RECONVERSION WORKS AT THE CASTLE IN RĂSCRUCI

CASE STUDY

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Abstract. This article underlines some particular aspects of the technical intervention solution for the restoration, conservation, and reconversion of the castle situated in the Răscruci village, Cluj County, Romania, which is a historic building built in the 18th century in an eclectic style, the castle belonged to the Bánffy family and has an important historic value. Integrated into a large estate, with a direct exit to the national road that ties Răscruci with the county capital, it is composed of basement, ground floor and first floor, with a high roof structure. Behind it was placed an artificial lake. The castle has a covered terrace on the southern side, supported by columns. Based on the analysis of the current state of the entire building, the proposal for the castle’s rehabilitation consists of: the drainage, restoration and consolidation of the roof structure support elements, the restoration of the solid wood elements, of the interior and exterior carpentry, the conservation and restoration of the finishing’s, the reconstruction of the decorative elements. The proposal follows the relationship with the new elements, necessary for the re-functionalization of the building, such as the lift with a metallic structure and glass cabin. At the level of the landscape design, the aim is the rehabilitation of the old park, with the integration of the historic building in the ensemble. This article underlines the technical and economic aspects of the chosen solutions.
1 LOCATION OF THE MONUMENT

Răscruci village is located on the European road E 576, 29 kilometers north of the capital of the county, Cluj-Napoca, county that lies in the central north - eastern historical province Transylvania, part of Romania. The first document dates back to 1325, mentioning the name of “Valaszut” (Hungarian word for “Crossroads”, same meaning as “Răscruci” in Romanian). In 1405 became the property of Bánffy family, as part of the estate of Bonțida.

![Figure 1: Location of the studied monument](image)

Răscruci (“Crossroads”) Banffy family residence is located at 484 Main street, and is currently a Registered Historical Monuments of Romania, code CJ- II -aA - 07 742 (sub codes: CJ- II -mA- 07742.01 for the castle and CJ- II -mA- 07742.02 for the park) (12). There is only one comprehensive study on the history of this property, whose author is Lajos Kelemen, and which appeared in 1926[1].

It’s important to note that the residence was communicating with the Banffy’s family Bonțida Castle, the two castles being linked together by a private road, which crossed a large landscaped park, and crossed the river on a specially constructed bridge. Currently this link is broken, and the properties are managed separately[2]. Bonțida Castle’s restoration work began in 1999, here operating the headquarters of the Built Heritage Conservation Center, whose management is provided by the non-governmental organization “Transylvania Trust”, while the Răscruci building is left to decay[3].

2 DESCRIPTION OF THE RĂSCRUCI CASTLE AND PARC ENSEMBLE

The land where the castle is located has a trapezoidal shape, but the symmetry of the building location and that of the park was affected by the nationalization of the property, when the northern strip was separated from the original group. This separation led to the breaking of the ensemble, the castles’ stables building being included in the northern parcel, making so a separate property[4]. On the parcel of the main building is still found, in the alignment of the road, an elongated building that was housing the maintenance personnel of the castle, and small workshops used for maintenance too[5].
The main entrance is through the gate ‘of honor’, made in the late Baroque style, in wrought iron, decorated with ornaments of leaves and curls; overhead there’s void space where once can be admired the family’s crest. It is continued in both directions by a wrought iron fence. Its important aesthetic role was emphasized by its use as a model for creating Bánffy’s palace gate in Cluj, in the ‘70s. The building is at the end of the court, parallel to the main road, with a N-S axis, and runs on multiple levels, i.e. basement, ground and first floor; in the roof structure there are some attic rooms. Behind it is the park, that still has the original axis E-W, with a considerable size of about half a kilometer. The park was originally designed in the English style, but has been modified in a landscaped park in the late nineteenth and early twentieth centuries, at the order of the owner, Albert Bánffy (1871-1945), the execution belonging to the famous Hungarian landscaper Janos Hein. It’s known that the two neighboring castles’ gardens, Răscruci and Bonțida, were joined together through an alley of poplars, family members used to do carriage rides in this corridor. In the park was a landscaped lake too and a channel, where boating could be made; boating channel’s traces are still visible today.

3 BANFFY’S RĂSCRUCI CASTLE

3.1 Banffy Răscruci Castle – evolution of the construction

The date of the castle’s building can’t be determined exactly, the researches so far placing work to commence in the second half of the eighteenth century. The core of the castle is the existing Bánffy’s mansion that Baron Gyorgy Bánffys (1739-1805) and his wife Zsuzsanna Wesselényi (1743-1800), began to use for longer periods of time, making it necessary to upgrade it to the contemporary standards. The mansion had a ground floor and basement, and a loggia which opened to the east, and which contained arcade pillars supported by the pillars of the basement. This design was incorporated into the new structure of the castle and the rooms correspond to the laundry, hallway, dining rooms 1 and 2, and the corridor in the basement, under names taken from a surveying established in 1968. It is assumed that the plan of the castle as it is today was made between the late eighteenth century and early nineteenth century, the plan containing three jutty and related bodies.

