Interventions on Transylvanian Baroque Roof Structures

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Abstract An increasing number of studies are addressing continental historic roof structures in general, incorporating Baroque ones, as well. However, practical information is still not being transferred quickly enough into everyday practice. The major aim of the research, assessment and intervention-design is actually to ensure the high quality conservation of historic (Baroque roof) structures. It is the professionals' responsibility to disseminate information gathered through case studies, to provide good examples and avoid bad practices. The present lecture shows how diverse states of decay in the case of seven Transylvanian Baroque roof structures determine different levels of intervention from conservation to retrofitting and strengthening roofs built following a deficient structural concept. The reconstruction as an option is also discussed. In order to ensure the preservation of Baroque roof structures for another 150-200 years all steps are equally important, and each roof requires a particular approach.

Keywords baroque roof structure, assessment, intervention-design, execution technologies

1. INTRODUCTION

Historic Baroque roof structures, as recognized, integrated parts of the built heritage, are to be preserved in order to be presented to future generations.
Though the number of specialists dealing with historic roof structures has increased significantly in Transylvania during the last two decades, there is still much to do. In Romania, no historic (roof) structures are included into structural (civil) engineering curricula, and there is no national code (or even Guidelines) accepted as governing interventions on historic timber (Baroque) roof structures.
Therefore it is the responsibility of the dedicated specialists to spread out their information, accumulated mainly through case studies sharing the same aim: the preservation, conservation, repair of the damaged historic (Baroque) roof structures to ensure further hundreds of years of life-time.

2. PRESENTATION OF THE CASE STUDIES

The authors are involved in historic building research and structural conservation design in Transylvania, since 2003. The first chapter (identifies the objectives of interventions on historic timber (Baroque) roof structures, as well as the co-existing attitudes towards conservation design and execution in Romania, in our time.

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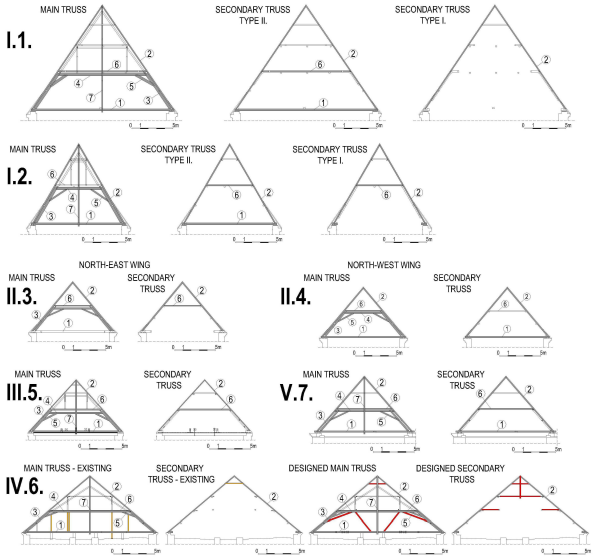

Figure 2 – Main and secondary trusses of the studied roof structures

In order to illustrate the levels of decays (chapter 3) and interventions, and to show the steps of assessment, research, design and execution work seven case studies within five buildings are presented in chapter 2: (I.1 and I.2) the exceptional over 16,50m span Baroque roof of the Reformed Church on Kogalniceanu street, in historic centre Cluj-N., with different structures for the roof above the nave and the choir; (II.3. and II.4) the "classic" Baroque roofs of the Reformed College in Cluj-N. (two wings built according to two different mechanical concept); (III.5) the badly repaired Baroque roof of the Unitarian Church in Badeni; (IV.6) the Baroque roof with wrong structural concept belonging to the Old School in Tileagd and the example of Baroque roof reconstruction (V.7) the south-west corner of the main building of the Bánffy castle in Bontida.
In order to identify the necessary levels of intervention the state of decay, damage of the studied roofs is presented synthesized in table 2 (given in the main lecture) – presenting degradation and structural failures in columns A-I, including their degree for the studied structures.
Chapter 3 is dedicated to various levels (complexity) of interventions from: (i) cover repair, (ii) conservation (restoration), through (iii) retrofitting to (iv) major intervention including strengthening, if necessary by changing the structural concept; (v) roof reconstructions are also discussed.
Using the example of the seven case studies chapter 4 is dealing with the optimum level of documentation in order to assure good quality execution, discussed within chapter 5.

3. CONCLUSIONS

All historic (Baroque) roof structures need special and individual treatment; even if the structural patterns of classic Baroque roof structures are similar. In most cases, the lack of maintenance led to local problems: decayed elements and not functioning joints. Even in the case of multiple failures, these structures stand un-repaired for decades.
The time and financial investment needed for good and bad intervention is actually the same, therefore it is worth investing in research and design to assure the basis of good quality intervention, and chose the contractor able to carry out quality carpentry tasks.

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