ENGINEERING BUILDING
FINAL DRAFT

CONSTRUCTION -HISTORICAL STUDY AND INJURIES OF THE HOUSE ON CASTLE OF PUJOL, MUNICIPALITY OF COLL DE NARGÓ

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Construction - historical Study and injuries of the house on Castle of Pujol, municipality of Coll de Nargó
ABSTRACT

This project dealt with the study, history, graphic and injury of the house “Pujol”, in Coll Nargó, municipality in the county of Alt Urgell. This building consists of ground floor and floors, and was the former home of a farmworker family.

The aim of this project is a study of the house based in its history, analyzing the construction system and evaluating the damage and injuries suffered by construction.

This final thesis is formed by a series of studies and graphic documentation that is cited below.

Details and location of the building: It provides an introduction to the building and its location inside the property it occupies, as well as a brief description of the house itself and the village.

Historical Study: This section begins with the history of the town and the county to continue the history of castles in Catalonia and the Castle of “Pujol”, and to conclude this section the history of the Catalan Pyrenees houses and the “Pujol”’s own history.

Study of construction: This section describes the house deeply, analyzing its functionality, the surfaces constructed and the structural elements of it. In this second part of the chapter there are analyzed the structural systems and construction solutions adopted to understand the functionality of the whole.

Study of injuries: describes injuries affecting the building indicating in each case the source of it. These are classified according to their location: can be indoors or outdoors; and depending on the item has that affect: either vertical, horizontal faces or structure itself.

Graphic documentation: We have a topographical survey of the building in its current state. In the maps created there are indicated the construction system and the dimensions of the existing house as well as the finishing materials and the injuries present today, among other things.

Study materials: this study material is realized in order to understand a bit more classifying them according to their location and function.

Appendix I: This section contains the data sheet where are described with greater detail each injury inventoried in the study of injuries section.
PREFACE

I suffered a lot in the first part of this work, because history isn’t my strong point. Most of the work of this first part was to collect information, the problem is that most of this information isn’t written down, so I had to talk to old people of the village, in order to define the history of the house from its beginnings.

Have to say that, after this first exhausting part, the rest of the work has been very interesting and entertaining. To define the different structures that make up the building and make appropriate maps to the interior of the building, I made a series of sketches and details, using some tools: EDM and all types of tape measure. In order to complete this section were needed 16 visits to the house with working an average of four hours each visit.

In order to make the topographical survey a total station has been used which had incorporated the software needed to translate the points to a CAD software. As a result of that a 3D point cloud has been created.

The result is a 3D point cloud, located at coordinates with html format, which can be opened directly from a CAD program, in txt format, the values of the lifting points: coordinates, heights and diagonals of each space.

Finally I would like to thank deeply all of material laboratory members of the EBSEP, especially Mrs. Antonia Navarro. Who helped me analyzing a series of samples of different materials that formed part of the house, in order to determine the stone origin of them (mortar, siding, masonry, etc.)

To determine the origin of the wood, I turned to Mr. Joaquin Monsoon that I found very helpful and I thank you very much.
1 – INTRODUCTION

During the research about the theme to make the final project I had no idea, just wanted to do a building located in my town (Coll de Nargó) and it was a unique building with a significant historical importance to perform a historical study, survey and study of graphic injuries. First I visit several churches and investigate the history of these buildings. I went to Professor Joan Serra to propose to be my tutor and he accepted with pleasure. After two visits with Professor Serra, made me think about it and I asked myself if the kind of church construction would be great motivation for me. After all, I decided to focus my work to a country house, but had to be a country house with a great historical and architectural value. I began to see several bibliographies and found the country house of Pujol that the beginning was a castle, and then I made a visit. The truth is that I caught only approached me, its great stone walls, the height of the ceilings, the floor construction system, the great barrel of wine and the place is located. I know for sure that this building would be my final project.

The country House of Pujol is a secluded house located in the municipality of Coll de Nargó in the bottom of hill Turp. Rectangular building consists of ground floor and first floor and attic, with a deck of two waters. Around the house are two other buildings and other area for oven and one small yard.

