering, maybe caused by rotten beam-heads. Therefore the Venetian floor above followed these movements: lime terrazzo is a very elastic and deformable material that usually adapts itself to the flexion of the wooden boards and beams below. In this case, probably, the movements have been so heavy to determine such a lowering and so many fractures of the *terrazzo*.

CHAPTER IV
CA' ZENOBIO'S RESTORATION AND CONSERVATION PROJECT

"Venice needs contemporary art to help us see it with fresh eyes so that new, creative energy will be applied to its salvation".

Anna Somers Cocks, Venice in Peril, Chairman

1. THE GRANTED PROJECT FOR CA' ZENOBIO

During last two decades the property of *ca'* Zenobio, *Collegio Armeno Moorat-Raphael*, has undergone small repairs where decay became so serious that it was impossible not to intervene, such as for the roof and a few sanitation facilities. But the administration of *Collegio Armeno* is conscious of the necessity of a global intervention for revitalizing the palace.

So a general restoration project has been prepared[1] and granted by the Authorities in 2006 and 2007 (Municipality of Venice and Local Superintendence of the Ministry of Cultural Heritage and Environmental Conservation "*Soprintendenza per i beni architettonici e ambientali di Venezia e Laguna*").

The aim of the project[2] is to provide a general requalification to the palace, to improve all the services linked to cultural centre and the creation of a "*centro soggiorno studi*" (centre for stay and study) as defined in the Veneto Regional Law 33/2002, with new guestrooms, in particular at last floor of the building, completely transformed. The rooms for the exhibitions or congress have to be restored and new plants have to be inserted.

The project respects the Italian laws[3] for the building's accessibility, with the help of some ramps.

The project, according with the Law for Public works (D.Lgs. 163/2006 art. 93) is at a medium level of design: it is between a preliminary and a final, but some documents, necessary for the tender, are missing (i.e. Bill of Quantities).

This project gives a good answer to some requirements of the client but there are two important matters - neglected - to face with:

a. the main problem of conservation of decorated surfaces, in particular false ceilings at the first noble floor of rooms A.19, A.20, A.21, A. 24.

b. in the last floor too many demolition are planned; as described in chapter

1 The design has been realized by "C & C *architettura ingegneria*", of Venice

2 Technical report of the project (C and C *architettura ingegneria*, *Progetto di straordinaria manutenzione – Collegio Armeno "Moorat-Raphael"- Palazzo Zenobio Fondamenta del Soccorso – Dorsoduro 2596, Relazione tecnica per integrazione al permesso di costruire, maggio 2007*)

3 Law n. 13, 9th of January, 1989 "*Disposizioni per favorire il superamento e l'eliminazione delle barriere architettoniche negli edifici privati.*"

III paragraph 3.2 this third floor has already been rearranged, even in recent times and with many modern materials, but a more conservative project could answer to requirements in the same way and it could also respect the building, which is an important historical palace.

The granted project designates 33 bedrooms for 80 beds so distributed:

- at the ground floor: n. 2 single rooms ;
- at the second floor 15 rooms: n.1 single room, n. 7 double room, n. 1 triple room, n. 6 quadruple rooms
- at the third floor 16 rooms: n. 3 single rooms, n. 7 double rooms, n. 5 triple rooms, n. 1 quadruple rooms.

A set of works is expected at the four floors to adapt present situation to the project.

In particular, at the ground floor the main planned works are (drawing. PG.1):

- the arrangement of the reception (PT. 19, PT.20, PT.21) with the demolition of some recent linings;
- raising the floor level of all the rooms behind the reception because of flood tides: in room PT.18 three steps and a ramp for disabled persons bring the level of rooms to 140 cm over the average sea level;
- building new bathrooms in rooms PT.24 and PT.44;
- demolition of existing toilets and creation of the new cafeteria and bathrooms in room PT.33 (this part of the project has already been completed);
- some doors have to be bricked up and some others newly created.
- a new sewer system with a septic tank is needed, respecting the Municipal Hygenic Regulations.

At the first floor the main planned works are (drawing. PG.2):

- new bathrooms in rooms A.5, A.11, A.28;
- some new doors to be opened.

At the second floor the main planned works are (drawing. PG.3):

- creation of new bathrooms in the former schoolrooms to transform them into guestrooms, as in rooms B.11, B.21, B.25, B.26, B.29, B.34, B.35, B.36, B.41 (the only works already done are in B.41 and B.36);
- reopening of an existing door between rooms B.31 and B.32.

At the third floor the planned works are (drawing. PG.4):

- complete rearrangement of the entire floor to create new guestrooms and bathrooms: many demolitions and reconstructions of linings are planned;
- complete check of the roof both structural and superficial.

In general the project envisages new electrical and mechanical plants, the conservation of plasters, false ceilings, stone elements, floors, doors and windows.

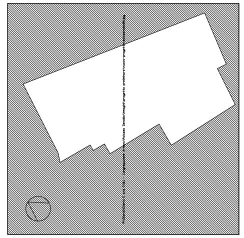
THE GRANTED PROJECT OF CA’ ZENOBIO

(C & C *Architettura ingegneria*)

List of drawings:

- P.1 Ground Floor
- P.2 First Floor
- P.3 Second Floor
- P.4 Third Floor

PLANIMETRIA DI INQUADRAMENTO



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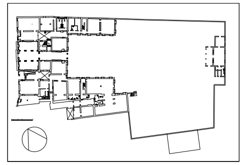
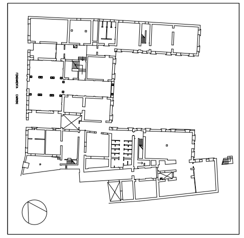


PIANO TERRA



LEGENDA

- reticolo di parametratura 5 cm x 5 cm
- +4.807 — quota riferita al livello medio mare
- A.6 / A:15,89 / H:4,62 — codice vano; area vano; altezza vano o altezza sotto trave
- 1,12 / 3,00 / hd:0,59 — 1,12= larghezza finestra o porta; 3,00= altezza finestra o porta; hd: 0.59= altezza davanzale dal pavimento
- 0.14 — altezza gradino

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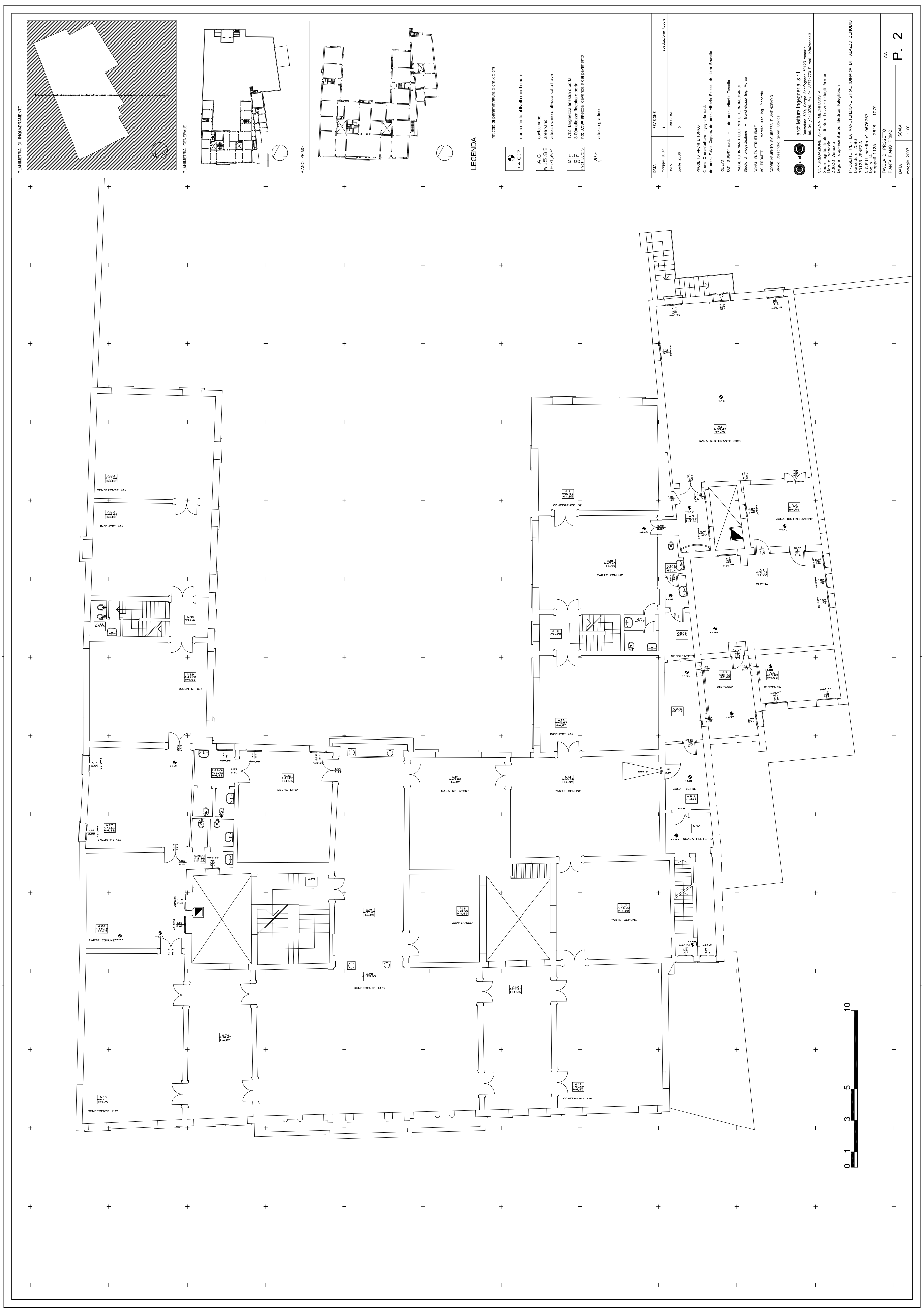
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TAVOLA DI PROGETTO
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TAV.
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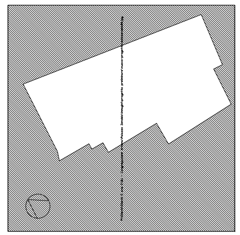

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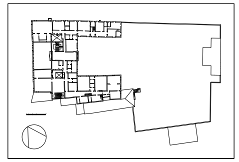

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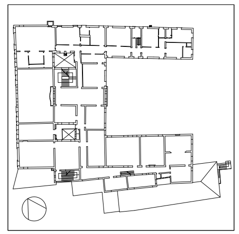

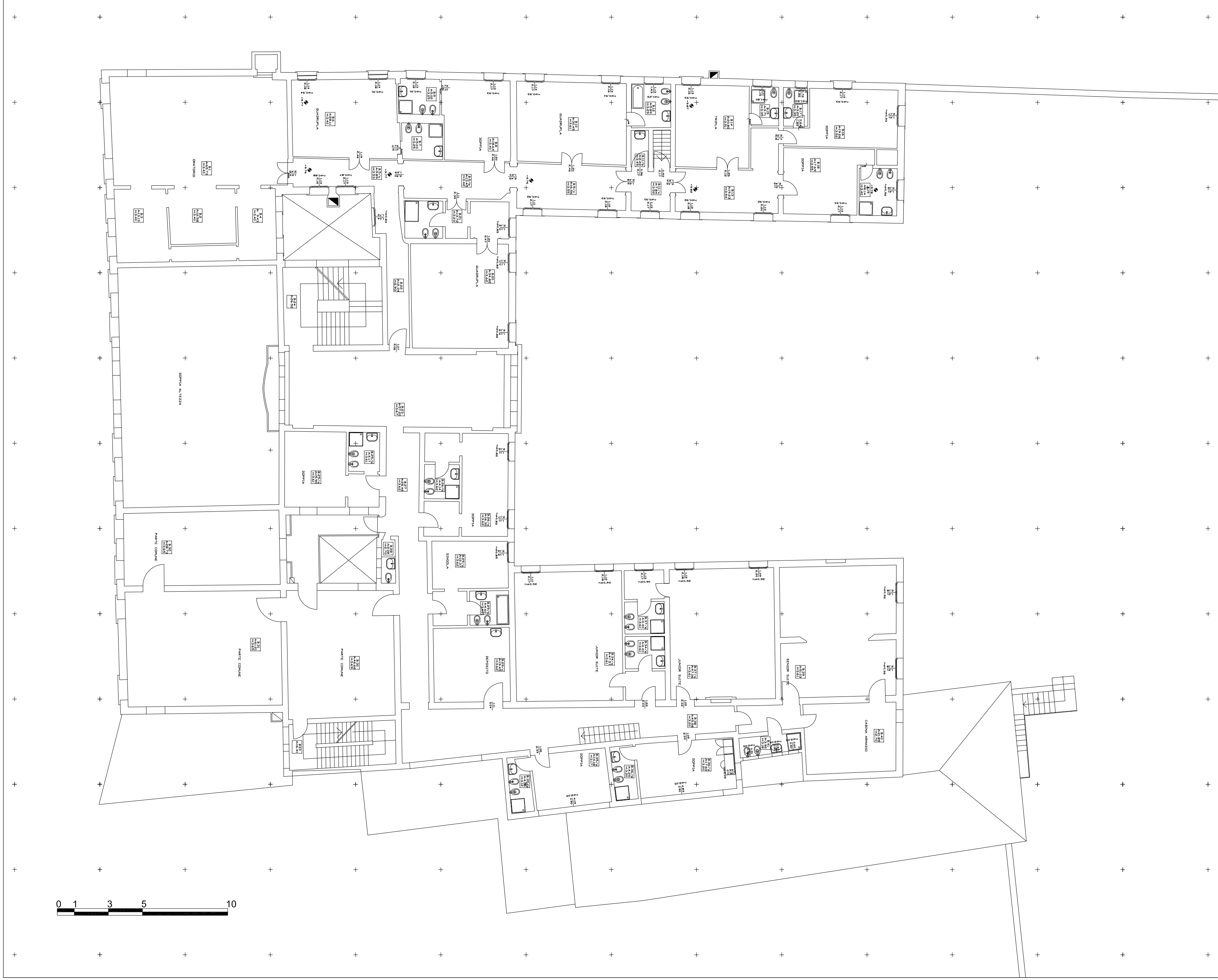

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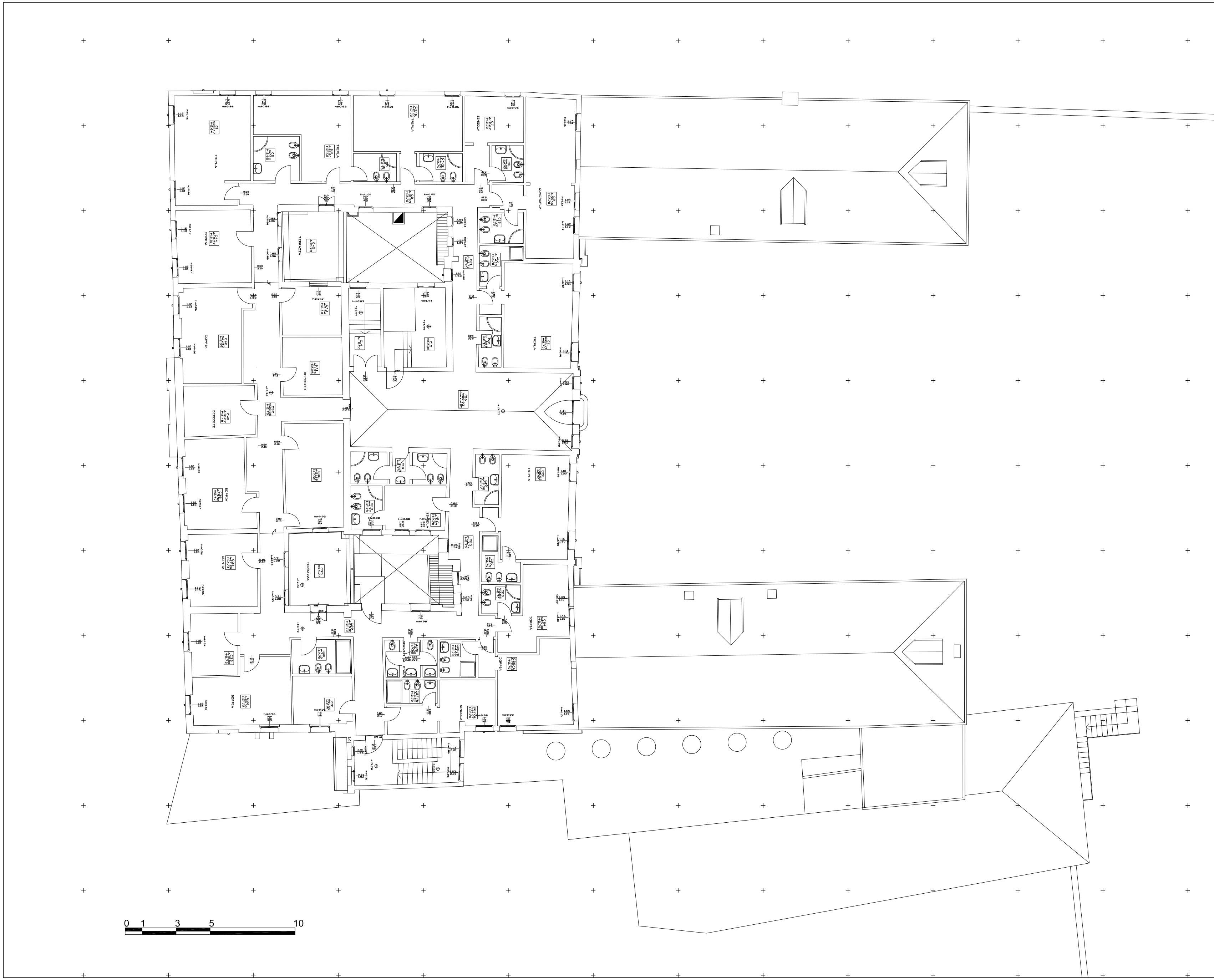

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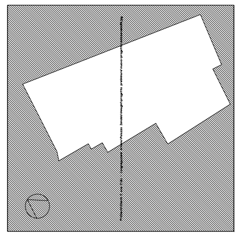

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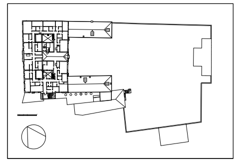

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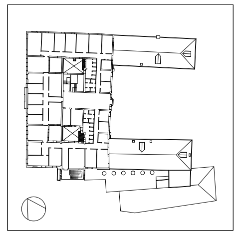

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TAVOLA DI PROGETTO PIANTA PIANO TERZO		TAV. P. 4
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2. SOME NEW SUGGESTIONS FOR CA' ZENOBIO

The problem of a re-use or new-use of a Venetian palace has already been mentioned in the first chapter[4]. Here it is important to value what could be the suitable uses for *ca'* Zenobio and what improvement should be suggest for a better use of the palace.

2.1 Which suitable uses for this palace?

When in 1997 the boarding school in *ca'* Zenobio was finally closed the first problem to face with was what to do with this great property and how to manage it. For *Collegio Armeno Moorat-Raphael* is not possible to sell this palace because of the wills of the benefactors who bought the building for charity reasons (Moorat and Raphael).

So the first idea was to give the management of the palace to an external company, which could restore the entire building and keep it for a certain number of years. Obviously the most interesting use for a private company, whose only aim is a money return, could be a luxury hotel. In fact, in this part of Venice there are not big and important hotels as ca' Zenobio could have been if converted in a five stars hotel. Usually the grand hotels are located near St. Mark, along the Grand Canal, at the Lido, or in some secluded island in the lagoon.

But what could mean transforming such a palace in a luxury hotel? Probably the ground floor and the central part of the first floor could be in same ways maintained but the other areas, particularly second and third floors would be surely completely transformed to create luxury rooms and suites, substantially altering the historical characters of the monument.

Probably this would be a new use that could have good financial returns but from a conservation point of view it will not be feasible.

Another possible use could be a university centre; it could host lectures and courses with classrooms, administrative centre and student guest rooms. Surely it is a more feasible use from a mere conservation point of view and also economic but from a financial aspect probably this is not so convenient: in Venice, but in Italy in general, Universities are in crisis and many of their sites are closing (for instance *ca'* Tron, an historical palace that was the centre of Planning School of University IUAV. There are rumours in Venice concerning a possible sale also of ca' Foscari by Ca' Foscari University). So probably not even this way is pursuable. Maybe, as we are going to see later on, a part of the palace could have a use for educational aims.

The more suitable and feasible use is surely the present one: cultural centre

[4] See chapter I, paragraph 2 *et seq.*

and guest house together. Both uses must be implemented and improved but in the last years different experiences have demonstrated the sustainability of such a choice from an economic, financial and conservative-oriented point of view.

One can utilise the existing granted project as a starting point for a good future use, financially sustainable, even if it requires some modifications, as explained in the following paragraphs.

2.2 From planning to managing

In the Italian language the word "*progetto*" identifies, amongst other meanings more general, some technical and organizing activities that have the aim to create the drawings and documents necessary to build a new building or restore an old one. In English this word - *progetto* - is translated as "design".

The English term "project", instead, is a broader concept: it is a set of organized activities, linked also in a schedule, that want to reach a goal[5]. This means that there are many different phases, such as: initiating, planning, executing, controlling, closing[6]. In this sense a project is a matter of management from the beginning to the maintenance of the building after is construction or restoration.

In the traditional sense the main actor in the project was the planner; nowadays it is the project manager that has to coordinate many different figures and problems that contribute to organize the "project process" (image 90).

A "project" is something complex that involve

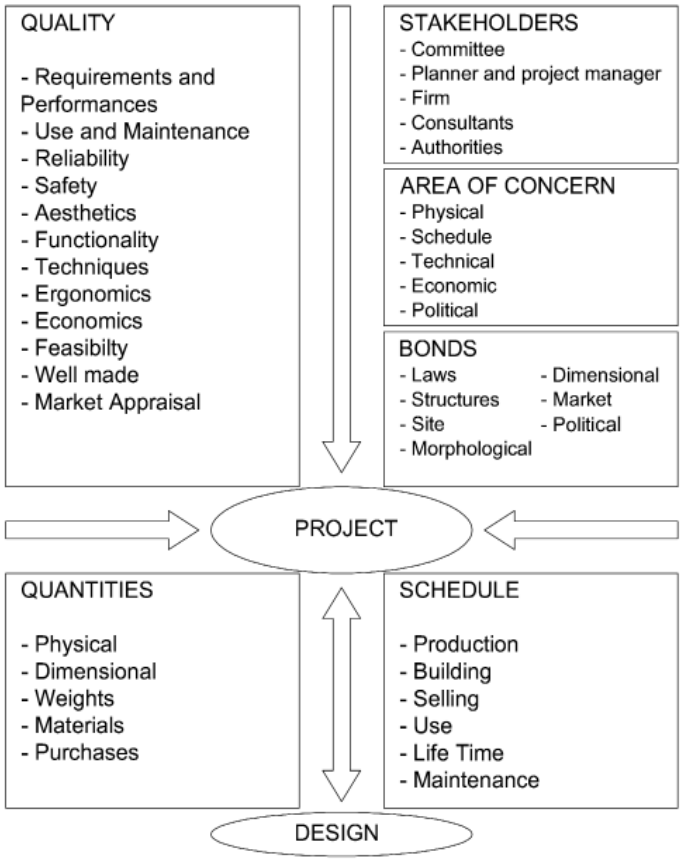

Image 90: The process of project

[5] MATTIA, Sergio (ed.), *Principi dell'analisi del valore e applicazioni al settore delle costruzioni*, Rimini, Maggioli Editore, 1997, p. 21.

[6] COSCIA, Cristina, FREGONARA, Elena, *Strumenti economico-estimativi nella valorizzazione delle risorse architettoniche e culturali*, Torino, Celid, 2004, p. 133.

many different branches, experts and resources.

An architectural, restoration and conservation project as the one necessary for the renewal of *ca'* Zenobio should be a part of a general asset, property and facility management process[7].

