

The Importance of Construction Project Archives Management and Ways to Strengthen it

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Abstract: China's economy has been developing rapidly in recent years, leading to an acceleration of urbanization, which in turn caused the number of construction projects in various regions to increase significantly. Archives are important information for construction projects. The quality of archives management can have a great impact on the quality and economic benefits of construction projects. For this reason, it is necessary to increase the emphasis on archives management of construction projects and take effective management measures. This article introduces the concept of construction project archives, highlights the significance of effective management in construction project archives, and examines prevalent issues along with practical measures to enhance construction project archives management, with the goal of offering valuable insights for archive managers.

Keywords: Construction projects; Archives management; Strengthening measures

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1. Introduction

China's construction enterprises are facing significantly increased competitive pressure, and it is imperative to actively promote the reform of the construction project management system. Archives management is a key part of construction project management and can have a great impact on the development of construction enterprises. Therefore, construction enterprise managers need to pay more attention to archives management, analyze existing problems, and formulate perfect construction projects based on actual conditions. An archives management system optimizes and adjusts the management model to achieve the best management results.

2. Main contents of construction project files

Construction project archives mainly refer to the audio and video, charts, drawings, and written materials formed during the planning, construction, and management of a project. They are the true original records of the entire construction process and are also valuable information resources for construction companies. The main contents of construction project files are as follows. (1) Comprehensive documents and information:

Comprehensive documents and information for construction projects mainly include government department approvals, construction plan tasks, project-related hydrogeological and meteorological data, land acquisition and demolition and resettlement documents, project plans and design information; planning, environmental protection, health, fire protection, and approval materials from other departments; documents and materials related to project construction supervision, project completion acceptance and quality appraisal documents, and project settlement and audit reports and project-related audio and video materials ^[1]. (2) As-built drawings: As-built drawings mainly include the general layout of the project, the indoor pipeline as-built drawings, the decoration engineering as-built drawings, the structural engineering as-built drawings, the water supply and drainage engineering as-built drawings, the strong and weak electricity completion drawings, the ventilation and air-conditioning engineering as-built drawings and other professional as-built drawings. (3) Other documents: In addition to the above file contents, construction project files also include commencement and completion reports, drawing review and design change data, technical disclosure and material substitution documents, construction organization design; establishment-related data, construction material related data; project quality appraisal documents, project construction, recording and processing documents, construction technology summary documents, etc ^[2].

3. The importance of construction engineering file management

At this stage, the overall number of construction projects in various regions of our country has increased significantly. During the execution of construction projects, a variety of archival materials can be generated, such as preliminary approval documents, construction records, completion acceptance documents, etc. Effective management of construction project archives is of great significance. First of all, archives can accurately and comprehensively reflect the details and also the management and maintenance of construction projects after completion. Through effective management of archives, construction companies can determine their shortcomings in daily management and formulate targeted improvement measures to promote the improvement of their market competitiveness. Secondly, construction project archives play a guiding role in the development of construction enterprises. With proper construction project archives management, enterprises can refer to the archive content when designing and constructing similar projects, thereby promoting the scientific development of construction projects ^[3]. Disputes may occur during the construction of a project, so good construction project file management can provide valuable reference materials for resolving various disputes. Finally, construction project files are an accumulation of urban construction experience and technology. They are also the main basis for urban building repairs, renovations, and expansions. Therefore, construction companies need to effectively strengthen construction project file management to contribute to the development of the city.

4. Problems in construction project file management

4.1. Incomplete and inaccurate information

Construction engineering archives are diverse, particular, and complex. They are difficult to collect and organize, and there is a high risk of errors, which in turn leads to frequent problems such as inaccurate archive data. Besides, some construction companies do not pay enough attention to the management of construction project files and have not formulated a complete management system. There are many problems in terms of file collection and data input, resulting in many false data in the files, and as-built drawings with major errors. As a result, there is a deviation from the facts, which leads to the inability of the architectural archives to play its due role ^[4].

4.2. Failure to hand over completion files on time

Some construction units fail to organize archives in time upon the completion of a project, resulting in delayed transfer of completion files. Some construction companies have problems such as arrears in project payments, resulting in extended construction periods and stagnant archiving of construction projects. Problems such as incomplete, scattered, and lost archival data are prominent, which in turn affects the progress of completion acceptance and handover of construction projects, and hinders the stability and the healthy growth of construction companies.

5. Measures to strengthen construction project file management

5.1. Developing standardized and unified construction project archival standards

The scale of a construction project is large, and the period of construction is long. Besides, a project involves a wide range of fields, so there is a large number of data involving different areas of the project. Therefore, it is necessary to formulate standardized and unified standards to ensure the authenticity, completeness, and effectiveness of the archive's content, and to ensure that archives play their due role in the construction of construction projects. First, the construction project organization design document must contain the signatures and approval information of the construction unit, supervision unit, preparer, technical supervisor, and other participating parties, and the content must be written clearly. Secondly, the joint review document of construction project drawings must contain information such as the project's name, the location of the construction site, the content and time of the joint review, and the construction personnel involved. The documents must be stamped by relevant departments with their official seal ^[5]. Thirdly, documents such as building and engineering construction material certificates and quality inspection reports must be complete and the contents must comply with relevant national regulations. Fourthly, the contents of contracts and agreements in construction projects must be detailed, comprehensive, and fair, and must not contain loopholes. Technical disclosure documents must meet the requirements of quality acceptance specifications. For example, relevant documents for pipeline installation must record in detail the pipeline support method, pipeline location, and size. and other information, and relevant information should be described in detail during the acceptance process. Fifthly, the archives of sub-projects must be reasonably divided, the content must be true and accurate, and there must be no missing items. The content of the construction diary must be comprehensive and true. Sixthly, electronic archive materials such as pictures, images, and texts in construction projects need to be classified and managed, and their standards must be determined based on database requirements ^[6].

