MINISTRY OF EDUCATION
TECHNICAL UNIVERSITY
OF CLUJ-NAPOCA, ROMANIA

Field Architecture

PhD THESIS
– ABSTRACT –

Architecture and Archival science.
A contextualized study in Romania and Europe
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– Cluj-Napoca –
2024

Contents

1. Motivation for choosing the topic

This doctoral thesis studies archive buildings and the evolution of their architectural program in Romania and contextualized in Europe.

We chose this theme as a challenge, especially since we did not identify the existence of an elaborate study on these buildings, which would analyze their birth and evolution over a more extended period and consolidate the testing of constructive ideas, encompass several countries, integrate these buildings among architectural programs and be carried out by architects and from the perspective of this profession. Most of the identified works that were sources of information for this paper were by archivists and too few by architects. Therefore, we believe that not all the characteristics necessary to fit these buildings into a coherent architectural program have been defined. However, only the general conditions and considerations for organizing the spaces have been established.

In 2015, following an assignment within the Faculty of Architecture and Urbanism in Cluj-Napoca, I started thematic research at SJAN Alba. In addition to introducing me to the fascinating world of archives, this internship aimed to present various documents – written pieces, drawings, contracts, etc. – highlighting their importance for studying architectural history. In some cases, this research is most difficult, as the location of documents depends on several criteria. We believe this is due to the researcher's inspiration and tenacity and the custodian's goodwill. Ultimately, all these factors materialize in a step-by-step search in several archives.[1] This first contact with the Archives opened new perspectives for studying archive buildings. Later, for my dissertation and diploma thesis in architecture in 2018, defended in the same faculty, I chose the realization of a *Center for Archives and Architectural Culture*[2] as a topic. At that time, I encountered difficulties due to the complexity of the topic, as both time and available information were limited. Therefore, after graduating, I decided to continue and deepen the study of this topic within the framework of this PhD thesis.

The establishment of the theme was also influenced by the observation of a high number of archive buildings in Romania, for which complete information was not available at all. It needed to be made clear whether they were purpose-built or conversions.[3] At first sight, these buildings seemed guided by a unitary, functional, and constructive logic. They were located in central areas, with compact volumes and similar façade aesthetics. These observations raised questions such as: When? How? Who? Why? Intentionally or unintentionally? were these buildings realized.

Thus, after seven years of research, we have found answers to these questions, whether complete or incomplete, and we have come to appreciate the subject even more due to its complexity and uniqueness. At this point, we do not consider the research exhausted, but we appreciate that the progress is significant enough to be presented in the form of a PhD thesis.

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[1] The first stage clarifies the administrative-territorial unit to which the building belonged, the year of construction, the owner, the legal regime at the time of realization and its course, and the architect who designed it. In the second stage, we identify the archive where the building authorizations might be and ask to study it later. The information can be completed from the Land Register. In the third stage, the actual tracing of funds in the archive is started with the help of research tools, such as inventories and a search portal. These may belong to institutions: town halls, ministries, economic operators, businesses, and construction service providers, or individuals, the owners, or the architect.

[2] Maria Alexandra Sas, *Depozitul de arhivă. Arhitectură pentru hârtie* (lucrare de disertație, Facultatea de Arhitectură și Urbanism Cluj-Napoca, UTCN, 2018).

[3] In some cases, the absence of the program's defining elements could lead to its classification in another category, such as office buildings, administration, education, etc.

The duration of the research was influenced, first of all, by the difficulties encountered along the way,[4] which consisted in the lack of information or in the institutional blockage of access to it.

Secondly, the program and regulation of the National Archives study rooms during the Coronavirus pandemic changed. Not only was the documentation complicated due to the nature of the documents but the whole process was also made more difficult due to the limited number of researchers admitted into the study rooms. Hence, they operated on a program basis at half of their actual capacity at the territorial level and in the capital.

2. Defined objectives

The current research aimed to determine whether there has been an architectural program of the archives and whether it has been developed over time, with clearly determined essential criteria, or is a product of recent date – the 20th century; also, whether the buildings occupied have particular characteristics or are/can be standard buildings, by defining the main characteristics; to determine whether Romania fits into the European trend of development of this architectural program or not, and to confirm the link between libraries and archives, as an archetype, or the mutual influences between them.

Therefore, the objective of this paper was to study the archival buildings, the evolution of the architectural program in Romania, and its framing in the European context. Only state, national, departmental, and, with a few exceptions, municipal archives buildings were chosen for analysis, as they were the most complex in terms of organization and the largest in terms of the number of archives.

The surveyed area covered the following countries: Romania, France, Germany, Russia, Italy, Great Britain, Poland, Denmark, Norway, Norway, Slovakia and Austria.

Chronologically, the research covers the 18th to the 21st centuries and mentions earlier periods. However, these have been made only to provide context and are not consistently detailed or mentioned. We do not deny the existence, from an early date, of unique spaces[5] or furniture[6] for the preservation of documents. However, we had chosen this interval because we wish to follow the evolution of the program from the time when the first modern purpose-built buildings with more complex features were realized to the present when they had been concretized in a mature form.

3. Methodology of the research

The first research method chosen was diachronic analysis, as we studied changes and transitions over a period of several centuries. We considered this method appropriate because its tools facilitated our understanding of the dynamics of change over time and allowed us to identify architectural trends.

Therefore, in the first stage, the documentation focused on Romania, where there is a high number of buildings dedicated to archives. There is a possibility that Romania may or may not have been in tune with the European trends in the development of this architectural

[4] Both for Romanian and European case studies.

[5]. For example, ceramic vases for papyrus, ladles, cabinets, etc.

[6] The first rooms intended for conserving and preserving documents on a friable medium were found in temples. Given the sacredness of the space, they became a safe and secure place. Secondly, due to the good manners and education of the custodians—priests—they valued the value of documents. See, Sacerdoțeanu, Archivistics ..., p. 43

program, with the peak of these buildings being reached during the communist regime. Subsequently, to understand the European context and the evolution of this program and demonstrate Romania's position in a broader framework, we extended the second phase of the research to several European countries.

The second research method was applied by carrying out three experiments and four analyses, using paper as raw material, in accredited research laboratories. We opted for this option in order to demonstrate, on the one hand, the causal relationship between spaces and paper media and, on the other hand, the need to establish, create, and apply particular conditions to the repositories in order to fulfill their primary purpose, namely to contribute to the preservation of documents. Another aspect pursued was the certification of the specificity of architectural archives concerning other documents.