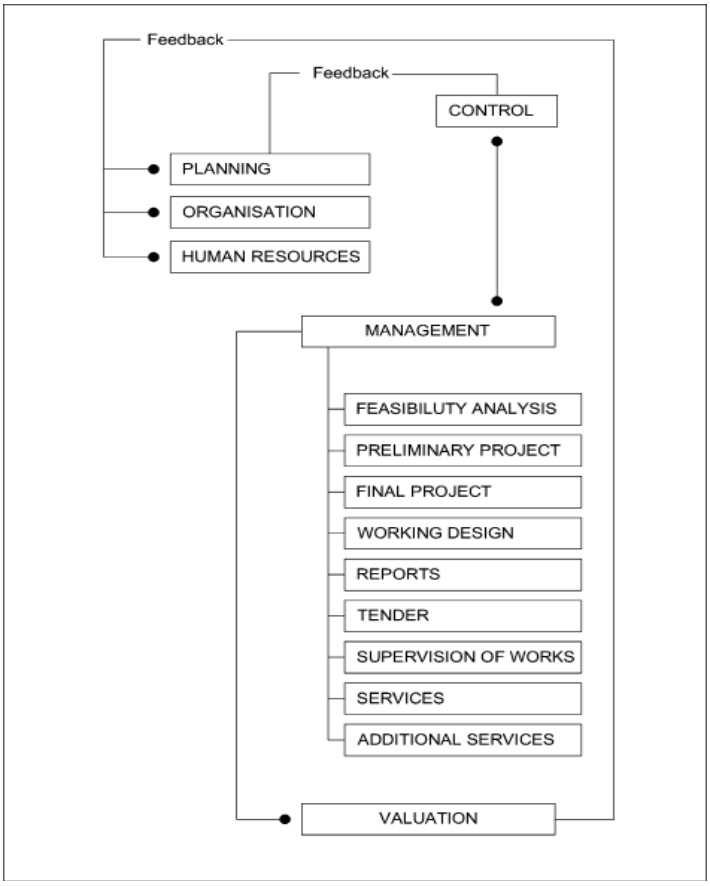

Image 91: Planning and management phases

Asset management concerns all the strategic decisions for operating, maintaining and upgrading assets; property management is a process that manages all administrative and management costs and revenues of a property; facility management concerns all activities necessary for maintaining a building, included safety and security.

In a such complex historical building as *ca'* Zenobio is, these three activities should interact and get mixed.

Obviously there is always a strict link between planning and managing phases: the two aspects should integrate themselves to reach the best results (image 91)[8]. This means that any planning step has to be valued with the general management of the building, with continuous feedbacks and controls that should help to work in the right way.

What should combine all these different phases is "quality". But quality is guaranteed only when all the phases of a project are organic, integrated, correctly planned.

The project should be so well organized that quality, schedule, costs have to be the ones expected by the project itself; the management must warrant a correct level of profitability[9].

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7 TRONCONI, Oliviero, BAIARDI, Liala, *Valutazione, valorizzazione e sviluppo immobiliare*, Rimini, Maggioli Editore, 2010, pp. 46-48.

8 MATTIA, *Principi…*, *op. cit.*, chapter 1

9 TRONCONI, BAIARDI, *Valutazione..*, *op. cit.*, p. 272.

A correct briefing, together with a preliminary cost analysis should always be the basis for a correct and "no surprise" project. Certainly when the project is on an existent building is more difficult to manage the situation as for a new building, but with a deep knowledge of the conditions it is possible to make correct valuations.

Already at a preliminary level, as defined in Italian Law on public tender (D. Lgs. 163/2006 and "*Regolamento attuativo*" 14/06/2010), it is necessary to project the feasibility, both technical and financial, of works[10], on the basis of a preliminary document that should give correct and clear aims of the client.

Generally a project can be divided into four steps:

- Step 1: 'creative' moment, when the project is conceived;
- Step 2: 'definition' moment, when the project is designed;
- Step 3: 'conversion' moment, when different solutions are compared;
- Step 4: 'decision-making' moment, when a more precise valuation is made.

Again, the cost analysis is crucial already from step 1; in this way it is possible to understand immediately the financial feasibility of the project. In the following steps the analysis have to become more and more precise, following the decisions taken with the project itself[11].

Image 92: Building process

A project without a

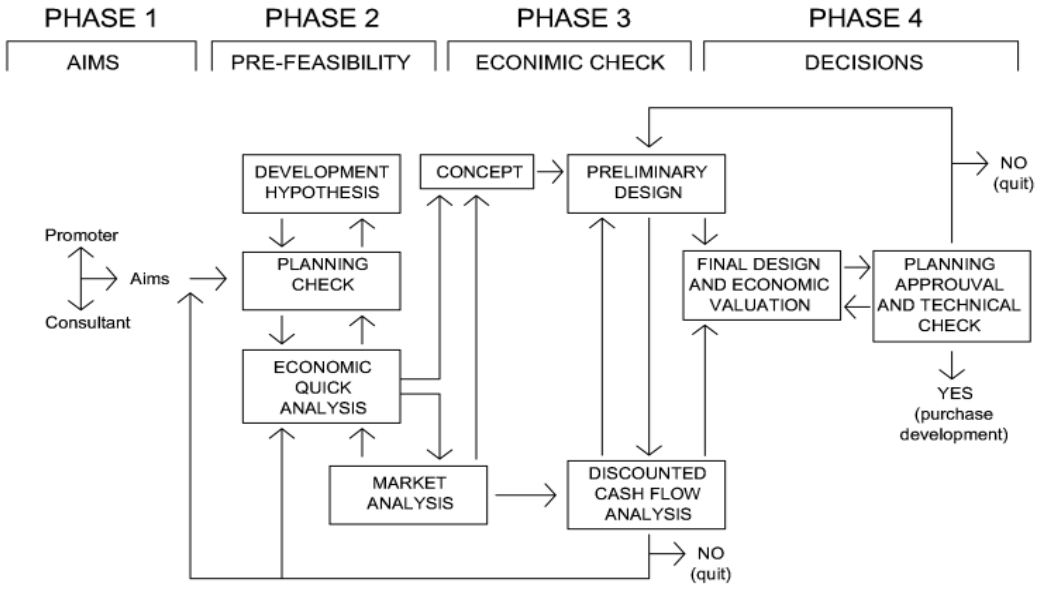


Image 93: Phases of a project

[10] D.Lgs. 163/2006 art 93 and next; *Regolamento attuativo* 14 giugno 2010 art. 17; see also COSCIA, FREGONARA, *Strumenti*…, op.cit., p. 134

[11] MATTIA, *Principi*…, *op. cit.*, p. 30. See also FLORIO, Massimo, *I progetti di investimento. Pianificazione e analisi di fattibilità*, Milano, Unicopli, 1985, chapter 1. pp. 21-33;

financial check is useless: in fact the amount of money (owned or lent) is usually the first phase in the building process[12] (image 92).
But it is necessary to underline that the process is not so linear, being very complex: in a feasibility analysis, the project and economic analyses continuously interact (image 93).

2.3 The new Master Plan

The suggestion of a plan, even at a level of master plan, has to be done in this complex background. Finally, one of the aims of this research is trying to demonstrate the feasibility of a restoration and conservation project, even at a very initial planning step.
As underlined in paragraph 3.1 the most sustainable use for *ca'* Zenobio is the present one, but it could be implemented and, anyway, it is necessary to carry out some works to improve the existing situation and also revenues.
A preliminary master plan has been designed during the academic course "Conservation of Architecture" of the third year of the Faculty of Architecture at University IUAV of Venice[13]; about 60 students have surveyed the all palace, analysed materials, decays and designed conservation works. At the end of course a general proposal for a re-use has been made and discussed with the Director of Collegio Armeno, Mr. Samuel Baghdassarian.
These preliminary studies have been the basis for the current master plan, here presented.
The idea is to create a multi-functional cultural centre with annexed guesthouse (Drawings PN.01- PN.12[14])
The proposal is to maintain the current use as exhibition area and as guesthouse and to improve also some educational use. In fact, as already underlined, the entire palace is vast and has many rooms; maintaining a teaching use, with guestrooms, could be important both for a continuity with the past and for the added cultural values.
Probably the best thing to do is to create a place where many different academic but also professional courses could take place. In this period, as previously underlined, it is difficult to find a single university that could rent all an area of the palace, so maybe a flexible management could be more feasible and sustainable. In some ways this already happens, for example, with the Summer Academy[15], every year hosted in *ca'* Zenobio.
Having international students and lectures maintains a link with the former

12 TRONCONI, BAIARDI, *Valutazione*…, *op. cit.*, p. 271.
13 University IUAV of Venice, CLASA *Restauro*, prof. Giorgio Gianighian, a.y. 2010/2011.
14 Drawings are at the end of this paragraph at page 109.
15 http://www.ung.si/en/academic-programmes/6500/

boarding school concept, according to the wills of the donors, but it is also an opportunity of cultural melting pot. This educational use is crucial and it is important to reintroduce it in the master plan, because in the granted project it is partially foreseen.

We can give only some suggestions on some institutions that could rent some rooms for lectures, library, also administrative use; rental that could be all year long or even for some specific period (as for workshops, congresses, meetings and so on).

For example the University of Nova Gorica with its international Master and PHD Course "Economics and Techniques for the Conservation of the Architectural and Environmental Heritage"[16], organized together with University IUAV of Venice, could move here from Sant'Elena, where actually it is located; in *ca'* Zenobio there are also many rooms that are available for students and professors.

Also VIU (Venice International University)[17], located in San Servolo Island, could have here some courses, classes and special lectures or an other seat.

University IUAV of Venice and *Ca'* Foscari could rent some rooms all year long utilizing as studying rooms; in some other periods of the year a larger number of spaces or even the garden could be rented for workshops and intensive seminars, or other kinds of events.

Furthermore some professional courses could take place here: for example, "*Centro Europeo per i Mestieri del Patrimonio*", an international restoration school once in Venice and now in Thiene (Vicenza), could take here some lectures and practical courses, directly restoring some rooms of the palace.

These are only some examples, but with a correct coordination and schedule many cultural activities could be carried out in the palace.

Anyway, apart from the specific uses, the most important thing to plan, dividing the palace in these three main categories (exhibition centre, educational centre and guesthouse), is the partition of accesses and ways. In fact nowadays there is a great promiscuity at *ca'* Zenobio: the accesses are unguarded and everybody can go around the palace with no great difficulties.

The new project must guarantee a certain separation of accesses for the different uses.

Obviously it is impossible to have a complete division of the functions since we have to respect the existent building, but an improvement of the currentsituation can be suggested; moreover some interactions among the different areas are important, for example between the educational use and the exhibition area or

16 http://www.iuav.it/Didattica1/ master/master---I/ETCAEH/index.htm/

17 www.univiu.org

the educational use and the guesthouse.
The concept is to utilize the four existing accesses present on the main front and the four different staircases, trying to give an order to the organisation of different uses.
The main central access of *ca'* Zenobio (rooms PT.01 and PT.02 highlighted with cyan colour in Drawing PN.01) would be the one leading to the exhibition area and to the open space of garden, a common area, where a cafeteria and a lunchroom are (green in Drawing PN.01). When the garden is not used for specific events (such as exhibitions, performances, parties, etc.) the entire garden could be opened to people that could just stay there or use the café and the restaurant. Apparently, the mixed use of the ground floor, in particular the garden, might seem unsuitable, while it could be a strong point for having an added cultural value to the palace.
The lunchroom and the cafeteria, with their public lavatories should be directly linked to the upper existing kitchen (rooms A.02, A.04, A.06, A.07, A.08 in Drawings PN.02 and PN.07) through an elevator (L.3).
The exhibition area occupies the ground and the first floor; in drawings PN.01 and PN.02 the entire area is highlighted in red colour.
At the ground floor the little room PT.04 on the left of western door (D.1) could be used as permanent exhibition of the history of the palace; the rooms facing the *androne* (PT.11, PT.28 and PT.29) should be used as bookshop and permanent exhibition areas. From the garden it is possible to reach the public lavatories (PT.13).
The first noble floor is accessible from the main staircase (S.1) through a controlled access and also by a lift (L.1), placed in the eastern internal courtyard; at the first floor a new access for the lift is created where now a small bathroom is located (A.28c). The entire first floor (from A.13 to A.29), starting from the two staircases of the wings to the principal façade, is dedicated to temporary exhibitions. Two new toilets (A.28a and A.28b, accessible also for disable people) have to be inserted between rooms A.22 and A.27.
The door on the left of the principal façade (D.1) would be used only as a backdoor for maintenance and supplies.
The third access door (D.3) should have a double function, both for the guesthouse (blue colour in drawings PN.01, PN.02, PN.03, PN.04) and for reaching the educational area (yellow colour in drawings PN.01, PN.02, PN.03).
At the right of the entrance the reception is located (PT.19-20), in the same existing position, to deal with administrative matters and control accesses.
Three different ways bring to the three different areas: the guests have to take the staircase (S.4), or, if necessary, the lift placed into the eastern courtyard

(L.2). From this way it is possible to reach the guesthouse (highlighted in the drawing with blue colour) at the third floor of the palace; the other two areas dedicated to guestrooms are situated in the two rear lateral wings and they are accessible from stairs S.2 and S.3.
In order to reach the rooms for lectures, seminars, workshop, there is the lift (L.2) or the staircase S.4. There is a strict link between bedrooms and classrooms because the first can be used by students or professor during the period of activities; but the independency of stairs can guarantee the use also as tourist guesthouse.
The last door (D.4) should be a backdoor, principally used by kitchen and guesthouse staff.
From the external staircase of western lateral wing it is possible to reach some rooms that can easily be used as congress hall or classrooms (A.1, A.3, A.5, A.9, A.10).
With this organization of the palace there is more independency of uses than today; internal ways are more separated but a certain mixed use is maintained, mostly for the access with lifts that necessary have to be placed into the courtyards.
This is only a master plan that shows possible uses in the palace, but follows a certain order in planning and work: demolitions are very few and only where really necessary; the area with the major demolitions is the one of common bathrooms at third floor for the reorganization of guestrooms. The main problem is how to locate the new bathrooms. No demolition of walls and rooms are made for this purpose: the new bathrooms are inserted into the existing rooms with new linings; existing drain pipes are used for the new plants and they are reached with special pumps whose pipelines can be put into false ceilings. New supplies can be inserted into existing flues.
A working project should obviously be needed for defining such questions, but it is important to consider that even at a preliminary step this matters are set as "pivot" of the project.

DRAWINGS OF MASTER PLAN

List of drawings:

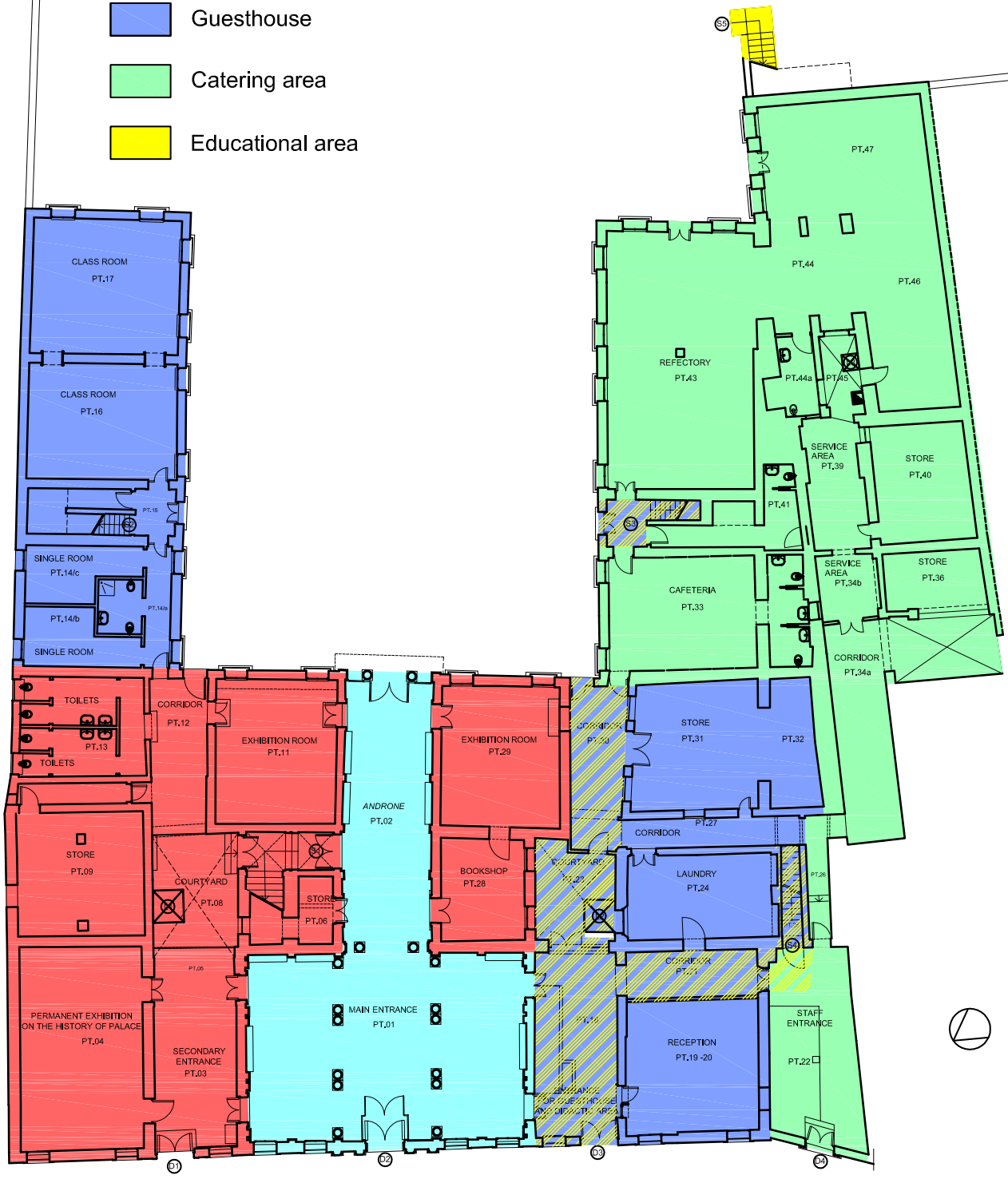
A. USES OF THE PALACE
- PN.01 Ground Floor
- PN.02 First Floor
- PN.03 Second Floor
- PN.04 Third Floor

B. MASTER PLAN OF RESTORATION AND CONSERVATION PROJECT OF THE PALACE
- PN.05 Ground Floor
- PN.06 First Floor
- PN.07 Second Floor
- PN.08 Third Floor

C. COMPARATIVE DRAWINGS
- PN.09 Ground Floor
- PN.10 First Floor
- PN.11 Second Floor
- PN.12 Third Floor

USES OF THE PALACE

- Main public access
- Exhibition area
- Guesthouse
- Catering area
- Educational area



GROUND FLOOR

PN.01

USES OF THE PALACE

- Main public access
- Exhibition area
- Guesthouse
- Catering area
- Educational area

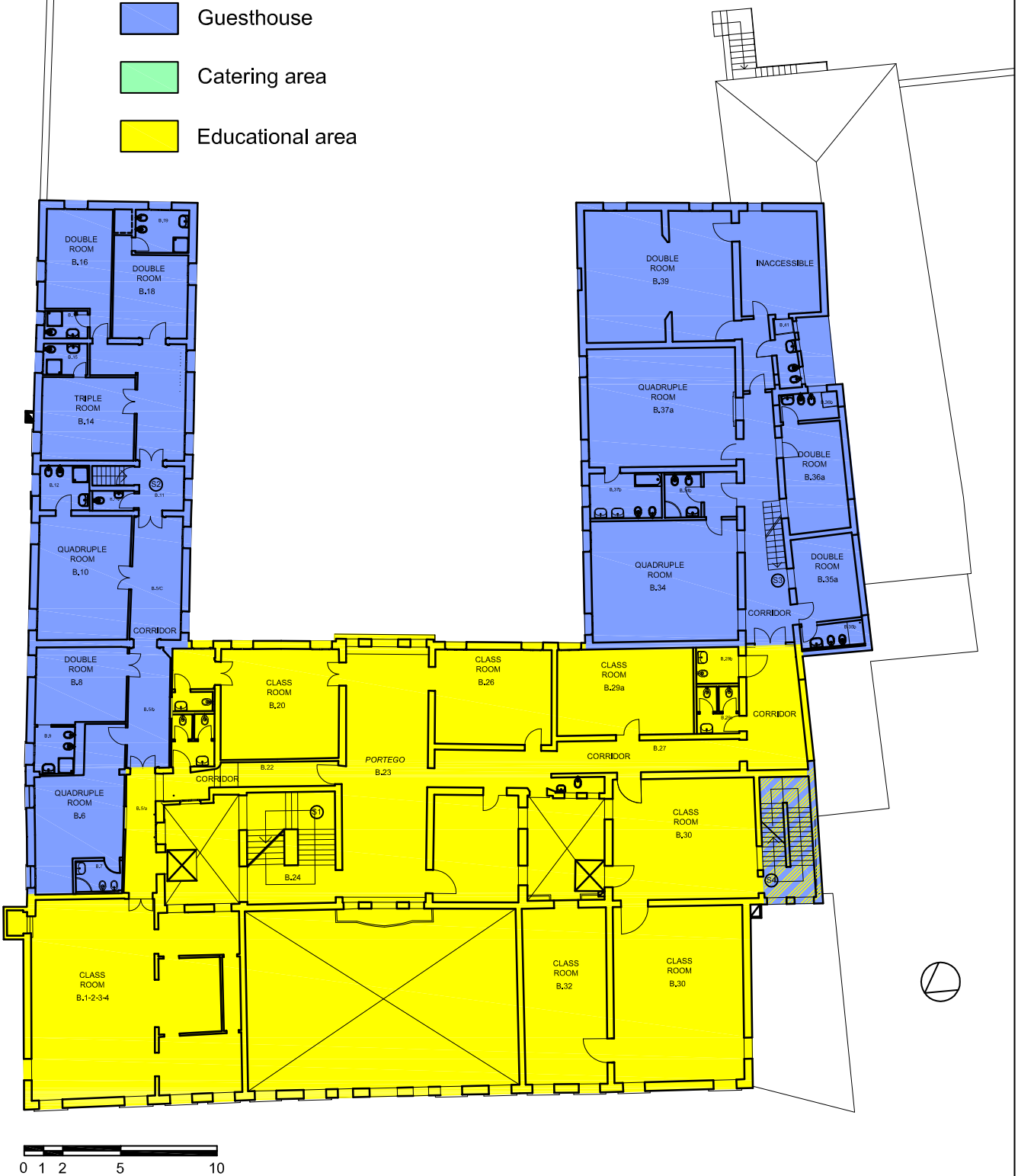
0 1 2 5 10

FIRST FLOOR

PN.02

USES OF THE PALACE

- Main public access
- Exhibition area
- Guesthouse
- Catering area
- Educational area



SECOND FLOOR

PN.03

USES OF THE PALACE

- Main public access
- Exhibition area
- Guesthouse
- Catering area
- Educational area

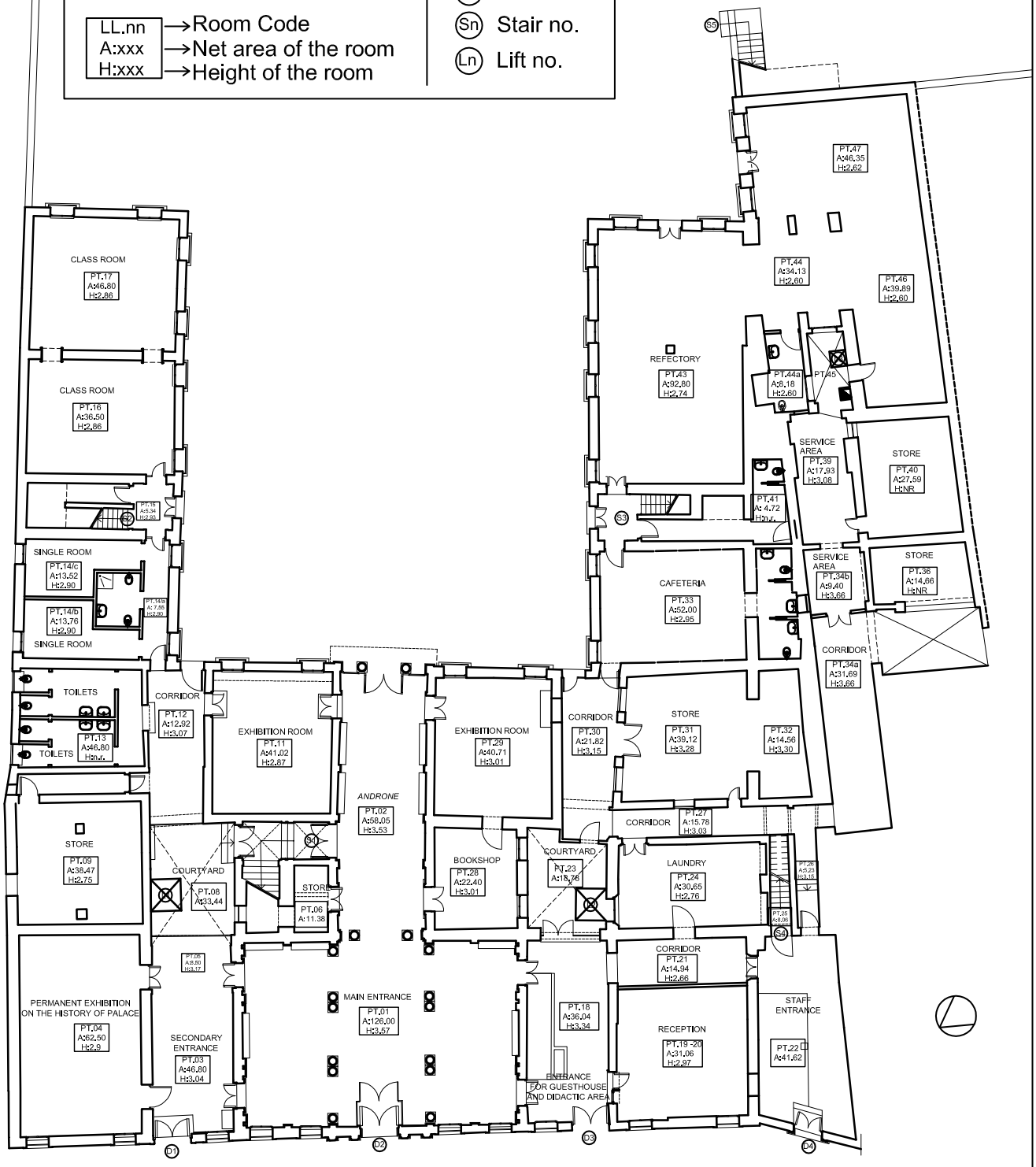
THIRD FLOOR

PN.04

MASTERPLAN OF RESTORATION AND CONSERVATION PROJECT OF THE PALACE

NAME → Use of the room
LL.nn →Room Code
A:xxx →Net area of the room
H:xxx →Height of the room

(Dn) Door no.
(Sn) Stair no.
(Ln) Lift no.



