

# A Survey on Insurance in the Construction Industry

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## Abstract:

Compared to many other industries, the construction sector is more complicated and rife with risk. It's critical to comprehend the risks involved in the building industry in order to manage them. Insurance is a wise risk management tactic for the construction industry. By conducting an inquiry between the construction and insurance industries, the project's goal is to establish an efficient insurance policy for contractors to reduce the cost of damage in the construction business. To find out more about construction contractors' views on risk transfer through insurance and their awareness of it, a questionnaire was used to poll them. Applying the Pareto 80/20 analysis after doing a Likert's Scale analysis of the data that was gathered. The criteria for selecting insurance policies for projects that can transfer risk to the construction industries are also identified in the research

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## 1. Introduction

Construction labour is inherently dangerous; accidents routinely occur, and these mishaps usually result in catastrophic injuries. In the construction industry, there are frequently fatalities, physical harm, and property losses. Furthermore, recruiting construction labour is expensive, especially for public projects. All of this emphasises the necessity of spending restraint and increases the risk associated with the construction sector. Surety and insurance are two techniques used by customers and contractors for risk management. Construction insurance is the subject of extensive research in an effort to promote communication between the insurance and construction industries.

Because the work is dangerous, accidents frequently occur in the construction business. Construction contractors start projects with a lot of risks for a variety of reasons. Errors happen, people get hurt, property gets damaged, and natural catastrophes or other calamities can halt or slow down project development. Construction projects don't always go as expected. The majority of these problems need financial support to be fixed.

Construction insurance is essential because it protects against financial loss, product liability, social responsibility, and legal fees. Construction contractors are in charge of managing project risk. The risk transfer from the contractors goes to the insurance companies and, in some cases, the subcontractors. However, the contractor must be aware of the many insurance alternatives available to the construction industry so as to choose the right one insurance coverage to their projects. An initiative often increases the contractors' awareness of the many insurance choices at their disposal and their understanding of how to use insurance to control risk.

## 2. Risk in the construction industry

The likelihood or possibility for injury, liability, loss, or any other event is known as risk. unfavourable occurrence that may be avoided by taking preventative action that is caused by an external or internal vulnerability.

## 3. Types of risk involved in the construction industry

### Environmental risk

Natural disaster

Weather and seasonal implications

Pollution by construction work

### Technical risk

Uncertainty of resources and availability of materials

Inadequate site investigation

Incomplete design

### Financial risk

Delay from clients

Increment in staff benefits

Unprecedented prices in raw materials

Fluctuations in Estimated finance than expected

### Construction risk

Disputes between labors

damage to persons and property

Changing sequences in construction activity

Non-availability of resources

Change in quantities of work

Safety of workers

### **Insurable risk**

Risks include everything that might endanger persons or property, including fire, storms, flooding, collapses, subsidence, vibrations, etc. Contract clauses typically stipulate that you must get insurance protection against certain risks.

### **Non-insurable risk**

Uncontrollable factors include things like willful injury, labour disputes, war, nuclear contamination, and supersonic explosions. All of these incidents are protected by statutory liability, and insurance is frequently neither necessary nor available.

### **Risk Transfer and Insurance Mechanism**

There is uncertainty over a variety of construction project-related concerns. Risk management calls for reducing uncertainty. Systems for controlling risk are created to cope with it. Since There are several risk management definitions and numerous risk viewpoints. Often, the objective of risk management is to reduce the negative effects of risk. Risk management, according to Flanagan and Norman (1993), is a discipline that deals with the potential for upcoming events to have unfavourable results. Risk management is the art of taking actions to lessen the consequences and/or possibility of a risk occurrence (Broome, 2002; Bunni, 2003; Treceno et al., 2003).

Management of risk includes reducing hazards that might have both positive and negative effects. According to a prominent philosopher from ancient China, systematic uncertainty source identification, appraisal and qualification of prospective consequences, and management of likelihood and effects are all continuing procedures to create a suitable balance between risks and opportunities. It suggests that if risks are not properly managed, opportunities might turn into hazards and risks could result in losses.

The following are the goals of risk management comprehend a project or make better management decisions for that project going forward (Smith, 1999). Dawson (1997) pointed out that while there were differences across the definitions, there were also some commonalities:

It uses organized, scientific methodologies, and it is a formal process.

It seeks to pinpoint hazards in a process or enterprise.

It assesses how significant or detrimental certain risks are to the operation or business.

It offers methods to regulate individual risk in order to maintain a reasonable level of total exposure.

That happens frequently.

