



TREBIANO CASTLE ARCOLA (SP) ITALY

The proposed project deals with the recovery of the castle of Trebiano hamlet of the municipality of Arcola (SP). Trebiano is a small village, of Roman origins, of the valley of Magra in a dominant position compared to the surrounding countries. The Magra Valley is a unique example of ancient territorial architecture; the settlements are arranged in such a way that they can defend each other. Each village is able to cross at least two other settlements, thus creating a defensive lattice that put in a position to defend against any invaders.

The settlement of Trebiano is a small nucleus, surrounded by the green hills of the Magra Valley, arranged on one of the highest mountainous mountains of the valley, in fact from its summit of the hill it is possible to dominate the surrounding territory. Two are the architectural emergencies of greatest interest, within the village, The Castle and the Pieve of San Michele. Our journey inside the village begins from the observation of the oldest nucleus (as you can observe from the attached tables), formed by a series of buildings that stand orthogonally on what was the main street (road that connected Sarzana with the port of Lerici) from this first analysis you can properly argue that it is a settlement.



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Starting from here you can identify at least two other passages of construction expansion, which have led to the current shape of the country. These passages, however, do not maintain a certain order but stand close to the hill, going to pander to the level curves and creating small side streets of not easy crossing, which bring the village closer to the castle.



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By dwelling better on the oldest nucleus, one has the opportunity to begin to interpret what are the "signs" of the ancient defense mechanisms, still present but recognizable only by a careful eye. What we are facing is a complex and elaborate defensive system formed by a first circle of walls, still partly legible, on which we could find a small guard post that ran all around the settlement.

Thanks to the map documentation it was possible to fully identify the part of the walls that had been lost and it was possible to see that at the center of this complex was the castle. Inside the housing fabric are identifiable some fortified buildings or tower houses, the medieval door still present, although heavily modified, and the remains of what was the door on the road to Lerici. The Castle, as mentioned, is located in a high position and dominant with respect to the building fabric of the settlement and at an initial analysis, it seems to be disconnected from the existing building fabric around it, to reach it there is no real road in fact the only existing way, which can lead you to it, stops becoming a path; the reality is very different. In fact, the castle was part, in antiquity, of a complex defense apparatus in which it was the fulcrum.



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Medieval city gate on the road to Sarzana (SP)

Remains of Medieval city gate on the road to Lerici (SP)



The choice of this site was dictated by the desire to search for those parts of our territory still unexplored and not studied accurately. Trying to restore dignity to a part of territory almost completely lost, and which now passes under the total indifference of the past. Starting from these assumptions it was thought to carry out an intervention that affects not only at the local level but also at the territorial level, that fits, that can positively affect the economy and that can increase or rediscover parts of a culture of the construction of the surrounding territory, at the same time without going to affect those cultural historical values that are synthesized in the monumentality of the artifact being intervened.

The semblance of complete detachment of the castle from the building fabric is caused by the advanced state of degradation of the wall, which once connected the nerve points of the village or their absorption inside the building fabric, in fact it was possible to identify at least two towers that still keep evident their physicality and some parts of walled fixtures.



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Zenital view

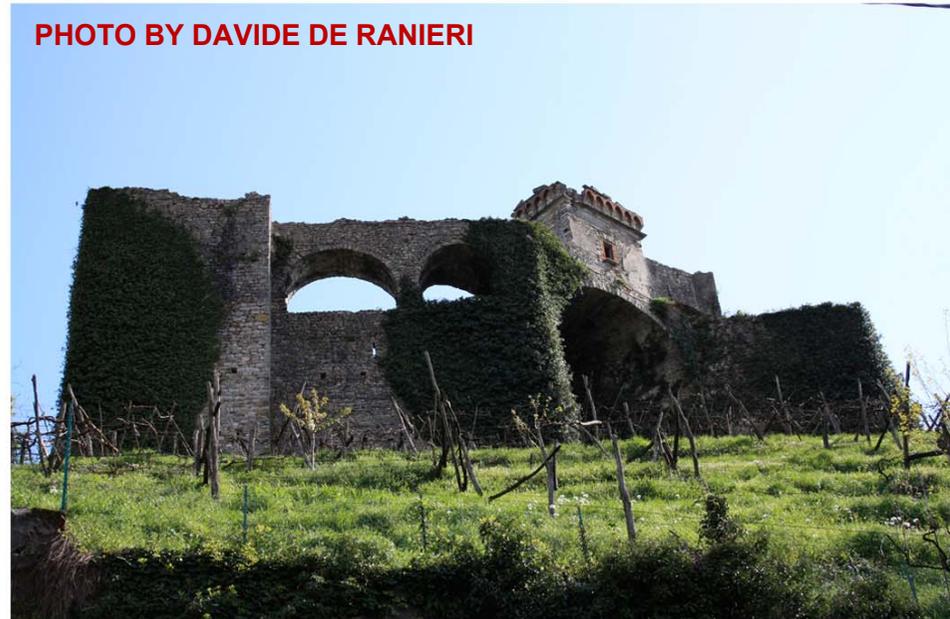


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Elevation North

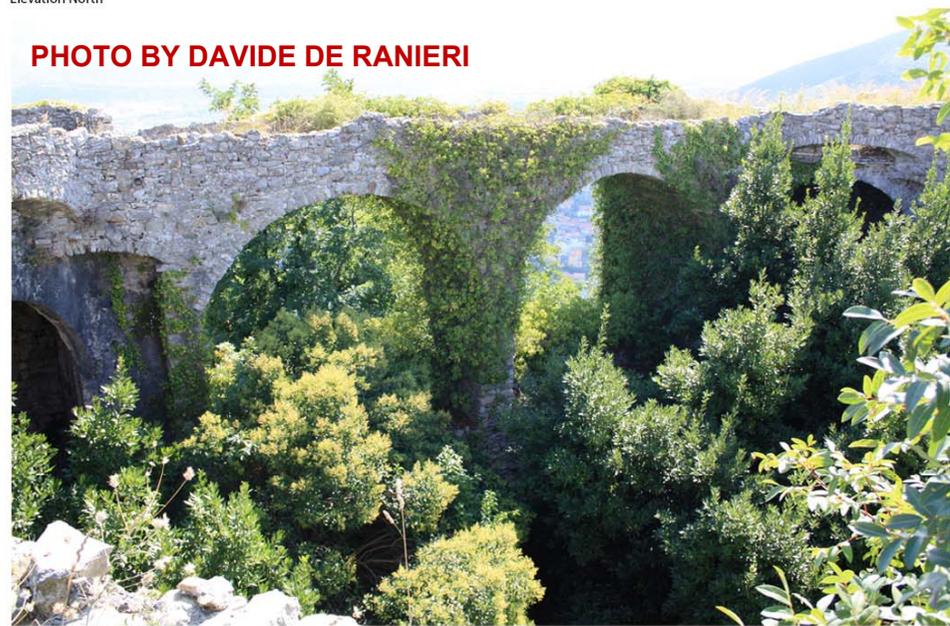


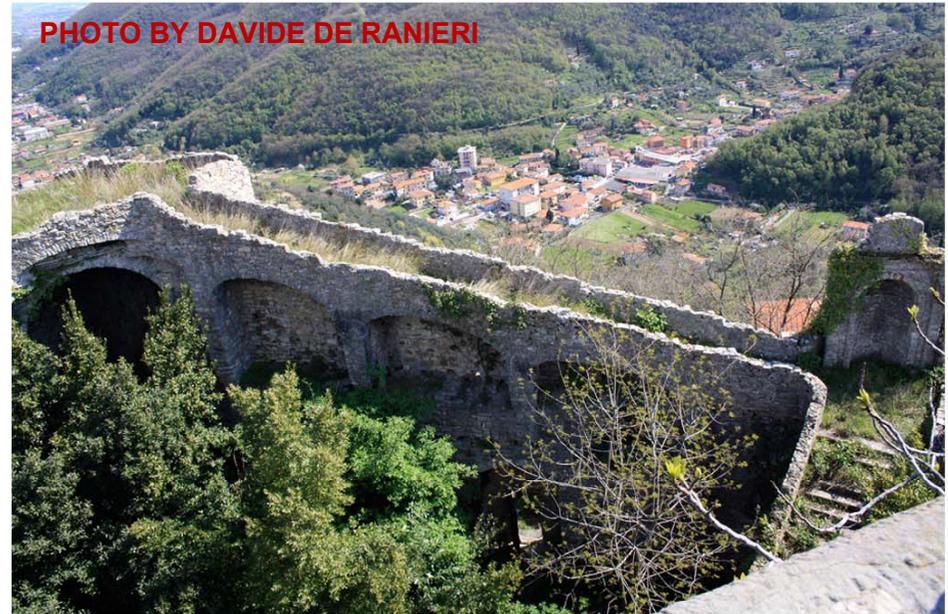
PHOTO BY DAVIDE DE RANIERI

Courtyard elevation Est



Before starting the cognitive and analytical process of the object it is necessary to proceed with accurate metric survey. This is essential in the context of a recovery or restoration project. In particular, in the case of the Castle of Trebiano, since accurate archival research has been launched in various institutions such as: State Archives of Genoa, Historical Archive of the Municipality of Genoa and Arcola; Bishop's Archive of Sarzana, it was not possible to find detailed and reliable map material. The only iconographic example in the owner's possession is a very approximate plant of little reliability, written with more artistic-descriptive purposes than with scientific historical foundation.