3.2 The Banffy Castle Răscruci - structural composition

Technical specifications:
- system of height-footnotes, downstairs, upstairs and attic
- area built- 644,40 square meters
- area deployed- 2104,40 square meters
- area helpful- 1449,39 square meters
- volume built 99-400 cubic meters

The building stands out through castle form composed in the plan, with avant- corps corner (where two wings meet at right-angles) central avant- corps respectively, showing greater openness than areas on the union. General dimensions of the building are of 37,21 meters long and 17,21 meters wide and shall form a single assembly, structural changes in three-layer functional, i.e. footnotes, downstairs and upstairs. Subsequently, it has attached to it an access - practically at the level of downstairs - between the shafts 3-4 toward the west, with general dimensions in the plan of 3,68 meters wide and 7,44 meters in length. To the east side is attached an open terrace, which can be found at the level of both subdued light, as well as to floor level, 9,60 meters long and 5,78 meters wide.

From the point of view constructive, the building consists of foundations continue under the bracket walls, willing in two directions orthogonal, made from masonry to the rock, mixed and brick full even, floor of domes in masonry brick over area subsoil, floor made of wooden beams and wooden cassettes subdued light and beyond the area of the floor, we'll find the floor plates of reinforced concrete, which can be realized in the 1960s. Proper direction roof consists of a special structure over main avant- corps, forming main forms and secondary areas of unions between avant- corps. Proper direction shall be presented with tears the slope (sport of it with the axis France, an angle of 67˚ on the bottom and at an angle of 26˚ on top). It is made entirely from softwood, covering is made of sheet metal. Roof framings connecting bodies are made with similar structure, being, however, only in two waters, posing only a single angle of inclination of 23˚. The building has several types and forms of stairs: stairs in the area subsoil are with steps of concrete, the access ladders downstairs all of concrete, balanced stairs form semicircular seat on either side of exterior porch, on load structure masonry stone and steps, ladder, ornamental use, located in main lobby is fully completed in wood. Secondary access from the building shall be submitted with three ramps of reinforced concrete. The panners of smoke are, for the most part, carried out in the thickness walls, up to the floor above floor, causing, in total, three baskets are generated.

Technical condition of structural elements

Technical condition, throughout the whole of the building structural grounds, is satisfactory, so that there is, however, a series of visually impaired physical and biological nature of the buildings which require structural interventions most important for the exterior components: onto ledges, proper direction, inner and outer lintels etc., as well as at the level finishings internal and external, in the carpenter’s trade internal and external, reconstitution of decorative elements. On the foundations it is observed a good status conservation, without signs of structural damage. But, lack of horizontal and vertical hydro isolation , gives to the walls, a general state of moisture. The walls and the other elements axle vertical phenomena presents the degradation of physical nature.

3.3 Banffy Răscruci Castle – the architectural composition

The plan of the building [9] is rectangular with jutties at the corners and at the middle; between are the connected bodies, that of the center being wider and taller than the others, which have the same height. Easy to guess, the castle has two main facades, one from the west side (toward the road) and one from the park (the eastern side); they took shape in the form visible today in the years 1870-1880, in eclectic style. The two facades are very similar, with the same formula dips axis (aa-aa-AAA-aa-aa), but the park facade is easy accentuated. Regarding facade towards the road, jutties corners on this are emphasized by bosses and the corner were decorated with horizontal grooved surface, which are pierced by the two levels of two windows. Moreover, the shape of windows creates a peculiar game between ground and first floor, the
upper level is rectangular, and the ground floor with semicircular segment; they are assigned with plaster boxes, the median concrete block marked. Moreover, the central jutty has in three axes windows closing semicircular, being articulated with pilasters with composite capitals. Even the windows of the connected bodies between the jutties comply with the model as proposed above. A portico with Tuscan pilasters announce the main entrance of the building, which enjoys a special timber joinery, made in the nineteenth century\textsuperscript{[10]}. Two more goals of doors have appeared on the front in the twentieth century. In what’s concerning the facade from the park, its look neo-renaissance with decorations from the richest than those to the road facade, took shape in the 1880s. On its center stands the terrace available in two curved stair ramps; the balcony above is accessible from the first floor. The central jutty also contributes both quantitatively and qualitatively to the abundance of elements of decor, and in its middle are placed the coats of Adam Bánffy and Maria Wesselenyi, they being the ones who have made the most important impact on the castle\textsuperscript{[11]}.

