

Research on construction site management of green and sustainability

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Abstract:

Integrating the development of sustainable green ideas into the construction site management, for the problems and deficiencies of the construction site, through the establishment of a system of green construction site management framework, strengthen and improve the construction site management, propose effective measure for improvement and perfect.

Keywords: Construction site management Green Sustainable

1. A development status of the construction site management

Economic development of the green trend will inevitably affect the construction enterprise management and future development prospects. Construction industry as an energy resource guzzler, tight resource constraints faced serious environmental pollution, ecosystem degradation of the grim situation, it must be green and sustainable development concept of fully integrated into the construction project management, construction site management is an important aspect of the construction industry green environmental protection and sustainable development has an important influence.

In recent years, gradually improve the management of the construction site but there are still many loopholes and problems in the construction site management practice, some construction companies lax management, site management confusion, rules and regulations do not perform, construction unplanned, operating without standards ; worker discipline relaxation, production efficiency is low; variety of materials, tools, equipment, no special management, littered the scene environment is dirty, chaotic, and poor, causing environmental pollution waste of resources, resulting in some construction project construction progress, quality control, security, site layout can not be implemented as planned, is not conducive to environmental protection and sustainable development of health and safety of construction enterprises. Therefore, a good construction site management will do

a good job quality, schedule, cost, safety and other specific goals while considering environmental protection, resource conservation and sustainable development of corporate health and other macro goals.

2. green construction site management framework Establishment

Construction enterprises should be based on the construction of green enterprises are facing the situation and sustainable development needs, formulate a certain period of Green construction site management overall goal to be achieved, according to the construction site management personnel, materials, machinery, quality, schedule, cost, etc. were asked to develop several major aspects of green construction management sub-goals and then layers of implementation, subordinate officers of various departments as well as each employee according to the higher formulate goals and assurance measures, forming a target system and the target completion as a basis for assessment. Establishment of management system through the target of target segments, work breakdown achieve clear division of responsibility clear results, and thus more conducive to environmental protection and sustainable development goals.

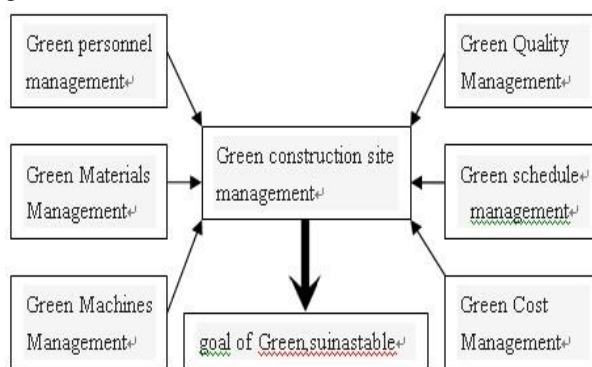


Figure 1-1 Green construction site management framework map

Through the establishment of green construction site management framework from green personnel management, green materials management, green machines management, green quality management, green schedule management, green cost management, discovery and analysis of site management problems,

and propose appropriate solutions for the problem.

2.1 Green construction site management

Green construction is the building in the construction process, the construction side in strict accordance with the planning, design requirements, the implementation of green construction principles and technical measures to minimize construction activities adverse effects on the environment, reduce resource and energy consumption.

Green construction site management is the concept of environmental protection and into the construction site management among construction enterprises, through rational and effective management tool for construction site management, in order to achieve maximum conservation of resources (land, energy, water and materials) save manpower, and construction activities to minimize the adverse impact on the environment.

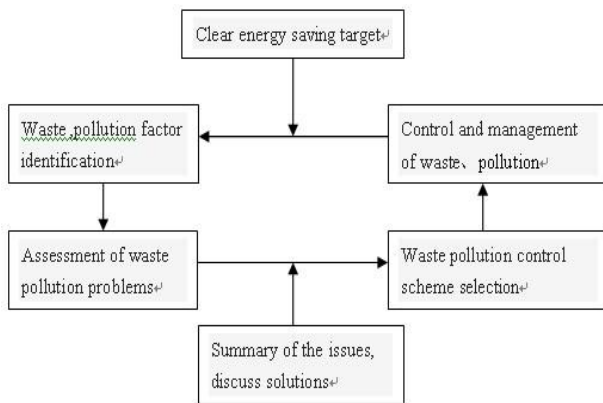


Figure 1 - 2 Project Management Construction Green Block Diagram

Dust pollution is present at the construction site of the more common problem of environmental pollution caused by dust pollution sources, firstly of earth caused by construction dust; Secondly construction materials such as cement, lime, sand granules, powder, wood processing, etc. due to the formation of wind action dust; Thirdly Class earthworks and particulate powder materials during transport caused by scatter.