the building all in all small, appears of great structural and architectural complexity that will be better studied in the following chapters. The factory looks like a fascinating complex, which almost seems to have come out of the pencil of the Piranesi, with its powerful walls, its complex arches and times that meet, in a "romantic" union, with the plants born spontaneously. Which leads the visitor to an discovery of the artifact made of sequences, of "frames", which only at the end of the staircase with the arrival to the apartment, lead the visitor to a joint knowledge of this extraordinary object. The entrance consists of a small staircase leading to a landing; on it overlooks a sharp sixth arch in partially dabbled stone to allow the installation of a door; above it at a certain height lie three stone shelves. The ground floor is elevated from the outside thanks to the construction of an embankment typical of the buildings of those years; on the left are a first ramp of steps leading to the access of the east wing, now impassable. To the right of the entrance you can see how strong the presence of the reinforced concrete cistern is; The interior of the two towers is very fascinating. Inside the factory, there have been several types of interventions that go through the centuries; fortunately for us, almost all of the original structure, consisting of three square towers and a wall, was kept visible. An example is the interior of the two towers where you can still clearly see the slits, some very well preserved, the tax of plans underlined by the presence of holes for wooden beams supporting the floors. Similar traces unfold on the oldest walls, which shows that there was a wooden structure that lined the entire wall.



Courtyard Elevation South



Courtyard Elevation North

Interventions show that the original function has been changed; the ancient structure designed for the defense of the place has been modified to transform the castle from military work to bishop's residence; this is made evident by the creation of a white marble staircase (still present, although very degraded), by the presence of the remains of a polychrome resurfaced pavement, and by the presence of many remains of marble seating. The most obvious transformation is that of the ancient walkway of roundabout, on which were superimposed four large stone arches that support the walk that leads to the small apartment, decorated externally by a crown of brick arches supported by cut stone shelves, a whitening always in cutting stone and traces of a plaster decoration. Inside the apartment is frescoed, the side walls are decorated with geometric patterns and use of golden pigments on a blue-blue base.

PHOTO BY GIACOMO SIBOLDI



View

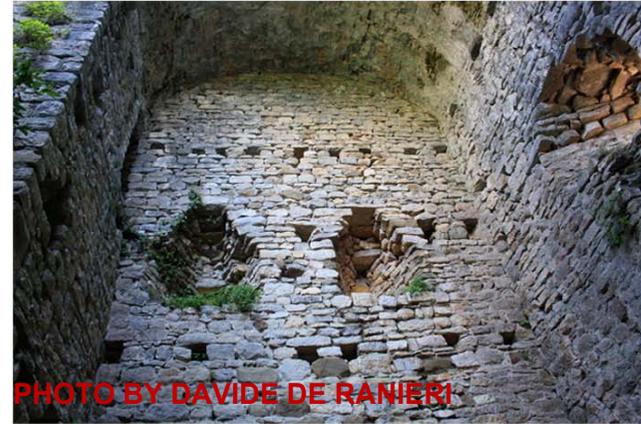


Staircase



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We are now proceeding to the analysis of the construction systems that make up the factory, analyzing the physicality of the good in its concreteness; With the development of the construction model begins the chapter that focuses more attention on the structural technical side. Fundamental to the correct reading and interpretation of what will be the altered states in order to quantify the works of consolidation and preservation. this analysis is to be interpreted as an ideal "sieve" with ever-dense meshes that progressively screens all construction systems, whether they are already coded or are abnormal structural solutions. The construction model, which will be proposed, has the function of allowing a correct reading of the structural consistency and allows in the first instance to receive that information to be aware of the current conformation of the factory in the structure and contrast of constructive elements. It also allows you to make assumptions about the original structural pattern and those interventions that have changed its appearance over time. It will be possible, therefore, to enter the factory, trying to put conceptual order to the confused overlap of architectural elements sedimented over the centuries, often realized in a partial and rarely scientific optics. For this purpose, a gradual and timely reading of the various types of structure is proposed. It begins with the identification of external structures and then, gradually, of the main function carriers, of those partially bearing or bearing only themselves, and of those courses or decorative. As study tools two types of elaboration were used: the technique of the asymmetrical explode and a structural construction analysis scheme. The asometric explode is a method based on the breakdown of the building blocks of the factory in its sub-structures. This study allows us to highlight how the various structural elements overlap, showing their constructive hierarchy from the backbone to the door.



Interno Torre1



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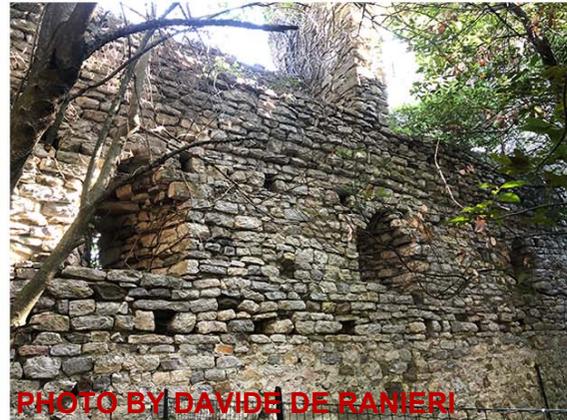
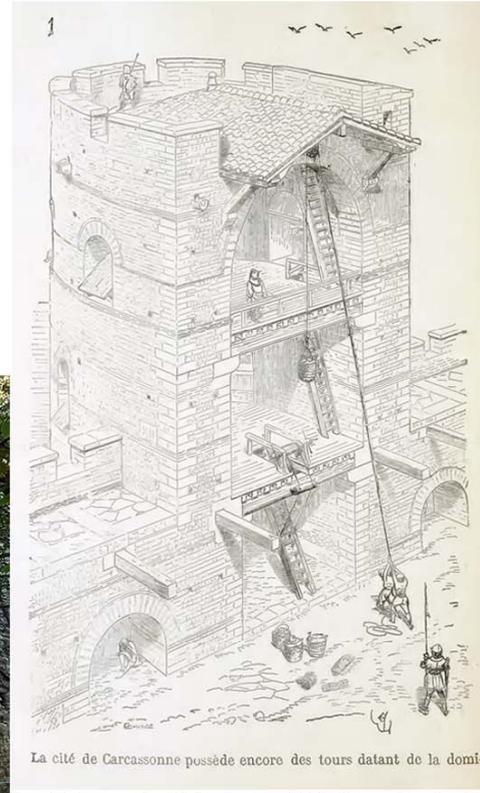


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La cité de Carcassonne possède encore des tours datant de la domi-



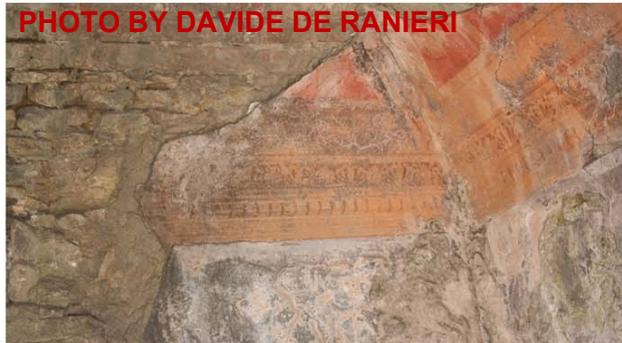
Etors les postes des tours s'enfermaient, et il fallait les as-siéger sépa-

