

# **REVIEW OF CONSTRUCTION SITE SAFETY IN BANGLADESH**

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A thesis submitted to the Department of Civil Engineering in partial fulfilment for the degree of  
Bachelor of Science in Civil Engineering



Department of Civil Engineering

Sonargaon University

147/I, Green Road, Dhaka-1215, Bangladesh

Section: 17B

Semester - Year: Fall 2022

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## DECLARATION

In the name of Almighty Allah, we hereby declare that this thesis paper is our own work and effort and neither this thesis nor any part of it is submitted for any degree or award. All the contents provided here is totally based on our own labour dedicated for the completion of the Degree of Bachelor of Science in Civil Engineering.

We further undertake to indemnify the university against any loss or damage arising from breach of the foregoing obligations.

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*Dedicated  
to  
“our parents”*

## ACKNOWLEDGEMENTS

This research 'Review of construction site safety in Bangladesh' has been conducted in partial fulfillment of the requirements for the degree of Bachelor of Science (B.Sc.) in Civil Engineering. This critical work came to life due to unconditional help and co-operation in different ways by many people. We express my gratefulness and thank them for their assistance in preparation of this project and thesis.

Thanks to Almighty Allah for his graciousness, unlimited kindness and blessings. We would like to express our deepest sincere gratitude to our supervisor **Md. Abu Saleh Sagor**, Lecturer, Department of Civil Engineering, Sonargaon University, for his highest level of cooperation and prompt support with continuous guidance, invaluable suggestion, affectionate encouragement and generous help during the study. With this valuable direction and cordial assistance this research work could never be materialized.

We should also thank from the core of our heart to Sonargaon University and the Department of Civil Engineering to give us the chance to do our B.Sc. in Civil Engineering and make us compatible to contribute the nation and the country by uplifting the lives of general mass.

Finally, we should like express a very special indebtedness to our parents and our sister for their support and motivation which have been the source of great inspiration for this work.

## **ABSTRACT**

The objectives of this thesis were to find out the main factor that directly related with construction safety at Dhaka city and to determine the present condition of construction site safety in Dhaka city. Total thirteen project were visited and the building construction projects at Dhaka city were categorized in five types such as: 1. Low Rise Residential project develop by developer or consulting firm, 2. High Rise Residential project develop by developer or consulting firm, 3. Commercial project develop by developer or consulting firm, 4. Low Rise Residential project develop by Land owner and 5. Commercial project develop by Land owner. Then an interview survey has been performed based on an existing site survey and questionnaire by project personnel and workers. Finally, the collected data analysis and compare between various types of buildings and different factors influencing safety measures.

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# CHAPTER 1

## INTRODUCTION

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### 1.1 General

Safety plays an essential role in today's construction industry. Since the beginning of time people has used to create and construct the living and working environment. It should be present on any site. Humans have been involved in construction for their own needs since the beginning of time. In ancient times they used sticks and tree branches and leaves to make their shelters. In that continuity, people are building everything in the sky sign today. But many times, unfortunately many plans fail and the biggest problem for that is the death of construction workers even though safety in construction has improved a lot. However, there is still a lot of improvement to be done, many times it is seen that many people's lives are wasted due to some wrong construction.

### 1.2 Objective of thesis

Currently a rapid growing sector of construction. Many people are directly involved with this sector. The employment of people is from this sector. Although there is guidance from BNBC, most of the construction sites are not being admitted to this security provision. As a result, many accidents are also methods. Many construction sites have signs and banners that say safety first, but these are just to show people the inside scene is completely different. The reality is that at many sites labour, supervisors and even in some cases site engineers do not have the required safety training. Basically, we try to find out the causes of construction accidents and the sectors that are more vulnerable and remedial. Apart from that, the other issues to be worked on are discussed below:

1. To determine the president condition of construction site safety in Dhaka city.
2. To find out the main factor that directly related with construction safety at Dhaka city.
3. To determine need of safety at construction site.
4. To establish a possible remedy of bad condition in construction safe.
5. To detected the legal background of construction safety in Bangladesh.

