

## **Reuse of Old State Buildings In Cabeceiras de Basto**

Vítor Magalhães<sup>1, a</sup>, Anabela Paiva<sup>2, b</sup> and Jorge Pinto<sup>1, c</sup>

<sup>1</sup>Universidade de Trás-os-Montes e Alto Douro, Quinta de Prados, 5000-801 Vila Real, Portugal

<sup>2</sup>Universidade de Trás-os-Montes e Alto Douro, Quinta de Prados, 5000-801 Vila Real, Portugal. C MADE – Centre of Materials and Building Technologies.

<sup>3</sup>Universidade de Trás-os-Montes e Alto Douro, Quinta de Prados, 5000-801 Vila Real, Portugal. .C MADE – Centre of Materials and Building Technologies.

<sup>a</sup>vitor88marques@gmail.com, <sup>b</sup>apaiva@utad.pt, <sup>c</sup>tiago@utad.pt

**Keywords:** state buildings, old primary schools, rangers' houses, railway station, rehabilitation, reuse.

### **Abstract**

There is an expressive amount of old state buildings in Portugal that have been neglected for a long time, namely primary schools, rangers' houses and railway stations. Some of these buildings, although they are not yet considered as heritage buildings, are very interesting and worth being carefully studied. These buildings, some of them abandoned for a long time, are no longer viable? Should they be demolished?

This research work focus on studying these types of buildings in Cabeceiras de Basto County, in Portugal. Field work has been carried out in order to characterize a number of different buildings, namely by registering their exact location, construction solutions, architecture solutions and the level of conservation, among other technical aspects. Some buildings that have been already rehabilitated are also reviewed.

The information gathered has been studied in order to devise new purposes for the use of the studied buildings after rehabilitation.

### **INTRODUCTION**

In Portugal, during the Estado Novo (New State) or the Second Republic, in the 1940's and 1950s, a large amount of public real estate was built, such as primary schools [1], rangers' houses and railway stations, which are still part of the Portuguese heritage. The county of Cabeceiras de Basto, in the north of Portugal, was no exception.

These buildings were spread in this area, as can be seen in Figure 1, in a total of 41 buildings, including 28 primary schools, 12 rangers' houses and a railway station. The exact location of each building under analysis was defined by Magalhães [2], [3]. This was a very difficult task, because in some cases did not exist their exact location and usually their accessibilities, mainly in the rangers' houses, were very poor.

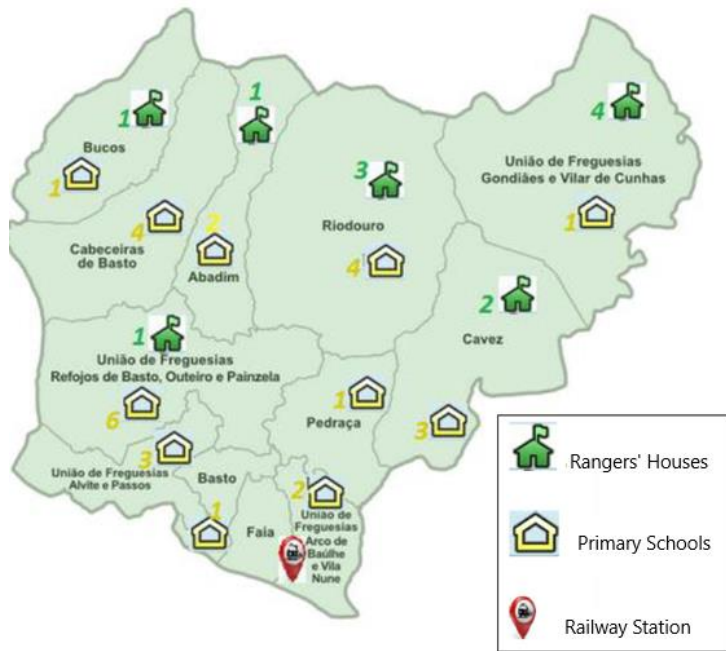


Figure 1: Distribution and number of studied buildings per parish of the county of Cabeceiras de Basto. Adapted from site of this county [4].

The main goal of this article is to present the work developed, in order to characterize the construction solutions used in these buildings, their current state of conservation, the rehabilitation interventions already carried out and their potential for reuse.

The methodology carried out in order to achieve the goal referred above, was the following:

- Identification of the location of the buildings;
- Development of a data collection sheet, which will be duly filled in at the time of the visit of the various buildings, accompanied by a photographic survey, in order to collect as much information as possible about their characteristics and anomalies;
- Analysis of the collected data.
- Suggestion of possible alternatives of use to be applied to the abandoned buildings.