This final project analyse the country house of Pujol located in the municipality of Coll de Nargó and generate documentation as a basis for future rehabilitation or change of use the building. The objectives are make a study of the history of the country house and analyze them as affected in the same building. Perform a general recognition of the physical building and conducted a survey chart of the present building. finally determine injury identifying the origin, the cause and possible solutions.
2. - PROJECT INFORMATION:

Final Project.

University: Polytechnic University of Catalonia in Barcelona. UPC
Qualification: Engineering Building
Student: David Ponte Trilla
Teachers: Joan Serra Santasusagna

Location:

Address: Carretera de Perles km: 1
Location: Coll de Nargó
Region: Alt Urgell

It is to the right hand of the road Perles 1 km where you take a turn that leads us to a track of 800 meters in length. Isolated country house located in the municipality of Coll de Nargó on the left bank of the river Segre, forms a peninsula within the packaging Oliana the bottom of Mount Turp.

Property:

It is a rustic LAND with a total of 45, 44 Ha, formed by forest and agricultural land, north and west edge of the packaging Oliana, east of the river and Canelles South mountain with mount Turpin. has not installed electric wiring, water or sewer.

3. - LOCATION AND ENVIRONMENT:

3.1. - ENVIRONMENT

The house is located on A little hill, the main building is rectangular and is composed of three plants, two slanted roof of the nave and other part more in the north of the building with single slanted roof.

At the north facade converge the Pearl River and packaging Oliana, creating a gulf which has formed a forest of poplar

The south and east facades adjacent to an oak forest to large property of the estate, there were fields, which over time have been occupied by oaks.

Located on the west side of the main building include: two large agricultural land forming a peninsula within the packaging Oliana, the perimeter of the peninsula that forms with several years where grow many oaks.
3.2. - SITUATION AND LOCATION

The population of Coll Nargó is in the Alt Urgell, in the province of Lleida, in the northern region of Catalonia.

It locates in the south of Alt Urgell, between municipalities and Oliana Organyà. It is located about 30 km from the capital of the region, is Seu d’Urguell. COLL DE Nargó is at an altitude of 600 m above sea level and covers an area of 153.56 km².

The country house of Pujol is located just outside the village of Coll de Nargó on the left bank of the Segre river where the river converges with the Perles. To get there we have to take the road to Perles 1 km, to find a road at the right hand, then cross a river and follow a forest track for about 800 meters long that lasts up to the house.

Regard to the location of the building is located in the northeast direction. IN The west facade there are several corrals and oven. The south facade gives a large barn, leaving a space of 2 meters between the south and the barn was to gain access to the main facade. The north and east facades converge the river Perles.
4. - HISTORIC STUDY

4.1. - HISTORY OF Alt Urgell and COLL THE NARGO

Location

The Alt Urgell is located in the northwest of Catalonia, the Pyrenees, specifically the Segre basin and is constituted by a system of small riversides and valleys and its tributaries. The region limit it's with Cerdanya, Berguedà and Solsonès to the eastern side, the two Pallars the west, and south to the north to Andorra.

The name of the county has its origin in the region Urgellet, and the city of Urgell (former name of La Seu d'Urgell) which formed the county of Urgell but with the extension of this south, the county was divided and was created a viscount in the Alt Urgell.

The privileged location of La Seu d'Urgell in one of the most important crossroads of communications in the Catalan Pyrenees explains its exceptional historical role and the county of Urgell as a key to the recovery. Small banks or open plains around Segre are separated by vegetation.

At altitude the vegetation occur as oak, very large, dry oak, pine forest, which covers large areas, subalpine and alpine vegetation and. The mountains are covered by gras deforested pastures and dry.

History

Prehistory and Antiquity

The Alt Urgell Urgellet or occupies only a sector of the county of Urgell before its expansion into the plain. The historic Urgell was formed by the Alt Urgell, Andorra, much of Solsona and a small part of the Segarra and Noguera.

In the Neolithic are the first traces of the village in the region, farmers using buried tombs of his grave. The megalithic phenomenon is very present and have been calculated up to 66 megaliths the central sector of the Segre.

It is believed by large numbers of names which are pre-Roman place names in the local population was very bascoide impervious to the Romans.

