

RESEARCH ON THE RELATIONSHIP BETWEEN PROJECT MANAGEMENT AND CONSTRUCTION ORGANIZATION

Yuhao Jiang¹, K. Savrassov²

^{1,2} Master of the Belarusian State University, Faculty of Business, Business Minsk

²Senior lecturer at the Business administration chair

Minsk, Republic of Belarus

The relationship between project management and construction organization is very close, and project management can have an impact on quality, progress, cost, and other aspects of construction organization. Project management promotes the progress of construction organization, reduces safety hazards, improves work efficiency, shortens construction period, and ultimately achieves the goal of improving construction organization profits. The first part of this article mainly introduces the importance of project control in construction organization, the second part studies the details of project management in construction organization, and the third part focuses on how to coordinate the relationship between project management and construction organization. It is hoped that this article can provide reference opinions for relevant personnel.

Keywords: project management; Construction organization; Relationship Research.

INTRODUCTION

The relationship between project management and construction organization is very close, and project management can have an impact on quality, progress, cost, and other aspects of construction organization. Project management is an important goal to promote the progress of construction organization, reduce safety hazards, improve work efficiency, and shorten the construction period, in order to achieve the expected profit objectives of the project. The construction organization is an important part of the project. Project management of the construction organization helps to ensure that the construction organization control engineering and strengthens the project management. The study of the relationship between project management and construction organization can improve the economic benefits of construction organization, and is also an important guarantee for correctly handling various contradictions such as personnel, machines, raw materials, methods, environment, and processes and equipment, civil engineering and installation cooperation, consumption and supply, management and production, etc. in construction, and organizing project construction production scientifically, reasonably, planned, orderly, and balanced. Introduce advanced technology, use advanced equipment, carry out daily management work, and prevent common quality problems in civil engineering projects in the project; To meet the requirements of construction organization design, which involves a comprehensive design plan for building construction, designing each unit project, individual project, and sub project of the main structure. It is an indispensable key link in the construction practice of civil engineering projects and an important measure to ensure the smooth completion of civil engineering projects. Therefore, how to reasonably grasp project management and quality control in construction organization is an important prerequisite for current project construction management and an important part of construction organization.

1. Project control in construction organization.

1.1 Quality Control.

Quality control refers to quality management and project control. Quality control reduces problems during the construction phase through quality operation techniques and activities, ensuring that the

project quality meets the construction requirements and obtains economic benefits. We can use quality management tools such as APQP (Advanced Product Quality Planning), FEMA (Potential Failure Mode and Effects Analysis), MSA (Measurement System Analysis), SPC (Statistical Process Control) to manage construction projects. We can refer to APQP management tools from other industries to grasp the technology, manufacturing, material control, procurement, and quality control during the early stage of construction.

1.2 Progress Control.

Progress control, also known as progress target control, dynamically monitors the overall construction process. Compare and correct the actual construction progress data with the construction schedule plan to achieve the goal of ensuring that the project is completed according to the established construction period, or even shortening the established construction period. We can control the construction progress through methods such as bar chart method, time scale network diagram, S-curve comparison method, and project progress report to ensure that each unit project proceeds smoothly according to the construction plan. The control of construction progress can be divided into pre control, in-process control, and post control: pre control: setting construction period goals. Develop an overall construction schedule and monitor the division of labor, materials, construction nodes, labor, barometers, and other unit projects, and use the bar chart method to visually reflect the construction progress of the project. The bar chart is shown in Figure 1.

In process control: Check the progress of sub projects and sub projects. Conduct dynamic monitoring and management of individual projects such as earthwork, brick laying, plastering, materials, formwork, and steel reinforcement binding. When there is a deviation between the actual construction progress and the plan: adjust each sub project to ensure that the total construction period does not change. Develop remedial measures when there is a delay in the total construction period.