Figure 3: Facade from the inner court

Figure 4: Main facade

Side facades are similar to the main elements, and between them, and are characterized by the presence of four goals on two levels. The windows are built in the same note as those of the main facades. It is worth remembering that the entry into the cellar, semicircular, is on the ground floor north facade.

3.4 Banffy Răscruci Castle – interior

The interior of the building knew two periods, demarcated by the construction started in 1875. Originally the access to the building was from a central hallway and several rooms were targeted, such as rooms for women (girls rooms, ladies rooms, governess room, Baroness living
room, etc.), which were linked in the southern part of the building, the dining hall, located in the center, the guest room (which has preserved the look and after intervention) or area for men from the northern part (living of the Baron, Baron sleeping small room, Coroner’s room). After the construction which started in 1875, the destination and the interior of many rooms was completely changed; the documentation of inventory at the end of the penultimate decade of the nineteenth century counts ten rooms on the ground floor (room for the gentlemen and ladies, smoking room, vestibule room left corner, grooms room, small side room for gentlemen, dining room, darkroom, steward’s room) and eight rooms at the first floor - large room such as living room, governess room, maid's room or guest room.

3.5 Banffy Răscruci Castle - quality of the joinery and furniture

The interior of the castle is special through pieces of furniture that have been preserved until today, and many elements of woodwork made by Baron Adam Bánffys ambition. He was personally involved in making the woodwork inside the castle, and arranged a woodwork and pottery workshop just in the upstairs hall. Along baron stood carpenters Leopold Kaffer and Ioan Câmpian (the latter becoming a carpenter supported by Adam Bánffy, initially being stud employee from Dragu) or potter Istvan Lakatos of Deja.

The artistic carpentry was made in the German Renaissance style, possibly under the influence of Baron’s German experience. Resistance pieces are the wooden coffered ceiling of the dining hall, supported by 21 consoles, decorated with coats of arms family, the walnut paneling and oak and ash parquet hall, living room cabinet built in neo-renaissance style, characterized by generosity scale and decoration that has been in the northwest corner of the room, another cabinet, somewhat smaller, located in the southeast of the room, and also an green enamel ornate tiled stove, given to the Emperor Franz Joseph, plus another stove, a variation with small changes, which is today in the castle, as well as other parts mentioned.
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It should be stressed that the furniture and the stove itself was designed by Baron Adam Bánffy; this aspect together with the degree of conservation giving value and importance to the castle. Not to be neglected the Neo-Renaissance carpentry of the lobby stairs, made of wood ash and oak, glazed terracotta reliefs on the walls, which depicts a hunting fox, rabbit, respectively, the gallery and staircase upstairs, gallery which is supported by six Corinthian columns, the fireplace in the southern part of the hall, built of hewn stone, which contains the coats of arms of Wesselenyi and Bánffy, the skylight of the hall decorated with stained glass or the green glazed terracotta tiled stove in the northwestern part of the same premises.

4 BANFFY RĂSCRUCI CASTLE - RESTORATION INTERVENTIONS OVER TIME

At the beginning of the twentieth century they have been made new interventions on the castle, commanded by Adam Bánffy’s son, Baron Albert, who took over ownership in 1887 immediately after his father's death. Thus emerged a few new rooms in the attic, the road facade was joined a porch, and the park was enlarged. The communist period brought a so-called restoration process for teaching purposes, in the late '60s, a process that has led to concrete stairwells in the south wing of the building. The basic aim of the work was to transform the building into an aid school, which was operating there until 2007. Since then the property is empty, derelict, unopened to visitors except specific request, bystanders must request approval from the Autonomous Administration of the Public and Private Domain Cluj to admire the property. It remains difficult to explain this outcome through the easier accessibility and the degree of conservation of the castle compared to the Bontida, those conditions requiring firing a warning until all items valued quality time with those who survived to become history forgotten.

5 BANFFY RĂSCRUCI CASTLE - PROPOSAL FOR RESTORATION, CONVERSION AND EXTENSION

In this case we propose the establishment of a museum in existing buildings, and new building expansion to house a Heritage Conservation Training Center, using traditional methods and techniques, through cooperation at regional, national and international level between specialists, designers and performers. The function proposed program complements ongoing Bontida in the spirit of ancient reunion, with two of his areas of interest. By this we want to provide a living example for sustainable development of the built heritage by promoting classic vocational rehabilitation, but which contain original elements.