To solve these problems this paper proposes the following solutions:

(1) basic engineering and earth earthworks produced fixed centrally located, immediately after the excess tissue in the production of earth Sinotrans; powder particles entering the new class of materials according to the construction floorplan fixed focus stacking. On the other side of the earth fixed focus, types of

construction materials powder particles covered with wet grass thatch, if the materials are to be stored dry cloth replaced with rain wet grass thatch be covered to prevent dust caused due to wind action.

(2) the specific steps are as follows spray on earth heap types of construction materials and particles covered with grass thatch and grass thatch with the wet sprinkler, sprinkler 1.5m by the length of 2 cm diameter PVC plastic pipe capped at one end plugging the other end of the water supply hose and PVC plastic pipe to form a plurality of equally spaced holes. Formed only fine uniform spray effect only the wet grass thatch achieve the effect of the mist, without causing excessive water to form water.

(3) vehicles entering and leaving the construction site of the high-pressure water spray to remove the vehicle tires and dust on the body. Establishment of a dedicated car wash station and sedimentation tanks, vehicles must pass before the factory washing station cleaning, and after cleaning and inspection personnel are responsible for checking after passing appearance.

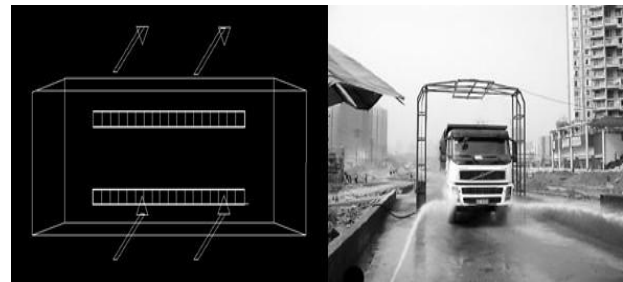


Figure 1 - 3 Wash station

In a practical application of engineering, during spraying dust and vehicle cleaning while focusing on rationalizing the use of water intensive. At the construction site built two pools, the excavation of the foundation is able to get on the 1st of groundwater seepage ponds, while building rainwater collection system will rainwater catchment basin diversion into the 1st, the 1st of water through sedimentation pond Then after its drainage to the 2nd pool, so you can get used to flush into the appearance of the vehicle, dust and water mix concrete, construction proved to achieve a good water-saving effect.

2.2 Green personnel management

The green paper is based on personnel management and construction engineering staffing needs to establish a rational system in the full implementation of all construction management responsibilities, to achieve

the construction of safe, high quality, fast, efficient and economical. Good people management is the key to achieve green construction management.

Meanwhile, workers at the construction site needs to be improved in the presence of a series of problems, such as lack of awareness of green construction, personnel quality is not high; skill to master is not in place, the lack of technical training, mature new technologies, new materials, new technology learning deficiencies, application not enough; Lack of building integrated work performance evaluation of employees, on the quality of work completed, work efficiency, lack of implementation of rules and regulations to comply with quantitative measurement; health and safety management of personnel shortage, poor working conditions, risk factors and more.

To solve these problems this paper, the following measures:

1) our construction is labor intensive, employing quantity, the uneven quality of front-line workers in the construction of migrant workers mainly lower levels of education. Specific measures: ① increased green construction propaganda slogans posted at the construction site and set up billboards. ② construction team held regular meetings and project department meetings to discuss the bad examples exist Construction habits and learn the proper methods of work of all, get rid of bad work habits. ③ establish civilized construction pacesetter, pacesetter play an exemplary role in the head, drive to improve the quality of all the staff.

2) to carry out technical training, new technologies, new processes of collective learning and organize regular job skills assessment. Mix of old and new personnel, advanced driving backward, mentoring type culture learning, construction teams quickly improve the overall level of technology.

3) construction environmental optimization, construction site safety hazard inspection

4) establishment of green leadership team, set up supervisor.

Clear green management workflow, arrange a reasonable division of labor is to raise the level of the key green personnel management. Identify major pollution problems and for building materials, energy wastage proposed rectification plan and oversee the

implementation of rectification. Second, set the green construction supervisor is responsible for the construction site pollution factors and the high energy factor identification, mobile inspection, correct violations, and was found contaminated waste and report to assist construction personnel for rectification, make on-site inspections, monitoring and rectification records.

