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Wood in Architectonic Identity

- An Overview of Wood-based Architecture Development in Kosovo

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Abstract:

Traditional wooden architecture is a valuable heritage of Kosovo, developed in relation to local climate, geographical position, political circumstances, diversity of cultural influences, material accessibility and skills in construction techniques.

In this context, this paper investigates building typologies in two terms: traditional building systems and applied to contemporary structures, by analyzing and classifying their structural elements as well as interpreting the architectural values. A brief chronological description is given, and detailed explications follow. Technical details of construction methods and figures are presented based on a literature review and field survey of both historical and contemporary timber architecture. Furthermore, wooden decorative handcraft of Kosovo popular craftsman, which takes a considerable part of traditional house, is described. In conclusion, this paper asserts some clear results that are categorized, therefore subsequent suggestions are provided. Suggestions are addressed toward the significance of traditional and contemporary timber architecture, the importance of preservation and further development of wood-based application.

Keywords: *Wooden/Timber Construction; Traditional/Vernacular Architecture; Local Identity*

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Introduction

Wood, as the oldest construction material, is one of the foremost used materials throughout the world, likewise in Kosovo up till the beginning of industrialized era. Kosovo is located in South-East Europe, in the center of Balkan Peninsula¹, therefore, its architectural heritage shares similarities with the region, in the context of building techniques, use of materials and architectural expression. Regarding to traditional wooden application, Bouzek states that remains of constructions in the Balkans and in Central Europe attest that this art of constructing houses was generally used in large parts of Europe.² However, Kosovo maintains its identifiable rich architectural features as a reflection of Albanian culture of living in Kosovo. From the middle of the 20th century, with the development of the construction industry and the availability of clay brick and concrete as modern materials, the use of wood has declined significantly. Today, very few contemporary low rise non-residential buildings with timber as the main construction material can be found in different urban and rural areas. There are several large-span constructed buildings with laminate wood technology during '80s and only one large-span building,³ constructed in the year 2001. Since then, no significant tendency toward wood-based application is noticed.

In this context, this paper investigates and illustrates several wooden building typologies in two terms: traditional building systems and applied contemporary structures, by analyzing and

¹ Institute for Spatial Planning, Spatial Plan of Kosova 2010 - 2020+, Prishtina: Ministry of Environment and Spatial Planning, 2010.

² Jan Bouzek, "Wooden Architecture: Combining different techniques", *Histria Antiqua*, Vol.19, No.19, Croatia, 2010, pp.83-87.

³ Internationally donated investment after the last war in Kosovo

classifying their structural elements as well as interpreting their architectural values.

Traditional wooden architecture

Traditional architecture in Kosovo is interpreted as Vernacular Architecture, which implies, among other definitions, the use of local materials and experience, as Rudofsky defines it: "architecture without an architect or architecture without pedigree".⁴ Vernacular architecture in Kosovo has been developed under the impact of different natural-geographical and socio-economic factors taking place since the 18th century, especially during 19th.^{5 6} In traditional buildings of Kosovo, wood construction takes a considerable part along the application of stone and mud brick. Wood construction elements have been used as support structure or in combination with masonry, as reinforcement. They have mainly been applied in constructing one or more story individual urban and rural house buildings, but are also found in other facilities such as large street bazaars, so-called "Çarshia".

Hence, this study focuses on dwelling buildings as the main typology, signifying the presence of wooden structural and non-structural elements, as well as interior ornamental amenities. Such architectural systems and elements are used all over the country, sharing a unified character of utilization that demonstrates a long tradition and excellence of local

⁴ Bernard Rudofsky, *Architecture Without Architects: A Short Story to Non-Pedigreed Architecture*, New Mexico: University of New Mexico Press, 1987 (1964), pp.7.

⁵ Branislav Kojić, *Seoska arhitektura i rurizam*, Beograd: Gradevinska knjiga, 1973.

⁶ Fejaz Drançolli, *Kulla Shqiptare*, Kosovo: Rezniqui, 2001.

construction mastery.⁷ However, they maintain individuality in terms of volume, layout and facade. There are two main types of vernacular houses in Kosovo: traditional urban and rural houses. The main difference between them consists of the general size, building techniques and the most important, indoor decoration, enriched with traditional aesthetic and detailed ornamentation with hand carved wood.⁸

Traditional Urban Houses

Traditional urban architecture has been developed predominantly during the 19th century until usage of new modern materials such as reinforced concrete were introduced. Materials with a mixed structure of wood, stone and brick were used to achieve specific architectural features, such as: constructive, functional, and artistic-aesthetic.⁹ Houses are mostly single family houses, one to two stories distributed in the urban layout of the city. There is no classification of urban houses regarding the wooden structural elements, however, two main types in terms of structural elements in the walls are observed: timber frame with masonry infill and combined construction where horizontal timber is embedded into bearing masonry walls.