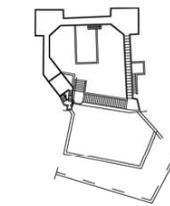
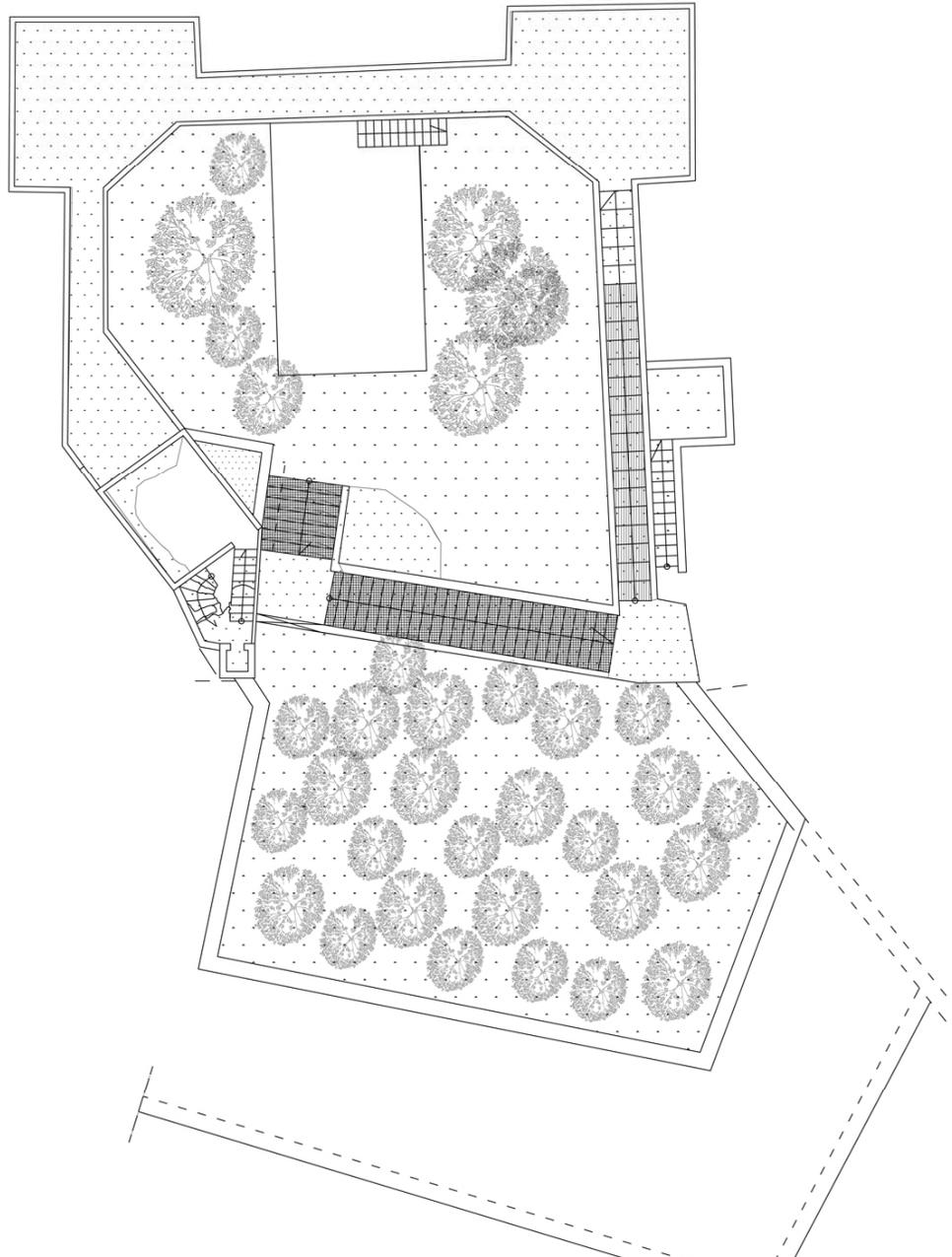
Illustrazioni iconografiche, Dictionnaire raisonné de l'architecture française du XIe au XVIe siècle, Viollet Le Duc.



The east elevation consists of two types of wall fixtures with different weaving, a stone pillar with a split and two rampant arches that support the main staircase; all made of natural stone. The supporting structure, in spite of appearances, is composed of the pillar and the two rampant arches made of split masonry, which rest on a compact masonry weaving that turns out to be only buffering and is built in stone with homogeneous weaving, the rinfiando and the parapet are made of uneven weaving. The sun-worn and decorative structures are the staircase, which is made of white marble and the residence of a willful and coating, both plaster. The south prospectus: the supporting structure is composed of a homogeneous weaving stone plinth, the construction system of this is compact and in semi-worked natural stone. On it was built a second very elaborate structure consisting of three rampant arches in split stone, supported by two pillars also made with the same technique, the first arch from the right is leaning directly on the base. The arches are dabled by a vertical structure made of patchy weaving masonry (brick split stone) and, in turn, support the walkway and the staircase. The reindeer and parapet are in uneven masonry weaving in natural stone. The staircase is almost completely lost; only traces of it remain in polychrome rice, there are also traces of plaster on the ring of the arches. Of particular interest are the pillars that are protruding outwards; this allowed to have a larger section walkway than the wall section.

The west prospectus is presented as a compact masonry base with a homogeneous weaving of constant section, on which there are two slits made with the technique of false vault; both the masonry and the slits are made of semi-worked natural stone. On it overlap two arches all sixth in split stone that support the walk; they connect to the basic masonry via three uneven stone pillars. The arches are supported by three pillars of uneven stone, also like the previous ones are presented with a ledge outwards that allows to obtain a section walkout superior to that of the vertical supporting masonry.





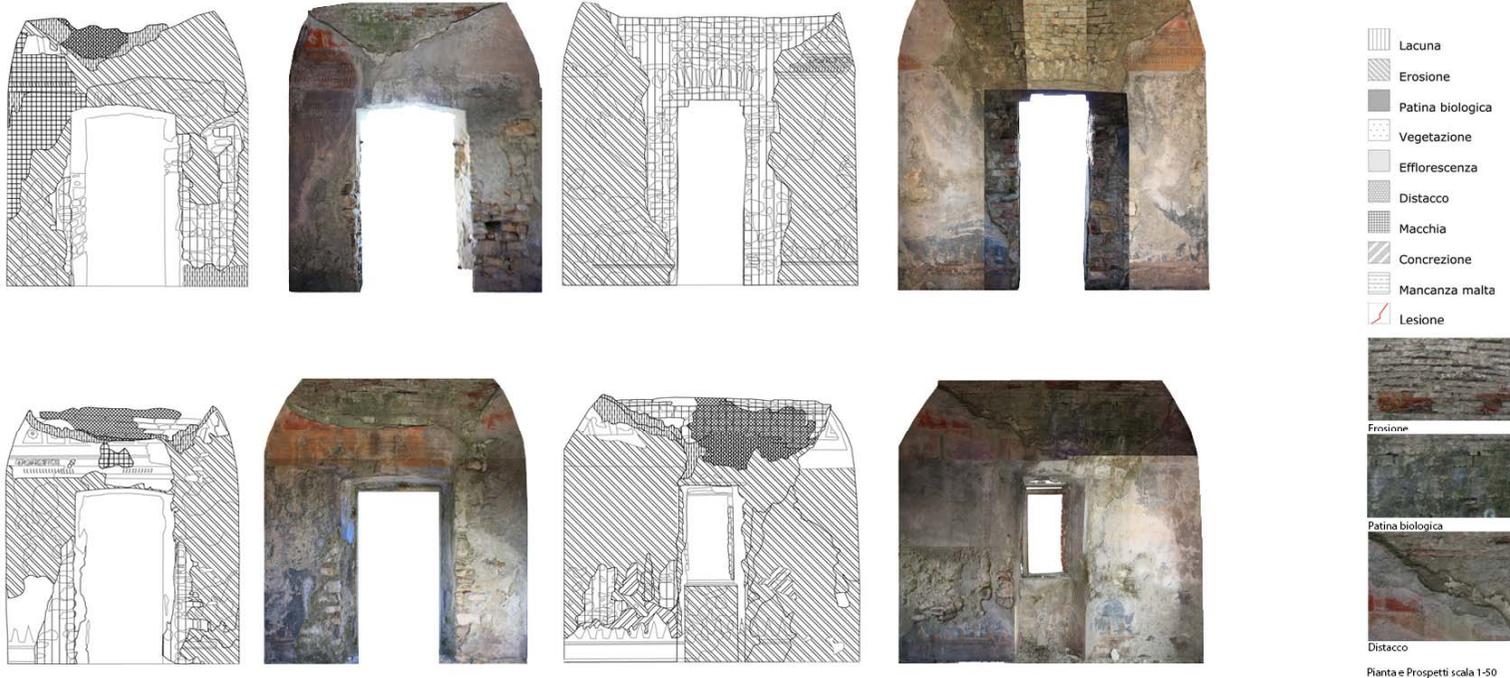
Pianta scala 1-1000

-  Lacuna
-  Erosione
-  Patina biologica
-  Vegetazione
-  Efflorescenza
-  Distacco
-  Macchia
-  Concrezione
-  Mancanza malta
-  Lesione

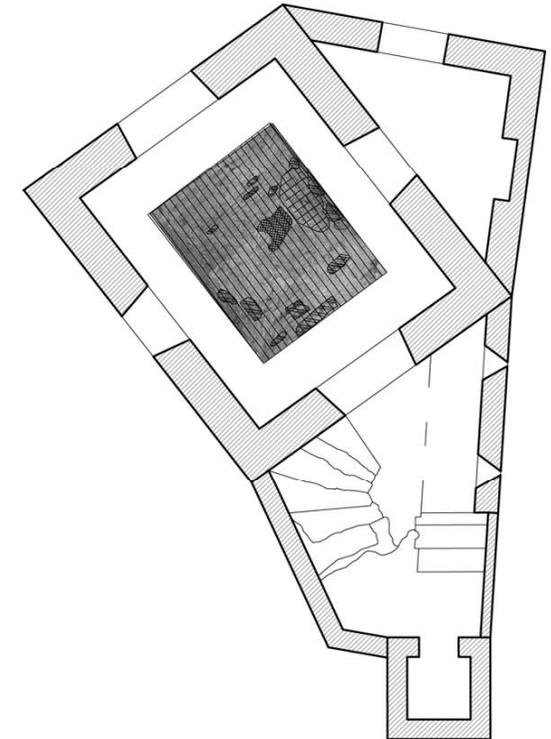
The reindeer and parapet are uneven masonry with discontinuous weaving (made of natural stone). On the ground floor an entrance has been built for access to the cistern, to do this a reinforced concrete portal has been built with the partial destruction of the masonry of the plinth there is also a small staircase made of carry stone. The north prospectus is the one of the highest structural complexity, it always has the usual semi-worked natural stone base with homogeneous weaving and here we find the presence of a small false vault slit, also in semi-worked natural stone. The walk is supported by a full-sixth arch in split stone and a barrel vault always made with the same technique, supported by two pillars of uneven stone.

