



Avoiding Challenges in the Construction Industry

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DOI: <https://doi.org/10.55248/gengpi.5.0524.1258>

ABSTRACT

The building sector is at a turning point right now. Businesses that take on these obstacles head-on and reinvent their operational procedures stand to gain a great deal of ground. However, businesses who don't take these concerns seriously will have a difficult time remaining viable. Worker safety is still a problem in the construction sector. In terms of all industries combined worker fatalities, construction has long been in the lead. For years, there has been a steady increase in the incidence of diseases and injuries at work. All business owners should prioritize keeping their employees safe and shielding them from harm and accidents. The personal safety of the construction workers will be directly impacted by the safety of the project's production process. Therefore, in order to accomplish sustainable development, the safety management of the construction project needs to be reinforced. When dangers have been reduced and safe work procedures are properly and diligently implemented, accidents are easily prevented. It has been demonstrated that businesses with robust safety procedures are more productive, and that safety begins at the top. The article examines the issues and fixes related to safety management in the construction Key words: Construction Engineering, Safety Management, Safety Training.

1. Introduction

Next to agriculture, the construction sector employs the second-highest number of people in India, after traffic accidents. With a workforce that is heavily employed and an annual revenue of over 6,000 billion rupees, the construction sector in India accounts for about 6% of the country's GDP. Large-scale building is underway at NPCIL. The frequency of fatalities related to construction activity in the business is alarming, and the main causes of significant accidents are falls from heights and through openings. Population growth data indicate that the building business has a bright future. The need for development has never been higher, with projections indicating that the world's population will reach 9 billion by the year 2050, with two out of every three people living in cities. According to a 2014 PwC research, construction is already one of the major industry sectors globally, contributing more than 11% of GDP and predicted to increase to 13.2% by 2020. However, concentrating on this high demand masks a more unstable situation. The industry's expansion may be thwarted by underlying issues with labor, sustainability, productivity, profitability, and performance. The building sector is at a turning point right now. Businesses that take on these obstacles head-on and reinvent their operational procedures stand to gain a great deal of ground. However, businesses who don't take these concerns seriously will have a difficult time remaining viable. Worker safety is still a problem in the construction sector. In terms of all industries combined worker fatalities, construction has long been in the lead. For years, there has been a steady increase in the incidence of diseases and injuries at work. All business owners should prioritize keeping their employees safe and shielding them from harm and accidents.

2. General Challenges in the Construction Industry

The below mentioned concerns is mainly challenges in the construction industry.

2.1 Poor Productivity and Profitability

Because there are now little entry barriers in the construction industry, there is intense rivalry in a crowded sector. Profit margins are narrowing due to competition, which is also limiting necessary reinvestment in new technology and improved company procedures. Complicating this issue is stagnant labor productivity in the building industry. The construction industry's productivity has stagnated over the past 50 years, whereas other industrial sectors have profited from a 100% increase in labor productivity. Why is there a stagnation in productivity? A survey by the Construction Owners Association of America (COAA) found that waiting for supplies and equipment, getting to the job site, taking early breaks, and organizing the work account for 63% of direct labor time on large-scale construction projects. The bottom line, where normal margins for construction enterprises range between 2 and 8 percent, reflects this lack of productivity. As a result, construction companies are unable to make the profit required to invest in vital technology because they are caught between declining profit margins and stagnating productivity.

3. Project Performance

Construction offers more and more options, but project complexity is also rising. Because businesses already have extremely narrow profit margins, one unanticipated production cost might completely wipe out profits for the entire organization. This issue is exacerbated by design complexity. Construction companies find it difficult to keep up with the growing size and efficiency requirements of designs. It's telling that so few projects are completed on schedule and within budget. Only thirty percent of big projects in the energy sector are completed on schedule, and only fifteen percent of projects are completed within budget, according to a report by Accenture. Even worse, according to the 2015 KPMG Global Construction Survey, one or more underperforming projects was undertaken by more than half of all construction businesses in the year prior.

3.1 Skilled Labour Shortages

The construction sector is preparing for a sharp decline in employment. According to data from the Associated General Contractors of America (AGC), a majority of respondents, namely 74%, felt that there was a shortage of skilled workers, and 53% stated that they were unable to recruit construction experts including engineers, supervisors, and estimators. The two generations that made up the American building market before the recent recession were the traditionalists and the baby boomers. Four generations now make up the workforce: millennials, baby boomers, Generation Xers, and traditionalists. According to PwC, there are significant disparities in work ethics, attitudes, perspectives, and behaviors throughout the generations, making the current labor diversification difficult. The majority of traditionalists have retired from the workforce, while baby boomer retirement is well underway. In addition, a great deal of talented artisans left the field during the recession and never came back. It is anticipated that millennials will make up half of the workforce worldwide by 2020, many of whom have little to no background in or interest in the construction sector. A risk multiplier is created when project complexity and experience both increase, raising the possibility of delays in delivery, issues with the quality of construction, and worries about worker safety.