Aiming for risk identification is recognised hazards or their sources inside a project. This is done by finding all pertinent sources and events. The Assessment of risk technique utilised to identify or evaluate each issue's engineers components. To determine how the risks will impact the project and its operations, the risk analysis approach examines a number of each risk's components as well as the risk dependency chains (Tah and Carr, 2001). Effective risk management lowers losses and risk exposure. Risk-related thoughts and actions include, among others:

(1) Retention or absorption of risk

(2) Reduction or mitigation of risk

- Education and training are needed to make the employees aware of any hazards.
- Physical security to lessen the risk of theft
- Mechanisms to enforce consistency and prompt "what if" inquiries
- Protecting against the effects of a situation
- Subcontracting with a different entity
- Altering the contract terms to guarantee that the risk is altered

(4) Reducing risk

If the receiving party has the information necessary to control or reduce the risk as well as the skill necessary to fairly assess it, that is the main criterion for determining whether a risk should be conveyed (Kangari, 1995). A contract is frequently used as a mechanism for dividing up and distributing risk. Risks may alter in terms of form, magnitude, importance, or allocation as a project develops. Depending on the changes made, there may be an increase or decrease in additional risks (Rahman and Kumaraswamy, 2002). Contractual provisions alone cannot provide a precise and complete allocation of risks.

The fundamental approaches to managing risky conduct, which comprise a degree or risk management and management's strategic consciousness, may be used to illustrate the risk management solutions that have been put into practise (Suominen, 1995). Figure 1. For instance, a purposeful control plan or an insurance-weighted transfer strategy may be used to attain a high degree of risk management. However, adopting a shift or risk-aware strategy implies that businesses are taking more risks and doing so ineffectively.

A shift strategy is employed when management's strategic understanding and degree of risk management are both lacking. If the absence prior knowledge of coverage and handling risks, this usually occurs. Insurance is only acknowledged as the principal tool for risk control when risk management levels are low and the company's tactical awareness is great. Protection isn't always the best risk management strategy. There are more strategies for hazard control when management staff members develop their strategic thinking.

|                              |      | Strategy Awareness   |   |
|------------------------------|------|--|---|
|                              |      | High   | Low   |
| The Level of Risk Management | High | <p style="text-align: center;"><b>Deliberate control strategy</b></p> <ul style="list-style-type: none"> <li>• Insurance is considered as the last resort of risk management</li> <li>• Emphasis on loss prevention</li> <li>• Wide application of risk management operations, and the linking of insurance solutions to the company's risk management policy</li> <li>• Versatile application of a captive programme</li> <li>• Conscious utilization of risk-bearing capacity, big and small retention in use.</li> </ul>  | <p style="text-align: center;"><b>Insurance-weighted transfer strategy</b></p> <ul style="list-style-type: none"> <li>• Insurance as the primary tool for risk control</li> <li>• High insurance cover, low retention levels</li> <li>• Low risks at own expense</li> <li>• High insurance premiums</li> <li>• No knowledge of the opportunities offered by risk-bearing capacity</li> </ul>  |
|                              | Low  | <p style="text-align: center;"><b>Risk-aware strategy</b></p> <ul style="list-style-type: none"> <li>• Insurance is not the primary form of risk management behaviour</li> <li>• Searching for the limits of risk-bearing capacity</li> <li>• No insurance available, risk entirely one's own liability</li> <li>• Courageous use of high retention levels, consequences known</li> <li>• Insurance against risk too expensive due to high premium</li> <li>• Retaining some classes of risks such as transportation risk, product liability, consequential loss and loss of credit</li> </ul> | <p style="text-align: center;"><b>Shift strategy</b></p> <ul style="list-style-type: none"> <li>• Relying on the previous mode of operation</li> <li>• No knowledge of the existence of risks and their consequences</li> <li>• No knowledge of the options in risk management</li> <li>• Negative attitude toward insurances and external services</li> <li>• Seeing insurance as a secondary issue</li> <li>• Giving up insurances at random</li> <li>• The attitude "we've made do without insurances before"</li> </ul> |

Fig. 1 The fundamental approach to risk management conduct

Source: - Development from Suominen (1995)

**Different Approaches to handle risk**

While managing the unfavorable effects of a risk or an event, an agent can:

1. Accept full responsibility for all outcomes in the case of an accident.

2. Use safety precautions to lower the likelihood of an accident and/or its effects.
3. Assign the burden of the incident's repercussions to those who are more capable of handling them (i.e. buying insurance).

These three measures are frequently combined to address the negative effects of the risk or the tragedy. Because it cannot be controlled or transferred, residual risk in particular is almost always there and must be assumed by the agent in question.