Early County of Urgell

The little Romanitzacion was also an obstacle to the penetration of Christianity and why the diocese of Urgell not formed until the sixth century. The location of Urgell (Alt Urgell) away from the centers affected by the Visigoth and Arab domains made the diocese of Urgell and the future and the County of Cerdanya could maintain continuity with their request and that would of Urgell obedience to the Franks.

The County of Urgell was created shortly before 789, after passing the city of Girona to join the kingdom of the Franks.

Probably the change of command of The County of Urgell and Cerdanya was similar way and without violence, and the Saracen invasion until the return of General Abd al-Malik in 793 and Narbonne and Girona return and devastate the Cerdanya and the Urgell, as also Urgell.

Borrell i osona was stripped in year 820 of counties of Urgell and Cerdanya-Conflent and were given to Count Aznar I Galli, and succeeded by his son and the latter was expelled by Sutifred of Urgell-Cerdanya invested by Louis the Pious in 834.

The county passed to Guifré el Pilós (870-97) and starts the line hereditary of earls proprietary, and then It broke the appointment of the counts by the Frankish kings

The first dynasty county, composed of eight Ermengols, was to advance the frontier of the county and to Sanadja and Tora and much of Solsonès during the tenth century. Shortly after the year 1,000, and during the eleventh century reconquiera Ponts, the valley of Artesa de Segre, Camarasa and Cubells, Agramunt, Almenara and the county of Osona, meanwhile that s’ had extended towards Cervera, Tarrega and Anglesola, which form the boundary of the Middle and Lower Urgell, subject to the counts urgellesos. He also extended west to the valleys of Melà, Ager and Santa Linya.

In 1105 Balaguer was conquered and the county changed the political center, the Pyrenees to the plains, leaving the old center of the valley of Valira, where took over the role increasingly important the Bishop of Urgell and the house of Caboet and viscounts of Castellbó.

Fullness of the county time.

Disputes between Caboet and their successors, the viscounts of Castellbó, with the bishops of Urgell for the lordship of Andorra, which continued until the thirteenth century, when the viscount already belonged to the home county of Foix, prepared for the fact separating the valleys of Andorra to the rest of the county of Urgell, who became definitive separation from the second half of the sixteenth century.

In the division of the Principality of Catalonia IN 1304, Alt Urgell remained excluded from these royal provinces, to 1365, however, the territory was attached to Vegueria of Cervera. A vegueria OF Urgell appeared at the end of Middle Ages, which included part of the old county of Urgell contained in the Segre valley upstream of Rubió Agramunt. Be created later in the “vegueria” Agramunt, Alt Urgell was added to the “vegueria” Puigcervera, which after 1716 became Puigcervera.

The average age is, however, the time that allows us to research the history of this territory, BEING part of the county of Urgell and ALSO of the historic center OF THIS. Among the finest medieval figures is necessary to emphasize Ermengol Saint, Bishop of Urgell from 1010 until 1035, key figure in the history of La Seu d'Urgell and the land of his diocese.
4.1.2. - COLL DE NARGÓ

Location and presentation

The municipality of Coll de Nargó, is everything almost at right of Segre (only a small part is on the left side of the river), to limit with the noguera and Pallars Jussà.

The municipality is bounded on the north with the terms of Cabó and Organyà, at east with Fígols and Alinyà and a piece of Oden (Solsonès), at south with Oliana, Peramola and Barony of Rialb (the latter also bounded west, belongs to Noguera), and finally west to Isona and Abella de la Conca, both Pallars Jussà.

The term includes, besides the village of Coll de Nargó, chief town, the people of Gavarra, SalLent Organyà and Montanissell, Valldarques the village and the houses and Country houses of Nargó, Aubàs, Pear-rua, the Prats, Galleuda and Carreu, plus a large number of country houses around the place, like Pujols.

The population and economy traditionally, up to half of the twentieth century, the economy was based on rainfed agriculture (cereals and barley). There had been two oil mills and a flour (mill Roqueta in 1519 and 1860 the Salidés), the mill Roqueta moved when the dam was built in Oliana. This mill had great importance in the region. The reservoir Oliana denied the best farmland out of, where all the houses had an area of land to grow vegetables there. Coll de Nargó had been an important center, probably the main basin of the Segre.