0 1 2 5 10

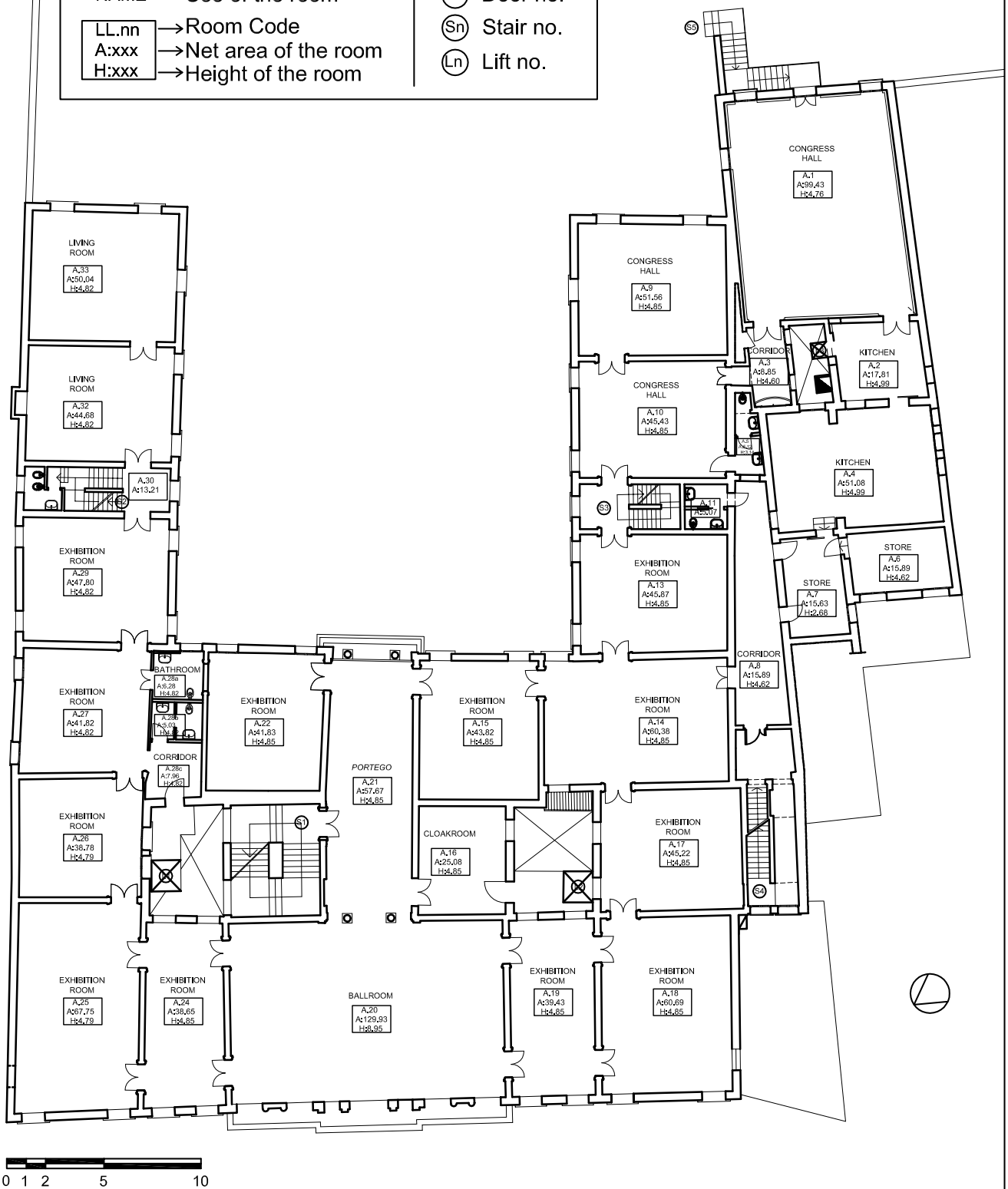
GROUND FLOOR

PN.05

MASTERPLAN OF RESTORATION AND CONSERVATION PROJECT OF THE PALACE

NAME → Use of the room
LL.nn →Room Code
A:xxx →Net area of the room
H:xxx →Height of the room

(Dn) Door no.
(Sn) Stair no.
(Ln) Lift no.



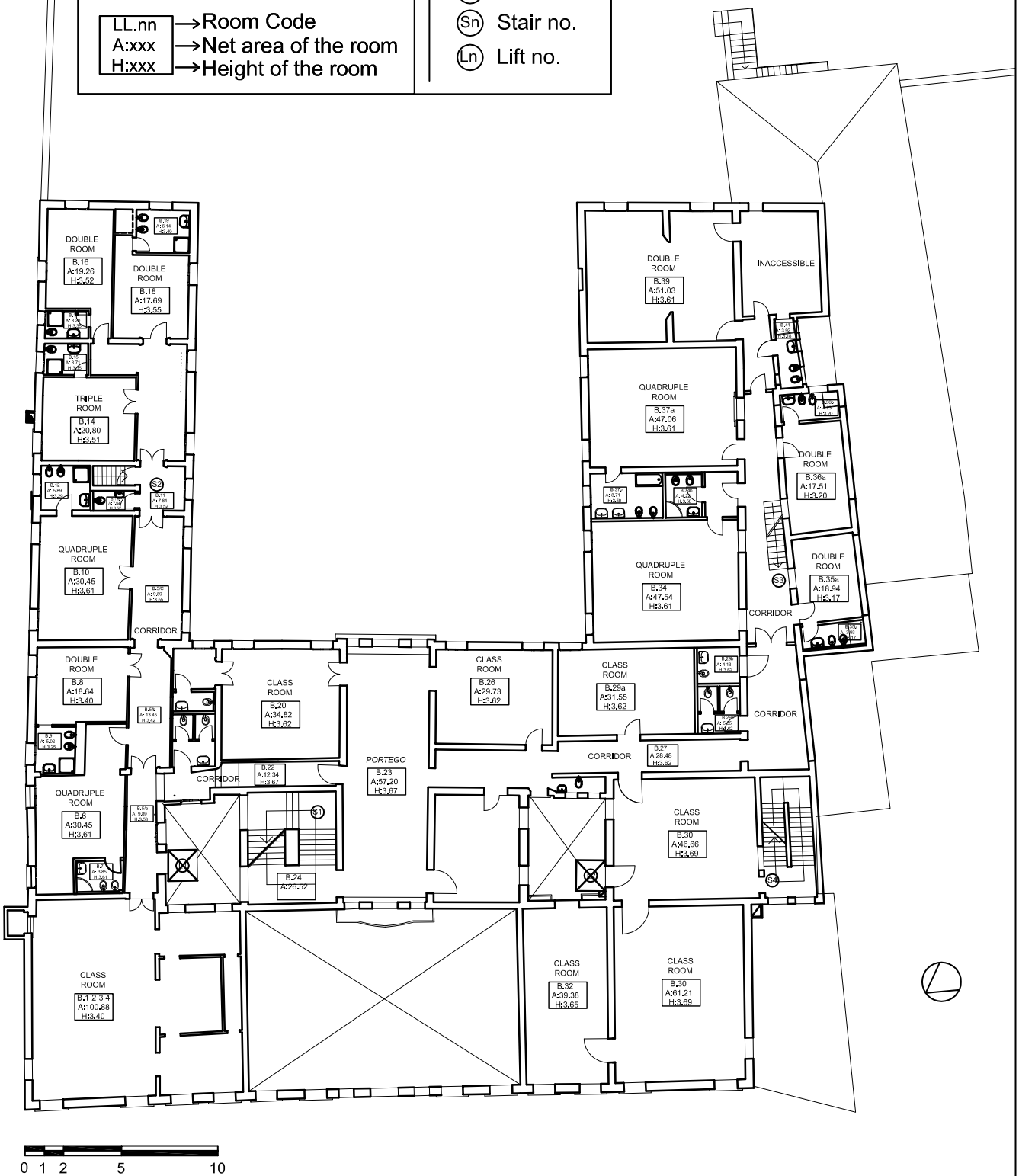
FIRST FLOOR

PN.06

MASTERPLAN OF RESTORATION AND CONSERVATION PROJECT OF THE PALACE

NAME → Use of the room
LL.nn → Room Code
A:xxx → Net area of the room
H:xxx → Height of the room

(Dn) Door no.
(Sn) Stair no.
(Ln) Lift no.



SECOND FLOOR

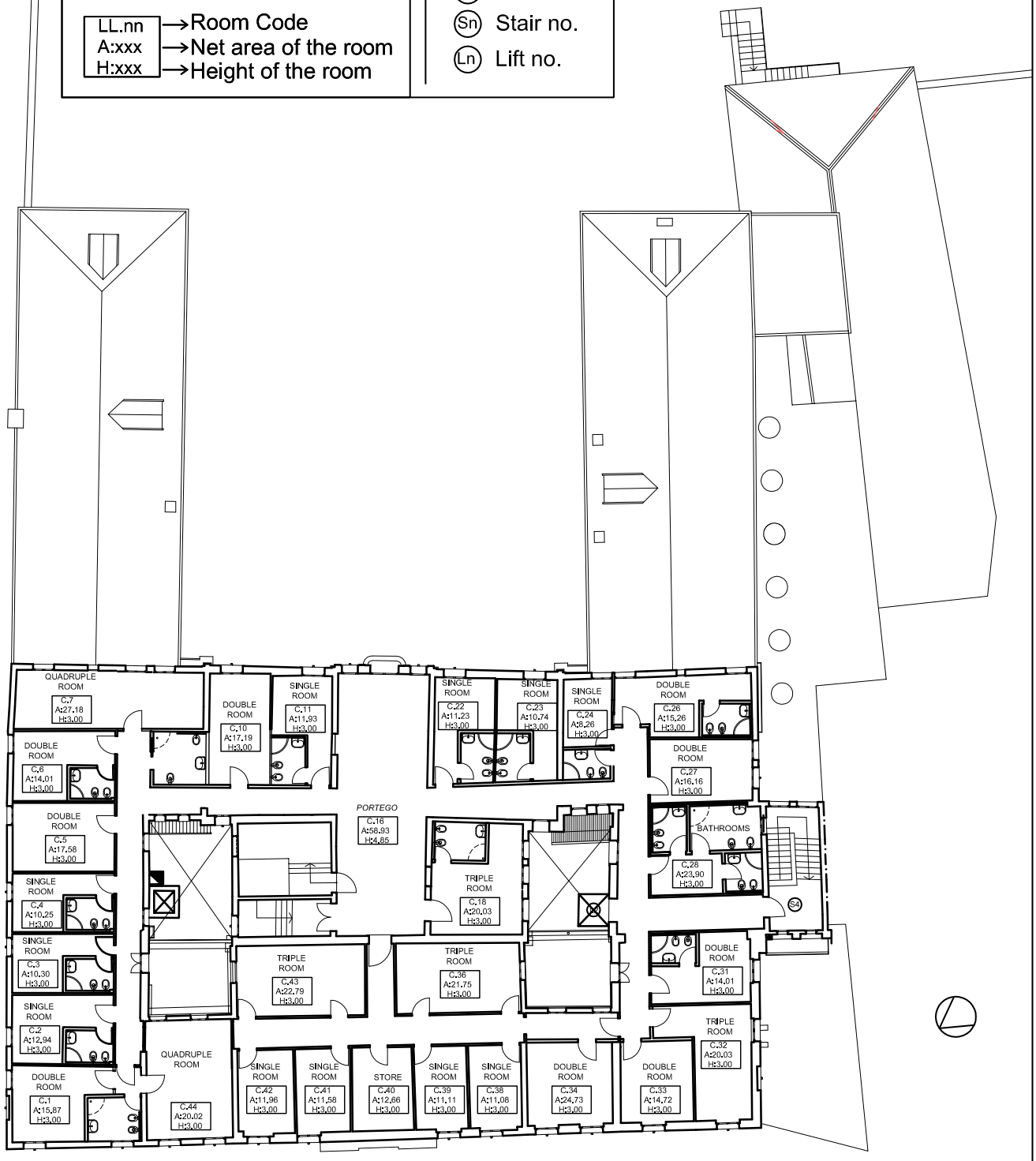
PN.07

MASTERPLAN OF RESTORATION AND CONSERVATION PROJECT OF THE PALACE

NAME → Use of the room

LL.nn →Room Code
A:xxx →Net area of the room
H:xxx →Height of the room

(Dn) Door no.
(Sn) Stair no.
(Ln) Lift no.



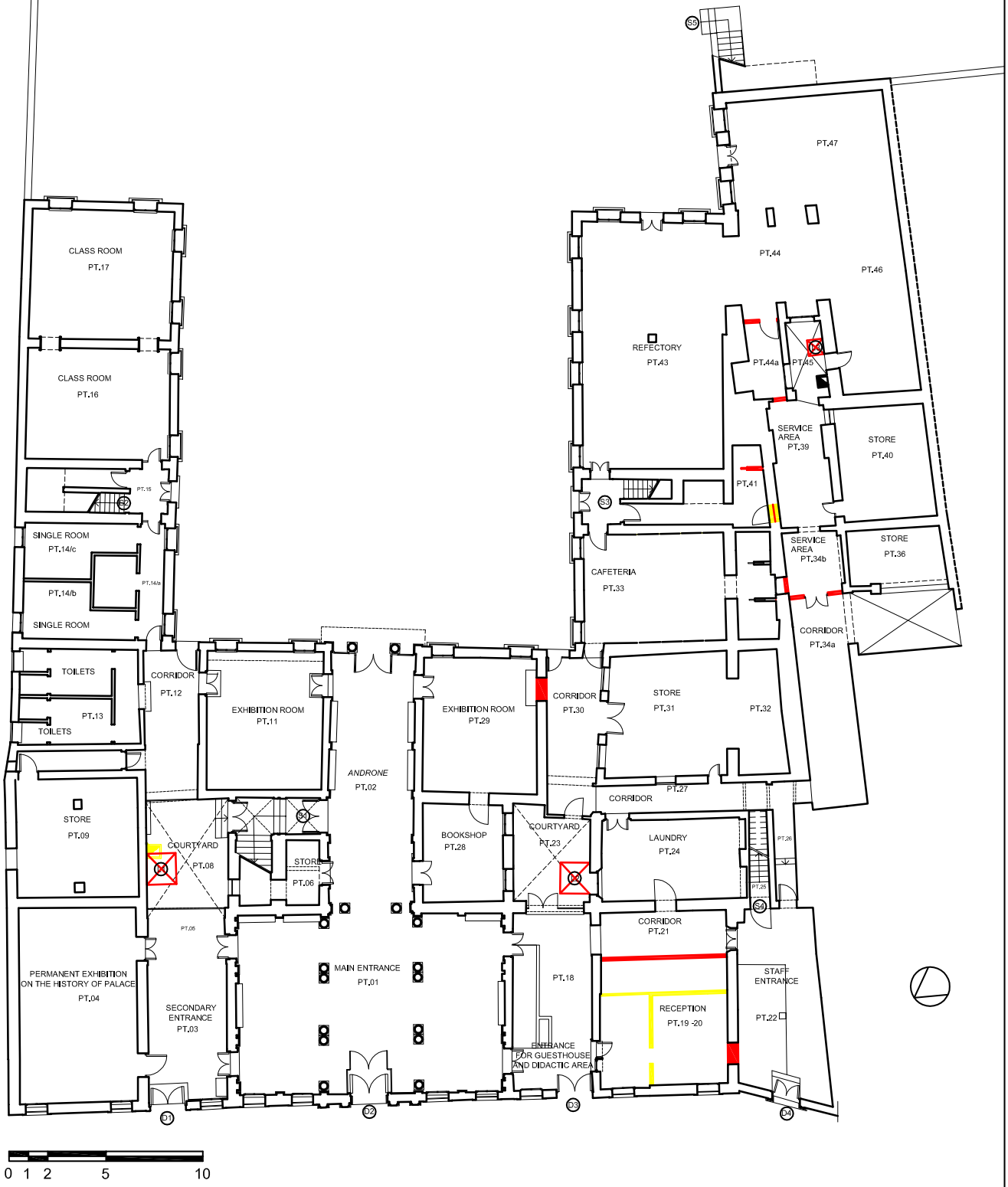
THIRD FLOOR

PN.08

COMPARATIVE DRAWING

Demolition

New elements



0 1 2 5 10

GROUND FLOOR

PN.09

COMPARATIVE DRAWING

Demolition

New elements

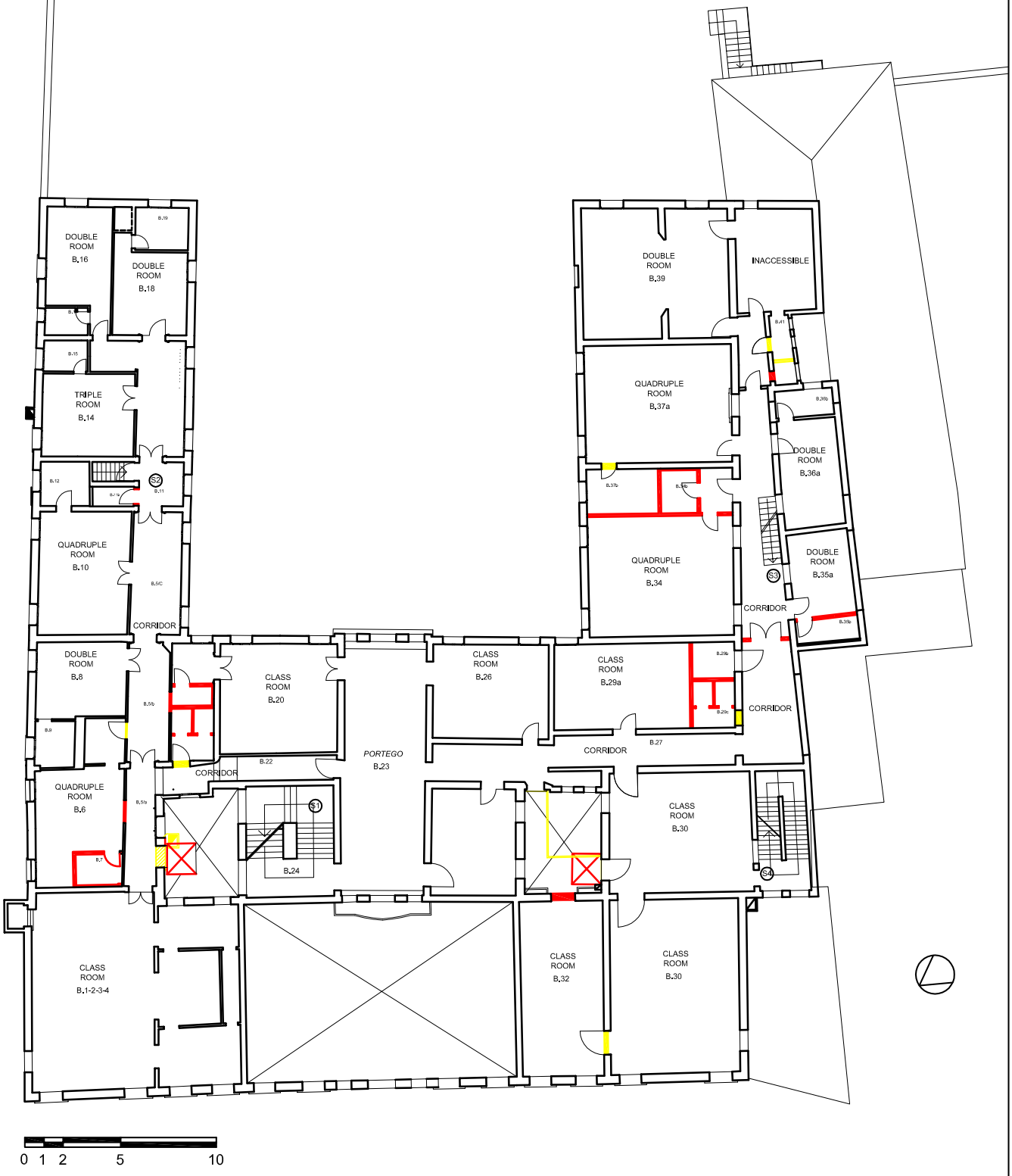
FIRST FLOOR

PN.10

COMPARATIVE DRAWING

Demolition

New elements



0 1 2 5 10

SECOND FLOOR

PN.11

COMPARATIVE DRAWING

Demolition

New elements

THIRD FLOOR

PN.12

3. LAWS AND CULTURAL BONDS: ARE THESE TOOLS SUSTAINABLE FOR A CONSERVATIVE ARCHITECTURAL PROJECT?

One of the first things preliminary to any project, both of restoration and of new design, is to check the national and local laws that in some way bind the building.

