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SURVEY OF HISTORICAL HOUSES IN THE ETHNOGRAPHIC MUSEUM OF TRANSYLVANIA "ROMULUS VUIA" CLUJ-NAPOCA

Abstract: *A measured drawing is a precise one, to scale, which accurately shows the real situation of the investigated building. Historical architecture of interest for cultural heritage deserves to be documented whenever we have this possibility, and the 1st year practice at the Faculty of Architecture and Urbanism, Cluj-Napoca offers this opportunity through survey. Drawings are a means of recording, providing information impossible to establish in any other way. They show the correct proportions, are clear and explicit, are measurable and record the subsequent additions of the studied object, a very important aspect from the point of view of the structure.*

Through the project carried out within the discipline "Practice year 1" at the Ethnographic Museum of Transylvania "Romulus Vuia", Cluj-Napoca, the need for practical training of architectural students in the field of surveying the historical architectural heritage and the preparation of the survey sketches necessary in the field of architecture was answered. The purpose of this work is to form a good understanding of the context and the Transylvanian cultural landscape, the development of the capacity for projective synthesis, in the functional, spatial-geometric and constructive ensemble of the object of vernacular architecture, and, last but not least, promoting authentic heritage architecture.

Key words: *orthogonal projections, applied geometry, building research, building survey.*

1. INTRODUCTION

The Faculty of Architecture and Urbanism within the Technical University of Cluj-Napoca, Romania, has the mission of training a professional whose intellectual, cultural-humanistic and scientific-technical training enables responsible design and management of complex situations. As is well known, any construction must meet two basic criteria, namely: to harmoniously combine the aesthetic values with the technical-functional ones and to comply with the legislative and quality requirements currently imposed in Romania. Without an appropriate language, architects would not be able to communicate and represent the imagined project. This language is the drawing, and an essential role of the architectural drawing is the fact that it transcribes the three-dimensional space of the architecture at a two-dimensional level with the help of plans and the appropriate reduction scale. A good exercise, in this process, is carried out in the first year, in the discipline "Practice year 1", where the students have to carry out a survey of vernacular architecture at the Ethnographic Museum of Transylvania "Romulus Vuia", Cluj-Napoca.

2. THE EDUCATIVE PATH

When we talk about drawing in architecture, in fact, we are talking about a tool for representing or creating architecture. The drawing for survey projects involves a set of research actions and determination of the shape and size of a building, through a series of drawings (plans, sections, elevations, details) that allow to reveal as many characteristics of a building as possible, among which, the state of preservation, a real knowledge of the architectural edifice. The survey is always performed for an already existing object.

The workshop and site works are aimed at understanding and mastering from a volumetric, spatial and contextual point of view some houses that present the character of vernacular architecture, by students from the Faculty of Architecture and Urbanism, Technical University in Cluj-Napoca, Romania. The use of different types of information processing through traditional freehand drawings, sketches, plans, perspective drawings or axonometry is required, Figure1.

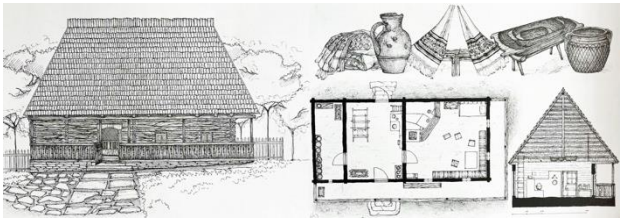

Figure 1 Survey plans made by students.

From the sketch to the dimensioned technical drawing, the potential of shapes, surfaces, contours, tones and textures through graphics, to a constant enrichment of their baggage of signs and techniques, everything becomes essential to understand an architectural detail, a project or the relationship between architecture and the urban, landscape or cultural context.

The practice of the 1st year is intended to be a tool for investigating the problems related to reading, understanding and representation of vernacular architecture in order to design, conserve, restore and recover the creation of time and the culture of a community, depending on its location on the territory of Romania. Vernacular architecture represents the relationship with the land, the adaptability and the expression of the diversity of the cultural world. This architecture captures a continuous process, the evolution

of the context and the constraints of the environment. The Romanian village has experienced radical changes in terms of occupations, household structure, the architecture of homes and outbuildings, as well as at the level of household occupations and peasant crafts. In the name of modernization, the occupational and household inventory is abandoned, the houses change their planimetry and appearance, traditional materials – wood, stone, clay, adobe, rammed earth, together with specific construction techniques are replaced by new technology and materials of new construction. Due to this cultural homogenization and standardization of socio-economic life, it becomes vulnerable, facing the action of time and can be protected only within museums, Figure 2.