When there is no possibility to lessen the risk or if the agent chooses not to, Option 1 is true in every case. Additionally, if it is impossible to completely eliminate all risks, option 1 will be the solution for handling risks that cannot be completely eliminated by safety precautions or dangers for which we cannot provide insurance against their consequences. As a result, it is sometimes difficult to refrain from taking chances when an agent must cover at least some of the costs if an accident happens.

The alternative that is frequently mentioned in safety management is Alternative 2, which refers to the safety measures that an agent may put in place to prevent or lessen the effects of an accident. For instance, one should drive more cautiously if they wish to lower the likelihood of an accident. By investing in a safer vehicle, one can lessen the effects of an accident. Such activities could be both obligatory and optional.

Although the third option may be the most preferable, it is sometimes not free to transfer accident-related costs to others (for instance, an insurance company would charge a premium and a government may collect taxes to support its operations). There are effective markets that transmit and value the risk through various financial instruments for the types of hazards that can be standardised. For specific needs for irregular risks, there exist insurance markets that provide insurance contracts. There are hazards, nevertheless, that cannot be shared. There are certain things that can't be conveyed and don't have a market or a gauge, like deadly accidents. Again, these actions might be optional or essential.

The financial effects of an accident may be distributed to others by employing financial instruments and insurance in return for payment of a premium. once the agent transfers the risk to others, the expense of risk mitigation is reflected in the insurance premium, preventing unanticipated expenditures from arising from the incident. In certain instances of government-

provided insurance, an individual's specific premium will be \$0 because the insurance is paid for by taxes.

The insurance company is unconcerned when an accident happens since the costs are covered by the insurance premium. The cost of insurance may fluctuate in the future if the insurance provider has made inaccurate predictions about the risk of an accident or an accidental expense. Because firms commonly decline to give insurance in circumstances where exact projections of the frequency of accidents and the expenses associated with accidents couldn't be made, this limits how precisely an insurance contract can be fitted to a person's needs. If the estimated cost is too far off, the funding for government-sponsored programmes can be called into doubt.

### **Types of construction insurance policy**

1. Insurance for general liability
2. Insurance for workers' compensation
3. Professional liability insurance
4. Pollution liability insurance
5. Inland marine insurance
6. Installation and tool floater insurance
7. Commercial property insurance
8. Commercial auto insurance or truck insurance
9. Cyber insurance

## **10.General contractor**

Your company will be safeguarded from the two primary sources of third-party litigation: personal injury claims and property damage claims, with the help of an all-inclusive general liability insurance programme.

Your construction company could have a physical location where clients, vendors, and other guests routinely enter and exit. These third parties are insured by general liability insurance while on your company's property. If your organisation is determined to be responsible for their injuries (coming from slips, trips, falls, flying objects, broken furniture, etc.), general liability insurance will cover the legal fees and medical costs. Similarly, accidents and flying debris may hurt spectators at construction sites.

Furthermore, general liability insurance can help cover potential legal costs as well as repair and replacement expenses if your construction operations destroy or damage the property of a third party or if you are accused of physically harming an existing object.

### **Workers' compensation insurance**

Construction workers can be hurt or killed by a variety of risks that are typically present during building projects, including high heights, strong machinery, exposed electrical components, and many more. Each year, 1092 construction workers in India get accidents-related injuries.

This type of insurance covers burial expenses, disability benefits, lost wages while recovering, and healthcare costs.

### **Insurance for professional liability**

Your business is protected by professional liability insurance in the event that mistakes are made during the planning or execution of a project. Third-party property damage and injuries are covered by general liability insurance. Error and omissions (E&O) insurance is another name for professional liability insurance as a result.

Professional liability coverage will protect you if a client sues you over errors, perceived errors, delays, or unanticipated costs. In addition, professional liability insurance covers current losses or injuries brought on by shoddy preparation or execution.

### **Pollution liability insurance**

Pollution can result from mistakes with waste management, the handling of hazardous chemicals, the growth of mold/legionella (which can be common in remodelling projects), and other mistakes. Pollution liability insurance will cover any required emergency response fees, clean-up costs, and litigation costs.

### **Builders risk insurance**

Any type of construction activity carries risks that go beyond worker security. The unfinished structure may also be exposed to risks in specific situations and phases. Uncontrollable natural events (such hurricane-force winds, bad weather, and floods) might disrupt the project at any time, which is hard to anticipate. Fortunately, builders' risk insurance is available to cover any



costs associated with replacing or repairing a property. Additionally, the machinery, equipment, and supplies used in the building's construction may be covered by this type of insurance.