The paper is summarized using historical (the evolution of the architectural program of archives), descriptive (the characteristics of archival buildings), and experimental (laboratory experiments) research methods, conducting both individual and comparative case analyses.

4. Sources

For the primary sources, we used archival documents, discussions, or interviews with people involved in building construction. Several edited works, books and monographs, periodicals, regulations, legislative documents, and online sources were used as secondary sources.

Both architectural and archival works and literature from the communist era were considered, as the course of events had to be highlighted. In some cases, only data that could be corroborated with archival documents are presented.

The documentation was carried out in archives in the country (where we had access to unpublished documents) and in archives abroad; the paper presents information on the subject of archives, some of which is unknown until now and not yet part of any published research. Thus, they consisted of original documents or photocopies, drawings, photographs, video materials, and the written part of the projects, for which it was studied in:

a. Archives in Romania: SANIC, SMBAN, CNSAS, SJANs, DMI, UAR, ANF, Sahia Film Archive, DJCS, "Ion Mincu" University, town halls, and local county councils.
b. Archives abroad: Germany, Italy, France, Slovakia, Norway, Denmark, United Kingdom and Poland.

The architectural plans in the NRA could not be identified because they had been extracted from research and were classified as secret documents. There were also exceptional cases where facades, site plans, or photographs could be traced, but in minimal numbers. The plans identified can be found in Appendix 1 or Appendix 2.

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Several published works, books and monographs, periodicals, regulations, legislative documents, and online sources were used as secondary sources.

Since the course of events had to be highlighted, we considered architectural and archival works as well as literature from the communist era. In some cases, we only presented data that could be corroborated with archival documents.

A problem for the Russian case study was the lack of sources in published works by scholars other than Russian scholars. This lack of scholarly literature was felt in the attempt to establish the realities analyzed accurately. As a result of the present outbreak of war, access to archival documents was limited, and data could not be correlated, with a few small exceptions.

5. Previous research on the topic

Previous research has focused on the partial treatment of the subject, covering narrow time scales, described in general terms without presenting developments, or illustrated only specific buildings. This research has been influenced by the specializations of the authors, most of whom were historians and archivists, and with a few exceptions, architects. There is a difference between the two specializations in how the analyses are carried out due to the methodology and tools available to each specialization, which makes it essential to clarify the position of architects on the problem. Among the most representative works by **archivists and historians are**: Luigi Bossi Visconti in *Istruzioni sugli archivi e la loro regolamentazione* (1807), Eugenio Cassanova in *Arhivistica* (1918; 2nd ed. 1928); the Russian archivists' collective[7] in *Normele de bază în munca Arhivelorelorelor de Stat Stat of the USSR* (1962); Michel Duchein in *Archives Buildings and equipment* (1966; 2nd ed. 1988); Aurelian Sacerdoţeanu in *Arhivistica* (1970); Christopher Kitching, Archive buildings in the United Kingdom 1977-1992 (1977; 2nd ed. 1993); Direction des archives de Frances*, Bâtiments d'archives. Vingt ans d'architecture française*. 1965-1985, 1986-2003 (1986, 2nd ed. 2004);

Among the works by architects we mention: Ludwig Klasenn in *Archive und Bibliotheken, Gebäude Für kunst und wissenschaft* (1887); Opfermann, Rudolf, in *Archive und Bibliotheken, Gebäude Für erziehung, wissenschaft und kunst* (1893/1906); Alevtina Mijhailovna Zhugastr-Lushina, *Archive Buildings Abroad* (1974).

The collaborative works by specialists in the two fields are fewer and more recent: Michel F. Pacifico, Thomas P. Wilsted in *Archival and special collections facilities: guidelines for archivists, librarians, architects and engineers* (2009), Standard Internaţional ISO 11799, *Document storage requirements for archive and library materials* (2015); International Organization for Standardization, Technical Report 19815 *Management of the environmental conditions for archive and library collections* (2018); German Standards Institute 67700:2017-05, *Bau von Bibliotheken und Archiven*, (2017) etc.

These works reflect intermittent and pragmatic concerns over the centuries. However, it is only in the 21st century that detailed analyses of the history of these buildings have begun to be analyzed in detail. Notable in this regard is the 2008 publication of the doctoral thesis *Architektur und Geschichte der staatlichen Archivzweckbauten in Deutschland* 1871-1945 by art historian Katja Leiskau, and these buildings are also mentioned in Ernst Neufert's 2012 edited and expanded book, where the Dresden Archive is presented in the libraries section.[8]

6. Difficulties

[7] The authors of the work are not specified individually in either the original document or in the translated versions, as these rules were established by a group of specialists under the aegis of the State Archives of the Union of Soviet Socialist Republics (USSR).

[8] Ernst Neufert, *Architects' Data* (Hoboken: Wiley, 2012), p. 252.

The research had an oscillating path due to the difficulties of mediation between the State Institutions and us as researchers. Thus, we encountered limited access to the study in several public institutions, even for archives over 30 years old, or refusal to provide information that we considered public interest. The fact that some institutions responded and others did not to requests based on Law 544/2001, in the same case, shows the fragility of the legal framework in Romania and its arbitrary interpretation. We encountered total opacity in the case of the MAI Archives. Failing to comply with the provisions of the National Archives Law on the MAI's handing over to the NA archives older than 30 years will perpetuate censorship in the study of any realities of the communist period in which the MAI was involved. Another blocking aspect consisted of keeping (or invoking) the classification level for a whole series of documents, some of them not even actual but "forgotten" in the "secret" status. We should also not forget the destruction or vandalizing of some of the important archives of the communist period, such as that of the architectural institutes, which bear witness, once again, to the chaos represented by the beginnings of the post-Decembrist regime in Romania and the disinterest in public assets produced during the communist period.

The procedure of these archival buildings in Romania for the authorization of constructions was changed along the way, for this reason we were only able to identify the authorizations and part of the documentation in a few exceptional cases.

Subsequently, in some situations, the legal framework entitled us as a petitioner and research could be carried out. Thus, about 45,000 files from more than 50 fonds were studied and scanned in the Romanian archives and accreditation among CNSAS researchers was obtained.

The case studies used a unitary analysis structure. However, due to the diversity of information and the need to present specific data relevant to understanding the topic, we have adapted the structure according to each case's specifics.