Post control: Accurately plan the construction period for secondary structural plastering, and make detailed procurement and batch follow-up plans for materials such as water and electricity pipelines, gas pipelines, HVAC, etc. entering the site; Control the specifications such as canopy diameter and ground diameter of seedlings for landscaping.

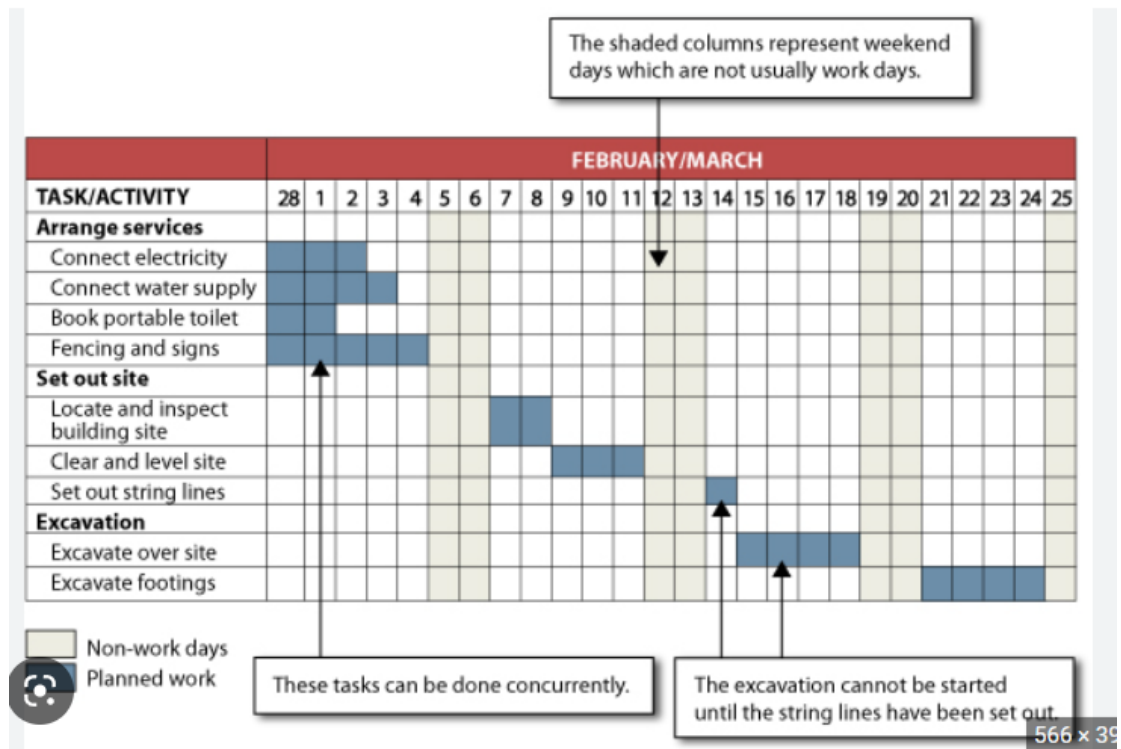


Figure 1: Building Bar Chart

1.3 Cost Control

Cost control refers to the management and control of construction costs. By controlling labor costs, construction material costs, construction machinery costs, management costs, profits, and taxes, cost control methods such as fixed cost method, standard cost method, target cost method, activity-based cost method, value engineering method, and waste reduction method can be used to ensure the rationalization of procurement prices, process costs, and business management. Refined management of construction cost control can achieve more economic benefits while ensuring project quality.

Labor cost: Select high-level construction organization to improve project quality and shorten construction period. Utilize new technologies such as BIM to create more scientific construction plans, improve engineering efficiency, and save labor costs.

Construction material cost: The technical department shall provide the total construction budget and specific project budget, and the project management personnel shall supervise the construction materials of the construction organization personnel. Project management personnel need to ensure that the consumption of materials corresponds to the progress of construction organization. Effectively control the consumption cost of construction materials.