For *ca'* Zenobio, the first law to check is the urban plan of the Municipality of Venice, the "*PRG: Piano Regolatore Generale*"[18]. It is a crucial tool to understand what kind of works are allowed in every single building of the city. Unfortunately, as underlined by scholars[19] and as it appears from its daily enforcement, it is unfit for a city like Venice: in fact it is based on "typology" of buildings, without considering any possible transformation that a building could have been subjected to. On the contrary, this plan often oblige to bring the building back to an hypothetical original situation that maybe never existed. This is against any present theory on restoration and particularly on conservation: every change and transformation, when it is not bad for the health of the building itself, should be maintained. Moreover "going-backs" are often not feasible because the building is owned by several different owners.

Anyway PRG is still the regulation in force and obviously has to be taken into account for the project.

The palace is defined as "C"[20] and the later building next to the south-western wing as "fa"[21] (image 94).

"C" is a building built before the 19th century with a three-bayed plan. As described in the specific file of C-building some transformations to the building are allowed, but it is essential to maintain

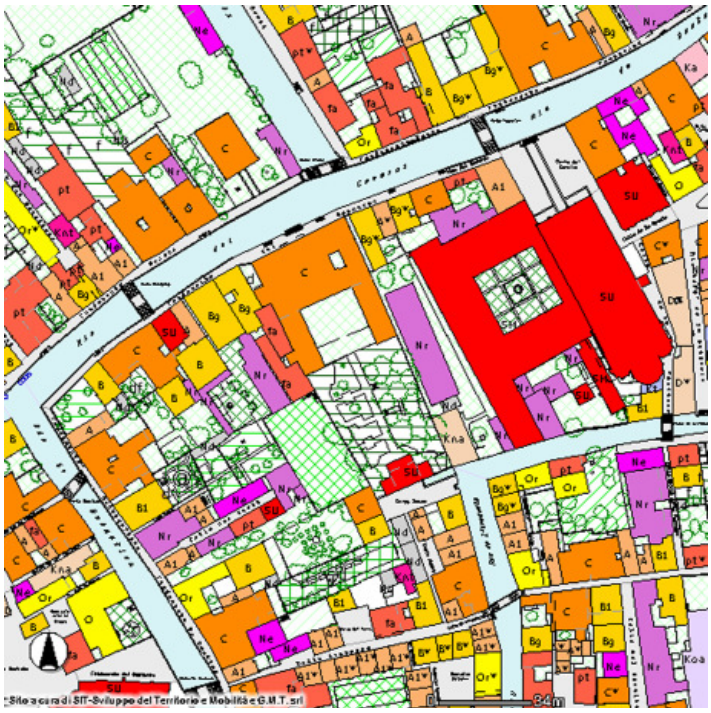


Image 94: General Urban Plan

[18] The local urban plan was adopted in 1962 and in 2000 some changes in urban standards were approved

[19] GIANIGHIAN, Giorgio, "*Venezia* invariata: sulla Variante al *PRG* del 1992 e la sopravvivenza del restauro tipologico", *ANANKE* n. 14, 1996.

[20] PRG, File no. 6.

[21] PRG, File no. 9.

the central *portego*. The suitable uses admitted by the law are: dwellings, museums and exhibitions, archives, libraries, clubs, hotels, guesthouse, public and private offices, educational structures and, only at the ground floor, stores and shops.
"fa" is a building built before the 19th century that has been joined to an other building. Also in this typology all different uses are allowed.
The garden is divided into three typologies: the courtyard between the two wings is considered an open space linked to the building but with no particular features[22]; the garden is defined as designed garden of the 19th century or before[23]; the open space in front of the new building next to the south-western wing is defined as a sport area. In all these cases a general maintenance is permitted but no relevant change of use.
So, according to the prescriptions of the PRG, the proposed master plan is feasible and would be approved.

Another important tool is the so called "*Regolamento di igiene*"[24], where all the parameters for the project from a sanitary point of view are given: minimum sizes of each room, size of windows, floors height, and so on. It is a local regulation based on a national law. Sometimes, when it is really impossible to follow these parameters without completely demolishing some rooms, it is possible to ask a dispensation from the regulations to the local authority for sanitary matters (ULSS: *Unione Locale Socio Sanitaria*).
Ca' Zenobio is a private building, therefore Law 13/1989 for the accessibility of disabled people applies here. According to it, architectural barriers must be removed to allow access to parts of a building. Ramps and lifts can help to reach many areas of the palace, served by bathrooms accessible by wheelchairs.
Another important thing to consider is that the palace is listed as a cultural property, under *D.Lgs* 42/2004[25].
When a building is listed any project and change must be approved by local Superintendence. In Venice the "*Soprintendenza per i beni architettonici e ambientali di Venezia e Laguna*" has the competence, both architectural and environmental, for the city and the surroundings. Generally, the cultural bond is

22 PRG, File 57.
23 PRG, File 39.
24 "*Regolamento locale d'igiene del suolo e delle abitazioni*", Venezia, 1930 and 2009: it is a law with health regulation for buildings and living.
25 "*Decreto Legislativo n. 42 22 gennaio 2004: Codice dei beni culturali e del paesaggio*" – Legislative Decree no. 42 of 22 January 2004 Code of the Cultural and Landscape Heritage. Italy has one of the most advanced laws of cultural and environmental heritage in the world. It is based on previous laws 1089/1939 and 1497/1939 that were conceived during the fascist dictatorship; in fact they both are very restrictive and punishing laws that have been quite difficult to enforce after second world war.

perceived as an obstacle to improvement and maintenance of a building. That is because of its restrictive nature that, on the other hand, allowed the survival of many buildings, saving them from demolition or complete transformation. Cultural bond should be an added value: a building is listed when it has a particular cultural, artistic, historical value. Unfortunately, the further burocratic permits and papers implied by the bond and the difficulties of getting an approval have transformed this bond, in the common general feeling, in an obstacle and a nuisance.
On the contrary, the cooperation with skilled technicians of Superintendence should be a added value for the project.
On the other hand, another type of listing is generally considered a honour: the inscription in the UNESCO World Heritage List[26]. When buildings, cities, environment, intangible goods and so on are inscribed in the list, UNESCO has no tools for controlling and preserving the listed site. But when something bad occurs to a site, UNESCO can wipe it out from the list: this threat is often a strong tool for the correct management of sites. Venice and its lagoon has been inscribed in World Heritage List since 1987. Obviously such a wide nomination can't have any direct control tool on a single building.
We should work seriously to change common feeling against cultural bond: in fact sometimes it becomes a sort of dead weight that stops any work on building and surfaces. A clear example is that of the first noble floor in *ca'* Zenobio. The property of the palace, partly for lack of money, has never asked any permission to Superintendence (maybe not considering national law on cultural heritage as a value but as a punishment) for the conservation of decorated surfaces. So no maintenance has ever been made and now they are in very worrying conditions[27]. On the contrary if a continuous maintenance, made by skilled labour with the supervision of the Superintendence, would have been continuously done, the walls and ceiling could be in better conditions.

Finally let's remember a regional law that has to be applied in *ca'* Zenobio when transformed and implemented in use as a guest house, L.R. 33/2002[28] a law concerning tourism. This law gives some specific indications and prescription for realizing and managing a guesthouse.

As briefly described in this paragraph many laws and regulations concern a renewal project such as that of *ca'* Zenobio. But planning doesn't mean only

[26] www.unesco.org; www.whc.unesco.org.
[27] See also chapter III, paragraph 2.3
[28] Law n. 33, 4 November 2002 "Testo unico delle leggi Regionali in materia di turismo"

sticking to the rules. There are many aspects that have to be valued, mostly when the project is made on an existing building: aims, conditions, possibilities, feasibility and so on. In fact, it is often difficult to control everything.
And sometimes because of so many difficulties and bureaucracy some client decides not to carry out global works on their property: this means that decay worsen daily.
A strict control is necessary, especially on historical heritage. But there should be more help and flexibility from the Authorities for the properties involved and for the professionals working on them. The final aim should be conserving and restoring these buildings: through the renewal of a single building all the surroundings can gain more value.
In the specific case of *ca'* Zenobio this is even more necessary since the area where it stands is not so lively: a complete and intelligent restoration could bring to a cultural stimulus with positive externalities to all the surroundings.
So both the Municipality and the Superintendence should help and favour conservative and restoration projects on a building, aware of their general and wide value.

4. SURFACES CONSERVATION PROJECT

A conservation project is necessary to restore all the stones or decorated surfaces of the palace.
The most urgent work is that on the false ceiling of the ballroom that shows a worrying fractures and cracks condition, due probably to structural problems of the upper wooden beams floor[29].
So a conservation project, already granted by Superintendence, has been prepared[30] and some works of pre-consolidation have already started.
The project follows the necessary steps that Superintendence requires for approving a working design; it is interesting to give a description of the method used for this project because it should be the basis for the other necessary projects for the decorated surfaces of the palace.

4.1 Surveys and analyses

The first important step was making a detailed survey of the false ceiling and of the wooden beam structure that supports it.
The painted ceiling from the ballroom below has been surveyed both with a photogrammetric method and with laser scanner 3D. In this way it has been possible to confirm what was visible even from the balcony of the orchestra:

29 See also chapter III paragraph 2.3 and 3.1
30 Project by ArCo Architecture and Conservation srl

there is an evident sagging of the central part, along a deep fracture, already consolidated with some pins. In fact, in the lower point the ceiling has a lowering of about 20 cm.
Also the supporting wooden beams floor has been geometrically surveyed and the survey has confirmed the lowering. Thanks to this detailed survey it has been possible to suggest that this sagging is due to a break of one of the beams of the several layers that form the floor.
Some chemical and physical analyses of the plaster and its conservation condition have also been carried out[31]. These helped to formulate an exact definition of the composition of the false ceiling that can be described as follows.
There is a load-bearing structure made of wooden frames hooked up to the wooden beam floor.
Wooden laths of about 2,5x2,5 cm, called *cantinelle*, are nailed to the wooden frames and then are plastered with a lime mortar. The plaster is made by two layers: the first is lime, river sand and some *cocciopesto* (bricks gravel) and the second is lime and river sand in a rate of 4:1. This lime plaster has been decorated with fresco technique; some new paintings are visible in thin section: probably some interventions of restoration have been made during the 19th and the 20th centuries.

4.2 Decay and cracks survey

The following step has been the detailed survey of the conservation condition of the false ceiling.
On the basis of the photogrammetric survey all cracks and fractures have been drawn (image 95); two different colours are used to differentiate deep cracks from superficial fractures. As one can see from the drawing the situation is worrying: the false ceiling is deeply damaged and many fractures (image 96) correspond to structural problems of the upper floor, as verified with overlapping of photogrammetric survey of the ceiling and geometrical survey of the floor. These cracks caused a general detachment of the ceiling that is evident and worrying.
Also superficial decays have been punctually mapped: there are some phenomena of efflorescence, erosion, lacuna, superficial disintegration, surface deposit, staining (images 97, 98, 99).
The most dangerous superficial decay is that of efflorescence, because it is

[31] Examination of cross section preparations using an optical microscope with reflected light; analysis of water-soluble salts; examination of thin section preparations using a polarized microscope with transmitted light; Fourier Transform Infrared Spectrophotometry (FT/IR); X-ray fluorescence analysis

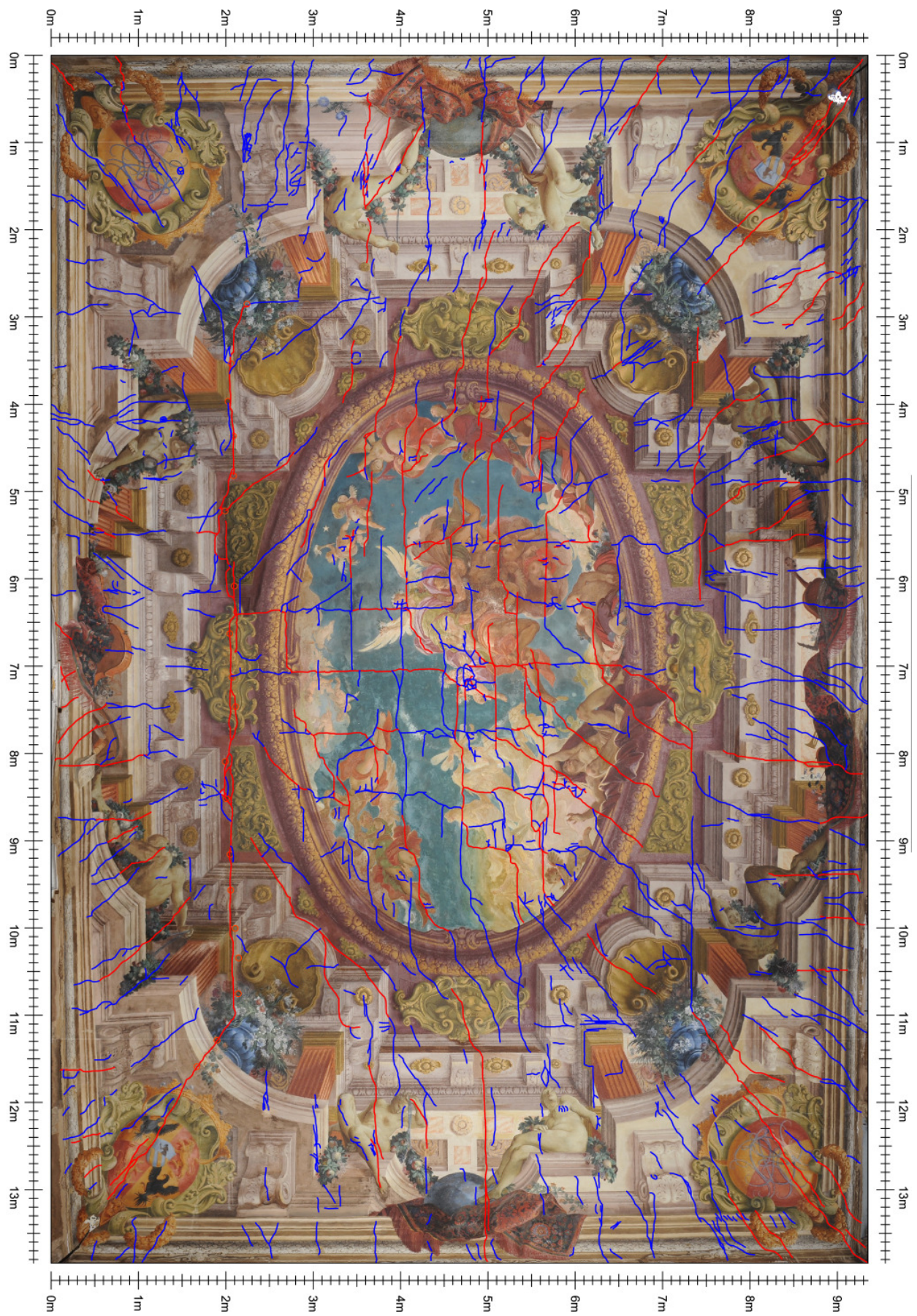


Image 95: Survey of cracks: in red deep fractures and in blue superficial fractures

due to some seepages both from the roof and from the principal façade (images 100, 101). These damages due to water caused an erosion of painted surface and also some dark stains. The roof has already been repaired, while the seepages from the façade are still going on both because of defective windows upstairs and because of some fractures in the stones facing of the façade.

Image 96: Cracks of the false ceiling

Image 97: Lacuna and eroson

Image 98: Efflorescence, superficial erosion and lacuna

4.3 Project of Conservation Works

The project of conservation works is based on the principle of the minimum of intervention. Only what is strictly necessary to the conservation of the surface and of the structure is going to be made.

Initially it is important to make a general pre-consolidation of cracks and detachment with injections of lime mortar, *cocciopesto*, marble powder and a very few parts of acrylic resin. Then some pins can be used for a mechanical consolidation; fractures and lacuna have to be plastered with lime mortar.

Painting will be pre-consolidated, were necessary ,with some resin like Paraloid B72; where efflorescence are evident some poultices of deionized water can be applied and if plaster is very damaged it can be treated with some ethyl silicate.

Image 99: Superficial erosion, cracks and lacuna

The dry cleaning of surfaces is going to be done with a special sponge, called Wishab. All the plastered parts are going to be painted with watercolours in a slightly lighter tone.

Image 100: Decay for seepages

Image 101: Decay for seepages

All works have been described in detail in specific files which give the technical specifications of works (image 102).

Codice Intervento:

IN.01

Definizione Intervento: **RISARCIMENTO DELLE LACUNE**

Risarcimento delle lacune di intonaco mediante integrazioni con impasto a base di calce aerea

Scheda n.:

i10.1

Riferimento tavole:

- TAVOLE DI PROGETTO P.01 e P.02

Documentazione fotografica:

Materiali:

- Intonaco a calce affrescato
- Cantinelle lignee

Degradi:

- FF: Fessurazione Fratturazione
- LC: Lacuna

Protocolli operativi:

Tutte le lacune di intonaco, comprese le fessurazioni, andranno riprese con rappezzi di mallta, di composizione simile a quella esistente. Le esistenti stuccature non compatibili con il supporto andranno accuratamente rimosse mediante scalpelli di piccole dimensioni.
Il rappezzo dovrà essere realizzato con un intonaco compatibile con il supporto e similare a quello esistente per spessore (numero di strati), composizione e traspirabilità; i coefficienti di dilatazione termica e di resistenza meccanica dovranno essere similari a quelli dei materiali esistenti così da poter garantire lo stesso comportamento alle diverse sollecitazioni.
La formulazione della malta per realizzare il nuovo intonaco dovrà presentare le caratteristiche tecnologiche dell'intonaco rimasto sulla superficie, ovvero dall'analisi della rimanenza si dovranno dedurre le varie stratificazioni, i diversi componenti e in che modo sono stati combinati tra loro: rapporto aggregato-legante, granulometria inerte e il tipo di legante. Per questa operazione saranno di supporto le analisi chimiche già realizzate e quelle che verranno ulteriormente effettuate.
Prima di procedere con il rappezzo la superficie dovrà essere preparata, essendo sufficientemente asciutta (esente da fenomeni d'umidità) e pulita (priva di sali e/o patine) in modo da consentire la totale aderenza della nuova malta sul supporto; dopodiché, si eseguirà l'inumidimento della muratura o delle cantinelle tramite pennello imbevuto d'acqua o mediante l'uso di un semplice nebulizzatore manuale. Al fine di garantire la corretta realizzazione dell'impasto dovranno essere presi degli accorgimenti sul modo di dosare e amalgamare i diversi componenti.
La preparazione della malta in cantiere dovrà essere fatta in contenitori puliti privi di residui di sostanze che potrebbero alterare la natura dell'impasto, avendo cura di dosare sapientemente la quantità d'acqua, onde evitare la formazione di impasti o troppo fluidi o poco lavorabili; lo scopo dovrà essere quello di ottenere una consistenza tale da garantire la capacità di adesione fino all'avvenuta presa sul supporto; il dosaggio degli ingredienti dovrà essere fatto con estrema cura e precisione, evitando metodi di misurazione troppo approssimativi, in modo da riuscire ad ottenere formulati aventi sempre le caratteristiche richieste; la quantificazione in cantiere potrà avvenire prendendo come riferimento un'unità di volume identificata in un contenitore facilmente reperibile in sito.
Compiuta la pulitura, e se necessario il consolidamento, dei margini del vecchio intonaco si procederà all'applicazione del rappezzo, seguendo i diversi strati: previa bagnatura del supporto, verrà applicato il rinzaffo (in malta morbida a base di grassello di calce, sabbie scelte e cocciopesto con aggregati a grana medio-fine 0,125 - 0,5 mm) in modo tale da penetrare bene negli interstizi dell'apparecchio; a presa avvenuta, previa bagnatura della superficie, si procederà alla stesura del secondo strato, tramite cazzuola, e se necessario degli strati successivi fino a raggiungere lo spessore totale dell'intonaco; l'impasto, a base di grassello di calce lungamente stagionato e sabbie scelte, avrà una granulometria degli inerti medio-fine e verrà, nell'ultimo strato, lisciato con una spugna.

Lavorazioni precedenti:

- PL.01: Pulitura a secco
- PL.02: Pulitura a umido

Lavorazioni successive:

- IN.02: Integrazione pittorica

Materiali e attrezzature impiegati:

- Cazzuola
- Spugna
- Malta prodotta in cantiere

Image 102: Sample of conservation files

PART 3

FEASIBILITY ANALYSIS FOR A CORRECT MANAGEMENT OF WORKS

CHAPTER V
THE FEASIBILITY ANALYSIS OF THE MASTER PLAN FOR THE CONSERVATION AND RESTORATION OF CA' ZENOBIO

> "Consider an item of tangible cultural capital as defined above, such as a historic building. The asset may have economic value which derives simply from its physical existence as a building and irrespective of its cultural worth. But the economic value of the asset is likely to be augmented, perhaps significantly so, because of its cultural value. Thus we can see a casual connection: cultural value may give rise to economic value. […] In other words, a historic building may embody 'pure' cultural value, according to one or more of the scales proposed earlier, and also have an economic value as an asset derived from both its physical and its cultural content."
> THROSBY, David, *Economics and Culture*, Cambridge University Press, 2001, p. 47

The current conservation conditions of ca' Zenobio are really worrying: as already underlined in previous chapters[1] the lack of maintenance and restoration works brought to several and general decays, both of surfaces and of structures.

The administration of the palace, the "*Collegio Armeno Moorat Raphael*"[2], is conscious of the necessity of starting complete conservation and restoration works, but the economic problem of such investment is really hard.

The "*Collegio Armeno*" can't sell the palace, because of testamentary wills[3], so the only real possibility is that the administration collects the necessary funds to carry out the necessary works.

So, the crucial step is trying to evaluate how much the entire works could cost, how many years the works could last, if there could be some revenues, even during the yard, and what is the payback period of the investment.

In fact, the "*Collegio Armeno*" has a very low supply of liquid assets, so that it should ask the intervention of banks for a great loan.

The main tool that can help in this evaluation, crucial both for the property and for the potential banks, is the feasibility analysis, in particular the discounted cash flow analysis, which illustrates the cash flow of costs and revenues, converted into present value.

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1 In particular: paragraph 2.3 in chapter I, paragraph 3 in chapter II, and chapter III.

2 Paragraph 3, chapter II.

3 *Ibidem..*

1. The feasibility analysis

The link between a project and its feasibility is an important step in any planning decision. This concept has already been stressed in the previous chapter IV at paragraph 2.2, and it is an essential idea, mostly in Italy, where such tools are still poorly used.

For a restoration project, in particular, this is a delicate step, as it is very difficult to forecast the correct amount needed for the complete restoration: many problems can occur during the yard.

The project's feasibility is a document which illustrates the principal aims of the planning, and it should be drawn up before the planning steps, as a tool that can influence the possible options.

For creating a correct project's feasibility it is necessary to define the conditions and aims of the planning procedures. There are many different thematic areas that has to be approached, such as[4]:

1) Market analysis (demand and supply)
2) Specific analysis for the project (environmental, physical and chemical, structural, geological, etc.)
3) Planning problems and permissions
4) Management of agreement of different stakeholders
5) Settlement of a concept design or master plan and its costs
6) Technological matters
7) Valuation of risks
8) Economic and financial aspects (equity and debt)
9) Management of step
10) Marketing and communications strategy.

All the mentioned steps are necessary for a correct approach to planning, but the analysis of costs and revenues (point 8) are strictly linked to the economic and financial analysis that it is crucial for understanding the feasibility of investment (image 103).