Regarding the European case studies, they would have deserved to be extended to other countries. However, due to documentation difficulties and legislative differences (in the case of the Vatican),[9] we restricted the scope according to their relevance, limiting ourselves to obtaining the necessary information from the countries we considered most relevant without continuing the dialog with the others. Some responded either evasively (Italy) or not at all (Sweden). We were also constrained by the amount of information that could be processed in a limited time. Thus, the shortcomings of the present research have a common point, both for Romania and for Europe: insufficient access to documentation to a variable extent.

7. Structure of the thesis

This thesis consists of 3 parts:

Part I: Theoretical Framework, includes three chapters:
Chapter 1 - Definition of concepts
Chapter 2 - Study methods and contextual framework
Chapter 3 - The need for appropriate document repositories

Part II: Case Studies, includes five chapters
Chapter 4 - The evolution of archive buildings in Romania
Chapter 5 - Development of archive buildings in France, Germany, and Russia
Chapter 6 - The development of archive buildings in Italy and Great Britain

[9] For unjustified reasons, we have not received any information that would confirm the number of buildings used or the year of realization of the underground storage (Annex 4—Supporting documents).

Chapter 7 - Individual studies. Particular cases in Poland, Romania, Denmark, Norway, Slovakia and Austria
Chapter 8 - Cross-country comparative analysis, evolution of ideas

Part III: Considerations, includes five chapters
Chapter 9 - Conclusions on the evolution of realized purpose-built buildings
Chapter 10 - Requirements that led to the creation of an architectural program dedicated to archives
Chapter 11 - Determining a specific architectural identity
Chapter 12 - Specific features of archive buildings
Chapter 13 - Final Considerations

Annexes
Annex 1 - Figures, tables, graphs
Annex 2 - Analysis sheets
Annex 3 - Applied research
Annex 4 - Supporting documents,

Presentation

The paper is structured in three parts and subdivided into 13 chapters. Many ancillary materials (architectural plans, photographs, illustrations, supporting documents) and analysis sheets are presented in the form of Appendices (1-4), providing visual and detailed support for the thesis content.

Part I

The first part consists of three chapters that present the theoretical framework and the current context. Therefore, the basic concepts and terms have been defined since the word "archive" can have several meanings, and the relationship between architecture and archival science, an auxiliary science of history, is also presented. (Chapter 1).

Chapter 2 presents the research methods used, defines the area studied, the period studied between the 18th and 21st centuries, and the level of knowledge in the existing literature at the time of the research (Chapter 2).

Chapter 3 presents an alternative research method (to the historical one) based on testing in an accredited institute and laboratory. This method was chosen following preliminary research carried out between 2022-2023.[10] The objects under examination were personal architectural plans made at the end of my university studies 2018. On the one hand, they showed visible changes in the support, and on the other hand, they were subjected to oscillating microclimate conditions (sample B 2018). For comparison, we printed a project plan (sample A 2023) under the same conditions and type of paper support.

Both samples (A) (2023) and (B) (2018) were exposed:

a) First, SEM-EDX and FTIR were analyzed at the Institute in Iasi in the initial phase, preceded by the accelerated aging experiment. Subsequently, after

[10] As an external consultant in the context of the collaboration with the National Archives (2022-2023), I had the opportunity to carry out a series of data analyses on documentary support and microclimate conditions. The data from that research cannot be published. Later, as a fellow of the InoHubDoc program, organized by the Technical University of Cluj-Napoca (2022-2023), I carried out applied research, the result of which can be studied in Appendix 3.

aging, SEM-EDX[11] and FTIR [12]analyses were resumed to compare the effects with the initial samples.

b) Secondly, the following experiments were carried out at the Physical-Mechanical Testing Laboratory in Brăila: tear strength and bending strength.[13]

The conclusions of the investigations carried out at the Iasi Institute showed that:

a.1. on the basis of SEM-EDX analysis in the initial phase no major morphological changes are observed.

a.2. based on FTIR analysis between the samples, there were no essential changes in the chemical composition from a qualitative point of view.

a.3. After the application of the accelerated aging process, the results showed that:

a.3.1. SEM-EDX analysis confirmed the onset of the degradation process for both samples.

a.3.2. FTIR analysis showed no changes between the two samples.

The conclusions of the investigations in the Physical-Mechanical Testing Laboratory showed that:

b.1. Tear strength analysis shows no significant differences between specimens (A) and (B) appeared between specimens. The values determined were that sample (A) resisted 4% more than (B).

b.2. Bending strength analysis shows that sample (B) has lost 50% of its strength compared to sample (A),[14] which in 5 years is very much.[15]

These paper-based experiments first confirmed that there is an evident influence between the environmental conditions of space and the documents preserved. Second, they indicate a specificity of architectural archives compared to other archives. These, under the medium used, present significant vulnerabilities for long-term preservation due to the format of the plates, the quality of the paper,[16] and the frequent or occasional folding process to which the documents are subjected during research (which involves exerting mechanical forces on them).

Part II

In order to analyze and verify how archival buildings constitute themselves as an architectural program at the European level in a concrete manner, we decided to carry out particular research following the evolution of these buildings in several countries.

In order to study the evolution of the architectural program of the archives as objectively as possible at the European level, we have focused our attention on France, Germany, Russia,

[11] Scanning Electron Microscopy examines the surface and structure of the paper at the microscopic level. Together with Energy Dispersive Spectroscopy, it can analyze the chemical composition of the paper, identifying the presence of different elements, contaminants, additives, etc. Annex 3.

[12] [12] Fourier Transform Infrared Spectroscopy is applied to the paper to identify and characterize the chemical compounds present. Annex 3.

[13] The paper bend strength test evaluates the paper's ability to withstand repeated bending without tearing. This test is essential to determine the durability and quality of paper under frequent handling conditions.

[14] Annex 3.

[15] The entire process of analysis, preparation, screening, and laboratory procedure is outlined in Annex 3.

[16] Because it is a special type of paper, manufacturers do not specify compliance with ISO 11108:1996, *Information and documentation—Archival paper—Requirements for permanence and durability*, International Standard (1996).

Italy, Great Britain, Poland, Slovakia, Norway, Denmark, Austria, and the United Kingdom.[17] These countries were selected based on two criteria. First, countries were selected where a specialized literature[18] was developed, and either a more significant number of buildings were realized or exciting and innovative solutions were realized. Behind these considerations were the concerns of archivists about the preservation conditions and characteristics of the buildings, as they were a trigger in the architectural development of these buildings. Secondly, the influence these countries had on each other, whether assumed or not, was essential.