### 1.3 The history of construction safety

The history of safety in construction is fraught with accidents and fatalities, with true focus on improving safety only emerging within the last 50 – 80 years. In fact, at the time of the construction of the **Golden Gate Bridge** [1] it was expected that one person would die for every \$1 million spent. Since that time, a variety of regulations have been passed at both national and local levels, and the construction industry has also worked to increase awareness and education related to keeping workers safe onsite and encourage construction safety innovation.

Over time, advances in technology have made safe work practices increasingly achievable. In addition to safer tools and items like fall protection harnesses, netting and PPE protocols, advanced technologies like software programs, robotics and virtual reality are increasing access to education and the ability to complete work items while avoiding injuries or fatalities.

Today we explore the history of safety, the increased technologies available and look at what the future may hold for continuing efforts to improve the health and wellness of construction workers.

Construction is now regarded as one of the most highly-regulated industries around, with lots of laws and safety equipment to keep workers safe. Yet, it wasn't always like this.

The history of safety in the construction has come a long way since the early days of having to work with virtually no safety features in place. The following are some of the milestones that have been passed along the way.

#### **1.4 Specific aspects of this work**

Construction sites are considered the potentially hazardous and accident-prone parts of any working environment. Excessive exposure to these construction site hazards exposes workers to injury and possible death. To prevent this, a company should know how to identify and be aware of all possible dangers that can be encountered during normal business operations. However, the importance of safety as a cost controlling measure is often overlooked by owners and contractors.

Bangladesh Occupational Safety, Health and Environment Foundation (OSHE) collect the workplace accident report based on monitoring sixteen leading national daily newspapers of the country and reports of its field offices in different parts of the country.

Especially in Bangladesh the overall view of safety in construction site is not so good. In 2021, the monitoring of national and regional newspapers by OSHE and BILS identified 580 deaths. 42% of these deaths involved workers in the construction sector.

National newspapers and local newspapers are other source of collecting information on workplace accidents, death and injury of workers. But the limitation is, it only covers news of big accidents followed by death and critical injury. Since 2005, OSHE has been engaged on workplace death and injury monitoring of 16 national daily newspapers and sharing the finding with government, trade unions, employers and other stake holders. But it's not possible to get the accurate statistics only from the newspaper because most of the accidents are not reported to the media.

The lack of safety knowledge, lack of proper supervision and enforcement of building codes and regulations are the main problems for the accidents in construction site. Construction companies, employers, workers, common people no one is concern and aware about the safety issues in construction practices. There is a huge lack of specific rules, regulations and proper guidelines related with safety issues in construction practices in Bangladesh.

So, there are scopes to identify the main cause of construction hazard and required safety technique for control death, hazard.

## 1.5 Organization of thesis

There are five chapters are included in this thesis paper. First of all, in **chapter one** named. As introduction included the history of construction safety. The scope and objectives of this Work also included in this chapter.

Literature review is fond of in **chapter two** which integrated with the topic of Extent of Workplace Deaths in Bangladesh, Workplace Death Investigation in Bangladesh, Newspaper Survey Report Accidents and Violence at Work in Bangladesh, Construction Safety in Other Countries and Legal Background.

Case study describe in chapter three with focus of accident statistics, common reasons of injuries, the most common risks in a construction site, construction site rules and regulations, Safety checklist, safety questions, most common accident in Bangladesh. **Chapter three named** as methodology built with the theme structure of methodology, Problem identification, prepare questionnaire, data collection, Evaluation data and site Photographs during interview survey.

Results and Discussions with dictation are arranged in **chapter four**.

And last of all in **chapter five** include the conclusion and recommendations.