Timber Frame House is a building system which existed throughout history around the world to the present, with masonry infill by bricks, stones or adobe (fig.1). Timber elements in this typology provide the framework for the infill. Usually the

⁷ Flamur Doli, *Shkolla kosovare e mjeshtrit popullor shqiptar*. Kosovo: Zëri, 1993.

⁸ Emin Riza, *Qyteti dhe banesa qytetare shqiptare shek. XV-XIX*, Albania: Dita 2000, 2009.

⁹ Fejaz Drançolli, *Destruction of Albanian Kulla*, Kosovo: Reznici, 2004.

masonry basement walls are made of stone or brick with adobe, strengthened by horizontal wooden lintel. They are load-bearing elements, thus serve as foundation while the upper floor applies timber-framed system. The frames are constructed of studs, usually 14x14cm and braced by diagonals and horizontals providing lateral support. Diagonals are placed on the corner supporting posts of the building. They are assembled with joints cut by hand and connected with nails. The walls are enclosed by plates on top of which beams and joists are placed in 40-55cm intervals. The structure of roofs is also constructed by wooden frames.



Figure 1. Timber framed house in Kosovo

In general, the frame constructed house consists of four main structural parts:

- Masonry ground floor or basement
- Timber framed floor
- Timber framed walls of the floors
- Timber framed roof

Combined Construction House is a typology developed during the 18th and the 19th century, incorporating the rich traditional Albanian culture and art in its composition, therefore has a special value within entire national architecture. These types of buildings are single family houses with variations of sizes in relation to the family social-economic status. In these one to two story houses, dwelling is organized in the upper story while the ground floor is comprised of supplementing areas (fig.2).



Figure 2. Combined structure house Kosovo

In this typology the main construction materials are stone with mortar and horizontal timbers embedded into load-bearing masonry walls. These walls are usually 65-80 cm thick while in the upper floor layout is more flexible with thinner timber framed walls, which are plastered on both sides, while the exterior walls usually maintain the same thickness. The general parts of the house comprised of wooden elements are the flooring, the open or closed porch which is supported by wooden posts, wooden jetty (so called Erker) and the wooden framed roof.

Similar building systems are found in several traditional urban street bazaars - Çarshia (fig.3), located in the center of big cities of Kosovo. They offered functions of handicraft, trade and administration of the time.¹⁰ Individual facilities were composed of one to two stories, with a discrete architectural expression applying wood, stone and adobe in their structure.



Figure 3. Urban Entity Grand Bazaar (Gjakova)

¹⁰ Ministry of Youth and Sport, 2015 [Online] Available from: http://dtk.rks-gov.net/tkk_objekti_en.aspx?id=1259. [Accessed: March 2015].

Main wooden structures observed are: sole plate as base of vertical structural elements, bay windows or jetty, posts, beams, roof structure, window and door structure and related functional elements, all composed with rich popular art.

Structural elements

Beams are supported by the bearing walls on the shorter side of the space and the reinforcement orthogonal beam. They have a rectangular or square section around 25x25cm, placed at 50 - 70cm intervals, displayed on the ground floor (fig.4.) The secondary beams, 14x20cm section, lay on the primary beams and are covered with planking. When the upper floor layout differed from the ground floor, primary beams were extended creating cantilevered structure bearing the load from the upper floor (fig.5). The elements are placed with grooved assembling and sometimes with nails too.



Figure 4. Timber beams

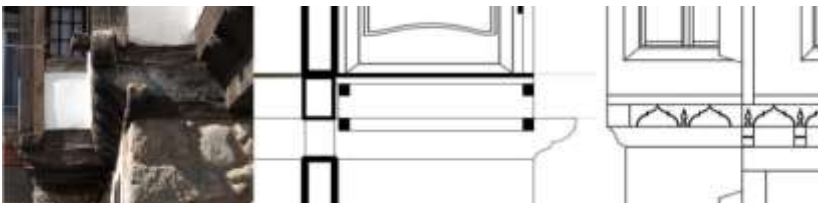


Figure 5. Timber jetty; drawings on the right by F. Kuleta and A. Gashi

A very special a wooden structure of a house is a large bay window or jetty (locally called Erker) (Fig.6) facing the gardens. Such application enabled more flexibility in the upper floor as inner space or supporting the open or closed porch. It is executed by super-positioning of several cantilevered joists creating an impressive forming structure with original and ingenious features.¹¹



Figure 6. Wooden jetty drawings on the left (Doli, 2001) , the rest by the author

Each function of everyday life of the family was carefully designed within the composition of the house and executed with care and elegance. Such example is the extended structure as part of the kitchen, enabling the disposal of used water which flowed into the garden of the house (fig.7). Doors and windows are beautifully composed with wooden elements as supplementary functions.