The case studies are presented and organized in four categories between chapters 4-6:

a) In the first section, the one dedicated to Romania, a detailed presentation of the situation of the archives has been elaborated because this case study was the main reason for starting the present research. Secondly, the spectacular evolution and the main triggering factors led to the realization of particular projects at the European level (implemented or not). Thirdly, their research brought to light some new information, some of which is also presented in Annex 2 as fact sheets (Chapter 4).
b) I carried out an elaborate analysis, over a longer time span, of the archives of France, Germany, and Russia. Within these countries a large number of edifices have been developed, and there are particularities and implications which we considered relevant to present in an extended way. The countries have been organized alphabetically. (Chapter 5)
c) I have carried out a more synthetic analysis for Italy and Great Britain because within them, although conversions predominated, a small number of purpose-built buildings with important characteristics were also realized. Countries have been organized alphabetically (Chapter 6)
d) I have carried out punctual and synthetic country reviews, from which we have selected only one example. Poland, Denmark, Norway, Norway, Slovakia, and Austria; as an exception, we also presented an example from Romania. Countries were organized according to chronological criteria (Chapter 7)

For Chapters 4-6, I have also developed a chronological graphical study of the second half of the 20th century. I have chosen this interval because I consider it the most relevant due to the number of buildings still in existence, the topicality and innovation of the solutions, and the repercussions these cases have had on archival architecture in this century.

4. Romania

In Romania, the first initiatives to realize purpose-built buildings for archives came about due to the Organic Regulations, which marked the transition of Romanian society to

[17] Belgium, the Netherlands, Spain, Greece, Portugal, Ukraine, Bulgaria, Hungary, and Serbia could be added to these lists. However, for the moment, the materials from these countries are not collected and processed in their entirety, and discussions with representatives of the National Archives have not materialized to identify the documentation and obtain copies in digital format. Therefore, we have limited ourselves to those countries whose materials could be processed and corroborated with other information from several sources.

[18] Luciana Duranti, in her *Encyclopedia of Archival Writers* 1515-2015, makes a selection of the leading archival authors based on several criteria: the relevance of their studies, their accessibility, and their agreement - in the case of those who are still alive, etc. They have selected archival writers from all continents, although perhaps for subjective reasons with regret, there is a reluctance to choose Eastern European countries. Thus, an impressive number of European archivists from France, Germany, Italy, and Great Britain - as well as the Netherlands and Spain- are mentioned.

modernity.[19] However, in the 19th century, although there were several such initiatives, only conversions were implemented, mainly in monasteries. Towards the end of the 19th century, the State Archives institution had a favorable context to have a dedicated general headquarters in Bucharest. However, the project was not realized for economic and probably political reasons.

In the 20th century, we have witnessed a paradigm shift. First of all, in the first part of the century, the general headquarters in Bucharest was built in stages, therefore improving the conditions for preservation. With the reunification of Romania, the first purpose-built building for the archives of the city hall and the Saxon University in Sibiu was finalized, and construction started when Transylvania belonged to the Dualist Empire. Secondly, with the establishment of the communist regime, a series of events [20] had a significant impact on the development of the architectural program of the archives and the institution. As a result, three standardized[21] projects were realized, 27 purpose-built archive buildings were constructed in the territory since 1959, several unimplemented projects for a dedicated general headquarters were realized, and significant contributions to the archival theory were made.

Romania excelled at the European level for several reasons: the uniqueness of the 19th-century solutions, the variety of approaches and constructions realized in the 20th century, with both special projects (for the general headquarters and the territorial headquarter) and the standardized ones, which were unique solutions at the European level, as well as the monumental artworks. In addition, the subsequent modification of the later standardized designs resulted in several buildings with similar characteristics not identified with the original standardized designs. The organization of a single service (MAI-ST) to deal with the projects may have given the projects a unified note, with a small number of architects dealing with the projects. Along the way, there was a depreciation in the quality of the solutions implemented based on the projects, with the peak of the most successful projects being reached between 1967 and 1972. In the 21st century, the number of state archive constructions has decreased, with more private-sector ones developing. They differ from the buildings of the previous century in the sites selected, the building materials used, and the simplified functional scheme.

5.1. France

France was characterized by fluctuating development in the 19th century, preceded by a meteoric rise in the second half of the 20th century with many buildings.

The first purpose-built 19th-century buildings in Europe were built in France. They can be categorized more as hybrid projects because planimetrically, volumetrically, principally, and aesthetically, they were a fusion of Italian Renaissance dwellings, French chateaux, and libraries. Later, French architects and archivists sought solutions without understanding all the implications. They made excessive use of reinforced concrete, both for the construction of buildings and for shelving.

In the second half of the 20th century, France stood out at the European level not only for the most significant number of achievements in 50 years (with at least 103 buildings) but also for the marked discrepancy between the practical approach to the actual construction and the theoretical approach, as realized by the archivist Michel Duchein.

[19] Sas, *Sediul Arhivelor Statului ...,* pp. 40-51
[20] Change of the supervisory minister, development of theoretical work
[21] One by Director Aurelian Sacerdoțeanu and two by IPCT Institute

Tower-type solutions have been the particular solution for French archive buildings, opening the administrative area more to the public and deciding to abandon the old headquarters. Different architects realized a considerable proportion of the projects.

The French experience has been significant throughout the history of this program, both on the constructive (architecture) and theoretical (archival) sides.

5.2. Germany

The core of the idea and the first practical realizations of archive buildings were realized in Germany at the end of the 18th century, and they were further developed and perfected. In the nineteenth century, various planimetric, volumetric, and constructional solutions were studied and implemented to realize buildings, new materials, and equipment. Typical for Germany were the solutions in which the two primary functions were divided into one volume for administration and another for storage. All these aspects in the 19th century made Germany a model for other European countries to follow and analyze. In the 20th century, they kept the main features developed in the previous century, continuing to perfect the architectural program of the archives by optimizing the flow optimization and using reinforced concrete much more rationally than the French. However, it was difficult to control the occupancy intervals of the repositories, as the time in which the take-up reserve was exhausted was limited, and it was also challenging to control immediately after the repositories were put into use.

The basic concepts developed in the German Empire, particularly from the 18th to 20th centuries, significantly influenced the architectural program of archives in this territory and beyond, contributing not only to the constructive (architecture) but also to the theoretical (architecture and archival) side.

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5.3. Russia[22]

Similar to other European archives, Russia's case shows the dynamics of archival constructions and archival ideas developed through practical experiments and borrowings from other European countries. The first building was built at the end of the 19th century, and later in the 20th century, special projects (in the capital and the main cities) and standard projects (for the cities in the territory) were realized.