## Primary Schools

The old primary schools of the county of Cabeceiras de Basto are distributed by their various parishes, according to the needs they had at the time, in terms of population and/or students. There are twenty-eight former primary schools in this county. Only the primary school of Gondarém continues to be used as a school, Figure 2.a). The remainder are closed or were released to different types of entities, such as the Bucos' school, Figure 2.b). This old primary school reopened in 2012 as "Casa da Lã" (Wool House). In this case a deep intervention was required, taking into account the new functions attributed to the building. The Sta. Senhorinha - Basto primary school was also rehabilitated. Since 2017, Basto's Leisure Center, the Association of Friends of Basto and the Parish Council of Basto have been operating there, Fig. 2 c). Although, most of the schools assigned to institutions have been used after a small-scale rehabilitation or without any rehabilitation, as happened to the school of Toninha-Rio Douro, Figure 2.d).

The construction solutions of this type of buildings were based on the application of natural and local materials. As this county is rich in granite and pine wood, it has strengthened their application in the construction of these buildings.



a) Gondarém



b) Bucos



c) Sta. Senhorinha – Basto



d) Toninha – Rio Douro

Figura 2. Primary schools of the county of Cabeceiras de Basto.

### Rangers' Houses

In this county 12 ranger's houses were also built, their construction took place in the year of 1954. In 20th of August 20, 1998, part of them were given in to the City Council of Cabeceiras de Basto, according to the protocol of collaboration signed with the Regional Directorate of Agriculture of Entre Douro e Minho.

All of them have identical architectural characteristics. They only have a ground floor with seven rooms, kitchen, common room, office, storage room, bathroom and two bedrooms. These houses were inhabited by former rangers and their families.

The construction solutions of this type of buildings are similar to the ones used in the primary schools. The materials used in their construction were also the granite and pine wood.

Nowadays, three different types of use can be observed for these houses. Four of them are still inhabited by former rangers and their families or only by their families, as for example the old rangers' house of Cambeses-Rio Douro, Figure 3 .a). Other four were rehabilitated for rural and tourist purposes by the City Hall, such as the house of Veiga-Bucos, Figure 3.b) [5]. And the remaining four are abandoned, the house of Magusteiro-Rio Douro, shown in Figure 3.c) is an example of this situation.



a) Cambeses- Rio Douro



b) Veiga- Bucos



c) Magusteiro- Rio Douro

Figura 3. Rangers' Houses of the county of Cabeceiras de Basto.

### Railway Station

In the village of Arco de Baúlhe in the county of Cabeceiras de Basto there is an old Railway Station. This was inaugurated on 15th of January of 1949 and was part of the Tâmega railway line [6].

This station was composed by a set of buildings and space: the main building and complementary buildings with different purposes, such the engine drivers house, the warehouse for goods, two stables, a coal deposit, a water tank, a loading and unloading dock, a crane that served as a support for the supply of the carriages, a turntable whose function was to change the direction of the trains, a public place and a garden in its surroundings.

The main building was used by the passengers of the station and is the only two-floor building. On the ground floor there was a room, a waiting room and a large space intended to support the passengers, and on the upper floor there were seven divisions: a dining room, a kitchen, a bathroom and four bedrooms, to be used by the staff of the station.

After 41 years, in 1st of January of 1990, it was closed. Years later, in January of 2000, the management of these buildings was given to the City Council of Cabeceiras de Basto, and later, on 23rd of May of 2004, the museum Núcleo Ferroviário de Arco de Baúlhe (Arco de Baúlhe Railroad Center) was opened, Figure 4 a). Also, the "Casa dos Maquinistas" (house of the engine drivers) was rehabilitated and became the Employment Center of Basto.





a) Núcleo Ferroviário de Arco de Baúlhe



b) Employment center of Basto

Figura 4. Railway Station of Arco de Baúlhe, county of Cabeceiras de Basto.

### Construction Characteristics of the Buildings

The construction solutions used to built all these buildings are the same. With respect to the exterior appearance of these buildings, it is generally found that there is a lower row of stone masonry along its contour, in which small openings can be seen. These openings allow the natural ventilation of the wooden floor, Figure 5. This solution prevent the direct contact of the wood with the soil, in order to guarantee its greater durability, avoiding, for example, rotting due to contact with the soil moisture and the attack of the wood by xylophages agents.



Figura 5 - Natural ventilation openings.