The vault is of particular interest; as it is visible in the plant does not have a classic trend but turns out to be trapezoidal in shape, this system has allowed to get a wide entrance to the apartment. There is also the presence of a low sixth arch that had the function of supporting part of the parapet now almost completely lost. The reindeer and the parapet are uneven masonry with discontinuous weaving (made of mixed masonry natural-artificial stone), we find on some of them traces of plaster. The two towers have similar structural characteristics, the masonry weaving turns out to be continuous and homogeneous in semi-worked stone, on all four elevations inside are found false-turn slits also made of semi-worked stone. There is also the presence of a hole coinciding with the top of the vertical masonry of the prospectus next to it. The roof is formed by a large barrel vault cut at the opening, which makes it trapezoidal in shape, on which a full-sixth exhaust arc is placed which distributes the pressures on the vertical masonry; both structures are in split natural stone. Above, we find two small rampant arches in uneven masonry, which act as a link between the side walkways and the masonry of the vertical of the towers; we also find a low sixth arch that has the function of supporting the parapet.

PHOTO BY DAVIDE DE RANIERI



Pianta e Prospetti scala 1-50



The vault is of the lower pavilion type, and is decorated with a drawer ceiling, at the top there is a frame with floral pattern; The pigments used are gilded on a red background, inside the drawers is still visible a part of the flower decoration. There are, inside the apartment, two different types of flooring, in the main room we find a hexagonal tile coating that, with chromatic games, seem to depict a cube; instead, on the outside we find a stone slab pavement with a diamond pose.

The apartment is certainly the element of the most architectural-structural complexity of the factory, it is divided into three rooms, two covered and one not. The vertical masonry turns out to be made with weaving masonry mixed natural-artificial stone, the openings were made using the technique of the split stone platform. Also externally are identifiable three types of decorations, the most obvious and interesting is made of a crown of arches with a high acute lowered brick, supported by stone cutting shelves and dabbled by a weaving masonry in natural stone with a parapet function. On the parapet are still visible the remains of a stone cutting handrail, traces of plaster and a decoration that can be traced back to the classic architrave are detectable; above is a shabby stone decoration. Inside, the roof of the main room turns out to be turned; the type is a lowered pavilion on a rectangular plan, made of a smooth weaving brick. At the base it is interesting to analyze the attack with the perimeter masonry; In fact, it is possible to observe a change of material made with the progressive overlap of layers of different materials. Internally the remains of a frescoed plaster decoration are identifiable, you can also observe an artificial stone flooring (ceramics) with hexagonal polygons. The small triangular room has no particular building elements. Outside the apartment there is a marble staircase supported by a rampant arch, but the shape of the material is not visible because it is covered by the plaster, the perimeter masonry is always made of mixed weaving natural stone brick, on it, below the rampant arch, there are two slits made of mixed masonry.

Degradation

Degradation is a harmful modification of the material which necessarily implies a deterioration of its characteristics from a conservative point of view; for training and development it is linked to natural processes. (Normal Recommendations 1/88). Degradation is an alteration of the original state of the artifact, which can be caused by several and multiple causes. The analysis of degradation is a central moment in the drafting and organization of a restoration or recovery project, because in it the diagnoses from which the operational phases arise. The importance of a thorough analysis of the factory involves an adequate understanding of its aging state, with all the pathologies that it suffers from at the current stage of study or which it has suffered in the past, so as to allow a proper design of interventions aimed at the preservation and elimination of congenital defects. First of all, we need to identify the causes that led to the alteration of the original states of equilibrium; In fact, interventions cannot be limited to correcting alterations, but must, in theory, eliminate the triggers. It should be borne in mind that, sometimes in practice, it is difficult, if not impossible, to theorize the real causes and alteration phenomena in individual concrete cases, since already stabilized over time; This would prove to be pointless when partial intervention would prove more correct. Before starting to deal with the causes that alter the states of equilibrium, whether they relate to entire main structures, with supporting function, or to the decorative elements of surface coating, it is considered important to clarify two misunderstandings that are frequently found. It is often tended to confuse degradation with failure; A phenomenon can be considered of degradation when it refers to the totality of a factory, it is considered to be disa not enough if it is limited to the local micro reality. Degradation can manifest itself in a widespread or localized way but in principle it assumes singular morphological characteristics in each material with characteristics that are related to its physical-chemical composition and the particular type of triggering cause.

PHOTO BY GIACOMO SIBOLDI



Failure refers to the series of problems always related to alterations in the static structural balances of the construction model. Visible manifestations of failure can have a very complex nature and the most varied intensity, but they are always attributable to cracks or deformation. Degradation and failure appear to be visible manifestations of the causes of alteration, they can coexist, manifest partially, be the cause of each other, but they must always be read in a clear and distinct way. The causes of degradation can be divided into two chapters: extrinsic or intrinsic; The intrinsic causes are contemporary at the birth of the building and can be caused: by the positioning, the stratigraphic conformation of the boulder, the geographical and environmental location, or by the type of the geomorphological topographical site.



Or they can be related to the structure and depend on the lack of composition of the individual materials (poor quality or lack of reliability), lack of execution (construction errors) or design errors (incorrect choice of the base boulder, etc.). The extrinsic causes are attributable to long-acting natural agents, they can be of a physical nature (thermal, water, salts, geological), chemical in nature (oxidation, alterations, air pollution, electrochemical decomposition of salts in water), or be due to biological or microbiological agents (plant, shellfish, parasites, microorganisms, guano). They can also be related to occasional natural agents, such as earthquakes, landslides or floods. But they can also depend on the work of man (wrong use, overload, air pollution or wars). The analysis of the degradation was carried out: on the plant, on the four internal elevations, on the interior of the two towers and the apartment. The structure is severely degraded due to abandonment, this has allowed the proliferation of weeds: prunes, climbing plants and trees with very wide canopy. This fact, however, at the moment, does not seem to have affected the masonry weaving that, except for a few areas, is well preserved and healthy in appearance.

The phase: the plantThe analysis is started by the plant that shows how strong the presence of upper and lower vegetation (weeds) that make even unattainable parts of the factory: the east wing, part of the outer walls and the exterior of tower three. The cause of this large presence can be attributed to two factors: one, as mentioned above, may be the abandonment of the structure the other is intrinsic in the design, in fact inside the courtyard was and still is present an embankment, which had the function of making the base more resistant to external assaults but which in this case has turned into a fertile ground. The first ramp, made with marble tread, has in addition to the usual infestation lower vegetation, a biological patina on the handrail, on the marble stone is evident a patch of brown color. On the second ramp can be found, in addition to the strong presence of weeds, the lack of much of the pavement to rise. On the rest of the promenade there are traces of lower vegetation (weeds) and the missing part of the parapet.

The second phase: the prospectuses On the east elevation is visible, on the dial of the rampant arches and on the initial part of the parapet, the lack of much of the plastering the erosion of the remaining part of plaster, most likely caused by a set of water and wind; there are also some brown spots and lower and climbing vegetation. Inside the two times show many efflorescences and the presence of a biological patina. On the south elevation there is, on the parapet, the lack of plaster and the presence of lower vegetation; on the dial of the rampant arches the plaster is eroded with the presence, on two areas of a biological patina. The buffers of the arches appear to be healthy with only a few climbers; on the stone base of the arches there are a number of areas attacked by biological patina, saline efflorescence and some climbing. Two pillars that support the leftmost arc are partially broken, although they do not appear to compromise the stability of the structure above. The west prospectus does not show remains of plaster, so it is not conceivable that it is a past presence, although much of the top is covered by the vines. We find a demolition of the upper part of the plinth but most likely passed and not due to a pathology; there is also the presence of a saline efflorescence on the lower left. The north elevation has at the top the lack of the plaster that ran through the entire parapet and the dial of the right arch; on the dial and on the reintroduction of the left arch there is part of the plaster, which, however, is eroded. Below the left arch there is a climbing infestation, as well as on the plinth. The attack between the arch and the tower is noticed a crack, probably caused by the non-contemporary realization.