The specific element of Russia was provided by the standardization of projects (with a distinct resolution compared to Romania) realized in the second part of the 20th century. The projects present a rigorous architectural program of a very large scale, with clearly delimited flows and limited spaces intended for the public. It was not possible to determine the number of buildings constructed due to the difficulty of documentation, but it was possible to study some of the projects. In the twenty-first century, the integration of technological solutions to streamline storage and archival practice has also been a particular issue.

The solutions realized by Russian architects are, in fact, the "ideal solution" for these buildings through standardization, as the essential criteria of archival buildings must prevail over architectural creativity. Standardization thus contributes both to reducing costs and to achieving the primary purpose of the buildings, whatever the century, precisely to provide security and safety.

[22] Research on the evolution of archival constructions on the territory of the current Russian Federation has been a major challenge, both due to the language barrier, prejudices, and the current political context, which has made it particularly difficult to collaborate and access documentary or professional archival materials.

6.1. Italy

Italian archivists have distinguished themselves over the years for their numerous theoretical works, their perfect practice of the profession, and their long tradition of this. However, the institution's policy was based on conversions, as there was the availability of a vast built fund, and therefore, the realization of purpose-built ones was resorted to only in exceptional circumstances.

In the second half of the 20th-century, several purpose-built buildings were built, not because of the change in the State's outlook but because of the man-made and natural hazards that had affected the old sites. Although few in number, the designs followed the principles proposed by the Italian archival literature to a great extent, which set them apart from other European archive buildings.

The archive buildings in Italy were characterized by a recognizable pattern due to the intersection of flows, the limitation of escape routes, and the elevation of the first-floor slab, but without a basement or basement and the solution of concealed roofs.

Therefore, archive buildings in Italy were more cultural than administrative and rigid, probably due to their small size. The contribution of archival theory to this architectural program was one of the most important, having been realized as early as the 19th-century.

6.2. United Kingdom

Archive buildings in the UK have not excelled to set an example for other countries. In addition to unfavorable climate, they have hampered microclimate control and physical security by being positioned on unfavorable plots near water. Purpose-built buildings were realized in the second part of the 20th century; until then, predominantly conversions. With a few exceptions, the facades' volumetry and plasticity fell into the residential dwellings category, as the maximum height was P+2E, the roof was of the hipped type, the surfaces were brick-faced, and the warehouses had window openings.

The organization of the warehouses differs from that in other countries due to their small surface areas and their organization in rows.

However, the report by archivists and conservators on the conservation and research side has set a positive example, and the results have sparked international interest with the realization of the BS 5454:1977 standard, which other countries have invoked.

7. Individual studies

After reviewing the evolution of the architectural program of the Archives in Europe in detail or in general, we consider it worthwhile to analyze some particular cases. [23]

The selected examples were characterized by the rarity of the projects at the time of their realization, the fact that they were headquarters for central archives in the countries where they were realized,[24] and the accessibility of the information and plans. As they were headquarters, this made the projects grandiose regarding the financial availability of the lots received and the design challenges. For this reason, they were all featured in the specialized

[23] In Poland - Warsaw; Romania - Bucharest; Slovakia - Bratislava; Norway - Oslo and Denmark - Copenhagen.
[24] With one exception: the Copenhagen building.

literature of either their home countries or the international literature, which gave them an added asset of visibility and relevance in the archive-building niche.

The central buildings present the most complex functional schemes in terms of architectural programs. In addition to the large storage capacity of the laboratory areas, they had to allocate a variety of spaces on a larger scale for the public.

Although these projects were realized in the second half of the 20th century and were based on the same, individualized design requirements (depending on budget, location, height regime and identified solutions), they differed. The buildings show a varied range of solutions, both above and below ground, which in fact illustrates the ingenuity with which the program can be applied while keeping its basic purpose.

8. Analysis. Evolution of ideas

The first archive buildings were constructed in Germany in the 18th century. Later, in the first part of the 19th century, the French took up the concept of these buildings and tried to develop them, but without clearly defining all the essential ideas. We believe that their excessive orientation towards libraries may have distracted them from the fundamental aims of providing safe custody and facilitating the work of archivists, which had different implications from that of librarians. Nonetheless, the warehouses' far too high heights made this difficult, and the heavy stone and brick structures could threaten the integrity of the documents and the safety of the occupants.

In the second half of the nineteenth century, projects dedicated exclusively to archives were revived in the German-speaking world, and architects and archivists could define all the essential aspects of an archive building. Their ability to understand and respond to all the security needs of archives could be attributed to their experience in archival practice, which is considered specific.

The series of implemented and non-implemented projects realized in Europe since the 19th century gives us an insight into how the concepts of these buildings have been pursued between different countries and how they have complemented each other. Two categories of archive building projects have been distinguished: the first for general headquarters, which are more prominent in scale, and the second for departmental, regional, or city headquarters, which are smaller than the first.

The first buildings adopted compact solutions in terms of function organization, meaning that all functions were integrated into a single building volume. Later, the concept of division into distinct building blocks according to functional specificities was developed. The reasons for this separation could be security and safety reasons; later, other benefits were identified.

The plasticity of the surfaces evolved gradually but in a concrete form recognizable as belonging to the archives, which was realized in the second part of the 20th century and the beginning of the 21st-century. Robust volumes with simple and sober facades became the distinctive features of these buildings. In Romania and Russia, a particular feature of these buildings was realized by applying monumental artwork to the facades.

With the birth of the first buildings in the 19th century, a meaningful exchange of ideas occurred between countries. We believe this transfer was visible from France[25] to Germany and was not reciprocal. The French start was promising, but the journey was difficult and centered more on innovation and uniqueness, which proved difficult to manage.

The 20th-century was the period of maturation of the archives' architectural program. With the construction of many buildings, basic concepts were either developed, neglected, and

[25] The concept of inhabitation and division of functions into distinct buildings.

misinterpreted, or new ones were identified. What is certain is that the way of organization and functioning has improved compared to previous centuries.

In conclusion, the present study makes it clear that modern archives, in a mature form, came into being in the second half of the 20th century through the research and experimentation of each country, and this has continued into the first two decades of the 21st century.

Part III

Part III comprises five chapters, each intended to present the conclusions through-out different aspects of the research.