### **Inland marine insurance**

Inland marine insurance, like some of the other insurances on this list, is used by a variety of industries. This is so that inland marine insurance may cover a wide range of assets, such as moving property, mobile equipment, rented property, and more. When discussing insurance for construction enterprises, Tool and equipment insurance is the name given to this type of coverage.

It will cover the cost of repairs or replacement if tools and equipment (such as generators, excavators, forklifts, computers, etc.) are damaged or stolen from the job site, destroyed during transportation, or damaged in a fire

### **Installation and tool floater insurance**

Prior to proper installation, there is a greater danger of damage to certain materials or fittings (such as cupboards, sinks, and worktops). Additional expenses might emerge from this, and if your business is required to incur them for the project, it can generate friction with the client. A client lawsuit, which is a possibility if the injury is considerable, would be the worst-case situation.

This is the situation when installation and tool floater insurance is helpful. This type of insurance covers the expense of repairing or replacing uninstalled materials or fixtures that are damaged or stolen. The cost of tools used in the project that are ordinarily under \$1,000 may also be compensated.

### **Commercial property insurance**

Despite the fact that the majority of your operations take place on the project site, your construction company most definitely has a physical office. Your headquarters house a number of priceless items, such as tools, laptops, personal belongings, and project-related documents. Damage to the workplace or its property might raise expenses and perhaps necessitate a lengthy suspension of activities. The possessions at your place of employment are also vulnerable to theft, especially valuable items. Commercial property damage will pay for the

repair or replacement costs related to the aforementioned conditions. Your lost wages resulting from the ensuing interruption of business are also reimbursed.

### Commercial auto insurance or truck insurance

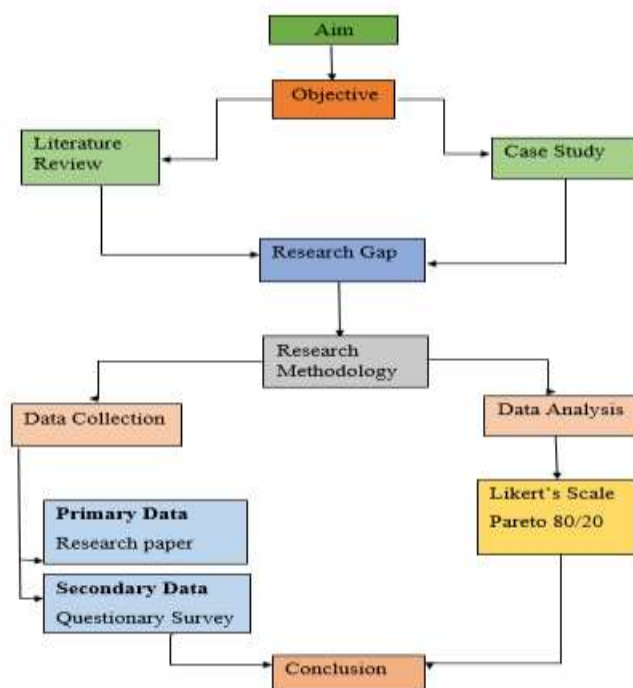
If you have a fleet of vehicles or trucks that you manage, this insurance will be helpful to you. After all, even the most seasoned motorists might get in a traffic accident. Additionally, there is a danger that your fleet of company vehicles might sustain damage or be stolen. In such cases, commercial auto insurance or truck insurance can assist with the repair or replacement costs. Additionally, this type of insurance will offer the required coverage in the event that an automobile collision results in injuries or property damage.

### Cyber insurance

Construction companies rely heavily on technology, just like businesses in other sectors do. Due of this dependency, however, many hackers are only watching for the appropriate opportunity to make money. Your best ally when it comes to hacked digital devices is cyber insurance.

This sort of insurance will pay the costs associated with any legal action taken against you as a result of lost data. Additionally, it will cover any lost income as a result of the outage as well as the cost of restoring your reputation.

### Methodology



## Data Collection/ and data analysis

Which insurance coverage from the list below have you utilised for your projects?

| Insurance policies used in Projects                           | Count of Name |
|---|---------------|
| Contractor All Risk (CAR)                                     | 27            |
| Employer's Liability Policy (EL)                              | 3             |
| Erection of all risk (EAR)                                    | 1             |
| Liability of ten years/latent defects insurance (LD)          | 4             |
| Machinery breakdown (MB)                                      | 2             |
| Marine insurance  | 2             |
| Personal accident policy/worker's compensation insurance (WC) | 3             |
| Professional liability/indemnity insurance (PI)               | 1             |
| Public liability (PL)   | 3             |
| Third Party (TP)  | 7             |
| Others  | 2             |
| <b>Grand Total</b>  | <b>55</b>     |