Phase III: the two towersI inner prospectus of the south tower are quite degraded but all in good condition; Prospectus 1 shows that the main ailments are the lack of mortar in the joints at both the top and the bottom, the strong presence of concretions at the top that run from the vault; there are some manifestations of lower vegetation. Prospect 2 always shows a strong presence of concretions on the top, in a lower tone at the bottom and some brown spots; you notice a creeper and some manifestations of lower vegetation. Prospectus 3 shows strong signs of no mortar in the joints and a large brown spot. In addition to the large lack of mortar in the joints, there is a rather large area of saline concretion at the top. The vault that concludes the tower is severely degraded by biological patinas and saline concretions that have led to the formation of stalactati; this is caused by the passage of water inside the joints, a symptom of the presence of cracks inside.





The south elevation still features much of the plaster decoration, though very eroded, and traces of color. There is a creeper who, given the size, hides from view one of the two slits on the left side and the end part of the parapet decoration; there is also a large organic patina and it completely lacks the wooden roof. The western prospectus has large gaps in the plaster, clearly showing the signs of erosion, there is a large presence of biological patina. The north prospectus shows similar characteristics to the others; the plaster is heavily eroded, there are creepers; parts of the decoration and parapet are missing and there is a crack in the upper left part. The interior looks like frescoed but the lack of fixtures, so the continuous exposure to the weather, has led to the loss of most of the frescoes now reduced to a few fragments. The east prospectus retains much of the plaster but has lost, in almost all respects, the decoration; erosion by the wind is evident in the lower parts; instead at the top the loss of the plaster is due to water infiltration from the time they detached it. This is also underlined by the presence of biological patina on exposed masonry; Dark-colored spots are also evident. The southern prospectus is the one that highlights the strongest degradation, even if part of the decoration is present, the central part has been completely lost and the rest shows clear signs of erosion. The west prospectus is perhaps the best preserved; still shows clear fragments of readable decorations, although with many gaps, caused by both erosion and detachment; there is a large area affected by a biological patina and a macchia. The north prospectus is visible, although very ruined, shows some large fragments of decoration; the plaster is degraded by erosion and detachment; there is a large area affected by a biological patina. The vault is completely undressed by plaster; This is due to the infiltration of water from the upper terrace and the action of the wind, as shown by some elements in bricks compromised by erosion.

Glossary of Degradation Detachment: A solution of continuity between surface layers of the material, both between them and with respect to the substrate; usually preludes to the fall of the layers themselves. The term is used in particular for plasters and mosaics. In the case of natural stone materials, detached parts often take on specific forms depending on the structural and weaving features, and items such as crust, shelling and exfoliation are preferred.

It is caused by thermal oscillation and water access: rain, condensation or ascent, action of the wind. When the causes of degradation are known, terms such as erosion by abrasion or erosion by corrasion (mechanical causes), erosion by corrosion (chemical and biological causes), erosion by wear (anthropogenic causes) can also be used. It is caused by moisture, thermal variations and saline crystallization (pore structure and fractures). It is caused by the mechanical properties of materials, loads in the building, thermal oscillation, excess water: rain, condensation ascents. It is caused by the action of the wind, by the structure of the voids: pores and fractures, excess water: rain, condensation or ascent. It is related to the presence of material foreign to the substrate such as rust, copper salts, organic substances, paints. It is caused by corrosion of metal elements, acidic layers of guano and vandalism. The term, generic, is used when such a form of degradation is not described with other voices of the lexicon. In the particular case of painted plasters, a gap is preferably used. It is caused by mechanical action, chemical action -biological and the presence of spontaneous invasive vegetation. Biological patina consists mainly of microorganisms to which dust, soil, etc. can adhere. It is caused by the elements: animals or plants. It is caused by the humidity of infiltration and ascent, the failures of the masonry weaving, the wind transport deposits of land and debris and the lack of maintenance. Degradation of iron elements: Cause. Oxidation. Chemical combination with oxygen of the components of a metal material, through the formation of oxides, can produce permanent chromatic alterations. In the oxidation of ferrous metals, the combination with both free and combined oxygen with other elements, as water vapor, in halogens, hydracids, ions of noble metals, produces, except that the cast iron oxide layer (rust) with a volume more than five times higher than that original of the original layer of the oxidized layer, which gradually detaches from the underlying metal not oxidized by putting it in the open and making it in turn attachable by oxygen; this phenomenon, when it affects the armor of reinforced concrete limbs, produces the detachment of the cover and accelerates the degradation of the membration.





Premise

With the previous chapters the cognitive part of our artifact has ended, now you have all the fundamental elements to deal with an architectural recovery project; This is how useful and necessary knowledge is drawn for modern and up-to-date conservative activity. It has been seen that the conduct and development of the various previous chapters, relating to the knowledge of the factory, are the only way for the conservation project to reach its objectives. The relief, the construction model, the stratigraphic study and the timely analysis of the states of alteration are the only tools, are those fundamental stages, which allow us a knowledge of the work on which it is intervened, and the possession of that information of complexity and variety of its structure. The conservation project is not, and should not be a simple definition and quantification of technologies for rehabilitation, or a list of methods for structural consolidation, but a reasoned expression of knowledge and culture of building. At this point the first questions arise that the designer must ask himself; first of all, what kind of intervention do I want to do? Over the years, technical and theoretical literature has formed many schools of thought that have developed and modified according to the cultural formations of different geographical areas.



During the past century, architectural examples have been produced that, for various reasons, have influenced, for better or worse, a new way of interpreting restoration. Until a few years ago, in the restoration or restoration projects, there was a conviction to clearly distinguish the old from the new; imposing itself on the existing with a formal attitude of contrast in full respect of the past. In the meantime, opinions on the intervention of the past have become the most varied, from the preservation of states of alteration (in the New Museum of Berlin, through the preservation of the patina of a certain historical period) to the experimentation of new architectural forms. The restoration, in this sense, can be defined as an interpretation, that is, it is not a simple objective intervention, but it fully reflects the era in which it is carried out.



But why is it necessary to restore or recover an asset? The answer comes spontaneously: for the need to safeguard and deliver to posterity fragments of a past common memory that would otherwise be lost. So what is the most coherent attitude to be held with regard to the restoration or recovery of an architectural good? To be strong and impactful as Viollet le Duc recommended, or to move towards a radically opposite approach as Ruskin explains in which the restoration is seen as the worst of the destruction.

The First said: "The word and the thing are modern, restoring a building is not maintaining it, repairing it, rebuilding it completely is restoring it to a state of completeness that may never have existed at a given time" Viollet Le Duc - Dictionnaire raisonné de l'architecture fran'aise du Xle au XVIe siècle.

The second is: "In the public or those entrusted with the care of public monuments understand the true meaning of the word restoration, it means the most total destruction at the end of which there is not even an authentic remain to collect a destruction accompanied by the false description of the thing we destroyed. It is impossible ... to restore ... how it is impossible to resurrect the dead." John Ruskin, The Lamp of Memory, Aforisma 31 These two attitudes so similar have given rise to those dialectical and theoretical diatribes on restoration that still find neither answer nor agreement between the various actors at stake.

In my opinion, a unique answer on the issues that the theory of restoration has produced over the centuries does not exist; every building, to which this question arises, has within itself his answer in its own right. In fact, each factory has different pathologies, structural characteristics and functional space and it is not possible to deal with the problem always by applying the theory slavishly, since it would end up "distorting" the good to adapt it to theory, instead of adapting the theory to the good in the studio.

So you can only rely on the culture and the ability of personal analysis of the designer, trying not to leave to chance any aspect, from structural consolidation to plant design. What is worth considering, however, is that man has built numerous buildings over the centuries, changing them over time to better address the needs of the historical period in which he was living.

What guided these evolutions was a common thread, necessary for the existence of man: to be able to have a place to live. It is therefore easy to come to the conclusion that a building, once built or restored, if left to be a mere monument of itself, loses its main function and then dies. With the passage of time it will return to being only a ruin, perhaps in a state even worse than the one before the intervention, and above all it will not have completed its original purpose. It is against producing, as in many cases has happened, to understand restoration as a crystallization of the good, thinking that to deliver an artifact to future generations it is enough to intervene in a minimal way. The Modern, according to the concept of the "clean slate", considers the historical monuments works to be isolated, while other buildings of the past are believed to be simply replaced. Fundamental to consider is that today, we can no longer deal with any project of new realization or recovery, with the same mentality of the last century.

Several studies show that about ten tonnes of material per inhabitant are handled each year in the construction sector and that about sixty per cent of the waste produced comes from construction; The concept of sustainable development was therefore necessary.

"Sustainable development" means a development that meets the needs of the current generation without undermining the ability of future generations to meet their own design, in addition to the architectural and technical aspects, the study and choice of materials, as the growing global demand for resources imposes new strategies and technologies that allow the standard of living in developed countries to be maintained. , without damaging the ecosystem with the consequent and progressive depletion of raw materials.





Construction is one of the sectors that most influence the world and the ecosystem around us, from the choice of lots for new realizations, to the extraction of materials until their disposal; For these reasons, it was also necessary to take care of and assess the ecological and economic consequences of the entire life cycle of a building.