9. Conclusions on the evolution of buildings

Even though the first archival buildings were built at the end of the 18th century and numerous archival buildings were constructed in the 19th century, the period of maturation of the architectural program of the archives took place in the 20th century. This century saw significant improvements over the previous centuries for a number of reasons, but the main ones were to improve the conditions of preservation and storage and increase the capacity of the repositories.

Every government or state, regardless of the century, has been and remains objective in constructing buildings that are optimal from all perspectives, which presents new challenges for architects today

The evolution of this program is not yet fully completed, as each century has brought new challenges. We are only in the first quarter of it, already witnessing significant climate change, diverse documentary media, and natural and artificial threatens.[26] These issues will make demands distinct from those of previous centuries and lead to new solutions.

10. Requirements that led to the creation of a dedicated architectural program for the archives

At an early stage, the principles for organizing spaces and buildings for archival storage were identified empirically through immediate implementation and experimentation. These principles have been selected and refined over time, influenced by the needs identified by archival practice and by trends and approaches specific to particular jurisdictions affected by political or territorial changes. Initially, the repositories resulted from conversions, and only later, from the second half of the 18th century, were purpose-built buildings. Regardless of the circumstances, the construction and layout requirements were applied equally.

The first requirement was the accumulation of records in an organized manner, whether for administration or personal purposes. Initially, the reason for keeping documents was for administrative-territorial legitimacy and for determining and protecting property rights. Later, this custom also took on cultural significance, with documents used for historical research.

The second requirement developed from a certain level of document accumulation when the intuition of putting documents aside was no longer sufficient to allow their retrieval over time. As a result, norms and rules of organization began to take shape through the theoretical work of archival application. At the same time, the main characteristics of the premises and

[26] We refer to the collapse of the archives in Köln, the archives being affected by fires, or the recent war.

buildings were consolidated. Thus, the documents had to be organized, and the premises had to be protected from natural and man-made threats.

The third requirement specific to archives was the speed of occupation of storage space. Social development intensified administrative and legal activities, which led to increased documentary production and more significant archival accumulations.

These three requirements have, over time, led to the development of basic rules and principles, which have gradually led to the development of a specific archival architecture.

In our opinion, the first requirement determined establishing a hierarchy of spaces by outlining the two significant areas, namely the area for working/using documents and the actual area for keeping documents.

The second requirement led to the obligation to insulate spaces or buildings to ensure security and safety. Using fireproof building materials and adopting construction solutions to support the primary purpose and ensure their resistance and protection over time was essential. In addition, especially with the development of archives as institutions of memory, the aim was to identify the most advantageous and safe solutions concerning populated areas, allowing isolation and corresponding to the critical status of the function.

The third requirement was to select or dimension the premises according to the volume of documents held, plus a reserve of space for future retrievals, which had to be taken into account.

These requirements were the foundation on which the architectural program of modern archives was built. Their legitimacy has been earned by their recurrence in every century between the 18th and 21st centuries, and they are found in varying degrees in all converted or purpose-built archive buildings.

11. A distinctive architectural identity

We believe that the distinct architectural identity of the archive buildings has been formed by integrating specialists from the two fields of architecture and archival design. On the one hand, architects focused on combining particular design principles with other programs adapted to the needs and specificity of these buildings.[27] On the other hand, the archivists aimed to implement features that would provide exemplary conservation and preservation of documents.[28] Accordingly, the two specialties have actively worked together, giving rise, both in terms of ideas and implementation, to buildings that are unique in terms of their functionality, construction, volumetric, and aesthetic features.

From a functional point of view, the architectural program of the archives is made up of fundamental zones and flows specific to each type of user – archivists and researchers. The fundamental areas are divided into two main categories: the first is dedicated to storing the documents themselves, and the second to administration.

The relationship between the administrative and storage areas is realized through circulation flows that serve four basic specific circuits: documents and their internal preparatory flow; the transfer of documents from storage to the study room, personnel activity, and lastly, for researchers. For a proper resolution of the flows, the first two should not interfere with the last one to meet security requirements.

[27] Isolation from other buildings, the use of wood to a lesser extent or its exclusion altogether, the determination of large storage spaces, but at the same time structurally adequate, the respect of the flows of each zone and the avoidance of undesirable intersections, etc.

[28] Temperature, humidity, respecting flows, the compatibility of the solutions proposed by architects with their activities.

From a construction point of view, the storage and administration areas are similar in terms of construction materials, techniques, and methods used. Structural elements and building systems are recommended to be treated differently to endure the demands,[29] meet storage conditions, and save money and space. The storage area must, therefore, be standardized in a particular way to withstand the loads of documents.

From a volumetric point of view, the easiest solution is to divide the two areas into different volumes due to the functional characteristics and constructive elements. The volume related to storage is massive due to its size, and it can have a varied height regime from P+4E4E/9E.[30] It is recommended that the volumes be solved compactly, either one or several.

The administrative area is more restrained, has a reduced gauge, and falls within a volume regime limited to a maximum of P+2E, which can be resolved compactly or not.

From an aesthetic point of view, the two areas are solved differently, as the utilitarian purpose is given priority over the aesthetic one. To balance specific internal conditions concerning costs, solutions that imply a functional benefit of these buildings are selected, and then their consumerization is sought through finishes.

We conclude that the four criteria analyzed establish a particular architectural identity of the archive buildings in relation to other programs.

12. Specifics of archive buildings

The specificity of the architectural program of the archives is mainly defined by the storage space since, as mentioned above, it occupies the most space allocated for the whole building. The characteristics that this area must meet determine the choice of solutions for all the other elements of the program.

Three basic principles have been outlined for the location of these buildings: safety, expandability, and accessibility—both to the public, staff, and firefighters in case of emergencies. On a case-by-case basis, these buildings can be located in urban centers, on the outskirts of urban centers, or in rural areas close to major thoroughfares.

In order to respect the principle of isolation between the warehouses and the administration and thus ensure security and safety, these areas may be organized horizontally in at least ten different typologies. These typologies are: 'Z,' 'O', 'T,' 'H,' 'L,' 'I,' 'U,' 'U,' and 'E,' point and irregular configurations by juxtaposing several variants. In vertical organizations, various variables also arise, primarily related to the location of the storage area above or below ground. Once this location has been determined, there may be at least six additional organizational options.