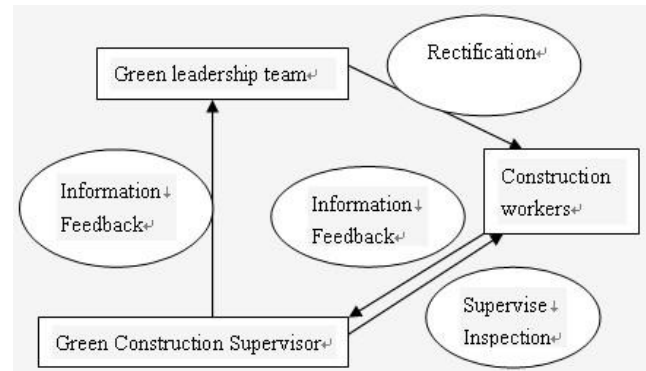


Figure 1 - 4 Green Management Flowchart

2.3 Green Materials Management

Green materials management is to plan material requirements as the basis for preparation, and then according to the construction drawings, construction schedule for procurement and storage, purchasing green building materials, according to a fixed amount or distributing materials engineering and on-site recycling of materials and working materials management, maximize the economical use of materials and avoid waste.

Establish a complete management system for building materials from a multi-stage, multi-angle to manage for building materials in order to achieve efficient resource utilization and environmental protection conservation goals.

Problem:

(1) urgently material supply disruptions, inflow of substandard quality materials applied to the project.

(2) Materials custody issues, disordered stacking, moisture, fire, security measures are not in place.

(3) material waste problem, need to create more than expected recovery system.

Measures:

(1) establish pre-supply schemes and dynamically adjusted throughout the supply plan, before the start of the first based on the total project amount and the overall project schedule, and work out the total material supply plan, and implementation of major material

suppliers, sub-batches supplied by the supply Principles goods and materials suppliers signed a supply contract. (2) be classified according to the material properties of preservation, and the establishment of material marking system.

The steel needed moisture, rust, cement needs moisture, water, indoor storage warehouses should be established. For different diameters of steel, cement and other different labels are kept separate and do good classification category labels.

(3) to establish more than expected recovery mechanism, saving materials, recycling and reuse of residual material. And the establishment of material savings incentive mechanisms.

(4) strengthen personnel specific job skills training, and materials management staff hold regular job skills assessment appraisal. Continuously improve the quality of personnel and corporate management materials management level.

2.4 Green Machine Management

Management is currently construction engineering machinery enterprises engaged in construction production is extremely important work. Construction Machinery in a modern building construction has been particularly prominent role, machinery and equipment management in construction enterprises are also more and more attention.

Green Machine management: building construction enterprises according to the project needs a scientific and reasonable for purchase or lease of machinery and equipment, a reasonable allocation, regulate the use, maintenance and repair equipment in a timely manner, out of those backward, high energy consumption, heavy pollution equipment to save energy environmentally efficient target.

Machinery and equipment management, from construction machine management, use, maintenance, repair several aspects, to improve mechanical equipment, technology and management level, improve mechanical efficiency , speed up the progress, reduce construction personnel are operating strength , enhance their market competitiveness. Due to various factors, the construction enterprises in the machinery and equipment management process still faces many practical problems to solve.

According to the survey found that there is currently a lot of construction companies the following questions:

(1) management institutions are not perfect, management system is imperfect

(2) machinery and equipment obsolete, high energy consumption.

(3) the use and maintenance of machinery and equipment disjointed

(4) maintenance of equipment lag, serious waste, some of the repair value is still much to be repaired without the use of old pieces.

To solve these problems this paper makes the following recommendations:

(1) improve the mechanical management system and improve the mechanical management rules and regulations. Establish and improve the machinery and equipment management agencies, to conduct a comprehensive integrated management . Strive to professional management, clear responsibility and authority for managing personnel.

(2) strengthen equipment maintenance system. Old and new equipment for the different characteristics of different measures. For the old equipment, to eliminate hidden dangers to ensure the operation, focusing on timely repair; For new equipment, places to improve the skill level, to strengthen the maintenance as the focus, so as to effectively ensure that each use of equipment performance and safety .

(3) increase the technical training, equipment selection of outstanding management personnel. The construction enterprises should increase technical training, selection and training of a group of technical front, will manage the complex talent to meet the development needs of enterprise management machinery.

(4) innovation and improvement construction machinery, Not only can improve the efficiency of construction, but also to contribute directly to the green construction. Such as the new environment-friendly machinery research and development, with low energy consumption, low noise, high efficiency, in order to achieve green construction to provide a guarantee.

2.5 Green Quality Management

After years of development of quality management has been increasingly improved. However, the quality

of management theory often can obtain unlimited resources as the premise, and ignore environmental protection, sustainable green face demand, the traditional construction quality management has its inherent limitations.