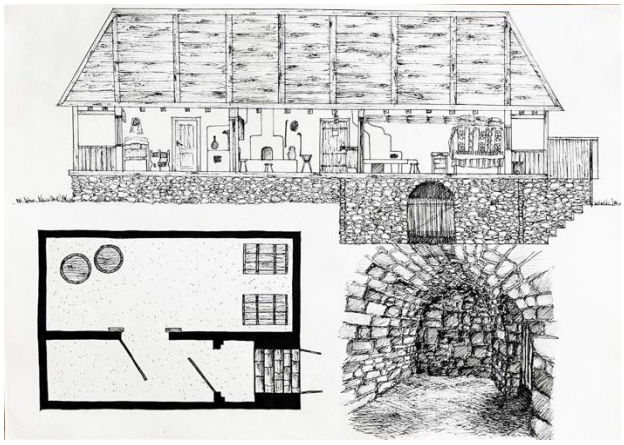

Figure 2 Survey plans made by students.

2.1. Brief History of the "Romulus Vuia" National Ethnographic Park, Cluj-Napoca

The first initiative to create an open-air ethnographic museum in Romania appeared in Cluj, it was conceived by Emil Racoviță and materialized by the first Romanian ethnographer with specialized studies, Romulus Vuia. Thus, starting from 1922, steps were taken regarding the establishment of the Hoia National Park, named, starting from 1993, the "Romulus Vuia" National Ethnographic Park, belonging to the Ethnographic Museum of Transylvania and originally planned on an area of 75 Ha. The main goals of the museum were: to be a true ethnographic museum embracing all branches of ethnography, not only folk art; to collect, conserve and scientifically valorise the ethnographic materials belonging to the Romanian people, the cohabiting nationalities, the neighbouring peoples and the peoples who were in contact with the Romanian people and influenced its civilization; to form, based on the research undertaken by the specialized staff, a documentary fund that will allow it to become a complex museum institution, with pavilion and open-air exhibitions. [1].

Currently, two thematic sectors are developed in the museum: peasant technical installations (for processing wood, metals, for finishing wool fabrics) and craft workshops (pottery, carving, processing of agricultural products); zonal types of households and monuments of popular architecture. According to the initial thematic plan, a number of 22 representative households for the areas: Maramureş, Oaş, Lăpuş, Năsăud, Câmpia Transilvaniei, Depresiunea Călățele, Platforma Someşeană, Sălaj, Secuime, Gurghiu, Șara Oltului, Târnavelor Plateau, were to be transferred to this sector. Alba Vineyard, Zarand, Arad Plain, Almaj Country, Pădureni, Petroşani Basin, Marginimea Sibiului, Motilor Country, Banat, Crişanei Plain.

Until now, in the "Romulus Vuia" National Ethnographic Park, a number of 12 complete peasant households, 31 peasant technical installations, 6 workshop-houses, three wooden churches, three crucifixes, a cemetery gate, a dance pavilion, a stable and a sheep pen, Figura 3.

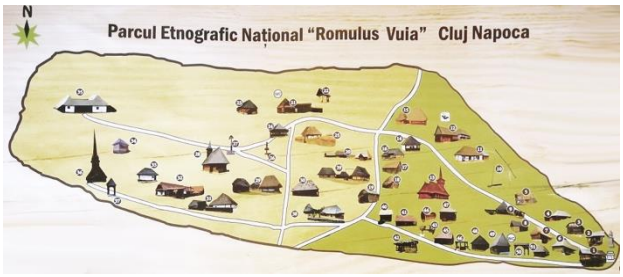

Figure 3 Museum plan.

Representative museum for the heritage of Transylvanian popular material culture, the "Romulus Vuia" National Ethnographic Park has an important role in representing the stages of the evolution of traditional wooden architecture, but also of the types of households in Transylvania at the beginning of the 20th century [2].