Several factors influence the determination of the storage area. On the one hand, there is the protection and limitation of the spread of fires, the maintenance of the microclimate, the restriction of the spread of pests, and their organization according to the graphical support. On the other hand, the recommended average surface area of 200-300 sq.m. is a structural,

[29] From this point of view, there is an antithesis because documents are considered to be payloads of a temporary nature when, in fact, they occupy the spaces intended for them permanently. From a structural point of view, this aspect requires particular attention, as the building must withstand its weight, plus that of the documents. On average, a ml of archive is 50 kg, and a m3 of archive is 600 kg. As the constant loads make these buildings more susceptible to subsidence, which can result from dynamic stresses (earthquakes or uneven subsidence), particular care must be taken in selecting and determining appropriate solutions. *See* Michel Duchein, Archives Buildings and equipment, 2nd revised and enlarged Edition, Munchen, De Gruyter, 1988, pp.137-138.

[30] There are cases of taller buildings already built, but the general average stops at nine floors, probably because of the substantial loads and the costs involved in a higher height regime.

organizational, and economic advantage. In this situation, it is advisable to identify an ideal construction mode that satisfies all these requirements, mediating in a balanced way all the factors that may influence the security and integrity of the documents, balanced with the financial return.

Not every type of space lends itself to this purpose, and the occupancy coefficient of the space (ml/sq.m.) can determine whether a solution is more or less economically advantageous. In the case of the second option, this can limit the building's useful life, a phenomenon increasingly common in this century.

One of the characteristics of buildings built in previous centuries (the need for buildings to expand over time, which gave them a dynamic character) will gradually migrate from this century towards a static character. This is due to changes in the information medium of documents, from analog to digital, which will no longer involve significant paper takeovers of documents by archives. We believe that attention will focus primarily on improving the existing buildings or replacing them with new, economically efficient, and environmentally sustainable ones. They will be able to be sized for a finite and determined volume of archives, designed to limit maintenance and staffing costs and to make document preservation more efficient. Since all documents of a permanent nature must continue to be kept, even if there are digital copies of them, the conditions for their preservation must be appropriate.

A new category of repositories, the server repository, has been developed. Their characteristics are particular due to their number,[31] location,[32] and microclimate conditions.

Therefore, archives' development is not at a standstill. From an architectural point of view, we believe that the organization of the functional scheme of an archival building is not yet definitive and that this century may witness a new phase of metamorphosis.

12.1. Storage from light to dark

The level of protection offered by purpose-built archive buildings has developed in parallel with identifying new types of risks. While initially, one of the primary concerns was protection from water or fire, the conflagrations of the 20th century revealed the risks of war. The latter led to experimentation with underground storage. During the Second World War, probably due to the already built bunkers, this option began to be considered, but it had to be perfected and adapted by architects. Identifying the conditions that would make underground storage possible without damaging the archive was important.

The Swedish architects researched construction options that would lend themselves to this solution. They later advised Norwegian architects.[33]

After this constructive possibility was presented internationally and its effectiveness demonstrated, it was embraced by other countries for various reasons, such as responding to the constraints of limited height sites, low terrain, or proximity to historical monuments; their massiveness was a visually disturbing factor.

Later, in the 21st century, this type of solution became compatible with the principles of energy sustainability. The possibility of keeping the internal temperature constant with the

[31] There are three: one master and two children.

[32] Servers containing the backups must be located in other geographical areas to ensure security.

[33] The first building is considered to be the Stockholm Stadsarkivet Kungsklippan. The project was selected based on a competition in 1940. In 1943, the warehouses were completed and inaugurated, but the administrative area was not completed until 1959. Stadsarkivets byggnader, Stadsarkivet Kungsklippan, published October 4, 2023, https://stadsarkivet.stockholm/stadsarkivets-uppdrag/stadsarkivets-byggnader/, (accessed January 5, 2024).

limited use of auxiliary equipment has influenced this solution's value without war and other site conditions.

Regardless of the climatic regime and depth underground, we have identified several essential features based on realizations in this niche solution. The first feature relates to protecting the repository walls from direct contact with the ground in two aspects. The second element is the exclusive use of reinforced concrete diaphragms for all walls. The third essential element concerns the absence or presence of thermal insulation; this is questionable. The fourth element is the existence of two escape routes: one elevator for documents and one for staff. The fifth element stipulates the possibility of being located totally or partially underground, from which solutions may be derived.

Therefore, moving the repository from light (above ground) to dark (underground), as radical or costly as it may seem as an initial investment, may, over time, be the optimal solution for preservation.

12.2. Are libraries the archetype of archive buildings?

Due to the concept of paper preservation, whether publicly accessible or not and their categorization as information programs, the two architectural programs of libraries and archives have been considered similar.

Both programs shared several characteristics, as well as numerous distinguishing features.

Undoubtedly, the two programs that developed in parallel influenced each other; however, they individualized and adapted to the specific requirements and needs of each. Thus, we are of the opinion that libraries do not constitute the general archetype of archival buildings but only those in 19th-century France.

13. Final considerations

The archival architectural program emerged due to the need to retrieve and process documents, regardless of the medium. The general principles established at an early stage have been maintained and refined over time, leading to continuous development in the present day. Although initially, buildings with other essential functions were used, later on, the amount of archival material collected, followed by the restrictions that these buildings had to fulfill, as well as the specific needs, led to the construction of purpose-built ones. These buildings were not accidental or isolated achievements, a fact confirmed by the functional, constructive, volumetric, and aesthetic criteria that have defined them over the centuries and have led to the establishment of a particular architectural identity for archive buildings.

The core of the idea and the first practical implementations of archive buildings were realized in Germany at the end of the 18th century and later developed and perfected. During the 19th century, when the first buildings were realized in several countries, the exchange of ideas was visible, as confirmed by the study visits and the solutions adopted. The period of maturation of the architectural program of the Archives was achieved in the 20th century, with improvements compared to the previous century for several reasons. These have been realized through each country's contribution to research and experimentation, with no one country being defined as the primary source. However, the evolution of the archival architectural program is not yet finalized because even though we are only in the first quarter of the 21st century, we are already witnessing new solutions. Several different considerations have

determined these, and it is possible that we will witness a new phase of metamorphosis in the future.

The significant events that influenced the development and course were the first forms of state organization, world conflagrations, the creation of the international organization CIA, political regimes, and the financial resources allocated to the archival institutions.

Long-term trends have shown an increase in the number of buildings in each country studied, whether due to particular causes or not. These buildings differ in several aspects, both functional, constructive, and aesthetic.

Romania stood out at the European level for several reasons: the uniqueness of the 19th-century solutions, the variety of approaches and constructions realized in the 20th century, with special projects (for both the general headquarters and the territorial headquarters) and standardized ones, which were unique solutions at the European level, and monumental artworks.