5.2. Clarifying the rights and responsibilities of all parties involved in construction project archives management

In the process of carrying out construction project archives management, it is necessary to clarify the rights and responsibilities of all parties involved in construction project archives management, and formulate a reward and penalty system to improve the sense of responsibility of relevant personnel. The following solutions can be adopted in the process of determining rights and responsibilities. (1) Design unit: Construction engineering design units must submit construction drawings and technical plans within the specified time, and the relevant content should meet the requirements of national standards. (2) Contractor (employer side): The contractor is mainly responsible for completing the application for construction projects, which includes obtaining the land, planning, and construction approval documents and relevant licensing qualifications. The contractor will also be responsible for providing project feasibility reports, design plans, construction drawings, bidding documents, contracts, and other documents. The contractor plays a connecting role among construction units, design units,

supervision units, and urban construction archives. (3) contractor (construction side): The main responsibility of this contractor is to ensure that the quality of the construction project meets the requirements of relevant national standards and is required to provide quality inspection reports related to accessories, mechanical equipment, and concealed projects ^[7]. (4) Construction control unit: The main responsibility of the construction control unit is to control the construction site, and it is required to submit documents such as construction progress and on-site visas. (5) Survey unit: The survey unit is mainly responsible for the survey of construction projects and is required to submit a construction project survey report.

5.3. Create a good atmosphere for construction project file management

In order to improve the management construction project archives, construction enterprises need to pay more attention to archives management, actively participate in the collection, arrangement, and utilization of archives, and create a good construction project archives management atmosphere. To achieve that, construction companies need to set up a construction project archives management department. The department personnel will need to implement the archives management system, improve archives management awareness, publicize the relevant content of archives management within the enterprise, and guide all personnel to cooperate in the archiving process. Secondly, construction companies need to consider the characteristics of construction projects, reasonably determine the goals of archives management, formulate a complete management system, promote cooperation and exchanges between archives creators and departments, and constantly improve their archives' categories, quantities, and standards. Moreover, it is also important to ensure that the files are standardized, authentic, and accurate. Lastly, construction enterprise archives management personnel need to master the archives management system proficiently, and integrate an information-based archives management system to gather and structure construction project archives. They should also be able to mine valuable information in the archives to promote the advancement of their construction projects ^[8].

5.4. Establishing a construction project archives management system based on project management

It is necessary to implement dynamic management of archives that aligns with real-time circumstances. This involves establishing a management system based on project management, collecting archival information generated in each link in a timely manner based on the construction plan and project progress, reviewing the archive content, and carrying out archiving and classification, and mining effective information. Firstly, construction companies need to actively implement the whole-process construction project file management. This involves setting precise collection times in line with the construction plan, focusing on key and weak-link file information, and categorizing documents pertaining to project approval, bidding, planning and design, demolition and resettlement records, construction, completion acceptance, and other relevant aspects. ^[9] Secondly, construction companies need to focus on strengthening the quality management of construction project archives, strictly formulate archiving standards and specification requirements, dynamically analyze and research relevant information in archives, and collect feedback to continuously increase the value of their archives.

5.5. Establishing a construction project archives management model that combines before, during, and after the event

To achieve excellent archive management, construction enterprises create a construction project archives management model that integrates pre-event, in-event, and post-event considerations, taking into account their specific circumstances. Pre-event management mainly refers to the management in the early stages of

construction data formation, and the focus of management is to control the source of archival data. In pre-event management, construction companies need to accurately distinguish the codes of construction projects, compile a coding system, and determine the codes for the unit projects. Construction companies need to establish standardized and unified records and acceptance forms that include relevant information about the project. In addition, construction companies need to strengthen supervision and guidance in the process of collecting and organizing archival materials, so as to ease archive management. Before the construction of a construction project, construction companies need to collect archival information such as project approval, construction organization design, construction drawings, geological survey reports, etc. During the construction process, they need to dynamically collect and organize archival information from each link, organize construction logs, conduct technical briefings and other tasks, and take effective measures to ensure that the quality of the archives meets relevant standards. After the project is completed, the construction company needs to organize various information in detail and complete the archiving and transfer of files in a timely manner.

6. Conclusion

The implementation of construction projects involves a large amount of data, so it is imperative to strengthen archival management. At this stage, there are many problems in the management of construction project archives. To this end, it is necessary to formulate standardized and unified construction project archives standards, clarify the rights and responsibilities of all parties involved in the construction project archives management, create a good construction project archives management atmosphere, and project management, establish a construction project archives management system as a basis, and build a construction project archives management model that starts from the initiation to the completion of the project.

Disclosure statement

The author declares no conflict of interest.

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