The story

The Nargó term is mentioned at 988 and in 1076 the town is happened to mention Nargó. A few documents mention the existence of one Palau. The 1016 "in Nargone ad Palaco" and 1089 "Sancti Clementi Nagorny, in loco ubi ad dictur ad PalacIo subitus via." In the Middle Ages generally meant by this term, palau, the region where earls, viscounts and other authority figures possessed rights, survival of the ancient public domain of Roman Empire (Palau is near to River of Perles).

The counts of Urgell Nargó owners of rights, some of which, the 1065, were donated to the Collegiate Ager. The 1097 the Caboet received across to Count of UrgellL, Ermengol V, castles and Villas of abella in Nargó. since that moment Caboet it was the owner of nargó and the surrounding area.

The counts of Urgell, but still have some rights to Nargó, including various tithes that the 1143 Ermengol VI left the Church of Urgell. It seems that the church also received goods of Nargó Castle. The domain of castel it wasn't totaly for Caboet and Castellbò, because the 1208 is documented that the Viscount Arnau Castellbò, supporter of the Count of Foix, violates the rights of Church of Urgell and collecting income taxes in several places, including Nargó, which took over the castle, which, according to this source, the count had given to the Bishop of Urgell. For condo in 1278 between the Bishop of Urgell and the Count of Foix, the prelate who had denounced the claims brought on Castle Nargó. Thereafter the manor and the jurisdiction of the place was full of the viscounts of Castellbò. Within the viscount, the Mayor of Coll de Nargó was made the headquarters of Nargó Organyà.
4.2.- HISTORY OF THE PUJOL’S HOUSE

4.2.1.- HISTORY AND CLASSIFICATION OF CASTLES

From beginning of humanity, human being had had the necessity of protecting their shelters against wild animals, natural forces, and most important of all, against other humans. In the beginning were the primitive humans that used caves, trees, and high difficult spots; to protect themselves. In our home land it’s not until Ibers, that we can talk about real strongholds. Iber’s invasion from south, provoked that most of population moved from plains and open range spots, to settle down in hills and places with an easy defense, besides they construct artificial walls in order to protect their families. At the same time this Catalonia suffered a colonization by Greeks and Phoenicians that settled down in Catalonian coasts. Neapolis of Empuries, as an example of that.

It’s not until X century that in Catalonian territories begin to fulfill of strongholds. These are the causes of that:

- The necessity of nobility to consolidate their conquests in their internal struggles.
- Develop nobility’s life in fortified palaces.
- Construct a solid border against Islam.

The floor of the castle evolved over time, in its beginnings was built circular towers shelter. It is believed that the circular was made easier his defense because, as Vitruvius says in his treatise De Architectura, very best to resist the impact of enemy projectiles that the angles and straight surfaces. Also note that the volume of work for the same surface, is lower in a cylindrical body than in a rectangular one. However the construction of a round tower, is more difficult than a square, and more life in a circular tower is significantly more uncomfortable than a square as a cylindrical space does not generate large areas habitable.

Aiming to create a building more livable, the model is created the Domicilium tower model. That is a model of a castle that preserves the elements of military architecture, that can be continuously inhabited. Finally this last purpose required the existence of certain amenities absent in the shelter towers.

We could classify the castles for their ground plane as did Mr. Vicente Lampare on: the ground floor of regular and irregular, depending on whether they adopt a geometric layout, subject to order and symmetry in the distribution of various body building. On the other castles of concentrated plant and plant spread. Depend on whether the different blocks that make up the castle are isolated or attached to one another.

When we refer to the castle comes out after a long building with walls, tall towers, moats, drawbridges, etc. This description does not correspond with what we found in our territories, although many of our castle houses the word in its name, such as Castle Street, Castle Vilas, etc. What more prevalent in our region, are small rectangular buildings located on a rock with no difficult access and great visibility. To his enemies sighted at kilometer away and prepare his defense.

It is evident that in the beginning of their existence, these buildings had the purpose of defense and grandparents in front of enemy attacks. Over the years these buildings were to evolve to become houses.

