

REPARATION OF THE ENTRANCE COLUMNS OF THE NATIONAL THEATRE IN SUBOTICA

Kristina Ćulibrk Medić¹

UDK: 69.059.35(497.113SUBOTICA)

DOI: 10.14415/konferencijaGFS 2016.087

Summary: The preservation of the built heritage is a very important branch of building activity. Correct and timely intervention is always a challenge because we live in a time of other materials, construction technology and architectural language, causing the disappearance of skills which such structures have been executed with. Each building represents a special case and that is why this paper stresses the importance of proper recording of the existing situation in order to enter the preparations for the reparation works properly.

This paper describes a particular case of reparation of columns at the entrance part of the National Theatre in Subotica, problems documenting the current situation, the technical solution for the construction and used materials.

Keywords: reparation, technical solution, theatre, flutes

1. INTRODUCTION

Theatre as an archetype of cultural institutions and the building of importance is among the first to enter the city maps. Sets and scenery were particularly interesting in ancient times, as a sort of "factory" of surreal and spectacle. Radović names three important aspects of the theatre building: the auditorium space, space scene and artistic value of the object. [1] Programme of theater building has always had a direct connection with the social and society - it is a symbol of prestige to be seen in the theater, it was of crucial importance for social status and popularity. In addition to the importance of theater that it brings with its programme by participating in overall map of the city and the wider area, it should be remembered how the importance of the building can be manifested through its other aspects as well. The significance of the theater, as well as all public institutions of importance, has influence on the way of this buildings designing, their positioning in urban tissue as objects of interest and usage of extremely rich architectural expressions.

"French theorists from the late 18th century interpreted theater as a patriotic symbol that is to be set up, modeled on ancient tradition, in the downtown area. During the next century, this view is becoming widely accepted in all areas. "[2] Thus, in the architecture

¹ Kristina Ćulibrk Medić, M.Sc. in Architecture, licenced architect planer at „Port Express“ doo Bačka Topola, Serbia PhD student at Faculty of Technical Sciences, Department of Architecture and Urban Planing, University of Novi Sad, adress: Kosačka No23, 24300 Bačka Topola, Serbia, +381600757506 kristinacm82@gmail.com

of the theater building all the resources were invested- financial, technical and professional, in order to gain a result of an object that represents a city landmark and a symbol of good architecture. The first theaters in Serbia date back in the second half of the 19th century, as is the case with the edifice of the National Theatre in Subotica.

Although the building which was built in 1854 originally functioned as a hotel and did not get its current function until 1904 [3], it does not change the fact that the theater building has been in use for over 160 years. After such a "lifetime" of the facility, it is expected that the building requires a certain degree of rehabilitation and that the theater building itself with its functional solution has become outdated and difficult to meet the needs of the modern theater.

End of the 20th and beginning of the 21st century bring to this theater building a decision to enter the process of modernization, new design solution and finally the official start of works on the reconstruction in 2007.

The new solution includes a complete reconstruction of the theater building, its exterior and interior with a new functional layout and finishing. However, this paper will describe only part of the renovation concerning the pillars of the entrance facade of the theater building.

This narrowed theme is the result of the scope of work that was entrusted to the performing company which included only part of the facade and the six pillars of the entrance portal, as well as the technical solution for performance that is designed specifically for the renovation of these pillars. This technical solution was taken in focus with the assumption that it introduces innovation in the renovation process as well as the system that can be applied in other construction sites for future work of this type.

2. THE ON SITE SITUATION

Company "Port Express" doo from Backa Topola entered the renovation work of the National Theatre in May 2015 as a subcontractor for the façade work of the old building oriented to the Cara Jovana Nenada Square, and six columns of the entrance portal. Period that preceded these works, the scope of work done, and the number of participating contractors is not a subject of this paper.

At the time of entering the business, the facade of the old building oriented to the Corso was near the completion of the works. Segments of the building for reparation were stripped to the brick substrate layer (Figure 1), both on the façade and front columns. The capitals of the columns were formed and did not enter the scope of work.