Figure 7. Wooden exterior structures

Posts have square sections, around 20x20cm supporting open or closed porches and the structure of the roof. The open/closed

¹¹ Flamur Doli, *Traditional popular architecture of Kosova*, Kosovo: Flamur Doli, 2001.

porches or the extension of the upper floor lay on the sole plate supported by the posts, elements which are assembled together with lap joint or half lap joint. Wooden posts stand on the polygonal or rectangular stone base (fig.8). On the upper floor, in cases of larger houses with longer distances between the bearing walls, there are one or more posts around the center of the area in order to support horizontally the separating thinner walls.



Figure 8. Wooden posts

Interior decoration

As it was already mentioned, since the living area of the family is organized in the upper floor, it is much more detailed in comparison to the ground floor, where supplementary functions of the family are positioned. The floor is particularly enriched with the semi open or closed wooden porches which are utilized during summer season, extending the area of the dwelling. It is very important to emphasize the artistic work of popular art inside the houses. A number of functional and decorative amenities are made of hand-crafted wood with an excellent composition of floral and geometrical symbols, thus giving the footprint of the identity of the time and culture of Kosovo art.

A typical example of the artistry of the ceiling work is shown in the following figure (fig.9). Different handicraft wooden

elements are integrated in the living area, such as shelves, niche, cupboard etc. (fig.10).



Figure 9. Wooden handicraft ceiling decor



Figure 10. Wooden handicraft elements in the living area

Traditional Rural Houses

The old traditional rural construction in Kosovo is also well known by its habitation buildings as a result of the inherited local art of mastery. Rural buildings are organized in two stories where the above level communicates the dynamics of the composition. Materials used for traditional rural dwellings were conjuncture of stone as dominant construction material, wood and adobe. Typologies of rural dwellings are generated through techniques, composition and aesthetics achieved from the local masters during the 18th and the 19th century.¹² In this paper, typologies with wooden components are elaborated, respectively: dwelling with balcony, dwelling porch and Kulla (a

¹² Fejaz Drançolli, *Kulla Shqiptare*, Kosovo: Rezniqui, 2001.

fortified house) with wooden structural components and small scale supplementary wooden facilities within the complex of the house such as corn-sheds.

Dwelling with balcony is a rectangular shape house in two stories. External stone walls are horizontally reinforced by wooden bond beams tying walls together. The upper floor is supported by the walls and two or more wooden columns. The column is consisted by the stone base, the body and the wooden capital. The joists laying on the capital hold the separating walls of the upper floor. The covered balcony is the central part of the main facade, constructed entirely by wooden elements (fig.11).

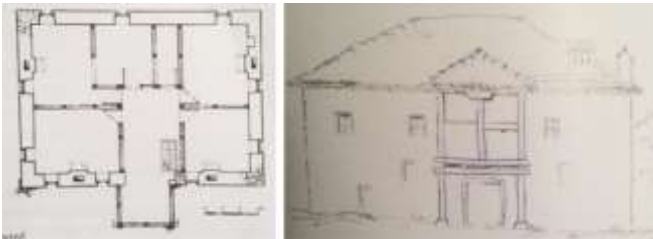


Figure 11. Dwelling with wooden balcony (Drançolli, 2001)

Dwelling with porch is characterized by the open or semi open wooden porch on the first floor. The porch was constructed from wooden elements assembled together (fig.12). The building technique is the same as the one with balcony, however the difference lies on the size and the functional organizing of the first floor. The porch served also for the maintaining and processing the goods of the family. From the outside, the "guest room" - Oda, which served for male guests, is accessed directly by the wooden stairs, while the other parts of the house were accessed by the secondary wooden stairs inside the house.

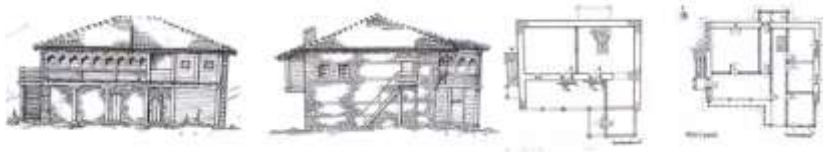


Figure 12. Dwelling with wooden porch (Drançolli, 2001)

Kulla - is a fortified Albanian dwelling where latest building techniques and protection elements were synthesized with the culture of living during 18th and 19th century, as Drançolli states: "Albanian kulla applies Albanian traditional elements which can be followed from the ancient times till the first decade of the 19th century".¹³



Figure 13. Wooden elements of Kulla and Corn sheds in the complex; drawing in lower row (Doli, 2001)

Kulla has a rectangular plan, two to four stories. The basement was used as barn for sheltering the animals, the first level served as storage and "house of fire", on the upper floor was Oda, or the guest room. The buildings near the wood resources, utilized

¹³ Fejaz Drançolli, *Destruction of Albanian Kulla*, Kosovo: Rezniqui, 2004.

wood for structural elements as well as for decoration inside or small facilities for the family. Floors were constructed by wooden elements supported by exterior walls and the wooden central post inside the building that supports the separating walls as well. As shown in the figure 13, several wooden elements are integrated in the composition of Kulla dwelling: wooden floors, external covered stairs, main door; Kulla types with wooden porch; Corn sheds.