3. THE BUILDING SURVEY PROCESS

Architecture of any type is unimaginable to be realized without adequate documentation, more specifically a series of plans with technical drawings. When we study an existing building, whose plans have not been preserved, we are dealing with the architectural survey. A measured drawing is an accurate one, to scale, showing what is actually there, based upon measurements of the subject. Structures of outstanding interest should be recorded in this way whenever the means for doing so are available. Drawings provide a means of recording information impossible to set down in any other way. They are definite and explicit; a great deal of data can be recorded on one. They show proportions correctly, are measurable, and can be made to de-emphasize existing features such as later additions which are not important to the real interest of the structure. Drawings can be annotated a fact of great importance. Floorplans, general sections and details can present facts which cannot be described in photographs. Drawings are costly to make, however, and like other works of man subject to human errors [3].

We can intrinsically classify the drawing for architecture according to the intention with which it was made, as follows: expressive drawings, sketch, which capture the atmosphere and technical drawings, to scale, being the execution drawing.

3.1. Measurement of the studied architecture

The external measurement will take into account the measurement of the total dimensions of the building's perimeter, and after drawing on paper, smaller and detailed dimensions will be introduced. In order to be able to give height measurements, we refer to significant level measurements, such as the top of the roof ridge or the cornice height. If the objective studied is located on a sloping land and has different elevations of the plinth, a horizontal line will be considered as a landmark, conveniently chosen, measuring up and down in relation to it. Also at this stage, the number of openings and their type, with the related dimensions, will be recorded on the drawing.

Internal measurement involves measuring the thickness of the external and internal walls near the openings. The rooms will receive a current number or name written on the middle of them, providing a reference when we transfer various notations and details to other plans. In order to check the exact planimetry of the room, the diagonals of the space will be measured, and if it has a more special shape, it can be broken down into precisely measured triangles. Everything that is below or above the measurement plane will be indicated on the board. What is above is represented by a broken line.

The construction whose survey is determined with the help of landmarks made outside the construction can be measured on two sides. The sides that cannot be measured, such as those located next to structural elements, are deduced by summing up the internal elements or determined with the help of triangulation. Also at this stage, complete notes must be made about construction materials, finishes, colours, etc. and it is necessary, where possible, to write down the composition of the walls and small details that are useful when the final plan of the survey will be drawn. All these observations will be accompanied by a rich photographic documentation.

3.2. Preparation of the survey sketch

The first stage in the execution of a drawing is the sketch, it is the study and direct measurement of the elements of the object or assembly to be studied. Then, the number of necessary projections and their nature - view or section - is established. The number of projections is the minimum necessary for understanding and fully establishing the shape and dimensions of the object.

The sketch is the first piece drawn, it precedes the drawing up of the plans and consists of putting the student's first ideas on paper. It is executed in pencil, freehand, it is not drawn to scale, but it preserves the proportions of the various dimensions of the represented object. The sketch is drawn on white, opaque paper, using graphite pencils with a soft lead, and for close lines or small details, with graphite pencils with a medium lead. Only the main elements of the plan to be represented are drawn on the sketch: rooms, walls and voids.

The size of the projections is established taking into account the dimensions, shape and complexity of the elements and component details. Draw with thin lines the minimum rectangles framing the projections (apparent contours), with spaces for quotations and inscriptions; provisional drawing of the drawing. The possible symmetrical axes of the object or the modular network and the axis lines of the respective elements are drawn, with a thin line-point. Then the main contours are drawn indicating the elements of resistance - columns or load-bearing walls, external and internal, then the secondary contours - the dividing walls, as well as the chimneys. Then the stairs, doors and windows are drawn, the circulation spaces are hatched and the elevations and the purpose of the rooms are entered. If several projections are executed, start with the main projection.

In addition to the sketch of the ground floor or floor plan, in this phase sketches can also be drawn up for the main and side facade, on which the gaps, doors and windows are indicated. All sketches must be accompanied by detailed notes describing the existing conditions. Let's not rely on memory when making such survey sketches.

A sketch will always be included that indicates the orientation and location on the site, in relation to the cardinal points, in relation to the city or the main roads, Figure 4.

Figure 5 Survey plans made by students.

When the studied object is in a group of buildings, we will show the reciprocal relationships between them, or if we have a form of relief (river, slope, etc.), or a type of vegetation, we will proceed similarly.

3.3. Realization of survey plans

The survey project is carried out in order to inventory, modify, restore, or in the event that the initial plans were destroyed and it is necessary to know the plan and vertical distribution of the rooms, Figure 5.