Construction machinery cost: the rental cost of machinery shall be measured according to the market price of the place where it is located. The cost of machinery rental can be reduced through subcontracting or bidding. After reducing the daily rental cost, while ensuring the quality of the project, the lease duration of the machinery is minimized to improve its efficiency and reduce unnecessary expenses.

Management expenses: Control the operating expenses, financial expenses, and other management expenses of the construction organization, establish personnel and operation quotas for management, ensure the production and operation period of operators and management personnel, and improve personnel work efficiency.

Profit and Tax: The content of the tax plan includes both the general tax plan and the individual tax plan. The individual tax plan should include various tax bases, tax rates, and taxable amounts. Compiling a tax plan based on the construction plan by the construction organization is beneficial for the construction enterprise to ultimately prepare a financial plan and the state to prepare a current political budget. Managing taxes is beneficial for enterprises to allocate funds in a planned manner and correctly handle the relationship between enterprises and the state.

1.4 Project management in construction organization

1.4.1 Contract Management

Contract management in engineering can be divided into subcontracting management, contract performance management, and change claim management. Contract management is carried out by establishing a contract management organization, standardizing contract signing procedures, managing contract changes and claims, dynamic and information management, and other management modes. Ultimately, improve the bidding level, strengthen cost control, optimize design plans, and enhance project efficiency. Select the most suitable subcontracting construction unit, professional subcontracting construction unit, and labor subcontracting construction unit for the general contracting bidding. And timely signing of contracts after the completion of bidding work can effectively control the construction technology and behavior of the construction unit, and also strengthen the quality of internal control work of the construction unit. At the same time, signing a construction contract before the construction of the project can enable the construction unit to strictly follow the contract requirements during the subsequent construction process, strengthen construction management, and achieve effective control of construction costs, providing effective support for the smooth progress of construction work. Moreover, contract management can ensure that the on-site construction progress is consistent with the project progress, thereby ensuring construction quality and safety. After the completion of the project, each unit can conduct project acceptance according to the construction contract, ensuring project quality and safety.

Therefore, in contract management, the organizational relationship of each unit's contract directly affects the effectiveness of project management. A sound contract mechanism can strengthen cost control, optimize design plans, and improve project efficiency. On the contrary, if the contract mechanism is not sound, it will lead to problems in construction due to the wide variety of construction project links and the inability to manage contracts reasonably, which will affect the construction and increase costs.

1.1 Safety Management

Safety management refers to identifying and controlling potential construction hazards. The management of safety facilities can be divided into accident prevention facility management, accident control facility management, and facility management to reduce and eliminate the impact of accidents. Therefore, we need to carry out safety management on construction site electricity, edge protection, five holes and one entrance, etc. to prevent, control, reduce, and eliminate the impact of accidents during construction.

Safety management of construction sites, electricity consumption, construction sites, building materials, equipment, living areas, etc. can protect construction organizations, visitors, and the public from harm. It involves developing and implementing safety policies and procedures, as well as monitoring compliance with these policies and procedures to prevent accidents, injuries, and deaths. By conducting safety management on the construction site, electricity consumption, construction site and building materials, safety facilities, and office living areas, we can better organize and coordinate the control of construction site safety.

Construction site management includes construction safety precautions, fire safety at the construction site, and environmental hygiene at the construction site. Safety precautions can be taken through edge protection such as foundation pit edge protection, staircase edge protection, building peripheral protection, and vertical transportation equipment channel platform protection. Establish safety accident control indicators, safety production and civilized construction management objectives. The safety production responsibilities can be constrained through the construction site safety responsibility letter, establishing a safety department organizational system for construction organization, dividing job responsibilities, and determining the safety responsible person. Construction site safety can be managed through safety technical measures, safety education and training, labor protection, emergency preparedness, and other methods.

Establish construction electricity standards, strictly prohibit power lines from coming into contact with metal components, prohibit machine power lines from winding or hanging on on-site steel bars, and operate flexible shaft vibrators and flat plate vibrators according to regulations to prevent damage and leakage.