## CHAPTER 2

### LITERATURE REVIEW

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#### 2.1 Introduction

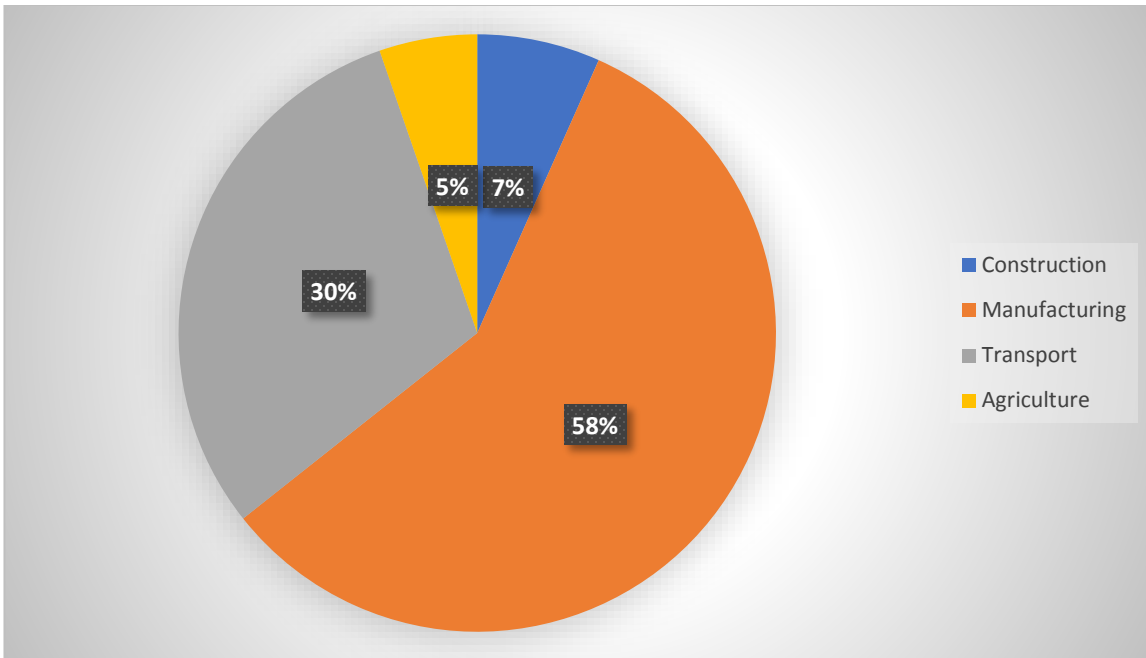
Bangladesh is an over populated country. Most of our people are illiterate and poor. So, they are cheated as labour. As the people are illiterate they are not aware of the safety laws. Unfortunately, there is no strong law on behalf of Legal protections against workplace hazards, and their enforcement in our country. That is one of the main causes of neglect to follow safety rules and regulation.

#### 2.2 Extent of workplace deaths in Bangladesh

In 2020, the monitoring of national and regional newspapers by **Bangladesh Institute on Labour Studies identified 1264 deaths [2]**. As the table shows, 6.67% of these deaths involved workers in the construction sector, 57.67% those in the manufacturing sector, 30.37% those in the transport, and 5.30% those in the agriculture.

**Table 2.1:** Numbers of worker deaths monitored in 2020 (BILS)

Sector	Number of Death	% of Death
Construction	84	6.67
Manufacturing	729	57.67
Transport	384	30.37
Agriculture	67	5.30
<b>Total</b>	<b>1264</b>	<b>100</b>



**Chart 2.1:** Numbers of worker deaths monitored in 2020(BILS)

### 2.3 Workplace death investigation in Bangladesh (SRS 2020)

The Workplace Death Investigation and Legal Services Project was originally set up the Centre for Corporate Accountability’s Bangladesh Worker Safety Programmed (BWSP) and primarily involves six different organizations: **ASK, BLAST, BRAC, SRS, BWSP, and OSHE.**

The Project involves six key activities:

1. Monitoring of deaths: 15 national and 11 regional newspapers are monitored by SRS (and, in 2020 only) to obtain reports of deaths of workers at the workplace arising out of issues relating to the management of occupational health and safety.
2. Investigation of deaths: BWSP and ASK are responsible for the investigation of deaths in Dhaka, Gazipur, Narayanganj and Saver district; BRAC’s Human Rights and Legal Services Programmed is responsible for the investigation of deaths in all other districts, other than in Chittagong and the Hill Tracts. This is the largest number. BWSP has also been responsible for investigating deaths in Chittagong.