Other outstanding construction solution, in these buildings, are the thickness and consequent robustness of their stone masonry walls, the plaster of lime-based mortar or cement and the white paint finishing. The windows sills, jambs and head jamb are made of stone (granite). They have pitched roofs covered with traditional ceramic tiles. The windows and doors have timber frames. This material was also applied with structural functions in the construction of floors, ceilings and roofs. The partition walls were made with hollow bricks. The expressive thickness of the stone walls was due to their structural performance, but it improves also their acoustic performance and their thermal inertia.

### Pathologies / Anomalies

Over the years the aspect of these buildings keep changing, due to use and aging of the materials, so it is important to carry out maintenance and rehabilitation work to minimize the

risk of degradation. Even so, the non rehabilitated buildings studied have a very satisfactory state of conservation.

Against the above, most of the houses released to different types of entities, still in use, were subjected to minor rehabilitation work, such as wall painting, wood varnishing and occasional replacement of some materials.

These buildings are thought, that they did not have any maintenance over time, which justifies the existence of some pathologies. The main pathologies that occur in these buildings are: cracking, rotting of the elements of wood, corrosion of metallic elements, absence and cracking of ceramic tiles, damp spots, water runoff on walls and window sills, detachment and blistering of plaster, deterioration of window frames, damaged bricks / tiles, moss appearance and absence or breaking of glass, Figure 6 and 7.



b) Rotting of the elements of wood



c) Moss and painting's degradation



d) Rotting of the timber elements



e) Absence and cracking of ceramic tiles

Figure 7 - Pathologies in the studied buildings



Figure 7 - Moss and painting's degradation

### Alternatives for use

Taking into account the heritage value of these buildings, the good state of conservation and the versatility of rearrangement of space and the fact that almost 50% of them are still abandoned, decisions must be taken for their reuse.

Some of them are already being used for touristic and social purposes. The abandoned ones can also be used for these and other purposes. The primary schools can be used as day care centers, study centers, libraries and tourist offices, among others. The rangers' houses, due the relevance of these heritage buildings in the preservation of the forest, for more than 40 years, they should be rehabilitated and used for the same purpose. At the moment, and given the fires that broke out in our forests in 2017, it is urgent to take measures in order to rehabilitate them, so they can house again the rangers and their families.

### Conclusions

The studied buildings, in the county of Cabeceiras de Basto, have very similar construction characteristics and similar construction techniques were used. They were built using natural and local materials, mainly granite and wood. The foundations and external walls were made of granite and the floors, roof structure, window frames and doors were made of timber.

The state of conservation of these buildings is good and consequently their rehabilitation would not be complex and expensive. But, if no decisions are made their rehabilitation will become progressively more complex and expensive. However, it should be noted that, although, some of the buildings, in this county, have been rehabilitated, most of them only had very simple interventions, that did not eliminate the causes of the pathologies, but only the pathology itself. In the course of time, these pathologies reappeared, this already occurred in some of these houses. On the other hand, the absence of maintenance, even after being subjected to interventions, leads to the appearance of anomalies.

In summary, a range of anomalies are present in these buildings, the main ones being the presence of cracking and rotting of the timber elements, corrosion of metal elements, absence and cracking of ceramic tiles, humidity spots, painting degradation, detachment and blistering of the plaster, deterioration of window frames, appearance of mosses and absence or breakage of glass.

## References

- [1] Féteira, J. P. F. S. (2013), "O Plano dos Centenários - As Escolas Primárias (1941-1956). Dissertação de Mestrado em História da Arte Contemporânea, Faculdade de Ciências Humanas e Sociais da Universidade Nova de Lisboa. Lisboa. Portugal.
- [2] Magalhães, V.M.M. (2018), "Potencial de utilização de edifícios tradicionais", Dissertação de Mestrado na Área de Engenharia Civil, Universidade de Trás-os-Montes e Alto Douro.
- [3] Vítor Marques, Anabela Paiva, Jorge Pinto (2017). "Potencial de utilização de edifícios tradicionais Portugueses - caso de estudo do concelho de Cabeceiras de Basto". Congresso da Reabilitação do Património (CREPAT), 29 a 30 de junho de 2017, Universidade de Aveiro, Decivil, Aveiro, Portugal. ISBN 978-989-20-7623-2. pp. 587-589.
- [4] Site of the City Council of Cabeceiras de Bastos. <https://cabeceirasdebasto.pt/concelho-mapa-de-freguesias>. Accessed in January 2017
- [5] Site of house of Veiga-Bucos. <http://cabeceirasdebasto.pt/turismo-casas-florestais-turismo>. Accessed in March 2017.
- [6]. <http://cabeceirasdebasto.pt/museu-das-terras-de-basto-nucleo-ferroviario-de-arco-de-baulhe>. Accessed in March 2017