The Castello di Trebiano, an object factory, brings with it different types of issues related to the diversity of actors and the demands that the project and the designer are called to meet. In fact, the interests related to the castle of Trebiano, the institutions and the community that recognize in it a symbol, which risk losing due to the progressive pressing of time and elements. In this case it is important to investigate the different aspects that allow to obtain a project that is architecturally coherent and that fits optimally in the territory, both at the socio-economic level and at the level of environmental respect. The socio-economic aspect of the project is of fundamental importance, currently not only the village of Trebiano but also the neighbouring municipalities are without an attractive economic and cultural pole (except for natural beauty) where you can organize small temporary events for socio-cultural purposes.

In this case, it was necessary to take into account and then to analyse other factors, in addition to the already mentioned environmental factors. Those human and institutional factors which will have to enable this structure to function and live once completed are of great importance; because you are going to intervene on a good symbol of a community that, as in this case strongly affects the landscape and therefore you have to be very careful and shrewd.

By analyzing the local economy and other activities of this part of the Magra Valley we can see that there is a micro-productive activity in many forms in the excellence of food and wine products and small crafts; As a result, there are no specific venues or events for the purpose of exhibiting these products, except in markets or impromptu events organized by local governments or independently by the producers themselves in the streets or on the streets of the countries.

In addition, it is worth noting with regret the complete absence, throughout the province of Spezia, of suitable structures for the temporary exhibition of works of artistic character. This first summary analysis led me to reflect on what could be the functions of the receptive-recreational type, which the structure of the castle once recovered and expanded could accommodate, strong doubts because as said will have to find in agreement actors with diametrically opposed requests. The structure that you aim to design is an exhibition and very flexible, editable depending on the needs of the event to be hosted. A structure designed to be lived three hundred and sixty-five days a year and that allows you to fully enjoy the architectural beauties so unique of the ancient structure in all its parts, once brought to light, but that especially in the case of one day it is considered no longer up to the times can be disposed of without causing any damage to the castle that hosted it.





AREA RELAX



CONFERENCE HALL



PUBLIC GARDEN



CAFFE'



PUBLIC PARKS



EXHIBITION AREA



PANORAMIC POINT



PEDESTRIAN CYCLE PATH

Project

After what was previously explained, various types of intervention were studied to find the ones that could best express what are the ideas of building recovery of the designer. Based on all the reasoning made on the project that we set out to carry out, there was the awareness of wanting to carry out a work that would allow flexibility of use, low environmental impact and total reversibility. Often one wonders what is meant by reversible architecture: In this case it means a type of intervention that does not pre-empt the pre-existing artifact, but that is flanked, complete, makes it habitable again and usable to the public, but once future times deem it unsuitable and obsolete it can be disposed of and replaced without excessive inconvenience, returning the factory not as a ruin but as a building that can still give something. As evidenced by the previous analyses, the artifact is presented with some problems related to the presence of weeds and primary vegetation, but nevertheless manifests several very interesting peculiarities related to the construction system used, which are worth highlighting not only at the cognitive level but especially at the architectural level. As already illustrated, the sources of degradation are caused by the abandonment and neglect of the good, there are important structural failures which have led to the intervention of security by the public authorities; Therefore, some highly invasive interventions are necessary, but only concentrated in two points of the perimeter walls and the entrance with their reconstruction. These first conservation operations are to be carried out at various intensity throughout the castle, both inside and outside and inside the two towers and are aimed at the preservation and preservation of the good to allow the continuation of its "life" and the possibility of being handed over to future generations.

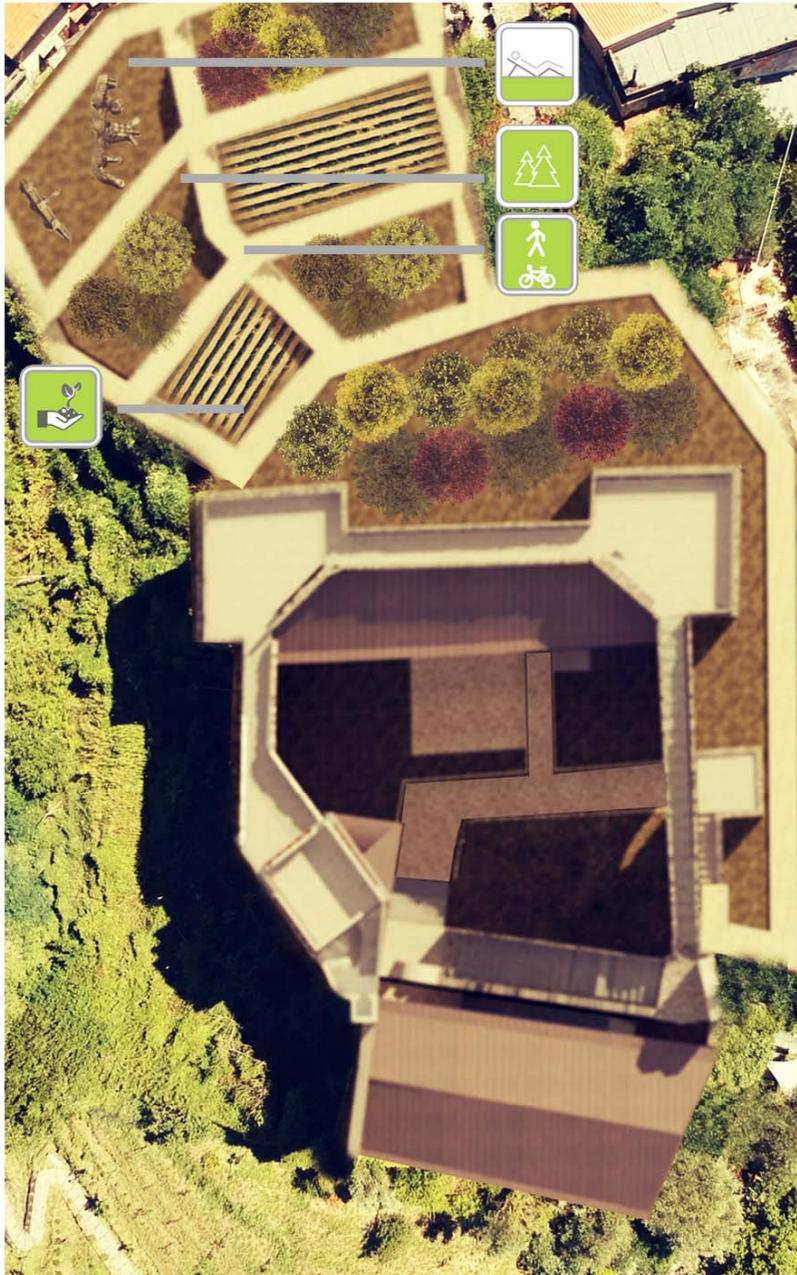


Step 1: Safety and cleaning

The first conservation operation is the mechanical culling of primary vegetation, both in the main court and in the south wing and in the immediate vicinity. Mechanical and chemical elimination of secondary vegetation; this operation is carried out on the elevations or on the wall surfaces, since a mis-implementation of the methodology (which will be illustrated below) could lead to even serious failures.