Investigation by BRAC, ASK and BWSP has three key elements. Information is first obtained about the Unnatural Death (UD) case filed at the police station and the investigation undertaken by the police in response; this is then followed by a visit to the workplace to speak to workers, management and other possible informants about the death; and finally, a visit to the family in the locality is carried out. An eight-page form is filled out to retain the information collected.

3. Analysis of case, and correspondence relating to compensation: the investigation forms are then sent to BWSP/OSHE who analyse them and assess possible courses of action to assist the family in getting compensation. Cases will be closed in a number of situations: the death was not found to be work-related; the worker was self-employed; or the dependent family has no right in law for compensation, or is not interested in pursuing the case. In some cases, further information is sought from the investigators. In those cases where there is a legal obligation on the part of an employer or main contractor to pay compensation, and the family wish to seek assistance, the BWSP/OSHE will write to either the employer/main contractor and inform them of their obligations to deposit money in the Labour Court.
4. Filtering and distribution of deaths: At the end of each month, BWSP/OSHE distribute details of those deaths to either BRAC, ASK or BWSP for investigation.

Not all the deaths are distributed – road traffic incidents that happen to result in either deaths of workers traveling to or from work or in deaths of drivers or others working in vehicles; those involving deaths of domestic workers are not included for investigation, as there is currently no right for dependent families of domestic workers to receive compensation. Moreover, information about deaths is not distributed where the newspaper report does not provide sufficient geographical information to allow us to know where the death took place.

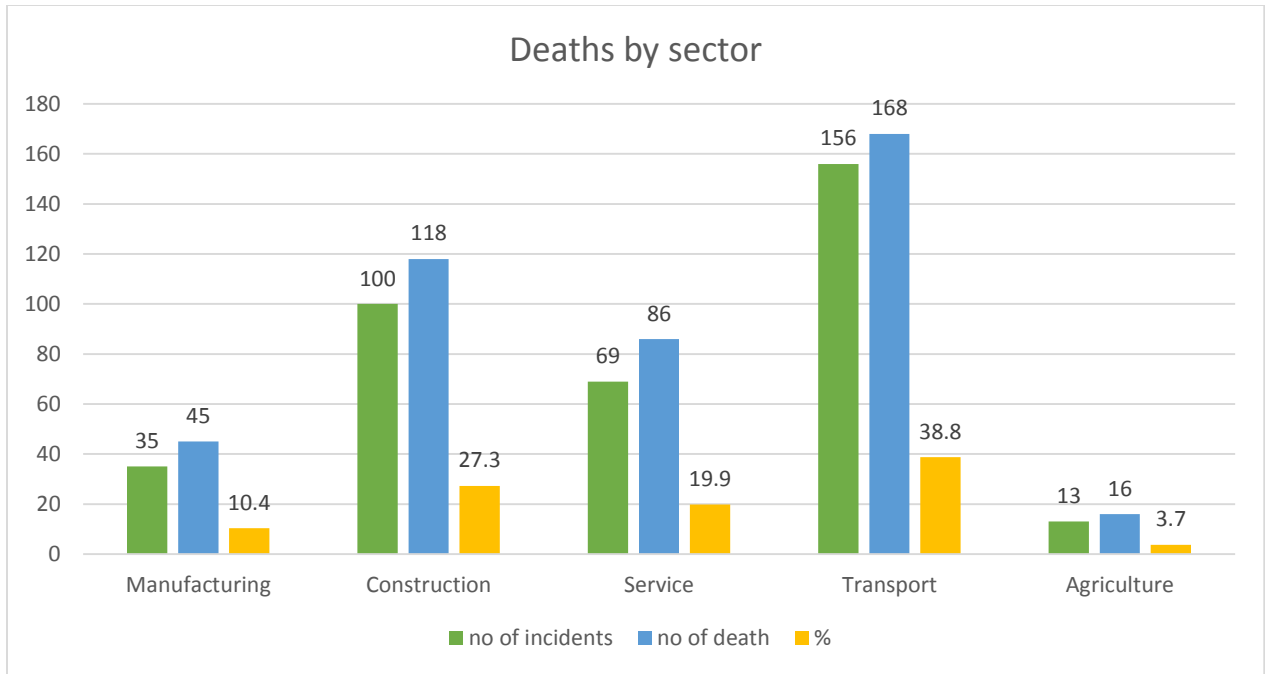
5. Separate contact with family: In many cases involving deaths in large cities, particularly Dhaka, the dependent family members live at their village homes in a different district from the place where the death took place. Therefore, where BWSP and ASK have investigated deaths in Dhaka but have not made contact with the family, BRAC investigators contact these families.