Types of policies used in India

## Likert's Scale Analysis

| No. | Construct  | Mean | Standard deviation | MIS  |
|-----|--|------|--------------------|------|
| 1   | Contractors' proficiency in risk management plays an important role in project management activities | 6.11 | 1.20               | 3.16 |
| 2   | Indian contractors need risk management knowledge and  | 5.89 | 1.11               | 3.8  |

|    |  |      |      |      |
|----|--|------|------|------|
|    | expertise in managing construction projects urgently   |      |      |      |
| 3  | Risk management can effectively protect the contractors' interests   | 6.11 | 1.34 | 2.92 |
| 4  | Risk management will be involved in the considerable extra cost of management expenses and time  | 6.44 | 1.36 | 3.65 |
| 5  | Construction insurance can protect contractors' interests effectively  | 7.11 | 1.01 | 3.52 |
| 6  | Most insurance companies, who do construction insurance business in India, understand the needs of contractors   | 6.56 | 1.40 | 3.36 |
| 7  | Most insurance companies, that do construction insurance business in India, are qualified  | 7.11 | 1.41 | 3.83 |
| 8  | It is difficult for Indian contractors to design a construction insurance program  | 7.00 | 1.26 | 3.83 |
| 9  | When contractors plan to purchase construction insurance programs, they need third-party (e.g., agents, brokers, etc.) help to provide information and knowledge | 7.00 | 1.26 | 3.78 |
| 10 | In India, insurance companies are familiar with the background of construction   | 7.00 | 1.40 | 3.50 |

|    |   |      |      |      |
|----|---|------|------|------|
|    | companies   |      |      |      |
| 11 | In India, insurance companies are familiar with the background of construction projects   | 7.78 | 0.95 | 3.49 |
| 12 | In India, contractors are familiar with the background of insurance companies in their area   | 8.00 | 1.00 | 3.65 |
| 13 | Construction insurance against risk is expensive due to high premiums in India  | 6.78 | 1.37 | 3.63 |
| 14 | The services of claim from insurance companies in India are standard  | 7.33 | 1.39 | 3.21 |
| 15 | Insurance claims are difficult, and wordings are complicated, therefore contractors have to turn to an intermediary (e.g., agents, brokers, loss adjusters) | 7.78 | 1.36 | 3.70 |
| 16 | Contractors can retain the premium and manage the risks by themselves effectively   | 7.11 | 1.41 | 3.72 |
| 17 | A contract of work in India should contain strict and clearly defined insurance terms   | 6.89 | 0.91 | 3.56 |
| 18 | Insurance companies in India could not provide risk management service effectively even at extra charge   | 7.11 | 0.89 | 3.50 |

|    |  |      |      |      |
|----|--|------|------|------|
| 19 | Underwriters should give contractors premium discounts in consideration of construction companies' good risk management practice | 7.56 | 1.12 | 3.65 |
|----|--|------|------|------|

Source :- By Author

### Pareto 80/20

The Pareto Principle, sometimes known as the 80/20 rule, states that about 80% of outcomes result from 20% of causes. This idea may be used in a variety of fields, including insurance in the building sector.

In the insurance, the 80/20 rule can be used to identify the top 20% of risks that are responsible for 80% of the losses. By focusing on these high-risk areas, insurers can develop targeted risk management strategies to reduce losses and improve profitability.

In the construction industry, the 80/20 rule can be applied to identify the top 20% of construction activities that are responsible for 80% of accidents and injuries. By focusing on these high-risk activities, insurers can work with construction companies to implement safety measures that can reduce accidents and injuries, and ultimately reduce insurance claims.

Insurers can also use the 80/20 rule to identify the top 20% of construction companies that have the highest risk profiles. By focusing on these companies, insurers can develop targeted risk management strategies and offer more customized insurance policies that meet their specific needs.

Overall, the Pareto Principle can be a useful tool for insurers in the construction industry to identify high-risk areas and develop targeted risk management strategies to reduce losses and improve profitability.

So, after analyzing, the data and applying the Pareto 80/20 rule we will get that Contractor All Risk (CAR) Policy will cover the maximum risk in the construction industry.

## 11. Conclusion

Through discussions with insurance providers, the study learns about the various insurance plans that are offered to the construction business. After being contacted, the different insurance policies that the construction companies had purchased were looked into. According to the study, the insurance plan should be selected in accordance with the particulars of the project and the specifications stated in the construction contract. Risk management is largely the contractor's responsibility. In this respect, contractors should place a high priority on safety precautions. Additionally, by putting in place the required loss control and risk management systems, contractors should be able to bargain for lower insurance premiums from insurers.

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