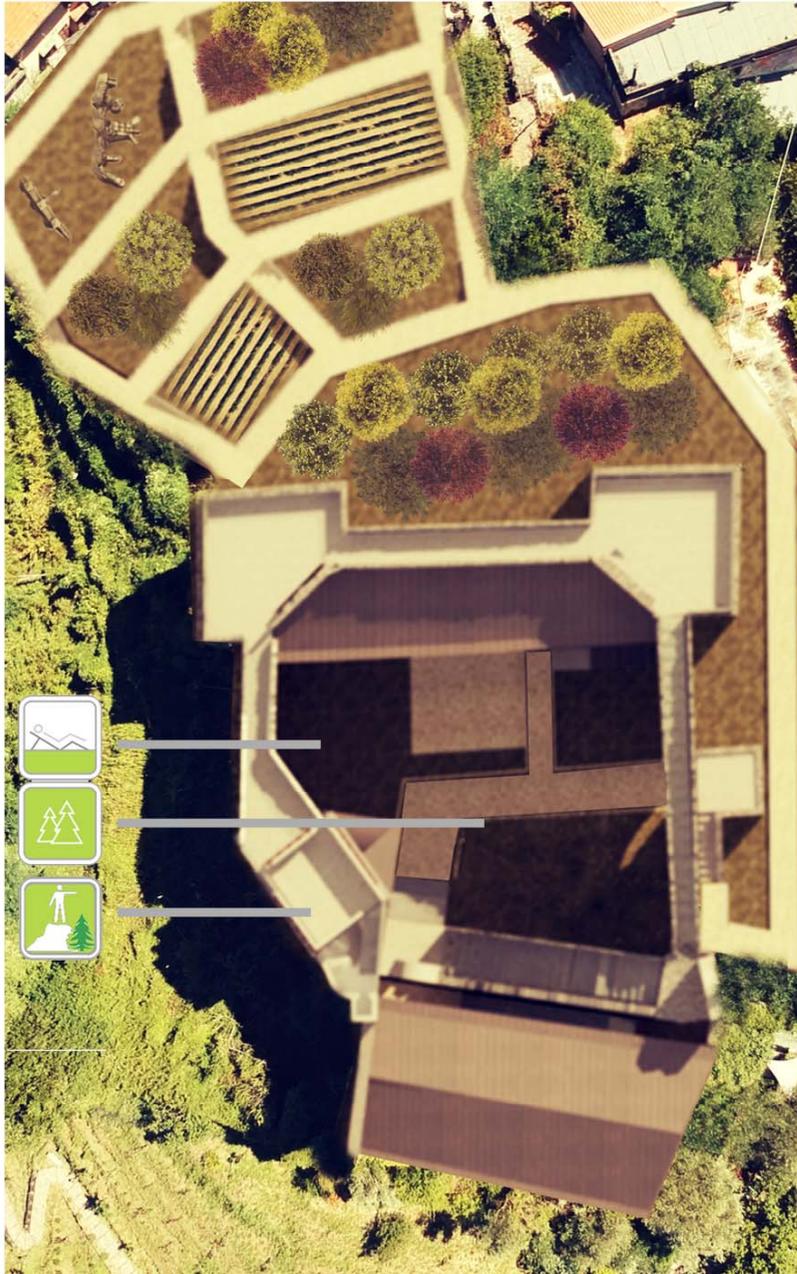
On the perimeter masonry, a first mechanical mowing is carried out, being careful not to remove the roots, so by spraying the biocide is applied, which will dry the roots and make it safer to remove them even if a certain caution is always needed; Finally, the masonry is compensated, which the shrub may have compromised, with mortar or with the insertion of new stone elements, if necessary. We then move on to the application of biocides by using a brush for the elimination of the biological patina, the compensation of the mortar missed in some joints to the insertion of mortar for the sewing of some lesions, and the consolidation of some parts of the parapet that turn out to be patchy, the consolidation of the parts still present of finishing plaster and the drafting of a layer of lime water on the masonry where there are still traces of plaster. Several stainless steel chains placed on the kidneys of the arches are inserted on the perimeter masonry at the arches. The towers must be treated, at the same time, to eliminate the saline concretions present and stains due to air pollution, a micro blasting type of THE JOS type is used. As a result of the first cleaning, the mortar joints are restored and the stone elements present in the end are made structural chains of reinforcement in stainless steel. The parts of badly compromised walls will be dismantled and reassembled; proper foundations are carried out and then, the walls are rebuilt by reusing the existing stone material in the apartment it is necessary to replace the two forged iron chains, which, due to the weather, turn out to be worn out and the replacement of some marble steps, which turn out to be fractured and missed by some parts; while it is necessary to consolidate with mortar and stone elements both the decoration and the parapet also of the apartment. Existing railings are restored with railings up to 1 metre to ensure their safety to the public





Step2: restoration work on the floors and roofing

On all the surfaces that make up the walkway that overlooks the perimeter walls is applied biocide and removed the layer tirtle and shrubs that covers it then the state of the pavements is evaluated They are removed where possible and waterproofed the underlying layer with appropriate materials then restored the previous state going to complement those missing parts with appropriate material Inside the apartment, a wooden roof and copper sheet is made in the small triangular room; with the beams that are allocated in the seat of the pre-existing ones.



Functional redevelopment

Once the conservation interventions are completed, we are interested in those completion works that will allow the general public to enjoy the structure; we begin to describe the design of the new building. The specific intervention on the castle of Trebiano consists of two buildings and a green pedestrian cycle area with different functions. The project stems from the desire to mend that relationship between the castle and the village below that time and neglect have severed; so it was thought to create an exploratory path that begins along the castle and making it immediately appreciate the physicality and historical cultural characteristics. You can lead not only visitors, but also the simple pasts or the locals, who have always been able to admire this castle only from afar, in a cognitive path of the work in all its parts, thus entering into the merits of a material and technological culture that has guided our ancestors for centuries.



The outer area: The intervention outside is presented as a three-level square on which are set public green areas with different functions such as: relaxation area – play area and a part to vegetable gardens all connected by different pedestrian cycle paths that I understand a ramp for disabled people; This solution allows you to avoid the jump in altitude due to the territorial structure. The pedestrian path begins at the old town that leads between the areas of equipped greenery ends by skirting the two main towers until leading the visitor to the main entrance of the castle. The project involves the recovery of the stone walls with ground containment bands typical of local traction; three paths were designed, two consisting of stairs and ramps and one consisting of a single slope ramp suitable for use for people with reduced motor capacity; the paths will be made with architectural concrete with colors reminiscent of the local Ligurian lands. Within this lattice that has been formed by the division of routes are inserted several functions of public green equipped, relaxation areas and public urban gardens at the service of the community.

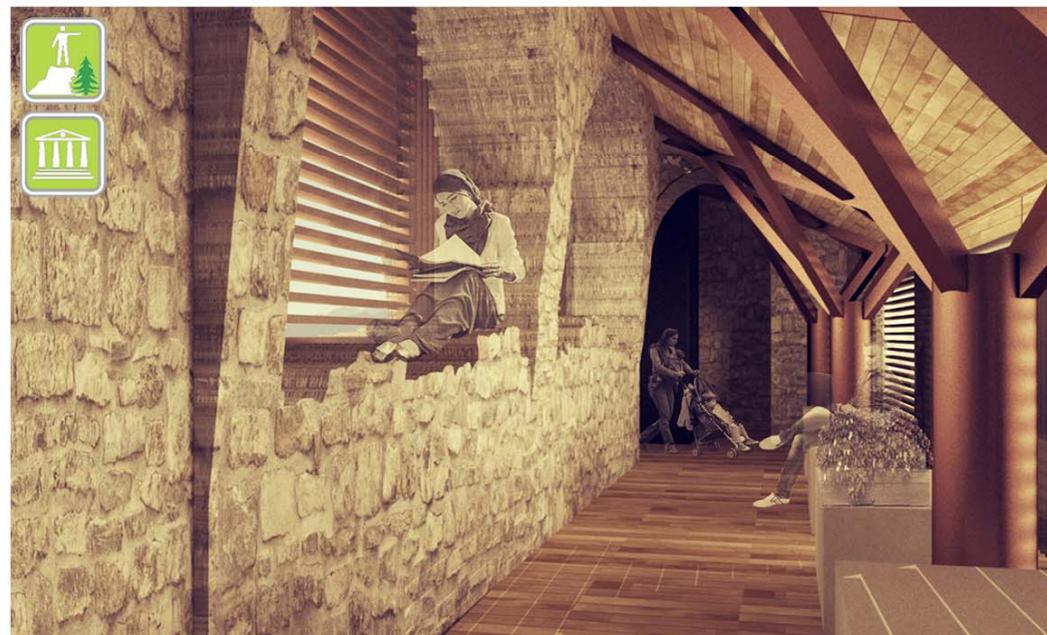
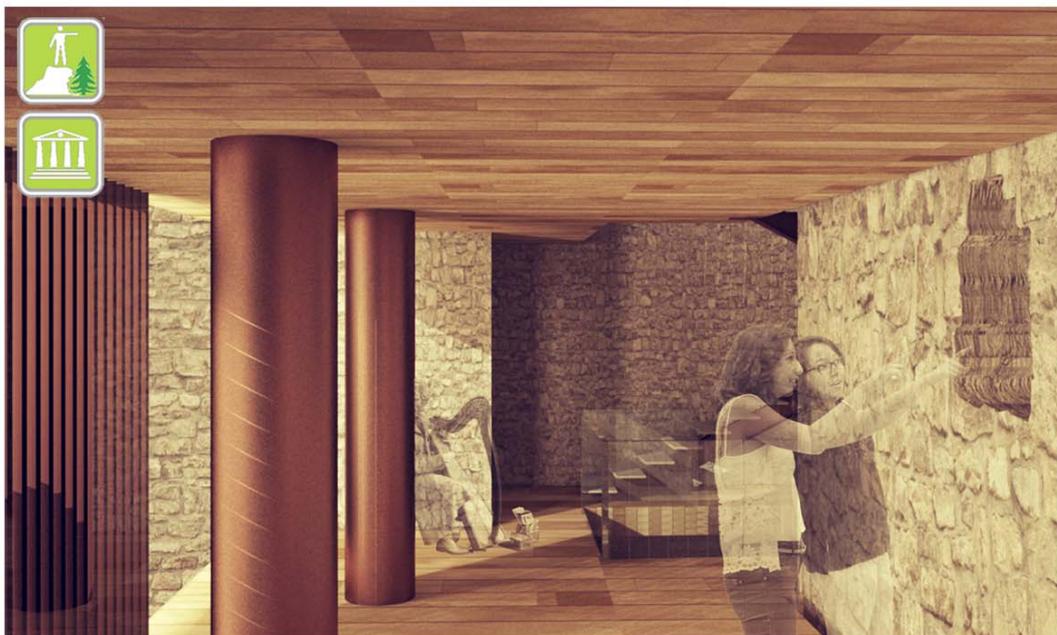
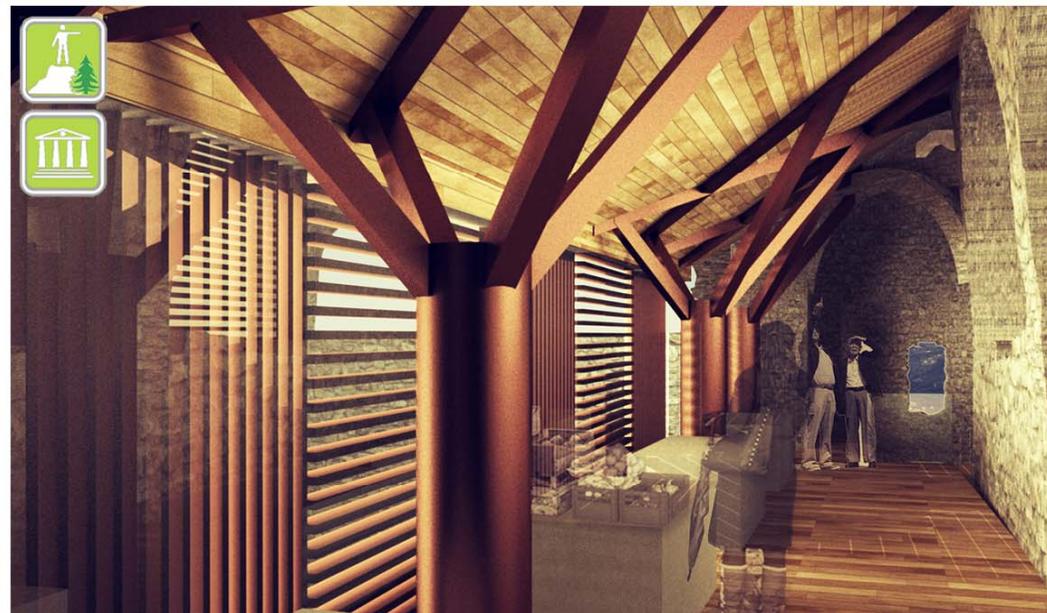
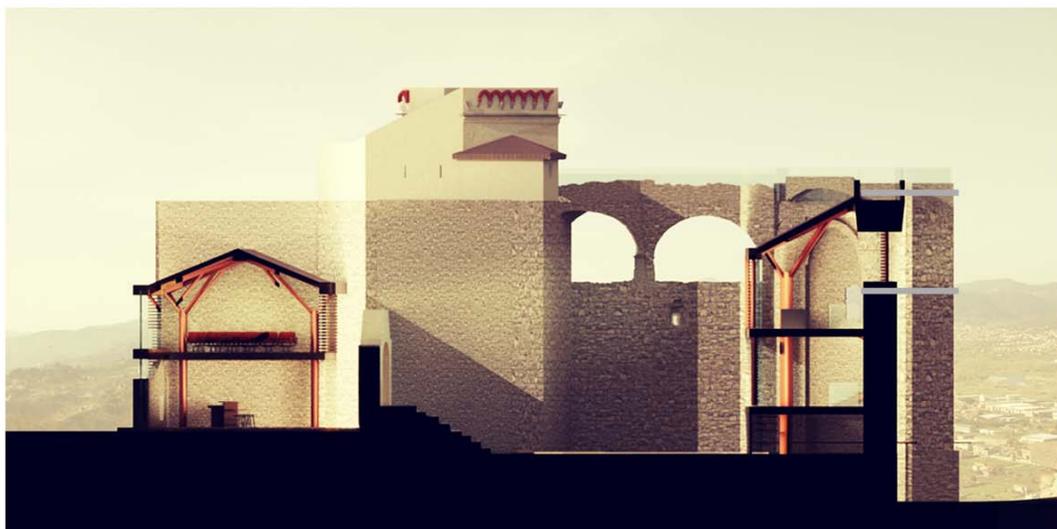