1.1 The Discounted Cash Flow Analysis as a tool of valuation

One of the principal tool normally used for valuing the feasibility of an investment is the Discounted Cash Flow Analysis (DCFA), based on the principle that "periodic income and reversions are converted into present value through discounting, a procedure based on the assumption that benefits received in the future are worth less than the same benefits received today. The return on an investment compensates the investor for foregoing present benefits (i.e.,

[4] MANGIAROTTI, Anna, TRONCONI, Oliviero, *Il progetto di fattibilità. Analisi tecnica-economica e sistemi costruttivi*, Milano, Mc Graw Hill, 2010, pp. 15-26.

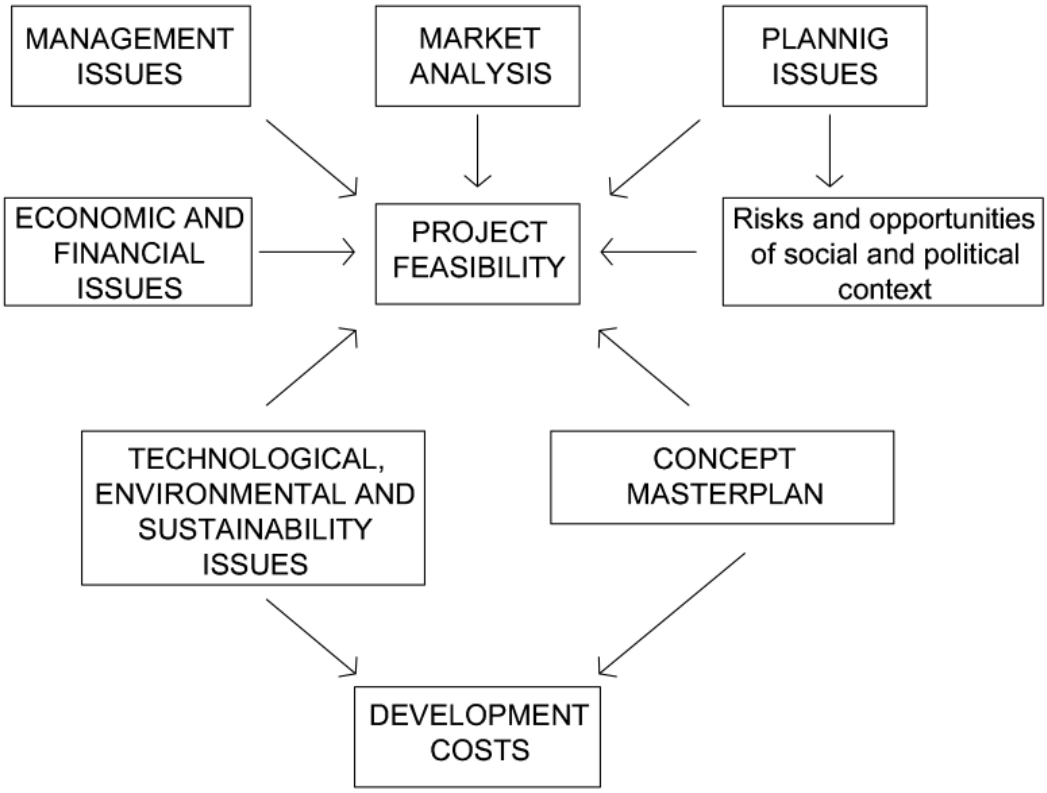


Image 103: Project's feasibility

the immediate use of capital) and accepting future benefits and risks."[5]

The standard formula for determine the present value is:

$$\text{Present Value} = \frac{\text{Future value}}{(1+i)^n}$$

Where "i" is the discount rate and "n" is the period (months, semesters, years, etc.).

With the DCFA is possible to determine the Net Present Value (NPV), that is expressed as the sum of each cash flow, that is to say:

$$\mathbf{NPV} = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} + \ldots + \frac{CF_n}{(1+r)^n} = \mathbf{\Sigma \frac{CF_t}{(1+r)^t}}$$

Where CF is the Cash Flow in the period specified, and $(1+r)^t$ is the discount factor in the period considered.

The main issue in a DCFA is the valuation of the correct costs and revenues of the investment, which is the cash flows of each period. The definition of the schedule of the project is important for the possible payback period; this period

[5] APPRAISAL INSTITUTE, *The appraisal of real estate*, Eleventh Edition, Chicago, Appraisal Institute, 1996, p. 530.

is linked to the discount rate ("r") that converts future benefits into present value.
The principal problem of such analysis is the uncertainty of projecting revenues and costs many years into the future.
With the DCFA, in addition of Net Present Value (NPV) it is possible to determine the Internal Rate of Return (IRR) that "refers to the yield rate that is earned for a given capital investment over the period of ownership. The internal rate of return for an investment is the yield rate that equates the present value of the future benefits of the investment to the amount of capital invested."[6]
An other important tool is the "payback period" that "is defined as the length of time required for the stream of net cash flows produced by an investment to equal the original cash outlay"[7].

2. THE RESTORATION AND CONSERVATION PROJECT: EVALUATION AND SCHEDULE

The first step in a Discounted Cash Flow Analysis is giving a global economic evaluation to the project and the possible schedule in time.

2.1 Economic evaluation of the project

The principal problem is that this kind of studies are normally carried out on a very preliminary level of project and design. In fact, as already stressed on chapter IV paragraph 2.2 and in the previous paragraph in this chapter, the financial feasibility analysis is crucial from the start: obviously in the following steps the analysis shall become more and more precise.
The present study, with the proposal of a general master plan on the building, is at a very initial stage of planning, but it is really necessary to understand immediately if it could be realistic, feasible and sustainable making the restoration works, and how long it would take to payback the investment.
So, the first two things to understand are what is the total financial commitment and how to manage works.
Usually to determinate a correct amount for works it is necessary to create a precise Bill of Quantities. But the accuracy of this instrument is directly linked to the level of the project. In our case, the application of Bill of Quantities is not possible due to the preliminary level of the project.
In order to value costs at a preliminary level, a parametric approach is adopted. The use of a parametric value allows to include all types of works (architectural, structural, of plants, etc.). This value has to be the more precise as possible as

6 *Ibid.* p. 457.
7 *Ibid.* p. 640.

in huge buildings a little flows in addition or reduction can have a remarkable impact on total amount.

For fixing the parametric cost of restoration and conservation project we carried out a cross-check of three different types of data: a Bill of Quantities already arranged for a complete restoration of a little part of the building; the amount of some works already made in the building during last years; the analysis and comparison of the costs of similar restoration and conservation works of great buildings in Venice.

The result in this comparison has defined a cost of about €/smq 2.000,00 on the gross surface of the palace.

This means that the total amount of works should be about € 11.400.000,00, being the palace about 5.700,00 smq. This amount has been transformed into a parametric value for the net surface, that is to say €/sqm 2.580,00 (image 104):

N.	Description	u.m.	€
1	Parametric value for restoration and conservation project on groos surface	€	2.000,00
2	Total gross surface of Ca' Zenobio	sqm	5.711,71
3	Total amount of restoration	€	11.423.420,00
4	Total net surface of Ca' Zenobio	sqm	4.419,40
5	Parametric value for restoration and conservation project on net surface	€	2.584,84
	Parametric value for restoration and conservation project on net surface (rounding off)	**€**	**2.580,00**

Image 104: Parametric value for restoration

To that sums of costs it is necessary to add up the expenditures for:

- a general rearrangement of garden (valued in €/smq 50,00 which gives sum of €141.350,00) that can be done after restoration works of the palace;
- planning, project management and construction management which is considered at the 9% of total amount of works, that is to say € 1.038.906,18; this payment can be spread over eight years with several instalments: 40% first year, 20% second year, 15% third year and 5% following years;
- planning taxes that in a restoration project are 20% of a new building; in this case the calculation with the tools given by Municipality is € 88.250,00 and can be divided into two instalments.

2.2 The schedule of works

The second crucial step is the schedule of works; the best thing to do, normally, it is to work on an entire building, with no interferences between yard and other

people. In this way works can be executed in safety but also in a speeder way. But in the specific case of ca' Zenobio it is impossible to organize such a kind of yard: the palace needs to keep living and earning some money for paying the restoration works.

So works have been scheduled following two important principles: the urgency (for safety of building and people) and the opportunity of arranging some areas before than others for earning some much money.

The palace, for a better organization and management of works, has been divided into 6 different areas that do not necessary correspond to uses; this areas are highlighted with different colours in drawings PY.01, PY.02, PY.03 and PY.04 and in the Gantt of works (G.1)[8].

In every area, works are carried out in different years, following the principle of urgency and also of accessibility of the palace: since the building has to continue its activities it is important to allow the access in different parts in the absolute safety for workers and guests. This is a crucial point of the project that has to be stressed and carefully valued in the future steps of planning, in particular before organizing the several different yards.

Works are spread into eight years; the period valued for such analysis is annual, but it is important to highlight that works in a single area unlikely could last an entire year; so works could be organized in some periods when the palace is not very used, or maybe can be closed to the public access for a very short periods. Obviously a careful project management of works have to implemented before starting any steps.

From this preliminary and general analysis the schedule of works could be as follows (see Drawings from PY.05 to PY.08).

1. The first year's priorities:
    a. safety measure of decorated false ceiling of the first noble floor's ballroom (A.20) with its wooden beams floor and the next room A.19 that also presents many structural problems[9]. General restoration works with plants.
    b. restoration of stucco-surfaces of the chapel at the second floor (rooms B.1 – B.4)[10]
    c. Restoration and conservations of western wing with the following works: 1. restoration of access staircase at western wing; 2. building of bathrooms of western wing on the first floor ; 3. complete restoration of the second floor with the insertion of bathrooms and creation of some

[8] Drawings and Gantt are at the end of the paragraph at pages 155 - 156.

[9] See also chapter III, paragraphs 2.3, 3.1, 3.2, 3.3 and chapter IV paragraph 4 *et seq.*

[10] See also chapter III, paragraphs 2.4

sleeping rooms (3 double rooms and 2 quadruples, all with internal bathrooms). These rooms would be ready to be used from the second year of the yard.

d. Restoration of internal courtyard PT.22 for construction of septic tanks, necessary to all the palace.

2. The second year the works should be:
   a. Starting the complete restoration of ground floor of western wing, with creation of bathrooms into refectory (PT.44 – PT.45);
   b. Restoration of areas PT.23, PT.24, PT.25 with insertion of the new lift in the internal courtyard;
   c. Restoration of kitchen and rooms sideways at first floor of western wing (from A.2 to A.8);
   d. Conservation and general restoration works of *portego* (A.21) and room A. 24;
   e. Complete rehabilitation of the half of rooms of third floor, leaving half floor disposable for guests. Works should be scheduled in function of occupancy.
3. The third year the works should continue as follows:
   a. Following of works on ground floor of western wing, in particular in the refectory (PT.43, PT.46, PT.47);
   b. Restoration and conservation of main access of guesthouse (PT.18)
   c. Conservation and general restoration of two rooms at the first noble floor (A.22 and A.29) and bathrooms (A.28);
   d. Complete rehabilitation of the other half of rooms of third floor, leaving half floor disposable for guests. Works should be scheduled is function of occupancy. All rooms of third plan would be ready from the fourth year of yard.
4. The fourth year:
   a. Works on western wing should end with the complete restoration of services rooms (PT.25, PT.34, PT.35, PT.36, PT.37, PT.39, PT.40);
   b. Works on exhibition area start also at ground floor with the insertion of the lift in the internal courtyard PT.08 and the displacement of the boiler room (PT.06) in the garden. Following of conservation and restoration works of first noble plan in rooms A.26, A.27 and A.16.
   c. Works of the ground and first floor of eastern wing, rooms from PT.14 to PT.17 and from A.30 to A.33;
   d. Works of reception area (PT.19, PT.20, PT.21)
   e. Restoration of staircase no. 4 for the guesthouse of last floor.

5. The fifth year:
    a. Following of works on exhibition area at ground floor (PT.06, PT.07) and first floor (A.18, A.25);
    b. Following of works at ground floor in the common areas of guesthouse (PT.27, PT.31, PT.32);
    c. Complete restoration of educational area at first floor in western wing (A.1, A.3, A.9, A.10);
    d. Complete restoration of rooms in eastern wing, second floor, from B.5 to B.19;
6. The sixth year:
    a. Following of works on exhibition area at ground floor in the main access (PT.01, PT.02) and first floor (A.15, A.17);
    b. End of works at ground floor in the common areas of guesthouse (PT.27, PT.33, PT.33);
    c. Starting of works of educational area at second floor with complete restoration and conservation of rooms from B.1 to B.5a and from B.20 to B.24
7. The seventh year:
    a. End of works on educational area at ground floor (PT.03, PT.04, PT.11, PT.12, PT.13, PT.28, PT.29) and first floor (A.13, A.14);
    b. End of works on educational area at second floor from B.25 to B.32.
8. The eighth year:
    a. General re-arrangement of the garden area