Green quality management emphasizes proactive conservation of resources and energy; Green Quality management means quality management activities on the environment is responsible;

Green Quality Management: Total Quality Management is in the traditional meaning, based on the injection of conservation, harmonious and environmentally friendly "green" concept, to meet the needs of the construction unit, based on comprehensive consideration of social, resource and environmental needs, so that the construction unit satisfaction and social development, environmental protection, energy conservation and other aspects of satisfaction coordinate.

1998 United Nations Environment Programme (UNEP) will clean production summarized as: integrated preventive environmental strategy will continue to be applied to production processes and products in order to reduce risk to humans and the environment. Popular talk cleaner production should include three basic contents: Clean inputs (such as clean energy, clean raw materials), clean production processes (such as clean technology, clean technology, clean management) as well as cleaning the outputs (including cleaning products and cleaner emissions, clean environment). Currently, construction quality management also exist about aspects:

- (1) the quality of consciousness, excessive pursuit duration and effectiveness, do not pay attention to quality management.
- (2) the quality management system is not perfect, imperfect quality management agencies.
- (3) engineers and construction personnel to participate in quality management activities of enthusiasm is not high.

This paper presents the following measures:

- (1) engineers and construction workers regularly conduct quality awareness training on construction quality problems were analyzed and summarized.
- (2) the establishment of enterprise quality management system, the establishment of enterprise quality

management organizational structure, a clear division of quality management personnel, streamline relations responsibilities.

- (3) organize guided QC engineers and construction personnel to participate in quality management team, and excellent QC results to reward and inspire engineers involved in quality management activities QC enthusiasm.

2.6 Green schedule management

Green Progress Administration: is the construction enterprises according to the duration of the contract requirements of the construction schedule , and as a management goal, the construction of the whole process be checked frequently, control, analysis, implementation of timely detection of deviations, to take effective measures, Adjust project construction schedule, eliminate interference, guarantee period to achieve the objective of all activities. Avoid causing unreasonable schedule and machinery slowdown, resulting in a waste of manpower and equipment resources, thus saving more efficient completion of works.

Construction enterprises through the whole process of project progress management, clear each stage management tasks carried out in order to ensure reasonable progress.

In the progress management has the following problems:

- (1) Schedule management plan lacks flexibility, adjustability is not strong. Duration is hard to determine, when there is a significant impact on the progress of events, leading to schedule and actual progress of the divorce, the loss of control action plan.
- (2) there is good progress management does not correctly handle the progress and quality of the relationship between the cost of the problem, leading to not achieve the optimal balance between the three chemicals of schedule.
- (3) can not coordinate with the subcontractors and Party, the relationship between supervision units, resulting in delays or stoppages.

This paper presents the following measures:

- (1) the progress of the project to develop a viable plan that fully take into account the owners, supervision of work, plans to construction plans based, while labor and material supply plan formulation, machinery and

equipment requirements planning, funding programs, and make a plan between harmonization. After considering the cost, quality objectives under the premise set aside to deal with unexpected situations adjustable time, develop a reasonable total duration targets.

(2) Party invitation, supervision, subcontractors, suppliers, schedule coordination meeting was held, the parties to work to formulate a comprehensive project schedule.

(3) establishment of a dedicated program management team, from the progress of the project planning, project schedule control, progress in three areas to adjust the whole process responsible for project progress management responsibility to the people, clear rights and responsibilities.

2.7 Green Cost Management

Green Cost Management: refers to the construction quality assurance under the premise of the enterprise in all aspects of the construction process for scientific and rational cost accounting, cost analysis, cost decision, and cost control and a series of scientific management behavior in general, and strive to produce the least expensive completed projects.

Currently in project cost management the following problems:

(1) Project management staff cost consciousness, the emphasis on cost management is not enough.

(2) lack of an effective system of cost management and cost management approach

(3) neglect of project cost management and quality control, for failing to meet quality standards and rework, downtime losses and increased costs.

This paper presents the following measures:

(1) to strengthen the project management personnel cost management education, strengthen the cost-conscious. The cost of management awareness into concrete work.

(2) establishing a dedicated cost management agency responsible for cost planning, cost control, cost accounting, cost analysis, cost checking and so the whole process of comprehensive cost management.

(3) preparation of cost plan, cost tracking and monitoring of dynamic, once discovered the actual cost and planned cost deviation, timely cost variance analysis and take corrective measures.

3. Conclusions

Strengthen the construction site management to achieve environmental protection and sustainable construction of the healthy growth in construction enterprises have an important role. In this paper, the establishment of green construction site management framework for the management of the current problems in the construction site to break down and develop a detailed solutions to problems and treatment measures, and in the practical application of engineering and achieved good results. Improve the management of construction enterprises and scientific organizations through the green concept into construction site management, construction companies will be achieved green sustainable development.

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