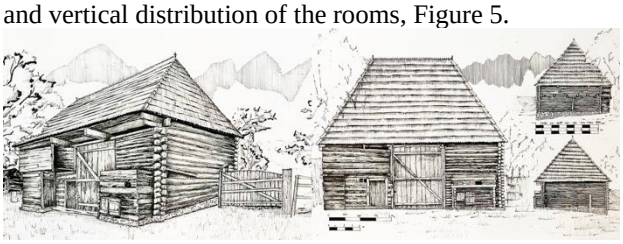

Figure 5 Survey plans made by students.

The following steps are necessary when drawing up a survey: choosing and drawing the dimension lines for the dimensions to be measured; measuring the dimensions and entering the dimensions; making the drawings according to the sketch; drawing up a technical memo with data on the building materials, the state of the

building, etc. The drawing to scale is made according to the sketch of the survey, with drawing instruments, at the scale required by the level of detail.

The first step in drawing plans is to choose and draw the axes of symmetry or modular grid, which makes drawing plans much easier, shortens working time and increases the accuracy of the drawing. Thus, the axes of symmetry are drawn with a thin dotted line and the circles and arcs are drawn with a thin line.

Drawing the outer contours of the projections. Draw horizontal and then vertical lines, with a thin continuous line. Next, the necessary dimensions are established for the precise determination of the figure, the dimension lines and auxiliary lines are drawn. Delimit the elevations with arrows, dots or rulers at 45°, then enter the value of the elevations. The sum of the partial quotas and the total quotas is checked and the level quotas are passed and the final drawing of the drawing follows. Drawing the inner contours of the projections. The route of the sectioning plane is drawn on the plan with a mixed dotted line. In correspondence with the view, draw the inner contours, with a thin continuous line [4].

Projections are worked simultaneously by thickening the outer and inner contour lines. Erase all the auxiliary lines and thicken all the inner and outer contour lines. The thickness of the base line is chosen depending on the complexity of the drawing. The thickening order of the contours must be the same as that used when drawing them with a thin line. The contours seen are drawn more strongly, the outline of the sections is thickened and unnecessary lines are deleted. The hatching of the surfaces resulting from the sectioning is drawn, the construction materials are represented by symbols and last but not least, the execution of the inscriptions of the drawing. At the end, the conventional notes, the indications regarding the materials, the name of the parts and the boxes of the cartridge, when it is used on the board, are entered in the projections. The elevation lines are to be drawn and the elevations are recorded, noting the roughness of the surfaces, Figure 6.

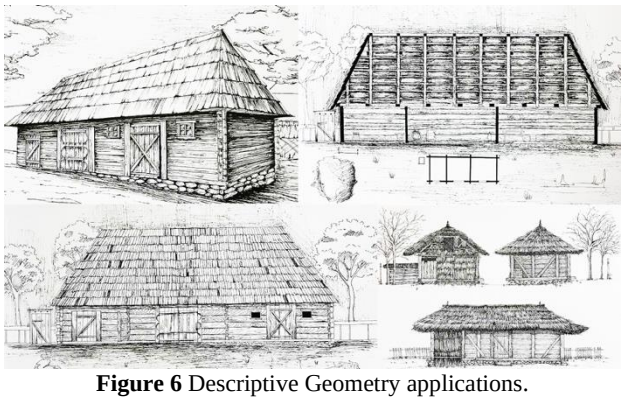

Figure 6 Descriptive Geometry applications.

Studying the sequence of operations, one observes the general principle that is taken into account when drawing up the drawings, namely that of starting from the overall representation towards the detail elements, and not from the execution of the plan in successive portions with the drawing of all the details.

4. CONCLUSIONS

Currently, the architect is faced, both in the urban environment and in the rural environment, with a stratified context of time, an architectural heritage, which imposes new design requirements, a synergy between the existing and the new project. The architect is forced to obtain metric, material and technological information from the existing built environment.

That is why the students' activity, based on a practical education, aims to develop the ability to critically select the tools and procedures useful in carrying out the various tasks imposed by the profession. In this sense, the redesign of vernacular architecture contributes to the construction of the graphic language, which students should be able to master as future professionals, making them, at the same time, better understand the evolution over time of the mutual link, man - environment constituted. The purpose of this work is to form a good understanding of the context and the Transylvanian cultural landscape, the development of the capacity for projective synthesis. The man constantly modifies the built environment, and this, in turn, influences the perception and use of space by man. Thus, through a number of social, ethnic or contextual factors, vernacular architecture must be understood and permanently regained.

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