6. Referral for legal action: where there is no response to or no resolution arising from correspondence, CCA/BWSP will draft a petition and refer the case to BLAST who will then file the case in the Labour Court and undertake all further litigation.

In 2020, there were total 373 incidents in workplaces that resulted in 433 deaths. It is observed that the highest number of deaths occurred in the transport sector 168 (38.8%), followed by the construction sector 118 (27.3%), service sector 86 (19.9%), manufacturing sector 45 (10.4%) and agriculture sector 16 (3.7%). The nature/trend of data is more or less same for every year, except for the years when disastrous accidents in Manufacturing sector such as Rana Plaza or Tazrin or Garib and Garib happened.

**Table 2.2:** Deaths in different working sectors in 2020 (Excluding Rana Plaza Tragedy)

<b>Sector</b>	<b>No. of Incidents</b>	<b>No. of deaths</b>	<b>% Of Death</b>
Manufacturing	35	45	10.4%
Construction	100	118	27.3%
Service	69	86	19.9%
Transport	156	168	38.8%
Agriculture	13	16	3.7%
<b>TOTAL</b>	<b>373</b>	<b>433</b>	<b>100%</b>



**Figure 2.2:** Deaths in different working sectors in 2020 (Excluding Rana Plaza Tragedy)

**Table 2.3:** Causes of death in different Working Sectors in 2020 (Excluding Rana Plaza Tragedy)

Cause of incident	Nos
Boiler explosion	11
Wall/building collapse	9
Crushed	37
Downed in water	9
Earth collapse	10

Electrocution	96
Fall from Height	44
Fire	18
Lightning Stroke	11
Road Accident	177
Suffocation	10
Silicosis	1
<b>Total</b>	<b>433</b>

**2.4 Accidents and violence at work in Bangladesh**

The Bangladesh Institute of Labour Studies revealed the findings of the survey at a meeting held at the National Press Club in the capital, Dhaka, on Saturday.

A total of 729 workers were killed in workplace accidents across the country in 2020, according to a survey conducted by a local non-governmental organisation.

The Newspapers brought under the study are:

**Table 2.4:** Newspaper survey report 2020 Summary Sector Basis Dead.

<b>Categories</b>	<b>Dead</b>
Transport	348
Construction	84
Agriculture	109
Garments	163
RMG	25
<b>Total</b>	<b>729</b>

## **2.5 Construction safety in other countries**

### **2.5.1 Safety Control in the Construction Industry In India (Ramesh A. Bagi)**

Construction Sector is very essential and an integral part of infrastructure development which gives tremendous boost to India's economy. The construction industry has registered enormous growth worldwide in recent years. Although the development of technology is rapid in most of the sectors, construction work is still labour intensive, In India the construction sector employs around 33 million people, which is next to agriculture. The construction workers are one of the most Vulnerable Segment of the unorganized labour in India. Workers being exposed to wide variety of serious OHS hazards, the rate of fatal accidents in this industry are 4 to 5 times that of the manufacturing sector. The workers are also exposed to a host of hazardous substances, which have a potential to cause serious Occupational diseases such as asbestosis, silicosis, lead poisoning, etc. There is also a serious potential of fires due to the storage and use of flammable substances and a potential for disasters due to collapse of the structures and subsidence of the soil on which the construction activity.