3.2 Sustainability Concerns

The largest worldwide consumer of raw materials is the construction sector. The sector is responsible for 25–40% of global carbon emissions. This level of resource consumption is unsustainable and may harm the ecosystem in the name of development. Two environmental challenges that are becoming more challenging for the building sector are climate change and water management. Building energy in quickly emerging nations like China and India will face significant challenges in meeting targets for the reduction of global carbon dioxide emissions. Although sustainable design and smart planning have the potential to lower pollution and energy use, they also call for a new method of project management, which the construction sector as a whole is not yet ready to adopt.

3.3 Lack of Communication

While capable of making sure a task is completed correctly, not all excellent supervisors have the communication skills necessary to give a solid toolbox talk or convey important safety information in an understandable and efficient manner. Communication breakdowns increase workplace hazards overall and may eventually result in employees who are less concerned about their safety. It may be necessary to provide supervisors with additional training specifically focused on safety leadership abilities because many supervisors advance because they are competent employees rather than naturally gifted leaders.

3.4 States of mind

Each construction contract has a budget and a timeline. Employee worries, such as having to leave work early to attend a child's baseball game or being exhausted from a family weekend vacation, are added to these demands. All of this may strongly encourage workers to hurry or exhaust them to the point where they lose sight of potential dangers on the building site. An increased injury rate may be caused by psychological conditions as well as other human factors. Handling them is also no easy task. Out of all the difficulties on this list, this is the one where seeking outside assistance makes the most sense. To reduce the risks of hurrying, becoming frustrated, tired, and complacent, it can be quite beneficial to work with a safety training business that specializes in addressing human factors. Use this list to gauge how successfully safety training providers can handle your construction safety concerns when you chat with them. A good training vendor might even be able to help solve some of the other issues mentioned above.

3.7 Skewed perception of risk

On a building site, the biggest and noisiest hazards almost seldom result in the greatest casualties. This is because employees are safest when they are fully aware of the danger, which is higher when performing complex jobs or when the risks are evident. However, long-term construction site workers are likely to become desensitized to subtler, continuous, but nonetheless very real threats. From our experience at Safe Start, employees tend to underestimate the risk of injury when doing tasks they are accustomed to doing on a daily basis. Many workers come to believe they are immune to danger since they are exposed to it on a daily basis. This may cause employees to lose focus on danger, which is exactly when accidents are most likely to happen.

4. Problems in safety management of construction work

Below some kinds of important problems were illustrated.

4.1 Less supervision of the relevant management department

Certain management departments do not completely comprehend the significance of the safety management issue in the actual job, despite the fact that they are required to oversee the construction safety of the project. There were some safety issues during the building process as a result of several departments' incomplete implementation of the safety management documents and systems. Some supervisors don't give safety concerns much thought. In the supervisory process, inspection is typically used to handle a few major issues. It won't be examined if there are certain issues that require checking. It is not possible to fully utilize the regulatory bodies' role. Furthermore, the inability to adequately address construction issues in specific regions will have an impact on the safety protocols associated with building construction. Furthermore, the safety management of building construction will be impacted if certain construction-related issues are not adequately resolved.

4.2 Enterprises do not Attach Importance to the Problem of Safety Management

Construction sites will not have very high levels of safety management if the companies doing the work do not value it. It is evident that a construction company's level of safety management is significantly impacted by how much priority it places on safety management. Leaders in some businesses do not prioritize safety management concerns. Incomplete safety management systems are the result of certain policy makers' belief that they are not in charge of construction safety management. The implementation of the safety management system was impeded by certain construction businesses' refusal to sign the safety guarantee during the construction phase. There are currently too few professional managers on construction sites and too few construction businesses with established management departments, which raises the risk of safety accidents during construction.

4.3 Improving the Safety Management Consciousness of Enterprise Leaders

The degree of safety management will be directly impacted by the enterprise executives' awareness of safety. The safety management consciousness of enterprise leaders needs to be raised in order to raise the level of safety management in construction engineering. This will enable them to accurately recognize the significance of safety management and make wise decisions that will guarantee the smooth execution of safe management tasks. For instance, the appropriate person in control of the construction firm should organize frequent safety management meetings and pay attention to safety management during the construction process. The security risks associated with the construction process should be brought up during the discussion, and the responsible party should be disciplined appropriately. Analysing corresponding solutions can help lessen the negative effects of security threats on construction during the conference. Furthermore, it is imperative that the responsible individual periodically monitor the advancement and caliber of construction work. Additionally, frequent meetings should be held to thoroughly examine the construction process, promptly identify any potential safety risks, and guarantee that pertinent regulations can be put into effect.