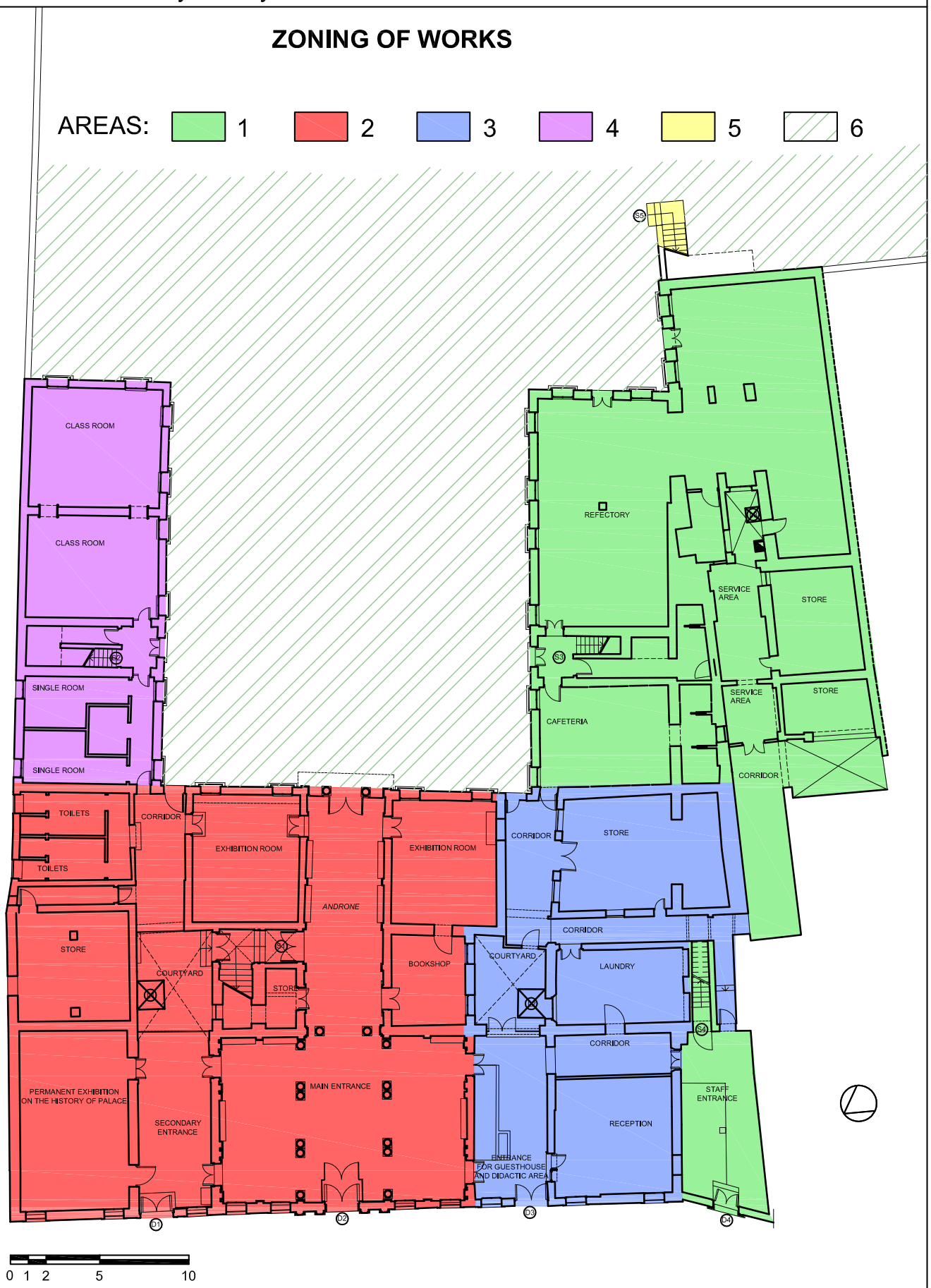
SCHEDULE OF WORKS

A. ZONING OF WORKS: DRAWINGS
- PY.01 Ground Floor
- PY.02 First Floor
- PY.03 Second Floor
- PY.04 Third Floor

B. SCHEDULE OF WORKS: GANTT

C. SCHEDULE OF WORKS: DRAWINGS
- PY.05 Ground Floor
- PY.06 First Floor
- PY.07Second Floor
- PY.08 Third Floor

ZONING OF WORKS



GROUND FLOOR

PY.01

ZONING OF WORKS

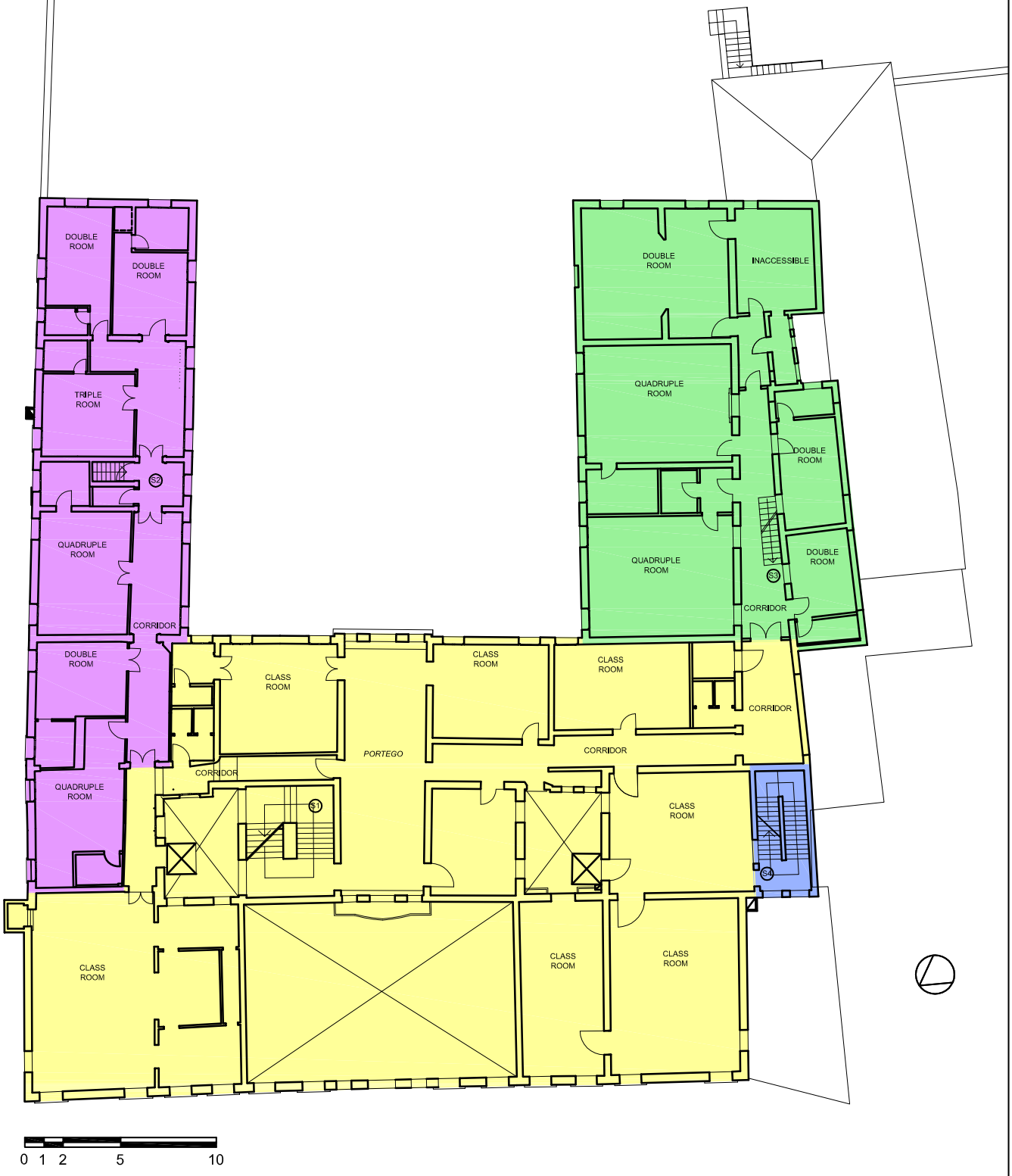
AREAS: 1 2 3 4 5 6

FIRST FLOOR

PY.02

ZONING OF WORKS

AREAS: 1 2 3 4 5 6

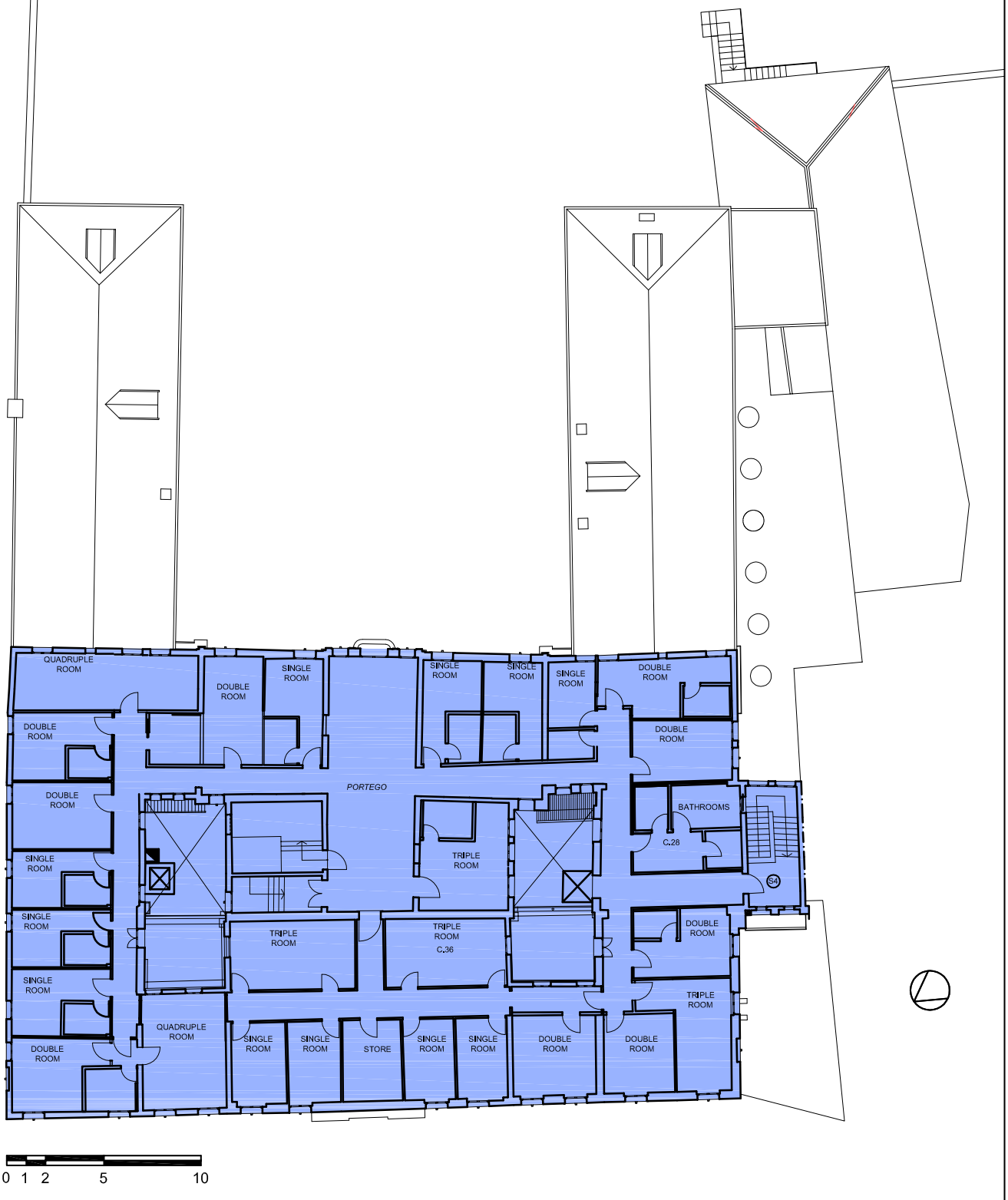


SECOND FLOOR

PY.03

ZONING OF WORKS

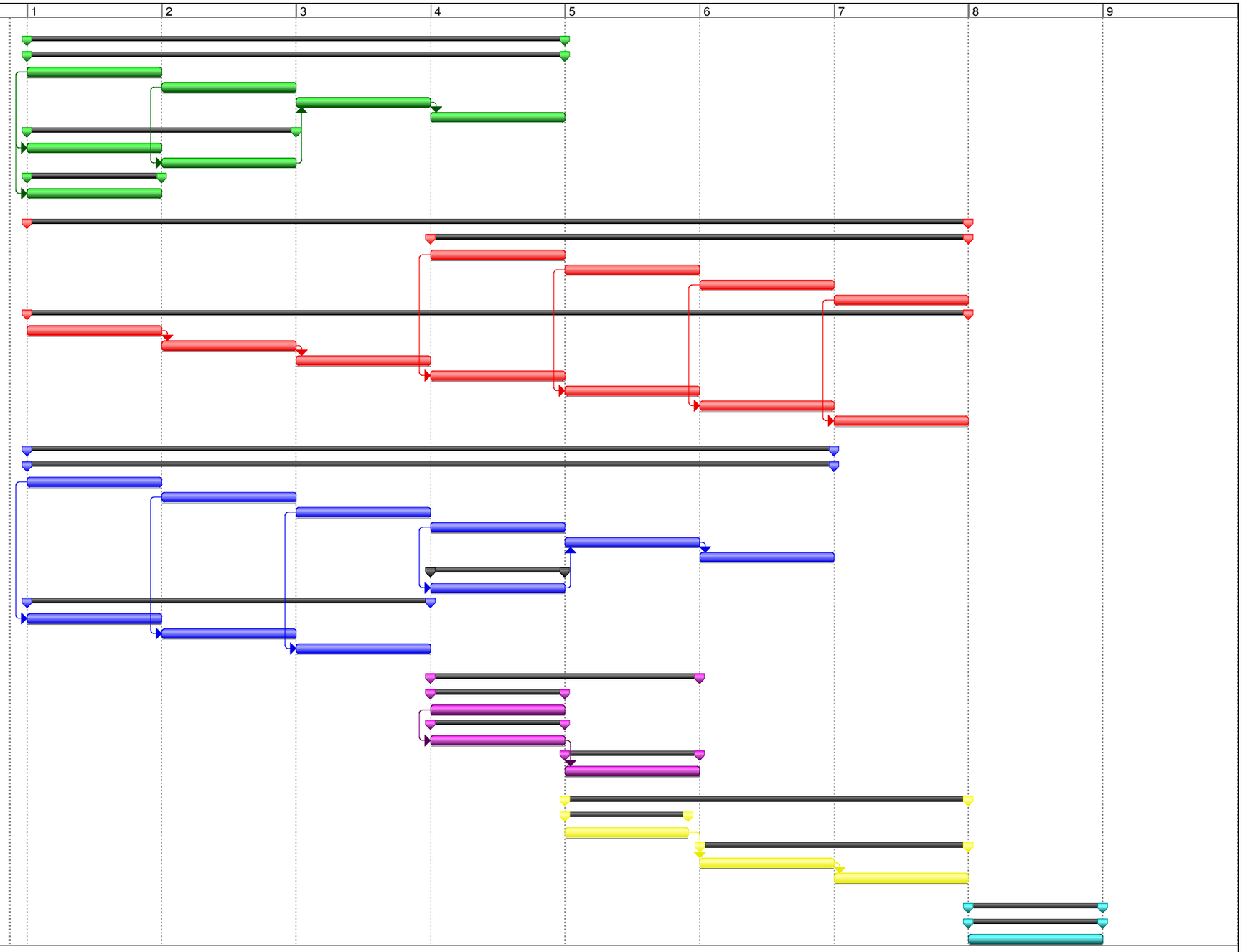
AREAS: 1 2 3 4 5 6



THIRD FLOOR

PY.04

ID	Nome attività	Durata
1		
2	**AREA 1: WESTERN WING**	**1045 g**
3	**Ground floor**	**1045 g**
4	PT.22-37-38-41	262 g
5	PT.44-45	261 g
6	PT.43-46-47	261 g
7	PT.25-34-35-36-39-40	261 g
8	**First floor**	**523 g**
9	A.11-12	262 g
10	A.2-4-5-6-7-8	261 g
11	**Second Floor**	**262 g**
12	B.34-35-36-37-38-39-40-41-42	262 g
13		
14	**AREA 2: EXHIBITION AREA**	**1829 g**
15	**Ground floor**	**1045 g**
16	PT.08-09	261 g
17	PT.06-07	262 g
18	PT.01-02	261 g
19	PT.03-04-11-12-13-28-29	261 g
20	**First floor**	**1829 g**
21	A.19-20	262 g
22	A.21-24	261 g
23	A.22-28-29	261 g
24	A.16-26-27	261 g
25	A.18-25	262 g
26	A.15-17	261 g
27	A.13-14	261 g
28		
29	**AREA 3: GUESTHOUSE**	**1568 g**
30	**Ground floor**	**1568 g**
31	PT.23-26	262 g
32	PT.24	261 g
33	PT.18	261 g
34	PT.19-20-21	261 g
35	PT.27-31-32	262 g
36	PT.30-33	261 g
37	**Second Floor**	**261 g**
38	B.33	261 g
39	**Third Floor**	**784 g**
40	C.36-37-38-39-40-41-42-43	262 g
41	Half of the all floor	261 g
42	Half of the all floor	261 g
43		
44	**AREA 4: EASTERN WING**	**523 g**
45	**Ground floor**	**261 g**
46	PT.14-15-16-17	261 g
47	**First Floor**	**261 g**
48	A.30-31-32-33	261 g
49	**Second Floor**	**262 g**
50	B.5b-6-7-8-9-10-11-12-13-14-15-16-1	262 g
51		
52	**AREA 5: EDUCATIONAL AREA**	**784 g**
53	**First Floor**	**239 g**
54	A.1-3-9-10	239 g
55	**Second Floor**	**522 g**
56	B.1-2-3-4-5a-20-21-22-23-24	261 g
57	B.25-26-27-28-29-30-31-32	261 g
58		
59	**AREA 6: GARDEN**	**261 g**
60	**Garden**	**261 g**
61	A.1-3-9-10	261 g



Progetto: MPZ_SCHEDULE 2011.11.
Data: dom 13/11/11

Attività | Avanzamento | Riepilogo | Attività esterne | Scadenza
Divisione | Cardine | Riepilogo progetto | Cardine esterno

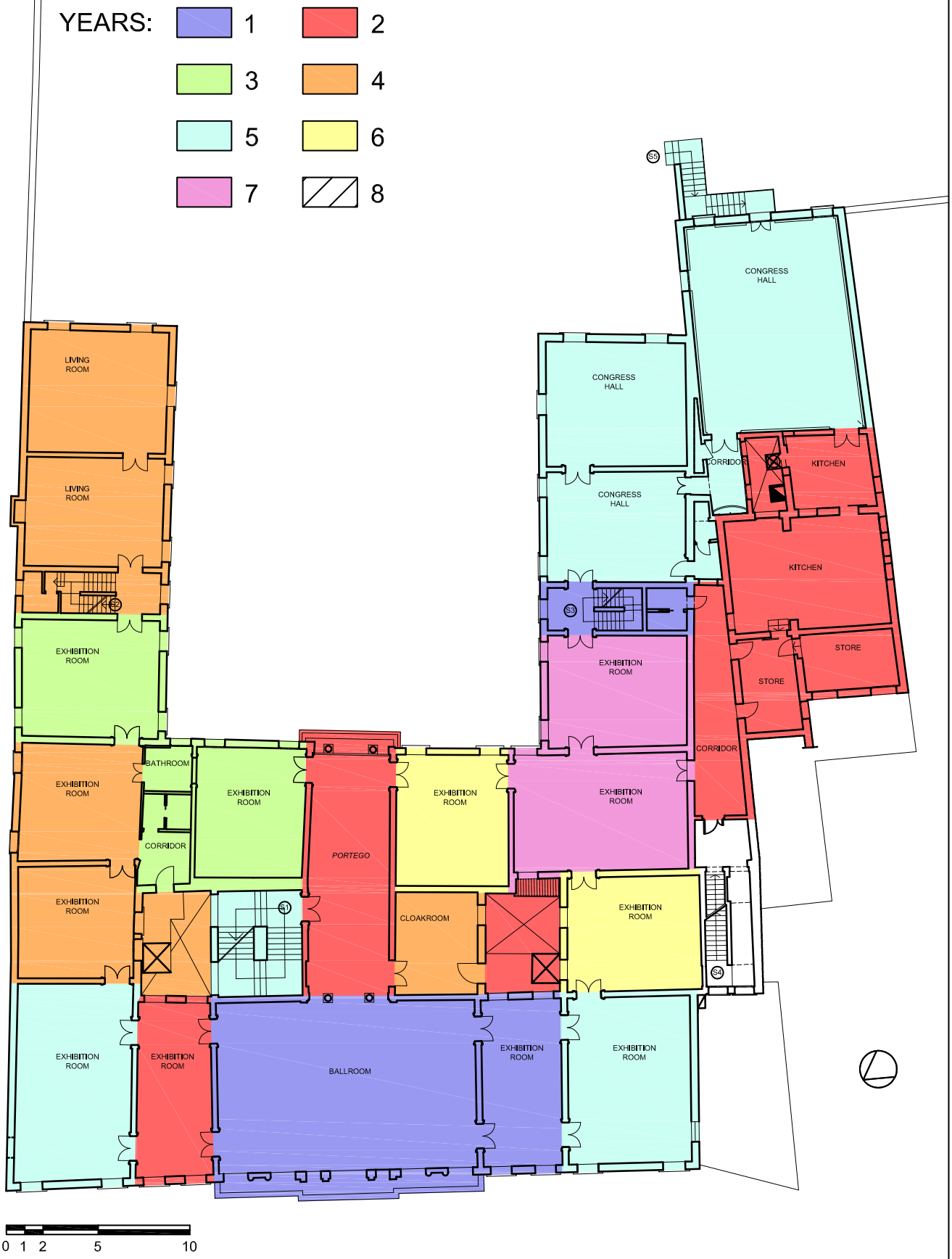
G.1: SCHEDULE OF WORKS

SCHEDULE OF WORKS

GROUND FLOOR

PY.05

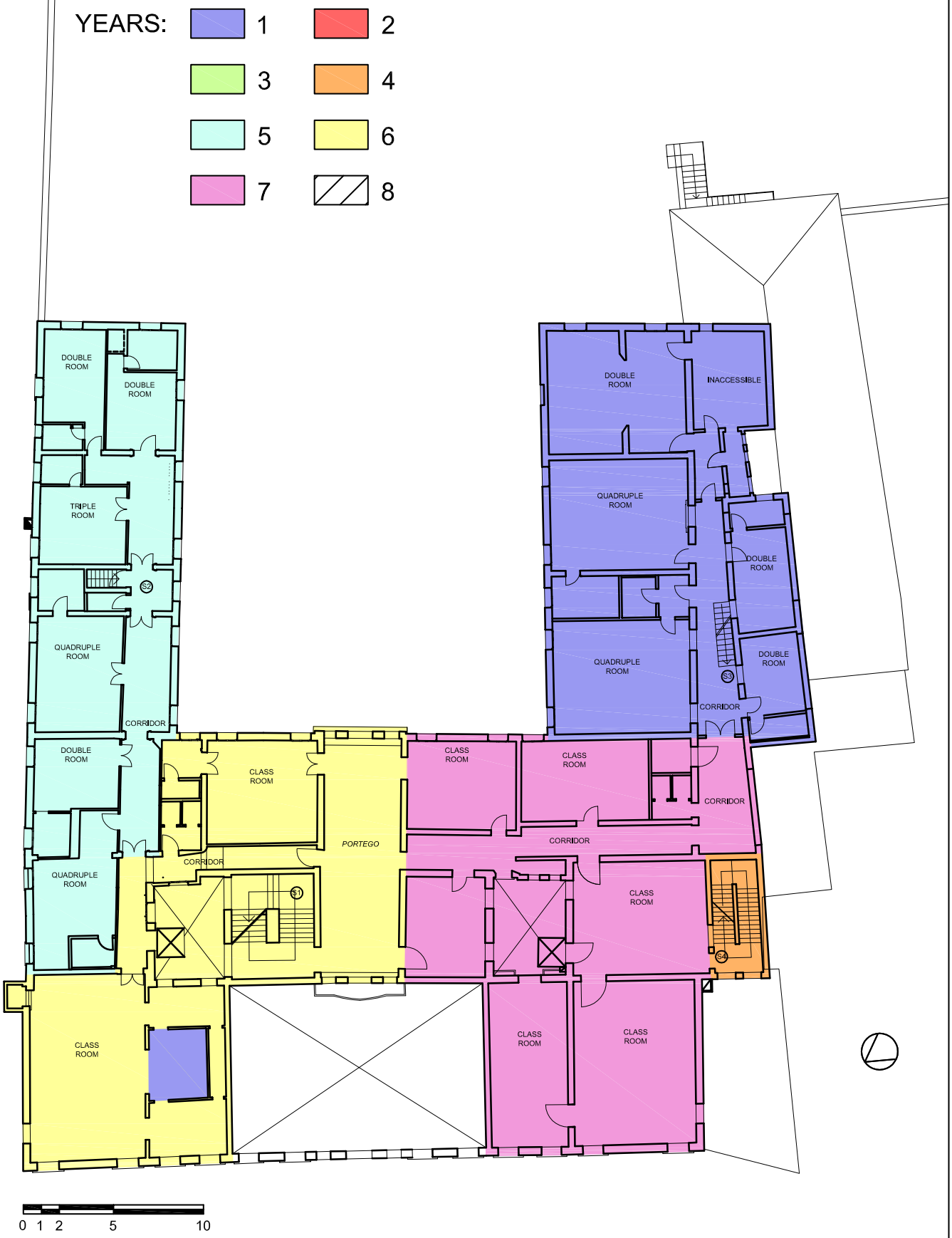
SCHEDULE OF WORKS



FIRST FLOOR

PY.06

SCHEDULE OF WORKS

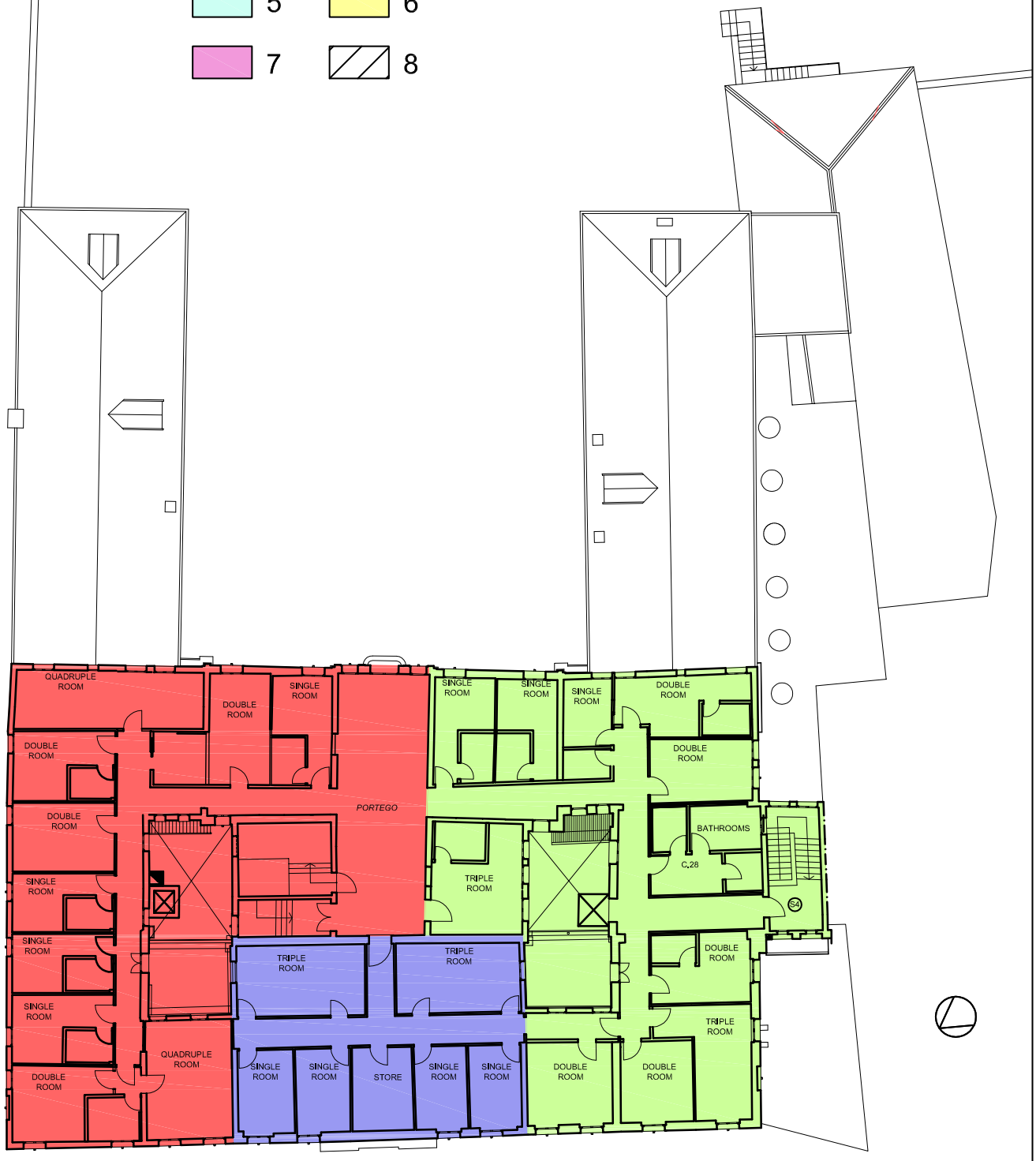


SECOND FLOOR

PY.07

SCHEDULE OF WORKS

YEARS: 1 2 3 4 5 6 7 8



THIRD FLOOR

PY.08

3. COST OF MANAGEMENT OF THE PALACE

Having scheduled the works it is important to link them the to the economic expenditures.

Obviously for obtaining the correct amount of works for every single area it should be necessary to have the exact Bill of Quantities, because costs can vary for any different part; but in a preliminary analysis it is quite correct applying the parametric amount multiplied for the square meters of works. In other possible (and necessary) next studies the amounts of every single area can be adjusted following precise Bill of Quantities.

So, the Gantt can be linked to the annual costs that are fixed to the square meters where works are carried out.

As shown in table T.01 and T.02[11] annual costs for the yard are quite constant, about 1,5 millions of euro.

Currently, there are some costs for management and maintenance of the palace:

a. about € 40.000,00 for maintenance;
b. about € 200.000,00 for all staff involved into the management of palace;
c. about € 70.000,00 for supplies and running costs (water, light, gas, telephone, etc.)
d. about € 30.000,00 for the guesthouse services (laundry, breakfasts, etc.)
e. about € 5.300,00 for insurance
f. about € 12.000,00 for consultants (accountants, architects, lawyers, etc.)

These data are the basis for some reasoning on flows of costs during and after restoration works.

- Maintenance costs

Maintenance costs have been divided for total square meters for finding a parametric value to multiply to yard areas that have to be deducted every year (€40.000,00 / 4.419,40 = €/sqm 9,05). On the other hand it is necessary that areas already restored follow a maintenance plan, so it has been assumed a 20% of the current value for future works (€/sqm 1,81). At the end of works it is possible that new works on first areas will be needed, so maintenance costs are annually increased of about 5% of the total.

The plan of maintenance is represented in table T.03 at page 180.

[11] Tables are at the end of the paragraph at pages 177-179.

- Staff costs

Current costs of staff have been maintained the same for the first two years, than increased of € 10.000,00 for the following five years and of € 20.000,00 when works are going to be finished. These increases are due to expected major occupancy of rooms and use of ballroom and garden for rental (about 10%), but also to a better marketing service that it is needed to increase the use of palace.

- Supplies costs

As already done for maintenance costs, supplies costs have been divided for the total square meters of the palace for having a parametric value to deduct every year (€ 70.000,00 / 4.419,40 = €/sqm 15,84). After works, having new and modern plants, there should be a reduction of costs that has been valued in about the 90% of actual costs.

The planning of supplies costs is in table T.04 at page 180.

- Services for guesthouse costs

Costs for services linked to guestrooms are subjected to a flow due to restoration and conservation yard. There will be an estimated decrease of about 5% in the first year, 50% in the following two years and 20% in the fifth year; but on the other hand there will be an increase of value due to the renovation or creation of new rooms, that can be supposed as +50% in the second and third year, +20% in the fourth one, +25% the following years until the seventh and then about +33%.

The planning of guesthouse services is in table T.05 at page 180.

- Insurance and consultants costs

The amount of insurance probably would increase because it is linked to the incomes; so after works there could be an about doubled price for insurance.

The expenditure for consultants, on the other hand, can be kept fixed for the future.