After this brief reflection, I think it would be more appropriate to classify these buildings house as “strong” or “tower domicilium.” As is the case with the house of Pujol.

According to the encyclopedia collects Romanesque Catalonia, only the Alt Urgell, we counted a total of 126 fortified buildings, including: castles, towers, fortified houses and in-wall enclosures.

![Ground plane of Berén Castle](image)

The image in the sectioned part can see the floor of the castle. The castle dates from the eighth century snack, is rectangular with a single access, a wall thickness of 1.4 m and 13 mx 9m in plan dimensions. The gateway consists of an arch, is facing south. In one of the outer walls an opening that seems to be a loophole.

The castle has been changed in modern times, incorporating the structure of a house in which he was overlapped.

A la imatge anterior a la part seccionada podem observar la planta del castell. El castell de Berén data del segle VIII, és de planta rectangular, amb un sol accés, un gruix de murs de 1,4 m i de dimensions en planta 13 m x 9m. La porta d’entrada compost per un arc de mig punt, es troba orientada al sud. A una de les façanes trobem una obertura que sembla ser una espitllera.
4.2.2.- HISTORY OF THE PUIJOL’S HOUSE

The documentation consulted has not clarified the origins of Castle Hill. It is possible that the name "Hill" is relatively modern and is given by the position it occupies. If that is documented Roqueta, and their description and location we believe the hypothesis that Hill and Roqueta, are treated the same building. As indicated by the encyclopedia Romanesque Catalonia.

The building can be dated to the eleventh century, probably a gentleman who dominated the valley depended on Caboet. The Spill manifest de totes les coses del vescomtat de Castellbò cita que, "a l'esquerra del Segre diu que hi havia la Roqueta, torre i casa situada en un cap de roca, que feia gran fortalça. Era possiblement un monument de la veïna viscomtessa. Per Pau de la Roqueta, a qual en cas de guerra o de comissat, des de la torre havia d'aviar als homes del castell de Nargó, de la vila d'Organyà i del castell de Canelles. Sembla que el dit lloc fortificat havia de ser prop del Palau, sota el tossal del Balinyó”.

Due to the limited information we have about the origin of the castle, we only match if the descriptions indicating the "Spill" correspond to the former stronghold of the Roqueta. Also analyze all elements that could indicate protection or defense systems, different types of building systems, to determine the different periods in which the building was constructed and analyzed the plant and soil.

First I will mention the situation, the house is located on the head of a hill stands where the river converges wrists and the river Segre, this point is a natural step for excellence went to the plains of Urgell in the highlands of the headquarters of Urgell, Cerdagne and the Valleys of Andorra. It is the birth of the three valleys of Nargó, and of the Alinyà Cabó. I gather that the factors to be located in a place difficult to access and being able to sighted enemies kilometers away, make it ideal for his defense.

The "Spill" gives us the status of Roqueta, telling us what is on the left side of the river Segre, and that this place is under the hill Balinyo. This definition completely applicable to the current location of the Roqueta as we see in the picture below:

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The "Spill" also tells us that the Roqueta "was possessed by the command of Queen Viscountess, by Pedro de la Roqueta, which, in case of war or of alarm, since the tower had to warn men of Nargó castle, the town of Organyà Canelles and castle."

In the next image we see as the location occupied by the house I go. It could be that using smoke signals or other systems, the occupants of the castle could warn of possible dangers to Canelles castles, the castle and the towns of Nargó and Organyà.
The following images are taken from the windows of the castle. In view 1, taken from the west front, we see the village of Coll de Nargó, and where once stood the castle of Nargó. From the east face, we see the people of pipes perched on a mountain, where stood the ancient castle of wrists, this image corresponds to the view 2. Both the view and the view 1 have 2 field of view directly on the respective castles. This is not the case in view 3, made from the east façade, between Castle Hill and the town Organyà, stands a small hill top view directly. However it is possible that the alert could be spotted from the villa properly Organyà, taking into account that are performed with smoke signals and the low height of the hill stands between Hill and the town Organyà.
Construction - historical Study and injuries of the house on Castle of Pujol, municipality of Coll de Nargó