Preservation of architectural heritage is a very important branch of building activity. Correct and on time intervention is always a challenge because we live in a time of other materials, construction technology and architectural language, causing the disappearance of skills with which such structures have been executed. Each building represents a special case, thus this paper stresses the importance of proper recording of the existing situation in order to enter the preparations for carrying out the rehabilitation works properly.



Figure 1. On site situation of the facade and columns

3. TECHNICAL SOLUTION FOR REPARATION AND USED MATERIALS

Moldings on the facades are performed in stone and mortar less frequently than they used to, and are nowadays often done with prefabricated elements made of hard styrofoam. Such solution could not be applied to a representative facility such as Subotica theatre. The facade to the Cara Jovana Nenada square was resolved without major problems, according to the construction rules for this kind of work, setting the guides and battens of wood laths and using standard masonry tools. Problem of greater importance existed at six columns of the entrance area. Fluting, which are the architectural element that is "born" in the stone carving material, and which received the vertical definition by arranging segments of the columns one upon another, could not be performed in this technic these days primarily because of the current state of the building in which pillars are made of brick. This meant that the final volume of the pillars had to be done with the mortar, as it was during the first construction of this building in 19th century. It was noted that the formation of fluting with variable depth on the conical column of variable cross-section can not be done accurately freehanded by mason and belief in his building skill.

From the beginning it was being deliberated of the formation of a certain type of frame that should give a new definition of column volumes. Also at an early stage, with the consent of the supervisory authority, the idea of fluting with a sharp final edge, as it was in the original decision in 1854, was abandoned on the ground and it was assumed that this strongly defined verticals give greater possibility of perceiving shape irregularities that might occur. The reason for enlargement of fluting tops is derived from the fact that this solution gave the opportunity for a better definition of the final volume of the pillar. Contractor team² conceived segment metal frame that defined the final dimensions of the pillar. Mastering of the conical shape is solved by performing a frame in five segments that are at the bottom and the top merged with circular metal rings. They hardened

² Branislav Kosović, Stevan Medić, Nenad Ninkov and Kristna Čulibrk Medić.

vertical metal flanges which are set as the trailing edge of the fluting and are tracks for arc scratchers which formed concave parts of the pillar. The segments are set one upon other, mutually merged with eight screws, forming an overall height of 9.75m. Each segment of the guide rails, as well as the upper and lower ring, is composed of four parts for easy assembling and dismanteling.