4.4 Establish a Complete Management Mechanism

A comprehensive management system, comprising the government management department's and the construction enterprise's safety management systems, should be constructed in order to raise the construction project's degree of safety management. Professional staff should be dispatched by the construction business to oversee the safety management during the project, identify any areas that may provide a risk to public safety early on, and implement appropriate corrective action. To guarantee the safety of construction projects, those construction workers who disregard regulations and do not wear safety equipment should receive safety instruction and face some form of punishment. Surprise inspections should be used by the relevant government departments to carry out inspections. The construction company must receive safety training and face certain penalties if there is a safety issue during the project's construction. To guarantee that safety precautions may be taken to prevent accidents during construction, we can enhance the safety management system.

5. Safety Meeting

In order to ensure proper coordination and communication on safety aspects on a periodical basis, it is necessary to have regular exchange of views and experience as given below:

1. Daily interaction between Contractors' Safety Officer and departmental Safety in charge.
2. Monthly Safety meetings by each Works Manager of the contractor along with his Safety Officer with departmental Safety Group.
 - a. Sectional Safety meetings for the departmental and contractor employees.
 - b. Quarterly Project level Apex Safety Committee meeting.
 - c. Regular experience feedback among various agencies.

Furthermore, when implemented, the corporate safety organization's inspection of contractors and utilities could serve as a peer review process to uncover potential areas where the aforementioned systems could perform more effectively. In light of this, the NPCIL HQ Safety group's control has been reinforced. Peer review procedures and cooperative campaigns have been implemented on a regular basis. In fact, this has helped our construction projects' industrial safety.

Potential hazards and solutions

Potential hazards for workers in construction include:

Falls (from heights);

Trench collapse;

Scaffold collapse;

Electric shock and arc flash/arc blast;

Failure to use proper personal protective equipment; and

Repetitive motion injuries.

6. Scaffolding Hazard

Fall risks can arise from improper scaffold erection or use. Scaffolds are used by about 2.3 million construction workers on a regular basis. An estimated 4,500 injuries and 50 fatalities annually may be avoided if these workers were shielded from scaffold-related mishaps.

6.1 Solutions

The scaffold needs to be sturdy, stable, and able to support four times the maximum weight that is designed for it without settling or moving. It needs to be built on sturdy foundations. You should never utilize unstable materials to support scaffolds or planks, like barrels, crates, loose bricks, or concrete blocks. It is strictly forbidden to erect, move, disassemble, or modify scaffolds without the supervision of a qualified individual. Toe boards, midrails, and guardrails are required for scaffolds. Any broken or weakened scaffold accessories, such as ladders, brackets, trusses, screw legs, or braces, need to be replaced or fixed right away. Scaffold plank grade material or its equivalent must be used to plank scaffold platforms firmly. The scaffolding needs to be inspected by a "competent person" and must be inspected again at predetermined intervals. Before every shift and following any incident that can compromise structural integrity, rigging on suspension scaffolds needs to be inspected by a qualified individual to make sure all connections are secure and that no damage has been done since the scaffold was last used. The natural and synthetic rope used in suspension scaffolding needs to be shielded from heat-generating objects. The risks associated with employing diagonal bracing as fall protection must be explained to staff members. Stairwells and ladders can be used to access the scaffold. Scaffolds must always be at least ten feet away from electrical power lines.

6.2 Cranes Hazard

If cranes are not properly utilized and are not inspected before use, significant and catastrophic injuries could result. These injuries typically happen when a worker gets caught in the swing radius of a crane or is struck by an overhead weight. When a crane's load line or boom come into contact with an overhead electrical line, many crane tragedies happen.

Solutions

1. Check all crane controls to insure proper operation before use.
2. Inspect wire rope, chains and hook for any damage.
3. Know the weight of the load that the crane is to lift.
4. Ensure that the load does not exceed the crane's rated capacity.
5. Raise the load a few inches to verify balance and the effectiveness of the brake system.
6. Check all rigging prior to use; do not wrap hoist ropes or chains around the load.
7. Fully extend outriggers.
8. Do not move a load over workers.
9. Barricade accessible areas within the crane's swing radius.
10. Watch for overhead electrical distribution and transmission lines and maintain a safe working clearance of at least 10 feet from energized electrical lines.

7. Conclusion

As I wrap up my discussion on this crucial subject of construction safety, let me remind everyone that every site presents different industrial safety standards, all of which must be met with professionalism and honesty. When applied in a systematic manner, modern management and machinery can aid in reaching these goals. In summary, safety incidents not only endanger people's lives and the security of their property, but they also result in significant financial losses for businesses, which is bad for the growth of the construction sector. Thus, in order to ensure that production activities can be carried out safely and steadily, while guaranteeing the quality of construction and promoting the sustainable development of the construction enterprises, we should fully understand the common safety problems in the construction industry and take effective measures to solve these problems.

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