Office management refers to the management work implemented in coordination with leaders' decisions, which serves to communicate and coordinate the work of various departments of engineering organizations, liaise with other enterprises and institutional departments related to engineering projects, discuss work, and cooperate with them. The management of office living areas directly affects staff, office business level, office efficiency, construction organization profits, and the development of construction enterprises.

2.3 Risk Management

Risk management refers to the management of uncertainties that affect construction operations. By managing risks such as personnel safety, material price increases, government regulations and shutdowns, natural weather disasters, equipment damage, project cost tax rates, materials, fuel, etc., the goal is to avoid potential risks of personnel damage and economic losses caused by construction, optimize construction resource allocation, and improve project efficiency. The risk management of the project is carried out through Delphi method method, risk assessment mapping method, scenario analysis method, statistical inference method and other methods to avoid construction risks.

Risk management can be divided into collecting initial information on risk management, conducting risk assessments, developing risk management strategies, proposing and implementing risk

management solutions, and supervising and improving risk management. The engineering risk assessment will provide the basic situation of the project, and list the unit and individual projects included for different types of projects, and conduct engineering budget, settlement, and final settlement data for them. Scientific risk management based on the data provided by engineering cost evaluation can avoid accidents. Risk management needs to consider the impact of policies on the project, such as a construction unit receiving a temporary notice from the government to change emission standards during construction. Therefore, the construction unit can only stop construction and make temporary adjustments to the project, resulting in a complete disruption of the later project schedule. The risk should also consider the occurrence of uncontrollable factors such as natural disasters and engineering accidents, and make emergency plan management in advance. Comprehensive escape routes and rescue facilities should be designed for potential accidents.

2. Project coordination in construction organization

A high-quality and high standard construction project, from the perspective of engineering technology and construction management, the coordination and cooperation among various professions is crucial and cannot be ignored. Even for an ordinary project, the coordination of various disciplines during construction is directly related to the quality and quality of the project. Therefore, project coordination is particularly important in construction organization. When there is a construction deviation between the construction unit and the design unit, there is a lack of a good project manager, and the construction sequence coordination is not in place, often leading to rework of the project and causing the entire project to stagnate. Not only did it cause serious resource waste, but it also prolonged the construction cycle. Some more serious construction errors can lead to safety hazards in the project and prevent it from being put into later use. It can be seen that project coordination for construction organization is necessary. With the continuous development of technology, there are more and more construction organizations that require project coordination, and the requirements for construction organization are also increasing. If good coordination and communication are not carried out, some extremely difficult and thorny issues will arise at the end of the project, leading to rework and quality and safety accidents.

3. Conclusion and outlook:

The relationship between project management and construction organization directly affects the cost, progress, and quality of construction. So construction project management is very necessary, because these management will not only be reflected in various fields of the project, but also can improve the management efficiency of the construction organization, shorten the construction period, and ultimately achieve the economic benefits of the construction organization.

Secondly, cost control is achieved by establishing a quality management plan and quality measurement indicators. Use bar chart method or time scale network diagram to control project management progress. Control the cost of labor and construction materials through quality testing and optimization management to reduce the total cost of engineering costs. Use contract management to ensure the relationship between the general contractor and subcontractors of each unit, in order to ensure the quality and efficiency of the project. Finally, through engineering cost evaluation, policy impact, natural disasters, and human factors, risk investment control is reasonably controlled to ensure construction safety. And solve the management work of all parties in the functional departments of the project, ensure the construction progress of the construction site, and ensure the avoidance of construction quality and safety accidents.

The research in this article hopes that construction units can keep up with the times and learn new management models; More scientific construction technology and refined management through project management and construction organization to reduce the occurrence of construction problems. Ultimately, the project management model of universities will be implemented to improve construction efficiency and net profit of the project.

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