	AREA		SQM	€	AMOUNT		1	2	3	4	5	6	7	8
	Ground floor (G)		**1.379,70**	**2.580,00**	**3.559.626,00**									
1	AREA 1G (west wing)		455,58	2.580,00	1.175.396,40		150.878,40	106.373,40	461.923,20	322.061,40	134.160,00			
2	AREA 2 G (exhibitions)		542,78	2.580,00	1.400.372,40					182.586,60	80.960,40	474.849,00	661.976,40	
3	AREA 3 G (guesthouse)		243,00	2.580,00	626.940,00			144.067,20	97.395,00	149.975,40	179.206,80	56.295,60		
4	AREA 4 G (east wing)		138,34	2.580,00	356.917,20					356.917,20				
						tot	150.878,40	250.440,60	559.318,20	1.011.540,60	394.327,20	531.144,60	661.976,40	
						smq	58,48	97,07	216,79	392,07	152,84	205,87	256,58	
	First floor (F)		**1.259,00**	**2.580,00**	**3.248.220,00**									
5	AREA 1F (west wing)		133,32	2.580,00	343.965,60		43.911,60	300.054,00						
6	AREA 2 F (exhibitions)		804,07	2.580,00	2.074.500,60		436.948,80	248.505,60	281.168,40	272.654,40	331.375,20	229.723,20	274.125,00	
7	AREA 4 F (east wing)		111,22	2.580,00	286.947,60					286.947,60				
8	AREA 5 F (educational area)		210,39	2.580,00	542.806,20						542.806,20			
						tot	480.860,40	548.559,60	281.168,40	559.602,00	874.181,40	229.723,20	274.125,00	
						smq	186,38	212,62	108,98	216,90	338,83	89,04	106,25	
	Second floor (S)		**1.027,48**	**2.580,00**	**2.650.898,40**									
9	AREA 1S (west wing)		277,01	2.580,00	714.685,80		714.685,80							
11	AREA 3 S (guesthouse)		16,41	2.580,00	42.337,80					42.337,80				
10	AREA 4 S (east wing)		204,46	2.580,00	527.506,80						527.506,80			
12	AREA 5 S (educational area)		529,60	2.580,00	1.366.368,00		10.000,00					648.828,80	707.539,20	
						tot	724.685,80	-	-	42.337,80	527.506,80	648.828,80	707.539,20	
						smq	280,89			16,41	204,46	251,48	274,24	
	Third floor (T)		**753,22**	**2.580,00**	**1.943.307,60**									
13	AREA 3 T (guesthouse)		753,22	2.580,00	1.943.307,60		334.935,60	804.186,00	804.186,00					
						tot	334.935,60	804.186,00	804.186,00					
						smq	129,82	311,70	311,70					
14	**GARDEN**		2.827,00	50,00	141.350,00	tot								141.350,00
						smq								2.827,00
	TOTAL				11.548.438,70		1.691.687,98	1.603.496,90	1.644.991,34	1.613.793,09	1.796.363,47	1.409.969,80	1.643.959,14	144.177,00
	TOTAL SQM					sqm	655,57	621,39	637,47	625,38	696,13	546,39	637,07	2.827,00

AREA 1G+F+S	2.234.047,80
AREA 2 G+F	3.474.873,00
AREA 3 G+S+T	2.612.585,40
AREA 4 G+F+S	1.171.371,60
AREA 5 F+S	1.909.174,20
GARDEN	141.350,00
TOTAL	**11.543.402,00**

Table 01: Costs of works (floors and years)

	AREA		SQM	€	AMOUNT	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8
	Ground floor (G)												
1	AREA 1G (west wing)												
	PT.22+PT.37+PT.38+PT.41	sqm	58,48	2.580,00		150.878,40							
	PT.44+PT.45	sqm	41,23	2.580,00			106.373,40						
	PT.43+PT.46+PT.47	sqm	179,04	2.580,00				461.923,20					
	PT.25+PT.34+PT.35+PT.36+PT.39+PT.40	sqm	124,83	2.580,00					322.061,40				
	TOTAL		**403,58**	**2.580,00**	**1.041.236,40**								
2	AREA 2 G (exhibitions)												
	PT.08+PT.09	sqm	70,77	2.580,00					182.586,60				
	PT.06+PT,07	sqm	31,38	2.580,00						80.960,40			
	PT.01+PT.02	sqm	184,05	2.580,00							474.849,00		
	PT.03+PT,04+PT,05+PT.10+PT.11+PT.12+PT.13+ PT.28+PT.29	sqm	256,58	2.580,00								661.976,40	
	TOTAL		**542,78**	**2.580,00**	**1.400.372,40**								
3	AREA 3 G (east wing)												
	PT.14abcd+PT.15+PT.16+PT.17	sqm	138,34	2.580,00					356.917,20				
	TOTAL		**138,34**	**2.580,00**	**356.917,20**								
4	AREA 4 G (guesthouse)												
	PT.23+PT.24+PT.26	sqm	55,84	2.580,00			144.067,20						
	PT.18	sqm	37,75	2.580,00				97.395,00					
	PT.19+PT.20+PT.21	sqm	58,13	2.580,00					149.975,40				
	PT.27+PT.31+PT.32	sqm	69,46	2.580,00						179.206,80			
	PT.30+PT.33	sqm	73,82	2.580,00							190.455,60		
	TOTAL		**295,00**	**2.580,00**	**761.100,00**								
	TOTAL € GROUND FLOOR				**3.559.626,00**	150.878,40	250.440,60	559.318,20	1.011.540,60	260.167,20	665.304,60	661.976,40	
	TOTAL SQM GROUND FLOOR		**1.379,70**			58,48	97,07	216,79	392,07	100,84	257,87	256,58	
	First floor (F)												
5	AREA 1F (west wing)												
	A.11+A.12	sqm	17,02	2.580,00		43.911,60							
	A.2+A.4+A.5+A.6+A.7+A.8	sqm	121,42	2.580,00			313.263,60						
	TOTAL		**138,44**	**2.580,00**	**357.175,20**								
6	AREA 2 F (exhibitions)												
	A.19+A.20	sqm	169,36	2.580,00		436.948,80							
	A.21+A.24	sqm	96,32	2.580,00			248.505,60						
	A.22+A.28+A.29	sqm	108,98	2.580,00				281.168,40					
	A.16+A.26+A.27	sqm	105,68	2.580,00					272.654,40				
	A.18+A.25	sqm	128,44	2.580,00						331.375,20			
	A.15+A.17	sqm	89,04	2.580,00							229.723,20		
	A.13+A.14	sqm	106,25	2.580,00								274.125,00	
	TOTAL		**804,07**	**2.580,00**	**2.074.500,60**								
7	AREA 3 F (east wing)												
	A.30+A.31+A.32+A.33	sqm	111,22	2.580,00					286.947,60				
	TOTAL		**111,22**	**2.580,00**	**286.947,60**								
8	AREA 5F (educational area)												
	A.1+A.3+A.9+A.10	sqm	205,27	2.580,00						529.596,60			
	TOTAL		**205,27**	**2.580,00**	**529.596,60**								
	TOTAL € FIRST FLOOR				**3.248.220,00**	480.860,40	561.769,20	281.168,40	559.602,00	860.971,80	229.723,20	274.125,00	
	TOTAL SQM FIRST FLOOR		**1.259,00**			186,38	217,74	108,98	216,90	333,71	89,04	106,25	

Table 02: Schedule of costs of works 1/2

	AREA		SQM	€	AMOUNT	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8
	Second floor (S)												
9	AREA 1S (west wing)												
	B.34+B.35+B.36+B.37+B.38+B.39+B.40+B.41+B.42	sqm	277,01	2.580,00		714.685,80							
	TOTAL		**277,01**	**2.580,00**	**714.685,80**								
10	AREA 3 S (east wing)												
	B.5b+B.6+B.7+B.8+B.9+B.10+B.11+B.12+B.13+B.14+B.15+B.16+B.17+B.18+B.19	sqm	204,46	2.580,00						527.506,80			
	TOTAL		**204,46**	**2.580,00**	**527.506,80**								
11	AREA 4 S (guesthouse)								-				
	B.33	sqm	16,41	2.580,00					42.337,80				
	TOTAL		**16,41**	**2.580,00**	**42.337,80**								
12	AREA 5 S (educational area)												
	B.1		-			10.000,00							
	B.1+B.2+B.3+B.4+B.5+B.20+B.21+B.22+B.23+B.24 (-€10.000,00)	sqm	255,36	2.580,00							648.828,80		
	B.25+B.26+B.27+B.28+B.29+B.30+B.31+B.32	sqm	274,24	2.580,00								707.539,20	
	TOTAL		**529,60**	**2.580,00**	**1.366.368,00**								
	TOTAL € SECOND FLOOR				**2.650.898,40**	724.685,80	-	-	42.337,80	527.506,80	648.828,80	707.539,20	
	TOTAL SQM SECOND FLOOR		**1.027,48**			280,89	-	-	16,41	204,46	251,48	274,24	
	Third floor (T)												
13	AREA 4 T (guesthouse)					-	-	-					
	C36+C.37+C.38+C.39+C.40+C.41+C.42+C.43	sqm	129,82	2.580,00		334.935,60							
	C1-C.35 and C.44-C.45 (50%+50%)	sqm	623,40	2.580,00			804.186,00	804.186,00					
	TOTAL		**753,22**	**2.580,00**	**1.943.307,60**								
	TOTAL € THIRD FLOOR				**1.943.307,60**	334.935,60	804.186,00	804.186,00					
	TOTAL SQM THIRD FLOOR		**753,22**			129,82	311,70	311,70					
14	**GARDEN**		2.827,00	50,00	141.350,00								141.350,00
													2.827,00
	TOTAL € GARDEN				**141.350,00**								
	TOTAL SQM GARDEN		**2.827,00**										
	TOTAL €				11.548.438,70	1.691.687,98	1.616.709,06	1.644.991,34	1.613.793,09	1.648.965,31	1.544.155,80	1.643.959,14	144.177,00
	TOTAL SQM					655,57	626,51	637,47	625,38	639,01	598,39	637,07	2.827,00

AREAS		sqm	€/sqm	€
AREA 1G+F+S		819,03	2.580,00	2.113.097,40
AREA 2 G+F		1.346,85	2.580,00	3.474.873,00
AREA 3 G+F+S		454,02	2.580,00	1.171.371,60
AREA 4 G+S+T		1.064,63	2.580,00	2.746.745,40
AREA 5		734,87	2.580,00	1.895.964,60
TOTAL BUILDING		4.419,40	2.580,00	11.402.052,00
TOTAL GARDEN		2.827,00	50,00	141.350,00
TOTAL				**11.543.402,00**

Table 02: Schedule of costs of works 2/2

	YEARS			YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
1	AREAS OF RESTORATION YARD	sqm		637,80	644,28	631,01	633,82	616,82	615,88	639,79	2.827,00												
2	TOTAL OF ANNUAL MAINTENANCE			40.000,00	40.000,00	40.000,00	40.000,00	40.000,00	40.000,00	40.000,00													
3	REDUCTION OF AREAS OF RESTORATION YARD	€/sqm	9,05	- 5.772,05	- 5.830,73	- 5.710,64	- 5.736,07	- 5.582,22	- 5.573,75	- 5.790,10													
4	REDUCTION OF AREAS ALREADY RESTORED				- 5.772,05	- 11.602,79	- 17.313,43	- 23.049,50	- 28.631,72	- 34.205,47													
5	MAINTENANCE COSTS AFTER RESTORATION (20%)	€/sqm	1,81		1.154,41	2.320,56	3.462,69	4.609,90	5.726,34	6.841,09	7.999,11	-											
	TOTAL MAINTENANCE COSTS			**34.227,95**	**29.551,62**	**25.007,13**	**20.413,19**	**15.978,18**	**11.520,87**	**6.845,52**	**7.999,11**	**8.399,07**	**8.819,02**	**9.259,97**	**9.722,97**	**10.209,12**	**10.719,58**	**11.255,56**	**11.818,33**	**12.409,25**	**13.029,71**	**13.681,20**	**14.365,26**

Table 03: Costs of maintenance

	YEARS			YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
1	AREAS OF RESTORATION YARD	sqm		637,80	644,28	631,01	633,82	616,82	615,88	639,79													
2	TOTAL OF ANNUAL CONSUMPTIONS			70.000,00	70.000,00	70.000,00	70.000,00	70.000,00	70.000,00	70.000,00													
3	REDUCTION OF AREAS OF RESTORATION YARD	€/sqm	15,84	- 10.102,69	- 10.205,40	- 9.995,20	- 10.039,71	- 9.770,43	- 9.755,60	- 10.134,27													
4	REDUCTION OF AREAS ALREADY RESTORED				- 10.102,69	- 20.308,08	- 30.303,28	- 40.342,99	- 50.113,42	- 59.869,02													
5	CONSUMPTIONS COSTS AFTER RESTORATION (90%)	€/sqm	14,26		9.092,42	18.277,28	27.272,95	36.308,69	45.102,08	53.882,12	63.002,97	-											
	TOTAL SUPPLIES COSTS			**59.897,31**	**58.784,34**	**57.973,99**	**56.929,96**	**56.195,27**	**55.233,06**	**53.878,82**	**63.002,97**	**66.153,11**	**66.153,11**	**66.153,11**	**66.153,11**	**66.153,11**	**66.153,11**	**66.153,11**	**66.153,11**	**66.153,11**	**66.153,11**	**66.153,11**	**66.153,11**

Table 04: Costs of supplies

	YEARS		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
1	CURRENT AMOUNT OF GUESTHOUSE SERVICES		30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00
2	REDUCTION FOR RESTORATION YARD	%	-5%	-50%	-50%		-20%															
3	INCREASE FOR NEW ROOMS AND OCCUPANCY	%		+50%	+50%	+20%	+25%	+25%	+25%	+33%	+33%	+33%	+33%	+33%	+33%	+33%	+33%	+33%	+33%	+33%	+33%	+33%
	TOTAL GUESTHOUSE COSTS		**28.500,00**	**22.500,00**	**22.500,00**	**36.000,00**	**30.000,00**	**37.500,00**	**37.500,00**	**40.000,00**	**40.000,00**	**40.000,00**	**40.000,00**	**40.000,00**	**40.000,00**	**40.000,00**	**40.000,00**	**40.000,00**	**40.000,00**	**40.000,00**	**40.000,00**	**40.000,00**

Table 05: Costs of guesthouse services

4. REVENUES FOR THE MANAGEMENT OF THE PALACE

Currently ca' Zenobio has some revenues both from rental of some parts of the palace for temporary exhibitions and parties and from the guestrooms.

Revenues vary year by year because of Biennale; in fact in odd years there is the Biennale of Arts that lasts about six months and pays around € 190.000,00 for rent a great part of the palace and its garden; in pair years Biennale of Architecture, that lasts "only" two months, pays about € 25.000,00. Moreover the incomes of guestrooms are strictly linked with these events and in general odd years earn about €150.000,00 more than pair years; when Biennale of Arts hires the palace there are less revenues from the rental of the ballroom an garden.

So present revenues are that in summarized in image 105.

Analysing revenues of guesthouse for pair and odd years we found that the annual occupancy rate of rooms is about 43-45%; but this is a mathematical calculation that can't consider the fact that often rooms are occupied even from less guests than the potential number (for example a triple used as a double, a double used as a single, etc.). Unfortunately there are no official data on real occupancy rate month by month, but, by the actual management of ca' Zenobio, rooms are on average occupied for a 70% a year. This is a realistic information: in fact the medium occupancy of rooms in Venice during 2010 is about 63%[12].

Restoration and conservation works are going to increase revenues of the palace for two principal reasons: first, a general rehabilitation of the building can increase values of single areas (for example of the ballroom) and even the occupancy; second, there is a little increase of guestrooms but mostly many rooms are going to have internal bathrooms and this will bring a great growth of revenues.

Obviously this is simply a financial analysis limited to the palace, but many other values would increase in case of restoration, such as artistic and cultural values, and moreover there could be also positive externalities for the surroundings, both from cultural and economic point of view. But in this research we focus only on ca' Zenobio, because other considerations are very complex and variable (depending on other fields, like sociology, anthropology,

	ODD YEARS
GUEST HOUSE	363.000,00
BALLROOM	147.000,00
BIENNALE	190.000,00
TOTAL	**700.000,00**

	PAIR YEARS
GUEST HOUSE	348.000,00
BALLROOM	177.000,00
BIENNALE	25.000,00
TOTAL	550.000,00

Image 105: Current revenues

[12] www.trademarkitalia.com

tourism, urbanism, etc.).
Anyway also the evaluation of future revenues of ca' Zenobio is a difficult and ticklish question; in fact the accuracy of Discounted Cash Flow Analysis strictly depends on these data, that are hypothesis in the future. It is impossible to know what could happen in a few years, mostly because we are living a very uncertain period, and the turmoil of the markets are compromising veracity of valuations. Many contingencies could occur that nobody now is able to forecast.
So the valuations that we can do today are based on actual value of money, price fluctuations, tourism flows, people and organizations willingness to pay, and so on.
Future incomes, that it is supposed to start in a pair year, are valued on the following fields: rental of ballroom, rental of the palace for Biennale, guesthouse, rental of teaching area, rental of cafeteria and refectory.

- Revenues for rental of Ballroom

Ballroom, with the room A.19 sideways, is going to be restored the first year and in second year also *portego* and the other room A.24 are going to be ready. So the valued flows are a half income for the first year, due to the yard, a 70% of income in the second year and then from the third year an increase of 10% of normal incomes per year due to improvement of rooms and also to a possible major occupancy of the area for temporary exhibitions and parties, weddings, events (table T.06[13]).

- Revenues for Biennale Exhibitions

For Biennale during the seven years of the yard there can be a little decrease of fee, but not so significant, since works are always organized for leaving the major area of ground and first floor free for the exhibitions. So it has been valued a decrease of € 5.000,00 for Biennale of Architecture and of € 10.000,00 for Biennale of Arts. Then, after restoration works, an increase of 15% can be surely asked (table T.07).

- Revenues for guesthouse

The valuation of revenues for guesthouse is more complex; in fact the idea is to maintain the use of some rooms even during the yard and then having an increase of revenues of single rooms due to the better conditions of rooms themselves and palace in general.
With the proposed master plan beds are increased from 24 to 84; the granted

[13] Tables T.06, T.07, T.08 are at the end of the paragraph at page 186.

project planned 81 bed.

The rooms are so located:

- 2 single rooms with common bathroom at ground floor, in the eastern wing;
- 3 double rooms, 1 triple rooms and 2 quadruple rooms, all with internal bathroom at second floor, eastern wing;
- 2 double rooms, 2 quintuple rooms and the room of Putti at second floor, western wing (all rooms with internal bathroom);
- 5 single room without bathroom, 6 single rooms with bathroom, 5 double rooms without bathroom, 4 double rooms with internal bathroom, 3 triple rooms without bathroom, 1 triple with bathroom, 1 quadruple room without bathroom and 1 quadruple room with internal bathroom at the last floor.

The total amount is 39 rooms (table in image 106).

TYPES OF ROOMS	Rooms	Beds	Total beds
Single without bathroom	7	1	7
Single with bathroom	6	1	6
Double without bathroom	5	2	10
Double with bathroom	9	2	18
Triple without bathroom	3	3	9
Triple with bathroom	2	3	6
Quadruple without bathroom	1	4	4
Quadruple with bathroom	3	4	12
Sala Putti	1	2	2
Quintuple	2	5	10
	total rooms		total beds
TOTAL	39		84

Image 106: Total rooms and beds

A benchmark valuation has been carried out on Bed and Breakfasts[14] in the same area to apply a correct value to each room: possible prices have been fixed (table image 107).

TYPES OF ROOMS	€
Single without bathroom	50,00
Single with bathroom	80,00
Double without bathroom	60,00
Double with bathroom	120,00
Triple without bathroom	105,00
Triple with bathroom	140,00
Quadruple without bathroom	120,00
Quadruple with bathroom	170,00
Sala Putti	150,00
Quintuple	200,00

Image 107: Costs of rooms

Obviously, there are going to be some flows of revenues due to yards in different years (table T.08):

- First year three rooms of second floor in western

14 http://www.bed-and-breakfast.it/cerca_geo.cfm?q=Venezia&citta=Venezia&zona=Dorsoduro&IDregione=20&zoom=12

wing won't be available because of works; the possible daily incomes of these rooms are € 256,00 that have been multiply for 83 days, the total amount of days that, on average, all rooms in the palace are occupied in one year (€ 256,00 x 83 = € 21.248,00);

- Second and third year the decrease of incomes is due to works of third floor; normally the maximum amount of revenues is about €/die 1.208,00; works should interest the half of rooms so approximately there could be a maximum income of €/year 220.460,00, the half of possible maximum amount. Probably a quite similar percentage to actual occupancy is realistic, about 45%. So the annual loss of incomes could be about € 99.207,00 for the second and third year;
- After restoration works rooms are immediately available so in the second year the new rooms of second floor, western wing, can earn about € 129.757,50, with an occupancy valued in 45% until yards in the palace are opened. At third floor incomes could be of € 189.298,12 per year, also valuing an occupancy of 45%;
- During fifth year rooms at second floor in the eastern wing are going to be restored, so the only revenues are from rooms at second floor western wing and entire third floor.
- Starting from sixth year rooms are all available but some works are still in progress in the palace, so the average occupancy of rooms can be valued in 63% that is the average in Venice; starting from eighth year this percentage can be increased reasonably to 70%. It is important to stress that the annual occupancy will be no more valued with differences between pair and odd years: when the palace will be completely restored a regular attendance can be expected.

- Revenues from classrooms

The educational area has a total of five rooms at second floor (B.1-4, B.20, B.26a, B.31, B.32) and three congress hall (A.1, A.9, A.10) at first floor; they can be rented for lectures, seminars, workshops, etc. It is difficult to allocate a correct amount of revenues to this kind of use, because there are no specific past trends.

Before works, very low revenues (about € 2.000,00 per month) can be supposed; during works it is probable a half occupancy of those spaces and consequently we have a decrease of revenues.

After restoration works, a possible revenue could be € 1.000,00 for each

classroom per month; considering a 70% of occupancy per year, so that total revenues can be about € 67.200,00. It is likely that in few years this amount could increase, because new activities can be organized but being that number a long term forecast (starting from eighth year) it is better to adopt a more realistic approach.

- Revenues for cafeteria and refectory

In the hypothesis of opening ground floor to visitors the existing cafeteria (that it is going to be restored during the sixth year) and the new refectory could be directly managed by *Collegio Armeno* or rented to an external society for management. In this study the hypothesis is that an external company has the management of both activities; so *Collegio Armeno* can have only revenues from rentals.

Due to the particular situation of cafeteria and refectory, rents could be much lower than normally in Venice, about € 2.000,00 for the cafeteria before restoration works and €3.500,00 after (7th year), and about € 4.000,00 for the refectory (starting from fifth year after the works into the rooms).

	YEARS			YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
1	CURRENT REVENUES	€		177.000,00	147.000,00	177.000,00	147.000,00	177.000,00	147.000,00														
2	REDUCTION FOR YARD FIRST YEAR	%	-50	- 88.500,00																			
3	REDUCTION FOR YARD SECOND YEAR	%	-30		- 44.100,00																		
4	INCREASE FOR RESTORATION WORKS	%	+20			35.400,00		35.400,00															
4	INCREASE FOR RESTORATION WORKS	%	+25				36.750,00		36.750,00														
	TOTAL REVENUES FOR BALLROOM			**88.500,00**	**102.900,00**	**212.400,00**	**183.750,00**	**212.400,00**	**183.750,00**	**212.400,00**	**183.750,00**	**212.400,00**	**183.750,00**	**212.400,00**	**183.750,00**	**212.400,00**	**183.750,00**	**212.400,00**	**183.750,00**	**212.400,00**	**183.750,00**	**212.400,00**	**183.750,00**

Table 06: Revenues of the ballroom

	YEARS			YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
1	CURRENT REVENUES	€	€	25.000,00	190.000,00	25.000,00	190.000,00	25.000,00	190.000,00	25.000,00	190.000,00	25.000,00	190.000,00	25.000,00	190.000,00	25.000,00	190.000,00	25.000,00	190.000,00	25.000,00	190.000,00	25.000,00	190.000,00
2	REDUCTION FOR YARD FROM 1st TO 7th YEAR	€	€	- 5.000,00	- 10.000,00	- 5.000,00	- 10.000,00	- 5.000,00	- 10.000,00	- 5.000,00													
3	INCREASE FOR RESTORATION WORKS	%	25								47.500,00	6.250,00	47.500,00	6.250,00	47.500,00	6.250,00	47.500,00	6.250,00	47.500,00	6.250,00	47.500,00	6.250,00	47.500,00
	TOTAL REVENUES FOR BIENNALE			**20.000,00**	**180.000,00**	**20.000,00**	**180.000,00**	**20.000,00**	**180.000,00**	**20.000,00**	**237.500,00**	**31.250,00**	**237.500,00**	**31.250,00**	**237.500,00**	**31.250,00**	**237.500,00**	**31.250,00**	**237.500,00**	**31.250,00**	**237.500,00**	**31.250,00**	**237.500,00**

Table 07: Revenues for Biennale

	YEARS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
INCOMES		PAIR	ODD	PAIR	ODD																
1	CURRENT INCOMES	348.000,00	363.000,00	348.000,00	363.000,00																
2	INCOMES FOR RESTORATION OF SECOND FLOOR		127.750,00	129.757,50	129.757,50	129.757,50															
3	INCOMES FOR RESTORATION OF THIRD FLOOR			189.298,13	378.596,25	378.596,25															
4	FUTURE INCOMES AFTER RESTORATION						916.350,75	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50
COSTS																					
5	COSTS FOR NO RENTAL DURING RESTORATION OF SECOND FLOOR WESTERN WING	- 21.248,00	- 21.248,00	- 21.248,00																	
6	COSTS FOR NO RENTAL DURING RESTORATION OF THIRD FLOOR		- 99.207,00	- 198.414,00	- 198.414,00																
	TOTAL FROM ROOMS	**326.752,00**	**370.295,00**	**447.393,63**	**672.939,75**	**508.353,75**	**916.350,75**	**1.018.167,50**	**1.018.167,50**	**1.018.167,50**	**1.018.167,50**	**1.018.167,50**	**1.018.167,50**	**1.018.167,50**	**1.018.167,50**	**1.018.167,50**	**1.018.167,50**	**1.018.167,50**	**1.018.167,50**	**1.018.167,50**	**1.018.167,50**

Table 08: Revenues of guesthouse services

5. RESULTS OF THE DISCOUNTED CASH FLOW ANALYSIS

In the DCFA costs and revenues have been multiplied for a compound rate to adjust prices to ISTAT prices variations: every year has been used the update rate of 2,5%.