The main objectives in this project are:

• Restoration of the castle both from a structural - where appropriate, and the interior and exterior finishes to a high standard of quality and its conversion into a museum.

• Development of harmonized expansions of the existing castle building, able to accommodate the following functions: research and training center in the restoration, featuring traditional crafts workshops (wood, stone, pottery, wrought iron, glass, painting, etc., fabrics and traditional dress), classrooms, library, multimedia center, exhibition spaces, national and international conference center; accommodation for both students and for visitors and tourists; catering facilities, administrative and technical offices.

• Restoration of the Baroque castle garden (with water fountains, plants and decorative planting), in conjunction with Landscape planning, by making pedestrian access arrangements and car parking for small car and bus; restoring the protective fence.

5.1 Banffy Castle Building Restoration

It will restore all decorative elements which are found as witnesses in situ or archive photos which proposes the use of compatible materials in composition and even as existing one. Mortars
that will utilized to rehabilitate, and restoring plaster and masonry portions affected by age and weather, will be based only on lime, possibly with the addition of powdered stone and brick where appropriate. To establish an accurate diagnosis at this level of intervention is necessary, in parallel, some chemical complex laboratory samples taken from the affected masonry thickness. Air pollution, combined with atmospheric precipitation is responsible in most observable degradation, dissolution, entered the masonry mass and affected both the interior and especially on the exterior. It is proposed, in this case the application of coatings capable of withstanding proof course new operating conditions proposed in this paper. Also it is proposed that the interior and exterior to be as simple, natural colors of lime, and where appropriate and stratigraphic study requires to reproduce some of the most valuable decorations, located inside and outside of the palace.

Framing Banffy Castle, shows structural subassembly most degraded, are present on the one hand, degradation of nature biology building, on the other hand have had a set of structural interventions executed in time at very low quality, unprofessional, introducing of stiffeners and the boards, unprofessional joining nodes using staples and nails. These parasitic structural elements will be replaced with new replicas as size and shape in plan with those that are replaced.

Also will replace the covering sheet and painted deck with copper roofing sheet. All new wood materials introduced elements that the original wood surfaces, bevelled who come in contact with the newly introduced wood will treated with antiseptic treatment materials, ensuring protection against biological attack. The wooden material will be treated fireproof entirely. Newly introduced metal parts will be made of stainless steel. Wood materials will be of good quality (Cal. I), where materials come in contact with old wood materials will not exceed 14% humidity.

To recondition and restore windows we propose a complete restoration row outside the window, observing the faithful from the window trim sections of the era, among recondition interior window glass is mounted then float min. 4 mm thick glass outside respective low 6 mm, yielding - is thereby more efficient thermal protection without harm per assembly architectural appearance of the building. For exterior doors equipped with glass will apply similar methods applied to windows already mentioned and in the full mixed methods are applied to protect both surfaces licked full, without ornament and the ornament by playing fair shape and overall dimensions initial respecting the essence of wood used initially. To achieve these works will use personnel with great experience in the field, with resources and means limited. These works made in skillful and professional manner, physical and aesthetic properties of carpentry will be improved considerably.

It proposes a much-needed intervention in easing movement and access in the castle by installing a passenger elevator, a steel structure, being a modern solution, practical and compact cabin full of special glass, resistant to shock and vibration. Steel structure supporting successfully replaces classic shaft made of concrete, not necessary to provide a special space for specific gear lift. Interventions are provided in strict accordance with current principles of rehabilitation of historic buildings.

5.2 New buildings designed

In this context, it is proposed to achieve the following objectives: spaces for exhibitions, historical museum, conference hall, library, research center and training of staff in the restoration, fitted with accommodation for students and casual tourists, restoration workshops (wood, stone, ceramic, glass, wrought iron, paintings, fabrics and traditional dress, etc) associated with storage spaces, technical and administrative spaces.
The entire complex compliance requirements and functions outlined in the above shall consist of: two levels, the rate 3.0 meters and 6.0 meters elevation; extensions on both sides of the castle and castle related levels; a building set up in the existing floor of the castle.

In terms of building, extensions have been designed so as to form a courtyard. Each bar shaped body building has the following technical characteristics: building north and south, consists of three bays and 16 openings; building connection, an opening 12 bays.

Between north and south bodies and bodies now or planned joint compaction and seismic joints, as well as between body palace and new extensions.