Buildings

The proposed buildings are presented with matter and shapes that go in the direction of the reworking of those shapes and colors of the ancient structures that were at the outline of the stone structures; The new buildings are made up of a similar construction system consisting of a foundation on poles and plinths on which are placed pillars of cornorydant steel; The pillars will act as structural and infrastructural elements in fact will be used for the environmental air conditioning of heating and cooling. The horizontal elements have a steel supporting structure and a wooden cladding; the covers will be coated with copper sheets. The main building is rectangular plan built on two levels, the roof of the building is wooden hut and finished steel with a copper sheet roof; the exterior coating is composed of horizontal wooden elements that have the function of brilsoleil but at the same time allow the maximum visibility of the surrounding landscape.

The entrance to this building is out of step and is accessed through the inner courtyard of the castle, it is divided into two levels: on the ground floor there is a bar, a dining room, a small kitchen and toilet services;





On the outside we find the steel staircase that allows access to the upper floor, a multifunctional space, first used as a conference room but which, being connected to the kitchen by a mechanical lift, can be used as a dining room. The outer lining is made up of wooden slats and inwards from a glass window; on the mezzanish floor we find the same coating on the side that faces the interior of the courtyard. The interior routes are conceived based on what is the medieval tradition of Liguria, in which there is a type of road called "bayionetta". This type of street was built in such a way that it was laid unortholy to the buildings on which it stands but slightly staggered by putting in the foreground "the corner" of the most important building. We are now going to describe the building that is the crowning achievement of the path; at present, walking down the staircase leading to the small apartment you have a sense of unfinished because only part of the potential of the castle is rendered, which now remains as a monumental theatrical fifth in a panorama to take your breath away.

The idea is to be able to touch the physicality of the stone and thus give a complete reading of the building. The new building is to be read as a small Guggenheim in New York where, starting from the entrance of the apartment you start to descend down to the ground floor, and you lead the visitor in what were supposed to be the paths of ancient soldiers between slits, arches and vaults. Just below the first flight of stairs we find the panorama framed by four arches to the whole sixth, the two side towers designed to be two focal points of the spiral path, the one plug of distribution the other, thought as a well that allows each floor to perceive its volumetria. The building is rectangular, the roof is made with the same construction technique as the previous building, corten steel, laminated wood and copper sheet; The difference is the addition of a steel stack to support the floors. The floors are made of laminated wood, we find a flight of stairs made of steel and stone with an elevator for disabled people. The elevator shaft consists of a steel and glass structure. On the second and first floors there are multi-functional exhibition spaces, suitable both for the exhibition of typical local products and for the exhibition of works of art. The coating consists of wooden slats and a glass window.

This building so conceived will allow you to have a continuous perception of the castle at every point, both from the courtyard and from the main staircase of the castle structure itself.







Conclusions

Architecture over the centuries has always sought to satisfy a fundamental need for man: living. In the last fifty years the concept of living has changed a lot: the improvement of the way of life, and the invention of ever faster means of transport and communication have made our lives more whirlwind and always in constant mutation. Until the first half of the twentieth century, the majority of people were born and died in their own country or city; travel was rare, except because of local economic crises that led to emigration. Most of the activities were concentrated in very few square kilometers, in distinct places (housing, church and work) and housing standards were virtually non-existent; this leads to having a well-defined concept of "Home".

The "House" is the place where you spent most of the time, for women almost all; so it was designed and built to accommodate the different activities that marked the day. The house was an organism that was born and modified over time, grew, and "saw" within it pass one generation after another. This "small ancient world" is in crisis with the spread of mass transport (train, car, plane, etc.), which leads to the "shortening" of distances between countries and greater flexibility in the workplace. Technologies such as electricity, heating or air conditioning are introduced into the home.

In contemporary society the concept of "living", "living", "working", "studying" has changed a lot (and will change again) with the passage of time, always requiring different housing standards. For example, nowadays you can not live without an internet connection or mobile phone, technologies that a decade ago few knew, and that are now necessary as water and bread. This involves major changes both inside and outside the buildings, which very often do not turn out to be the result of a reasoned process, but they are makeshift solutions that have led to the disfigurement both in high and in the plan of buildings, historical or modern. All this should make us think, because today we do not know how we will live in fifty years, but we can only make assumptions.

For this reason, contemporary architecture must have the problem of thinking about how to build buildings that, when they are deemed inadequate at the time, can be modified or disposed of without creating environmental impact problems. These themes include "light architecture", of which some experiences have begun to be made that are becoming more refined and increasingly interesting aesthetic impact. Thanks to the discovery of increasingly high-performance materials with less environmental impact, it was possible to begin a search for those construction methods that, over time, replace the "classic" methods of twentieth-century architecture (steel and cement conglomerate) that are of great environmental impact, especially for the difficulty of their disposal. In addition, buildings made with this construction technology allow for limited interventions.

Architecture has begun in the last decade, especially in Northern Europe, to provide answers to these new housing standards, in the context of saving energy resources. First it started with the experimentation of new energy-saving construction systems, then we moved on to the design of mass housing buildings. These new architectures were also born thanks to the discovery and introduction on the market of innovative materials that, combined with the increasing refinement of prefabrication methods, allow to obtain buildings with low environmental impact with dry mounts, which do not require large construction sites or too much specialized labour, thus allowing to limit both production costs and construction. , management, that disposal.