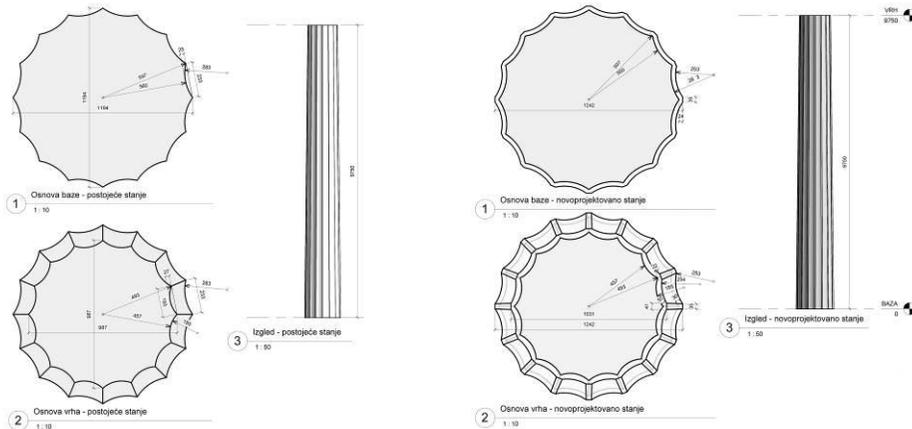


Figure 2. Cross section of existing column and newly defined volume

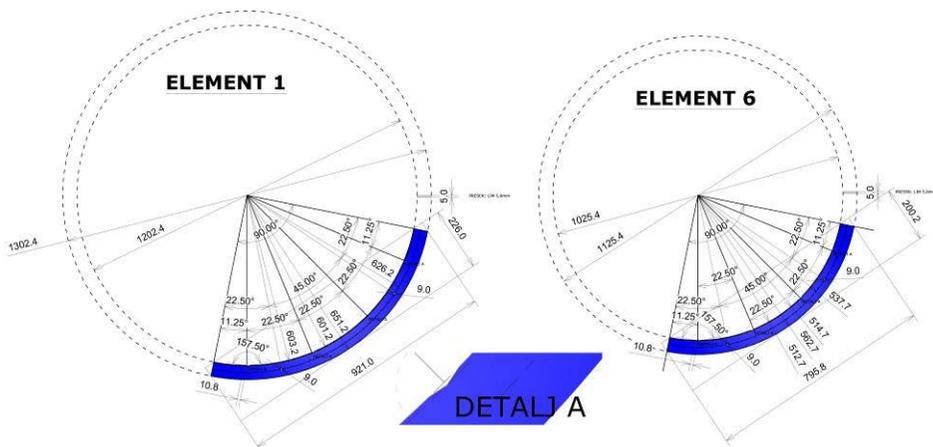


Figure 3. Frame segments for the column volume definition



Figure 4. Metal frame

Fixing and good position of vertical guides was solved with their indenting in the ring, which minimized mistakes and twisting. Designing and forming of such a frame responded to a few basic requirements:

1. strong definition of a final shape with minimal space for error
2. easy installation and removal without damaging the pillars form
3. frame segments that are available on the market

Four layers of mortar were done upon the brick pillar construction:

1. RÖFIX 675 hydraulic lime syringe with a thickness of $d = 0.5$ cm
2. RÖFIX 695 hydraulic lime mortar to renovate in a thickness of $d = 2-2,5$ cm
3. Primer RÖFIX AP 300 Primer, relieved at a ratio of 1:5
4. RÖFIX 380 hydraulic lime fine plaster in two layers $d=0,4\text{cm} \times 2=0,8\text{cm}$

The materials were predefined by project documentation.



Figure 5. Work fazes – brick, rough layer, smooth layer



Figure 6. Building after the renovation

The base of the columns was solved with the same materials, using the tools specifically profiled for this purpose and with the skills of the masons engaged in this activities.

4. CONCLUSION

The idea on which the technical solution described in this paper is conceived, can be applied in every situation. The frame template must of course be adapted, but the concept of making the frame that defines the dimensions of the end product, which represents the guide for applying layers of plaster carries with it a certain contribution to the maintenance and renovation proceses of the architectural heritage. The idea relies on the basic construction methods by which this kind of work is done, with the contribution in terms of accuracy and minimizing the errors in the execution. Since 1983 the building of the National Theatre in Subotica represents a monument of culture [3]. To the reconstruction of such a facility, with the addition that brings function itself, should be given special attention because the final result is wery noticed in the image of the city. Its position in the urban matrix makes it a rapper and a guide. "The intensity of the attractiveness of the city in time and space is not a simple sum of magnetic units, but their product, and depends on the number, type and ratio of magnetic units." [4] The National Theatre in Subotica definitely was a magnetic unit, and it is evident that it will be in the future as well.

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САНАЦИЈА УЛАЗНИХ СТУБОВА ЗГРАДЕ НАРОДНОГ ПОЗОРИШТА У СУБОТИЦИ

Резиме: *Очување градитељског наслеђа представља веома битну грану градитељске делатности. Правилне и благовремене интервенције увек представљају изазов будући да живимо у време других материјала, технологија грађења и архитектонских језика, што узрокује и нестанак вештина којима се овакви објекти изводе. Свака грађевина представља посебан случај те се у раду изузетно наглашава важност исправног снимања затеченог стања како би се правилно ушло у припреме за извођење на радовима санације. Рад описује конкретан случај санације стубова на улазној партији Народног позоришта у Суботици, проблеме са документовањем затеченог стања, техничко решење за извођење и употребљене материјале.*

Кључне речи: *санација, техничко решење, позориште, канелуре*