Structurally, the buildings will, consists of:
- Infrastructure resistance- shall consist of continuous foundations - the direction of the shaft that is attached to the semicircular staircase of the palace terrace, equipped with lower belts reinforced concrete under concrete load-bearing walls, foundation odds Df = 0.60 meters from the basement finite rate, Pconv conventional pressure = 350 kPa bearing sandy clay layer;
- Isolated foundations of simple concrete blocks, provided with bearings for the superstructure concrete reinforcement and reinforced concrete foundation beams, the rate chosen to Df = -1.60 meters above ground level or pickled;
- Thickening of the inner floor under self-supporting masonry partitions, interior floors will be made of special concrete resistant to disinfectants used in the deposits, in laboratories and workshops restored; floors cast in place on a gravel state picture and will be reinforced with wire mesh Type STNB;
- Channel systems and other special foundations required for proposed interior architecture;
- Superstructure resistance;
- Poles, belts, beams, floors, interior and exterior stairs all concrete, constructive internal configuration imposed following the general architecture of the building.
- Grass flat roof, circulatory decorated in baroque tone - eclectic Banffy Palace.
6 CONCLUSIONS

Considering the priceless value, both in terms of historical, cultural and especially architectural and landscape points of view, which characterize the Banffy family’s castles, and to let to the next generation to enjoy these legacies of the past without them permanently lost, you will need to develop a strategy for the enhancement by the responsible work of restoration, rehabilitation and retraining, followed by their inclusion in a cultural -historical tourism circuit, to preserve traditional values of local and regional of this part of Transylvania.

Architects, as specialists integrate this process, find fertile ground for specialization in heritage restoration, being involved in reconstruction, rehabilitation, conservation. In addition architects may improve their knowledge about traditional building techniques and materials and offer, where appropriate, new building expansions, whose architectural language celebrate the past and existing technology, whose design is oriented towards the future, respecting the principles of sustainable architecture. Funding for the restoration works of monument may be provided for the most part (98 %) of European structural funds, through the REGIONAL OPERATIONAL PROGRAM (POR).

The objective of POR is to support economic development, sustainable social and balanced territorial, of all the regions of Romania, according to specific needs and resources, with an emphasis on support for the development of sustainable urban planners poles of growth, the improvement of the business environment and the basic infrastructure, to make the Romanian regions, in particular those developed, places attractive for investments. Balanced development of all of regions of the country will be achieved through an integrated approach, based on a combination of public investment in local infrastructure, active policies to stimulate the business activities and Sustaining the capitalization local resources.

National Strategy for Regional Development of Romania has identified the development of tourism as a priority of regional development, having regard to tourist potential of all regions of the country. In this respect it has created in the POR, a priority axis dedicated sustainable development and to promote tourism.
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Tourist potential particularly, for the most part great unrealised potential, may receive consistent financing of up to 20 million Euro/ project, major opportunity arising from the funds made available by Regional operational program, priority axis 5 - sustainable development and promotion of tourism. In axis 5 there are major field of intervention 5.1 - restoration and sustainable exploitation of cultural heritage, as well as creation / modernization of infrastructures related.

Romania has a cultural legacy-history of a huge amount of great beauty tourist attraction. Cultural Tourism Development should be solving problems relating to the infrastructure for access to the objectives, and no parking spaces equipped with points to provide information on, and to promote cultural tourism objective, no improvements at the point of Belvedere to fortify are relatively, medieval fortresses, churches, historic monuments and monasteries.

Cultural Tourism is one of significant areas of tourism and for Romania it is particularly important to preserve the remaining balance of cultural heritage of the various regions of the country, which were severely affected in the course of time.

Within the range of the major intervention 5.1 - restoration and sustainable exploitation of cultural heritage, as well as the development/modernization of infrastructures related there shall be financed projects which have as its objective to preserve, restore, strengthen, rehabilitation, protect historical monuments. Historical Monuments representative of local cultural heritage can be located both in urban areas and in rural areas.

POR finance lenses with tourist potential which are included in: UNESCO heritage, both in urban and rural areas, National Cultural Patrimony of Urban and Rural Environment, local cultural heritage in urban areas. Indicative eligible activities within the framework of a project may be due to: restore, consolidation, protection and conservation of heritage buildings; restoration, protection, conservation and interior paintings were bought with money from carrying out, or killed, paintings were bought with money from exterior wall; work and features to ensure interior and exterior lighting, emergency lighting as well as the decorative; restoration and reengineering plasticii facades; landscaping objective for highlighting the heritage tourist rehabilitated; interior fittings (facilities, equipment, and facilities for assuring the conditions for air conditioning, Safety in case of fire, intrusion); modernization objective utilities related assets and liabilities (electricity, water supply and sewage system).[12]

As can be easily seen, practically amount eligible activities neatly folds away on his intentions for the restoration, rehabilitation and conversion of the castle Banffy, in such a way that we believe that such an opportunity of financing should be evaluated for the implementation of objective cultural patrimony.
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