The present study confirms the existence of purpose-bult buildings with particular characteristics in each of the countries studied. The common feature was the purpose of the buildings – to preserve, conserve, and facilitate public access to documents – as well as the circulation of ideas, which contributed to creating a standard basis. This is validated by the fact that we identify the same functional organizational errors in different countries, or after a publicized achievement in one country, the same principles are soon applied in other countries.

By far, Romania's connection to the European current of this architectural program can be distinguished and attested from the very first phases. Moreover, it brings together the most varied number of approaches and particularities. Therefore, we believe that the present work has brought essential additions to the previous research through the unpublished information, the research method, and the definition of the architectural program of the archives in the history of archival and architectural history.

As for the relationship between archives and libraries, we believe that, while there is undoubtedly a mutual influence between the two programs, they are individualized and adapted to the specific requirements and needs of each. Moreover, archives have been accumulated and organized much earlier than the emergence of the first book repositories, but the public visibility of the latter has been more significant. This uneven progress on different parameters may have led to inaccuracy in specifying the archetypes of the two programs. In our opinion, however, the origin of the universal architectural program of archives is not to be found in the library program but only in the French solutions of the 19th century, which were later abandoned.

The purpose of the applied research was to illustrate the fragility of paper held in unsuitable conditions and how the space configured by the architects affects the documents in the archivists' custody. Probably, for this reason, the latter was actively involved in determining the characteristics necessary for good preservation, as the architects may not have understood the needs of the documents as the 'beneficiary' of the spaces, which were and are fragile, sensitive, particular, capricious and essential due to the content.

In conclusion, we believe this architectural program could be developed by contributing specialists in the two fields: architects and archivists. Consequently, through practice and evolution over the centuries, an architectural program dedicated to preserving documents, regardless of their medium, was determined on the borderline between a socio-cultural and a political-administrative program.

14. Originality and innovative contributions of the thesis

The topic's novelty is emphasized in several ways, both in the documentation process and in the data processing.

The documentation was carried out in archives in the country (where we had access to unpublished documents) and abroad. Thus, the paper presents information on archives that is unknown to date and not yet part of any published research. Thus, the primary sources consisted of original documents or photocopies, drawings, photographs, videos, as well as the written part of the projects for which the study was carried out in:

a) Archives in Romania: SANIC, SMBAN, CNSAS, SJANs, DMI, UAR, ANF, Sahia Film Archive, DJCS, "Ion Mincu" University, town halls, and county councils.
b) Archives abroad: Germany, Italy, France, Slovakia, Norway, Denmark, Great Britain, Poland, Germany, Italy, France, Slovakia, Norway, Denmark, Great Britain and Poland.

Regarding the architectural plans in the NRA, they could not be identified because they had been extracted from research and were classified as secret documents. There were also exceptional cases where fronts, site plans, or photographs could be traced, but in extremely limited numbers. The plans identified are in Annex 1 and Annex 2, respectively

In case studies, an original approach was also used to present both implemented and non-implemented projects, some of the latter completely new. We choose this approach because, from the perspective of researching ideas about the subject, it is the intentions/vision of the buildings that matter, and only then does their materialization (depend on components outside the vision of the architects/archivists and of a logistical/financial nature).

The area researched (Romania, France, Germany, Russia, Italy, Great Britain, Poland, Norway, Slovakia, Denmark) and the period studied between the 18th and 21st centuries constitute, through the contextualized study, an innovative element.

The type of research and how the data were processed are also new elements, as they have been used in comparative analyses at the European level on the basis of predetermined criteria, which has never been done before.

Personal path and use of knowledge

During my PhD as a consultant, I worked with two National Archives. The first was Romania's (2022-2023) within the *eVitala* project, and the second was Oman's (2024) to study and improve the design of the general headquarters. In the latest collaboration, we were unpleasantly surprised by the limited understanding of this architectural program among some foreign architects. Although the design costs were high, the project had several major dysfunctions.[34] This aspect further substantiates the importance of the present work for future archive-building projects.

As a result of our research and deepening our understanding of the topic, we were accepted into the Expert Group on Archive Buildings and Environments (EGABE) of the International Council on Archives in 2024.[35]

Presentation of the results:

National and international conferences:

2019	Faculty of Civil Engineering and Architecture, University of Niš, Serbia (October 24-25, 2019)

[34] Annex 4.

[35] ICA, 2024. „Expert group on archive buildings and environments – EGABE", june , 2024, https://www.ica.org/ica-network/expert-groups/egabe/committee/

	V International symposium for students of doctoral studies in the fields of civil engineering, architecture and environmental protection, PhIDAC 2019
Presentation	*Cultural center of architecture archive. A new view for the reusage of the nobiliary residences. Item case Haller castel in the Gârbou village Romania*
2023	University 1 Bucharest, Faculty of History Centenary D. Onciul Perspectives on the Middle Ages and Early Modernity: Sources, Methods, Approaches (October 19-20, 2023)
Presentation	*The State Archives in continuous construction site. The reconstruction of the ensemble under the direction of Dimitrie Onciul (1900-1923)*
2023	"1 Decembrie 1918" University of Alba Iulia National Conference of Students and PhD students - History - Archaeology - Museology - Art History - Patrimony - (November 17, 2023)
Presentation	*From European models to local archive buildings (19th-20th centuries).*
2023	International Institute for Archival Science of Trieste and Maribor 33rd Conference international archival days 2023 17th iias international autumn archival school (November 28 -December 2)
Presentation	*Giulio Magni an architect for the project of the State Archives in Bucharest at the end of the 19th century*.

Publications:

Books:

Maria Alexandra Sas, Sediul Arhivelor Statului în şantier continuu, volumul I – secolul al XIX-lea, Oneşti, MGP, 2023, ISBN 978-606-622-689-9

Articles:

Maria Alexandra Sas, „Reconsiderarea unei ruine. Studiu pentru valorificarea ansamblului Castelului Haller-Jósika din Gârbou", în Transsylvania Nostra, în anul XIII, 50 (2019), pp. 20-31.
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https://www.ceeol.com/search/article-detail?id=1125845

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https://magazinistoric.ro/decembrie-2023/

Maria Alexandra Sas, „Giulio Magni, an architect for the project of the State archives in Bucharest at the end of the 19th century" în Atlanti +, 34/1, (2023), pp. 7-22.
https://doi.org/10.33700/2670-4579.34.1(2023)