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## Stainless Steel Structures of Zepter Palace in Belgrade

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### Summary:

Stainless steel has become a trend in architectural detailing of contemporary buildings, because of the progress in metallurgy and structural detailing, but more than anything, as fascination of architects and structural engineers, caused by possibilities of this material. Structures made from stainless steel have to be rationalised, because of high price of basic material. Adequate detailing and emphasising of connections results in special aesthetic effect. This trend, that is present in the whole world during last few years, has been expanded in Yugoslavia, so in Belgrade has been built Zepter business building in King Petar street, which, in an especially attractive way makes affirmation of application of stainless steel in buildings.

**Key words:** stainless steel, aesthetics, constructions, structural detailing

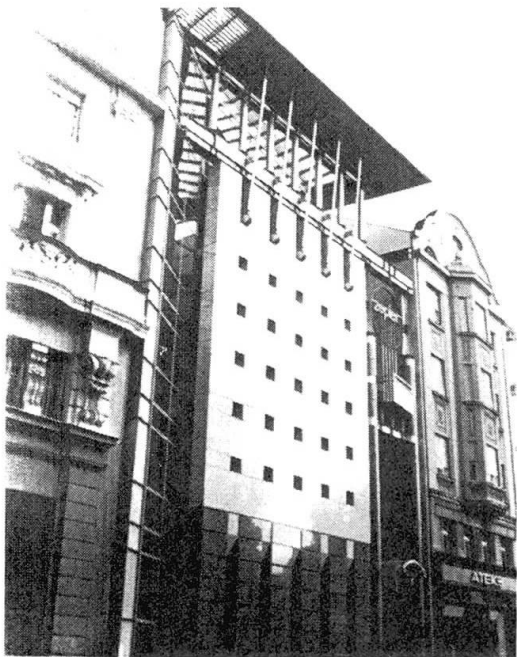
## 1 Introduction

The trend which is up-to-date during the last few years in the world hit Yugoslavia so Zepter business building (Fig. 1), which in exceptionally attractive way establishes appliance of stainless steel in buildings, was built in Belgrade in King Peter's street. This street is from architectural inheritance aspect the richest in Belgrade. To build in such environment obligates in lots of ways and forces to think. Great challenge to authors of the building was how to place it into wider context of the street and, at the same time, to fit it to the closest buildings. Authors' determination was to dialogue with the wider context of the street, fitting with the neighbouring buildings, different, height regulations, levels of fascias, and architectural styles.

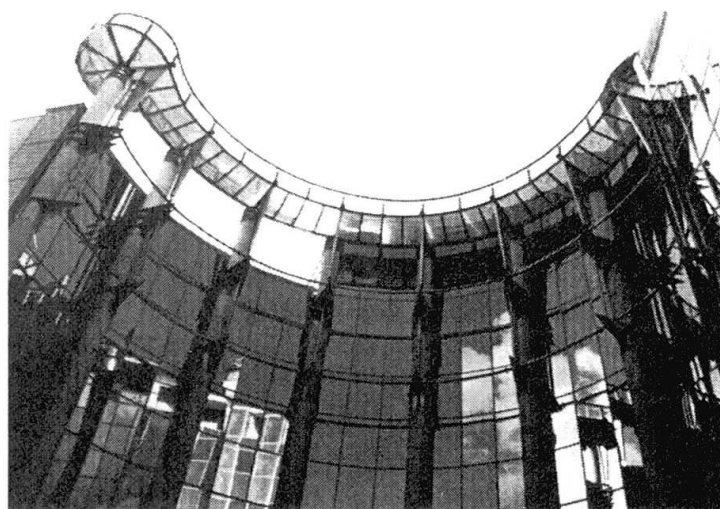
Architectural solution is inspired by close and distant past, meditation about a wall, Byzantium, monastery complexes and architectural elements such as: second floor porch, knee brace, eaves, etc. Between the two period buildings the new one was inserted in such a way that monolith (the wall) is moved away from its neighbours, so required distance was accomplished and, at the same time building was made self-sufficient. Contact with the neighbouring buildings is made by the means of steel beams - cornice. Basic products of the contractor - Zepter Company are dishes made of stainless steel, which inspired the choice of the material to overbuild weight of the wall. Besides that, style decrees of the buildings on the opposite side of the street from this building and quality of accomplished architecture obligates to dialogue. Repetition as a mimicry doesn't exactly represent dialogue, so architects authors determined architectural details to be made of steel, which was the

predominant characteristic of the secession, so trying to materialise common line with the past (or the style transposition).

The building develops itself, widening it's functions towards the depth so making the space for it's internal functions, and the narrow front on the main facade facing the street is portal, a sign of a hand reaching towards passengers. The usual monotony of a glass facades on the backyard part author tried to break by the row of columns to which steel structure to carry the roof footbridge is connected, by means of semicircular end plates and brackets.



*Fig. 1 Facade to the King Peter's street*



*Fig. 2 Backyard facade - curved roof footbridge with transparent grill footpath*

## 2. Stainless steel structures

In this building, which was marked as real top of the world's architecture by the expert opinion and as one of most important buildings of this kind in the twentieth century architecture in Yugoslavia, stainless steel was used in the fascinating way for various parts of load bearing structure.

Approximately 30 tones of stainless steel structure was used for: entrance bridge and canopy with portal, balcony, series of columns and girders for carrying roof eaves, structure for stability provision for facade wall, roof lantern, spiral foot bridge, roof with perimeter ring over the stairway, fences and many other parts of interior. Appearances of the main street and backyard facades are given on the Fig. 1 and Fig. 2. All stainless steel structural details were separately analysed and solved in the close co-operation of architect and structural engineer so to gain aesthetically and structurally most suitable solution. Stainless steel structure was manufactured and erected by the BELIM Company of Belgrade. In this paper only some of the most important details are presented.

## 3. Discussion

Instead of the conclusion a statement can be made that by refined detailing of the structure, no matter classic steel structures or stainless steel structures were in question, outstanding effects can be achieved, of course by close co-operation of architects and structural engineers. That is why it should be noted when structures like this are in question, beside undoubted statically aspect, also aesthetic aspect is important, which is by all means yet another challenge to structural engineers, who have to bear in their minds the ideas of architect and in an adequate way make their visions become reality.