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The study of the historic buildings of Eclecticism in Thessaloniki under the prism of sustainability

Vasiliki Pachta^{a*}, Ioanna Papayianni^b

^a *Dr Architect, Conservator, Laboratory of Building Materials, Department of Civil Engineering, Aristotle University of Thessaloniki, 54124, Thessaloniki, Greece*

^b *Professor, Laboratory of Building Materials, Department of Civil Engineering, Aristotle University of Thessaloniki, 54124, Thessaloniki, Greece*

Abstract

During the end of the 19th century, Thessaloniki expanded and new buildings were constructed according to the architectural style of this period. Nowadays, they present severe damages, since they were abandoned and need restoration interventions. This paper concerns the systematic study of the building materials and construction techniques, of six Eclecticism buildings concerning: Administration building of the Allatini complex (1879), 1st Gymnasium (1890), Melissa orphanage (1896), the house of Sarantaporou st. (1906), the building of Anagenniseos st. (1910), Villa Bianca (1913). The study includes insitu observation of the constructional materials and techniques and analysis of the bearing system. An experimental analysis of building materials, revealed the main principles and details followed in the construction of the past. As it is concluded, the main building materials used were unshaped stones (limestone, schist), bricks (compact and hollowed) and mortars (structural, plasters, renders) based in lime and pozzolan. Generally, ashlar masonries were found in the basement and ground floor of the structures, while brick masonries were used for the construction of the first and second floor. The compact bricks were used for the external walls, while hollowed bricks were used for the upper and internal ones. Floors were constructed with wooden or metallic beams and were covered with tapestry or ceramic tiles. Metallic elements were also used for the connection and confinement of the masonry walls. Externally façades were decorated with thick colored renders of specific stratigraphy, while internally wall and roof plasters were decorated with frescoes. The study of the historic buildings of Eclecticism of Thessaloniki showed many similarities regarding the materials used and the constructional techniques applied. In all cases, the principles followed were closely related to the sustainability and economy, taking into account specific architectural and morphological aspects.

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* Corresponding author. Tel.: +30 2310 995882; fax: +30 2310 995699
E-mail address: vpachta@civil.auth.gr

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1. Introduction

Thessaloniki, situated in N. Greece is considered an important cultural and socio-economic center during the 2.5 millenniums of its history, while the era between the end of the 19th century and the beginning of the 20th century was stamped by many socio-economic evolutions [1] [2]. The economic growth and the settlement of industries, led to the city's expansion, as well as to the construction of luxurious residences for eminent citizens, according to the architectural principles of the period.

Most of these structures were located mainly at the suburban Eastern part of the town and have been nowadays incorporated in the urban plan of the city. They concern typical examples of Eclecticism, incorporating various structural, architectural and decorative elements of other styles (i.e. neoclassicism, art nouveau) [3]. During the last two decades many of these structures have been studied and restored, while others are still abandoned confronting severe damages.

This paper concerns the systematic analysis of the building materials and constructional techniques, performed during the last 20 years by the Laboratory of Building Materials of the Aristotle University of Thessaloniki, in six historic Eclecticism buildings of Thessaloniki, concerning the following (Fig.1 (a)-(f)):

- Administration building of the Allatini complex (1879),
- 1st Gymnasium of Thessaloniki (1890),
- Melissa orphanage (1896),
- the house of Sarantaporou and Stratou st. (1906),
- the building of Anagenniseos st. (1910),
- Villa Bianca (1913).

The study includes on site surveys of the structural system, mapping of pathology, analysis of building materials, analysis of the bearing system. From the evaluation of the results it was concluded that there were many similarities regarding the building materials used and the constructional techniques applied in all cases. In general, local materials were used and the decoration of the facades and of the internal walls was based on hand made mortars applied by specific techniques. Since Thessaloniki was a city of multi population character, some foreign influences in the architecture could be found in these buildings, considered as a way for the owners or architects to make them more impressive.



Fig. 1. The studied Eclecticism buildings (a) Administration building of the Allatini complex (1879); (b) 1st Gymnasium of Thessaloniki (1890); (c) Melissa orphanage (1896); (d) the house of Sarantaporou and Stratou st. (1906), (e) the building of Anagenniseos st. (1910); (f) Villa Bianca (1913).

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