The annual sum of costs and revenues gives us the cash flow of money year by year. During the first seven years revenues are negative, because of costs of yards; then revenues start to be positive. With these data the simple payback period is in the 14th year.

But it is crucial to discount the cash flow on the basis of a correct rate. To establish the rate it is possible to use the Weight Average Cost of Capital (WACC) which is the weighted average of cost of Debt (D) and Equity (E):

$$\mathbf{WACC} = \frac{E}{D+E} \times K_e + \frac{D}{D+E} \times K_d$$

With:

- K_e is the opportunity cost of Equity
- K_d is the cost of Debt

The opportunity cost of Equity has been calculated as follows:

- The risk free rate is the current value of BOT "*Buoni Ordinari del Tesoro*" (State treasury bills), and considered at 2,15%[15]
- Inflation, at rate of 2,5%[16]
- Liquidity risk at 2%
- Sector risk that is about 4%
- Planning risk that is 2%[17]

With this value there is a real k_e which is 7,66% and a nominal value of 10,35% (image 108).

EQUITY					
Treasury bill		**2,15%**			
Inflation		**2,50%**			
Treasury bill - inflation		**-0,34%**			
Liquidity		**2,00%**			
Sector risk		**4,00%**			
Planning risk		**2,00%**			
	real	**7,66%**		***nominal***	**10,35%**

Image 108: Cost of Equity

15 Banca d'Italia, value fixed 15/06/2011

16 Istat 2011

17 Liquidity, sector risk and planning risk from TRONCONI, Oliviero, CIARAMELLA, Andrea, PISANI, Barbara, *La gestione di edifici e patrimoni immobiliari*, Milano, Il Sole24 Ore, 2007, p. 131

The cost of debt is based on sixth month Euribor (1,84%); with an inflation rate of 2,5% and a spread of 2%, the real rate is 1,36% and the nominal one 3,89% (table image 109).

DEBT					
Euribor (6 months)		**1,84%**			
Inflation		**2,50%**			
Euribor - inflation		**-0,64%**			
Spread		**2,00%**			
	real	**1,36%**		***nominal***	**3,89%**

Image 109: Cost of Debt

Considering the ratio of 80:20[18] for the contribution of, respectively, Debt and Equity, WACC is 5,18%. So, this is the rate for discounting the cash flow and the payback period.

The DCFA has been done for a period of 20 years that it is a normal period of a Debt with banks.
With this data the Discounted Cash Flow Analysis brings to a discounted payback period of 17 years, a NPV of € 2.767.411,07 in 20 years, with and an IRR of 8,37%.
This means that the restoration and conservation project, with the mentioned costs and revenues is feasible.

[18] A so high contribution in Debt has been evaluated because of the very low supply in liquid assets of "*The Collegio Armeno*", while it owns many great properties that could be used as guarantee for having a loan with banks.

			smq	€/mq	€	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
	Update rate (ISTAT)					1,025	1,05	1,08	1,10	1,13	1,16	1,19	1,22	1,25	1,28	1,31	1,34	1,38	1,41	1,45	1,48	1,52	1,56	1,60	1,64
	COSTS																								
	RESTORATION AND CONSERVATION																								
1	**GROUND FLOOR**	sqm	1.379,70	2.580,00	3.559.626,00	150.878,40	250.440,60	559.318,20	1.011.540,60	260.167,20	665.304,60	661.976,40													
2	**FIRST NOBLE FLOOR**	sqm	1.259,00	2.580,00	3.248.220,00	480.860,40	561.769,20	281.168,40	559.602,00	860.971,80	229.723,20	274.125,00													
3	**SECOND FLOOR**	sqm	1.027,48	2.580,00	2.650.898,40	724.685,80	-	-	42.337,80	527.506,80	648.828,80	707.539,20													
4	**THIRD FLOOR**	sqm	753,22	2.580,00	1.943.307,60	334.935,60	804.186,00	804.186,00																	
5	**GARDEN**	sqm	2.827,00	50,00	141.350,00								141.350,00												
6	**PLANNING AND CONSTRUCTION MANAGEMENT**	tot	9%		1.038.906,18	415.562,47	207.781,24	155.835,93	51.945,31	51.945,31	51.945,31	51.945,31	51.945,31												
7	**PLANNING TAXES**	sqm			88.250,00	44.125,00	44.125,00																		
	MANAGEMENT																								
8	**Maintenance**				40.000,00	34.227,95	29.551,62	25.007,13	20.413,19	15.978,18	11.520,87	6.845,52	7.999,11	8.399,07	8.819,02	9.259,97	9.722,97	10.209,12	10.719,58	11.255,56	11.818,33	12.409,25	13.029,71	13.681,20	14.365,26
9	**Staff**				200.000,00	200.000,00	200.000,00	210.000,00	210.000,00	210.000,00	210.000,00	210.000,00	220.000,00	220.000,00	220.000,00	220.000,00	220.000,00	220.000,00	220.000,00	220.000,00	220.000,00	220.000,00	220.000,00	220.000,00	220.000,00
11	**Supplies**				70.000,00	59.897,31	58.784,34	57.973,99	56.929,96	56.195,27	55.233,06	53.878,82	63.002,97	66.153,11	66.153,11	66.153,11	66.153,11	66.153,11	66.153,11	66.153,11	66.153,11	66.153,11	66.153,11	66.153,11	66.153,11
12	**Guesthouse services (laundry, breakfasts, etc)**				30.000,00	28.500,00	22.500,00	22.500,00	36.000,00	37.500,00	37.500,00	37.500,00	40.000,00	40.000,00	40.000,00	40.000,00	40.000,00	40.000,00	40.000,00	40.000,00	40.000,00	40.000,00	40.000,00	40.000,00	40.000,00	40.000,00
13	**Insurance (%)**				5.300,00	5.300,00	5.300,00	5.300,00	5.300,00	5.300,00	5.300,00	5.300,00	10.000,00	10.000,00	10.000,00	10.000,00	10.000,00	10.000,00	10.000,00	10.000,00	10.000,00	10.000,00	10.000,00	10.000,00	10.000,00	10.000,00
14	**Consultants**				12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00	12.000,00
	TOTAL COSTS				**- 13.027.858,18**	**- 2.553.247,25**	**- 2.307.632,67**	**- 2.297.319,62**	**- 2.214.324,67**	**- 2.305.317,28**	**- 2.235.141,88**	**- 2.402.464,97**	**- 665.610,32**	**- 445.284,82**	**- 456.954,52**	**- 468.956,95**	**- 481.303,55**	**- 494.006,30**	**- 507.077,72**	**- 520.530,92**	**- 534.379,64**	**- 548.638,28**	**- 563.321,95**	**- 578.446,49**	**- 594.028,57**
	REVENUES			*(Odd years)*	*(Pair years)*																				
15	**DANCEHALL**			147.000,00	177.000,00	88.500,00	102.900,00	212.400,00	183.750,00	212.400,00	183.750,00	212.400,00	183.750,00	212.400,00	183.750,00	212.400,00	183.750,00	212.400,00	183.750,00	212.400,00	183.750,00	212.400,00	183.750,00	212.400,00	183.750,00	212.400,00	183.750,00
16	**BIENNALE EVENT**			200.000,00	25.000,00	20.000,00	190.000,00	20.000,00	190.000,00	20.000,00	180.000,00	20.000,00	237.500,00	31.250,00	237.500,00	31.250,00	237.500,00	31.250,00	237.500,00	31.250,00	237.500,00	31.250,00	237.500,00	31.250,00	237.500,00	31.250,00	237.500,00
17	**GUESTHOUSE**			363.000,00	348.000,00	326.752,00	370.295,00	447.393,63	672.939,75	508.353,75	916.350,75	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50	1.018.167,50
18	**CLASSROOMS FOR LECTURES/SEMINARS**					24.000,00	24.000,00	24.000,00	24.000,00	24.000,00	12.000,00	12.000,00	67.200,00	67.200,00	67.200,00	67.200,00	67.200,00	67.200,00	67.200,00	67.200,00	67.200,00	67.200,00	67.200,00	67.200,00	67.200,00	67.200,00	67.200,00
19	**CAFETERIA**					24.000,00	24.000,00	24.000,00	24.000,00	24.000,00	12.000,00	42.000,00	42.000,00	42.000,00	42.000,00	42.000,00	42.000,00	42.000,00	42.000,00	42.000,00	42.000,00	42.000,00	42.000,00	42.000,00	42.000,00	42.000,00	42.000,00
20	**REFECTORY**					-		-	-	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00	48.000,00
	TOTAL REVENUES			**710.000,00**	**550.000,00**	**495.333,30**	**747.199,25**	**783.754,13**	**1.208.332,66**	**946.710,06**	**1.568.022,34**	**1.607.777,72**	**1.945.323,39**	**1.772.158,41**	**2.043.805,38**	**1.861.873,93**	**2.147.273,03**	**1.956.131,30**	**2.255.978,73**	**2.055.160,44**	**2.370.187,65**	**2.159.202,94**	**2.490.178,40**	**2.268.512,59**	**2.616.243,68**
	CASH FLOWS					- 2.057.913,95	- 1.560.433,42	- 1.513.565,49	- 1.005.992,01	- 1.358.607,21	- 667.119,54	- 794.687,25	1.279.713,07	1.326.873,59	1.586.850,87	1.392.916,98	1.665.969,48	1.462.125,00	1.748.901,01	1.534.629,52	1.835.808,01	1.610.564,66	1.926.856,46	1.690.066,10	2.022.215,12
	SIMPLE PAYBACK PERIOD					- 2.057.913,95	- 3.618.347,38	- 5.131.912,87	- 6.137.904,88	- 7.496.512,09	- 8.163.631,63	- 8.958.318,88	- 7.678.605,81	- 6.351.732,22	- 4.764.881,36	- 3.371.964,37	- 1.705.994,89	- 243.869,90	1.505.031,11	3.039.660,64	4.875.468,65	6.486.033,31	8.412.889,77	10.102.955,86	12.125.170,98
	DISCOUNTING:																								
	WACC		5,18%																						
	TIME (YEARS)					1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00	13,00	14,00	15,00	16,00	17,00	18,00	19,00	20,00
	DISCOUNTED CASH FLOW					**- 1.956.563,94**	**- 1.410.518,90**	**- 1.300.773,61**	**- 821.981,16**	**- 1.055.426,72**	**- 492.725,07**	**- 558.038,39**	**854.372,52**	**842.230,67**	**957.644,79**	**799.209,07**	**908.801,52**	**758.321,44**	**862.384,41**	**719.459,00**	**818.269,94**	**682.518,35**	**776.340,72**	**647.401,24**	**736.485,20**
	DISCOUNTED PAYBACK PERIOD					- 1.956.563,94	- 3.367.082,84	- 4.667.856,46	- 5.489.837,62	- 6.545.264,34	- 7.037.989,41	- 7.596.027,80	- 6.741.655,28	- 5.899.424,61	- 4.941.779,83	- 4.142.570,76	- 3.233.769,24	- 2.475.447,80	- 1.613.063,38	- 893.604,38	- 75.334,44	607.183,92	1.383.524,63	2.030.925,87	2.767.411,07

WACC		5,18%
NPV		**2.767.411,07**
IRR		8,37%

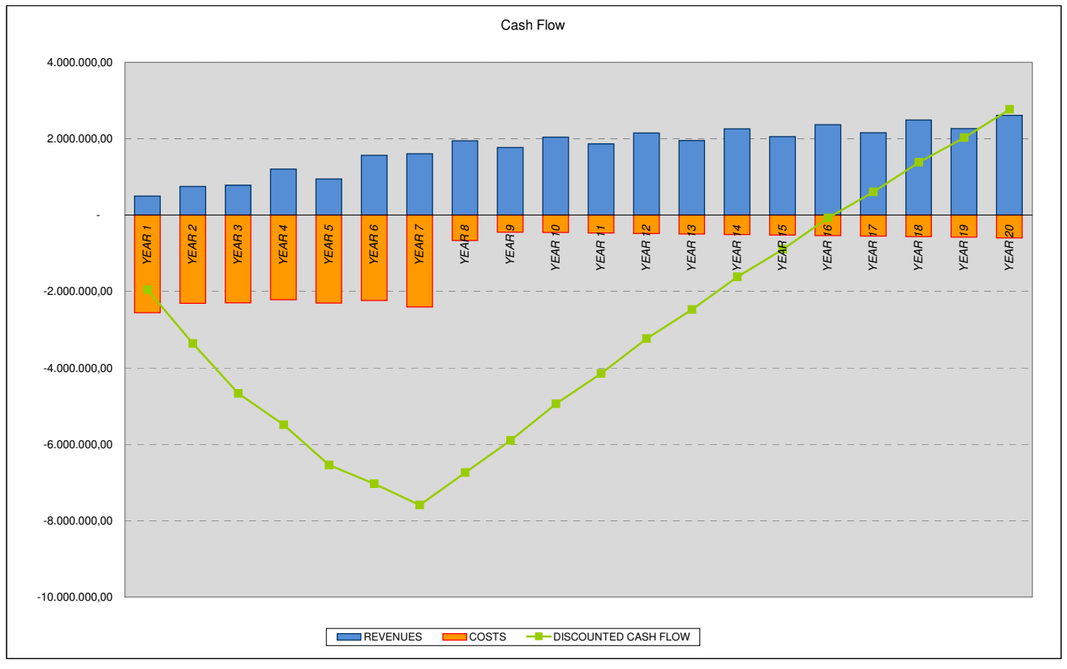


Table 09: Discounted Cash Flow Analysis

5.1. Sensitivity Analysis

As already highlighted the results of such analysis are strictly linked to the data (costs and revenues) used as basis for any forecast.

But obviously many different scenarios can be valued, mostly for valuing what are the worst forecasts possible. So, it is interesting to apply some examples of sensitivity analysis that "is performed by entering one or more variables at a time into an analytical model to determine the model's sensitivity to each change. Factors that cause greater changes in the results are considered more sensitive and, therefore, pose greater risk to the expected outcome."[19]

For example, it is realistic to value three different scenarios, starting from the main DCFA.

- Scenario 1

The first hypothesis is that, after restoration works, there could be the possibility that the Ballroom and all the Exhibition Area don't have any major income; so the current incomes (€ 25.000,00 in pair years and € 200.000,00 in odd years) are maintained even in future years.

In this case there is no great difference in final situation: discounted payback period is still at the 17th year; the NPV is € 2.070.508,13 and IRR 7,60%.

- Scenario 2

In the second scenario we can imagine that also the average occupancy of guestrooms is not so high as forecasted; in a pessimistic scenario an occupancy of only 50% of rooms per year can be valued.

In this case the discounted payback period is 21 year, and the NPV is negative (- € 578.316,62) and the IRR is 3,90%; in this case the feasibility of works are not completely assured, or it occurs later than the fixed limit of 20 years.

Such a result highlights the necessity to increase the occupancy of guestrooms, being a sensitive factor; maybe, a growing number of cultural events and a stronger marketing activity could prevent such pessimistic scenario.

- Scenario 3

In the third scenario it is interesting to value what could happen if restoration costs increase; since works are made in a long period there could be an increase of costs, due to the difficulty of management of yard and also because of any factor that it is impossible to forecast at a preliminary level; it is possible to suggest an increase of 20% on gross surface, that is to say €/sqm 200,00. This means that the parametric value for the net surface is €/smq 2.840,00 for a total amount of works of € 12.694.719,14. Even costs for planning and management increase to € 1.142.320,14.

[19] APPRAISAL INSTITUTE, *op. cit.*, p. 654.

Revenues are maintained the same forecasted in the very first analysis.
With these hypothesis the discounted payback period is in the 18th year, the NPV is € 1.628.392,77 and the IRR is 6,93%; this means that even with a medium increase of costs the total investment is still feasible.

- Scenario 4 and 5

Other possible scenarios are due to a different ratio in Debt and Equity. The very difficult situation of global economy brought banks to a lower opening to great investment.
On the other hand the property of ca' Zenobio has very low supply of liquid assets but it is possible to suppose that a great legacy from some patrons could occur[20]. In that case it could be possible to apply different ratio in the evaluation of rate for discounting.
Two are the possible scenarios proposed: a ratio of 60:40 and a ratio of 50:50, in both cases maintaining costs and revenues as in the very first analysis.
In the first case (Debt/Equity 60:40) WACC is 6,47%. The payback period is at the 18th year, the NPV decreases to 1.467.402,85 and IRR is 8,37%.
In the second hypothesis (Debt/Equity 50:50) WACC is 7,12%. The payback period is at 19th year, the NPV decreases to 912.352,74 and IRR is the same of former case.
This two scenarios are interesting because they let to understand that no great changes occur in case of different supplies of money from banks.
So, the most important thing is finding the funds for the conservation and restoration works, because, in any case, with a correct cash flow of costs and revenues, the investment is sustainable.

The summary of results of the five scenarios is the following table (image 110).

Case	DCFA	Ratio of Debt and Equity	Discounted Payback period (years)	NPV (€)	IRR (%)
A	Base Case	80:20	17	2.767.411,07	8,37%
B	Scenario 1	80:20	17	2.070.508,13	7,60%
C	Scenario 2	80:20	21	- 578.316,62	3,90%
D	Scenario 3	80:20	18	1.628.392,77	6,93%
E	Scenario 4	60:40	18	1.467.402,85	8,37%
F	Scenario 5	50:50	19	912.352,74	8,37%

Image 110: Comparison of results of different scenarios

Due to analysis, it is important to say that the most sensitive variable for the entire investment is that of guestrooms (scenario 2), as we can see from the table. In fact the entire investiment is feasible only if revenues from guesthouse are guaranteed and continuous.

[20] In past years all maintenance and restoration works have been made using money from benefactors.

CONCLUSIONS

The general result of the feasibility analysis is positive: the restoration and conservation project of Ca' Zenobio is economically sustainable and different scenarios[1] show that there could be a flow of costs and revenues but nothing so significant to go out of business.

But the most important outcome of this research is that a correct and planned preliminary management of works and results can make a project feasible.

This step is often underestimate in Italian Laws and practice: so some investments fail for a bad or incorrect starting analysis. Nowadays, in a period of deep economic crisis, the tool of project's feasibility[2] becomes even more important.

The study undertaken on Ca' Zenobio palace brings to a double result: the first strictly linked to the specific case study, the second to a more general thought . As already highlighted, feasibility analysis has a positive result at this preliminary step of project; but the study should continue in following steps (final and working design), becoming more and more detailed and next to reality. In this perspective feasibility analysis is a basic instrument for realistic management of works and palace, and could be a real help for planners and designers: through specific DCFA or sensitivity analysis it could be possible to implement certain uses of the palace, strictly linked with the revenues, necessary for sustaining works.

But, on the other hand, this example of analysis should be applied also for other case studies or from a more general point of view.

It is possible to obtain the main key points of methodology followed:

1. Preliminary deep knowledge of building/s (or any other case studies), through historical study and present condition analysis
2. Definition of aims of clients; preparation of master plan or preliminary design; check of works' feasibility
3. Valuation of costs and revenues of the investment
4. Check of investment's feasibility

These points are always enforceable to any case study, for example other palaces that have to be restored, but also other types of buildings. They can be considered the pivots of general guidelines for feasibility analysis of a restoration and conservation project.

[1] In this study five different scenarios have been analysed: lower revenues both from rental of the ballroom and from Biennale, major costs for restoration and different ratios for Debt and Equity. Obviously many other hypothesis can be made, but these mentioned are realistic.

[2] MANGIAROTTI, Anna, TRONCONI, Oliviero, *Il progetto di fattibilità. Analisi tecnica-economica e sistemi costruttivi*, Milano, Mc Graw Hill, 2010, pp. 15-26

Furthermore a general analysis of entire parts of the city can be taken forward with this methodology (for example a group of buildings with different owners, different uses and different aims).

A global feasibility analysis should be a tool and resource for urban planning, that should not be limited to impose prescriptions but favour achievement of projects.
Venice, for example, should follow a general conservative urban planning (far from the current PRG[3]) that necessarily had to consider the real feasibility of transformations or maintenance of the city.
Unfortunately Venice, but Italy in general, are still linked to traditional prescriptive laws which do not consider any economic feasibility of works, and, on the other hand, impose strict but abstract rules which are not related to the physical conservation of the properties.
Obviously it is not an easy way: many different factors (properties, economic issues, project approval, etc.) play important roles in the definition of project feasibility; but an aware planning, together with professionals' capacities and qualifications, are basic tools we should capitalize to save Venice from non-coordinated, often incorrect and even destructive works.
Following studies should valuate the application of such instrument at urban scale, for designing general guidelines for a better conservation of Venice.

[3] Chapter IV, paragraph 3.

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Maps
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Drawings:
- S.01, S.02, S.03, S.04, S.05, S.06, S.07 General survey modified on the basis of that of "C&C A*rchitettura e ingegneria"*
- P.1, P.2, P.3, P.4 Project by "C& C *Architettura e ingegneria"*
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Tables:
- Tables from T.01 to T.08 by Rossella Riscica

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ANALIZA IZVEDLJIVOSTI ZA TRAJNOSTNO RESTAVRATORSTVO V BENETKAH: ŠTUDIJSKI PRIMER PALAČE CA'ZENOBIO

POVZETEK

Raziskovalno delo se osredotoča na študijski primer tradicionalne Beneške palače, ca' Zenobio, katera je bila v 19. stoletju preoblikovana v armenski internat, danes pa v kulturmo središče z nekaj gostinskih sob. Pomanjkanje vzdrževanja ali slaba restavratorska dela so, kot v primeru marsikaterih drugih stavb v Benetkah, prispevali k zaskbljujočem konservatorskem stanju: nujna restavratorska dela so potrebna, da se zagotovi preživetje te zgodovinske palače in posledično tudi njene oporabe. Za individuiranje najboljšega proces za upravljanje ca' Zenobia je bilo analiziranih veliko različnih elementov: zgodovinske in morfološke značilnosti palače; različne uporabe in preobrazbe skozi čas; arhitekturni in konservatorski načrt (idejna zasnova) v skladu z zakonodajo in smernicami za zasčito kulturne dediščine; ekonomske in kulturne vrednote stavbe in restavratorskih del, z definicijo parametrijskega stroška; finančna analiza in analiza izvedljivosti, za oceno potrebne investicije, njenega vira in casovnih terminov. Predvsem je bila izvedena finančna analiza z metodo diskontiranih denarnih tokov, ki omogoča razumevanje vsakoletnih denarnih tokov in pravilno razporedbo naložb (ob upoštevanju kapitala in dolga). Predmetna študija bi lahko predstavljala podlago za splošen pristop k bolj izvedljivem restavratorstvu z nizkimi stroškovnimi obrementitvami v Benetkah: skozi nekaj splošnih smernic bi bilo možno načrtovati in delati na bolj spoštljivi in trajnostni način, ter s tem zagotavljati preživetje in izboljšanje teh pomembnih in edinstvenih palač.