Contemporary Timber Architecture

Towards contemporary architecture development in Kosovo, a particularized tendency of timber-based application is noticed during '80s. It was the period during which urbanization and economy was growing in Kosovo, recently before the beginning of the collapse of Federal Yugoslavia formation. Projects of the public character dominated and were in correspondence with developments in the region, regarding the architectural expression and applied building technology. Hence, only four large-scale timber buildings are observed, constructed by laminated timber structure, three of which were executed during 80's while the forth, in 2001. General information is orally obtained since, no documentation was found in the cities' archives.

Large span building in Peja (fig.14) was part of a automotive engineering complex of factories. It was a restaurant with all its facilities for the workers of the enterprise. It is a 30x30m span, 7m height (as observed), covered with prefabricated glue laminated timber structure. It was designed and produced by a enterprise from Bosnia and assembled by a Slovenian enterprise in 1984. The hall is covered by eight main beams, four of them in

the corner are reinforced by four other smaller. The main beams are connected on the top by a circular metal hinge, while the reinforcement beams are connected to the main beam by metal plates and screw bolts. Structural elements are placed in 5m distance from each other. They are supported by reinforced concrete base.



Figure 14. Large span glue laminated timber structure, Pejë

Sport facility in Vushtrri (fig.15) was constructed in 1984 under similar social circumstances, by the same enterprises as of the aforementioned building. The facility is comprised by two spaces, both covered by glue laminated timber structure. The first one is the entrance, covered by four linear beams, supported by columns, while the main hall is approximately 50x50m, 9.0 m height. Ten pairs of linear timber beams cover the hall, in regular 5m intervals. The pairs are connected to the top by means of metal hinges. The whole structure is supported by reinforced concrete base. The roof lays on top of the secondary timber beams connected to the main structure by metal beam hangers.



Figure 15. Large span glulam timber structure, Vushtrri

Primary school in Qabër (fig.16). In 2001, initiated by an international organization, a new school was constructed in the entirely destroyed Qabra village during the last war. The project was designed, prefabricated and assembled by international companies (from Bosnia, as orally informed). The structure is two span glulam timber supported by timber columns which are reinforced by square section timber beams and metal ropes in X and V shape. External masonry walls are reinforced by vertical and horizontal timber 14x14cm elements and metal ropes in X shape. The structure altogether is visible and part of the warm ambiance of the school.



Figure 16. Glue laminated timber structure, Qabër

Discussion and Conclusion

The main objective of this study is to provide an overview based on the investigated wood-based architecture in Kosovo and related literature review in terms of architectural and structural features, subsequently emphasize the role of wood as natural and renewable material in Kosovo architectonic identity.

In vernacular wooden architecture of Kosovo, the impress of the popular master prevails, where the perfection of technique and the sense of local art has been developed and conserved throughout the ages. The existence itself of numerous wooden

houses avouch their technical stability, thus proves the firmness of wood construction when properly attended.

Contemporary timber architecture is enclosed by its public destination. The large-span laminated timber buildings analyzed on site demonstrate stability at the same time structural distinctness as part of inner architectural expression. Necessity for public large-span buildings, advanced building technology of the time and international authority initiation are some of the factors that identify the character of the buildings.

Some results asserted:

- A firm time gap between the end of traditional wooden construction and contemporary timber-based application is apparent

-While traditional architecture is identified by dwelling typology; the new architecture is recognized by its public character

-There is a lack of tendency towards timber application in residential or other sector, therefore a lack of confidence in timber application is evident

- The expertise of local mastery in timber application is clearly heading toward extinction

Vernacular wooden architecture requires more professional attention and further study of its technical and artistic features, therefore, the know-how needs to pass on to the new generations to provide required and necessary knowledge for proper maintenance on the remained typologies. Local timber architecture needs to be further explored and new techniques can derive based and inspired by traditional mastership, and professional academic support. Finally, by using local resources,

local industry needs to be supported and encouraged, therefore new economic opportunities will arise.

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Note:

* All photos captured by the author, unless differently indicated