## **Proactive Approach:**

OHSE Policy and Organization structure:

1. Risk Assessment and Monitoring
  - ❖ Hazard Identification
  - ❖ Hazard Controlling
  - ❖ Hazard Monitoring
  
2. Culture Development
  - ❖ Education and Training
  - ❖ Communication
  - ❖ Promotional Activities
  - ❖ Follow up
  - ❖ Employee participation
  
3. Occupational Health
  - ❖ Work area monitoring
  
4. Fire prevention
  
5. Emergency preparedness
  - ❖ Quantification of Risk from process
  - ❖ Natural calamities
  - ❖ Other Factors.
  - ❖ On and Off-Site Emergency Plan

### **2.5.2 A survey of construction site safety in China (Zeng, Wang & Tam 2020)**

The issue of construction site safety has engaged both practitioners and researchers for a long time. Some relevant research on this issue has been extensively reported. Hinze (1981) investigated the relationship between the safety performance of individual workers and individual worker attitudes. Hinze and Riboud (1988) explored several factors that apparently influencing the safety performance on Canadian high-rise building projects. In some studies, the usefulness of behavioural techniques to improve safety performance in the difficult construction setting was examined.

The study by Mattila and and Hyodynmaa (1988) revealed that when goals were posted and feedback was given, the safety index was significantly higher than when no feedback was given. Fellner and Sulzer-Azaroff (1984) analysed the industrial safety practices through posted feedback. In a study carried out on Honduras construction sites, Jase skis and Sauza (1994) demonstrated a substantial lack of awareness or importance for safety at all levels of the construction industry. In addition, Laufer and Ledbetter (1986) assessed various safety measures. Some researchers examined costs of construction accidents to employers (Leopold and Leonard, 1987; Levitt and Samuelson, 1993). With regards to construction site safety in Hong Kong.

Lingard and Rawlinson (1994) investigated the theoretical background to commitment at the group and organizational level and presented a site-level research model which is illustrative of the possible effects. A more recent study by Tam et al. (2001) explored the attitude change in people after the implementation of the new safety management system in Hong Kong.

A structured questionnaire was sent to senior management representative of one hundred large construction firms. Up to the time when the authors write this paper, twenty completed questionnaires have been received.

All the twenty construction firms are state-owned. In China, large construction firms are state-owned establishments under the traditional planned economy system. These firms employ a larger number of staff. Moreover, the construction firms fall into two professional categories: housing building, and civil & municipal engineering.

### **2.5.3 Construction safety in Singapore**

Since Singapore embarked on her industrialization program in the early 1960s, the construction industry has been one of the fastest growing sectors of the economy.

It is therefore not surprising that safety and health issues became serious concerns in the early 1970s. The safety situation deteriorated so drastically that the Government had to bring in legislation with severe penalties to deal with errant and recalcitrant contractors and employers.

By 1980s, the industry had made improvement. Framework legislation pertaining to safety committees, safety officers, asbestos and medical examinations etc were in place. The Factories (Building Operations and Works of Engineering Construction) Regulations was also augmented

to further protect the safety and health of workers. In consequence, there were significant improvements in the accident situation.

With the increased use of mechanization and improved technology, there is less reliance on manual labour and hence for high rise construction, there is a reduction in the exposure of workers to risks of falling from heights and being struck by falling objects. However, these two hazards still account for some 60 percent of the total accidents and about 75 per cent of the fatalities in the industry.

#### **2.5.4 Bangladesh Labour Rule 2020**

The recent amendments to the Bangladesh Labour Rules have curtailed workers' rights and the changes have largely been made ignoring recommendations of workers' bodies, said labour leaders.

The amended Bangladesh Labour Rules were published by the labour and employment ministry in a gazette on September 1, 2022, and 101 amendments were made.

But of them, several crucial additions and more importantly, omissions will result in the curtailing of worker rights, including maternity leave rights.

Act remained the same, though they were no longer imposed upon occupiers but upon employers.

#### **2.5.5 Bangladesh National Building Code 2022**

As we all know that Bangladesh National Building Code – BNBC 2022 has been gazetted in Feb. 2021 known as BNBC 2021 as a mandatory law for building design and construction by the government of the people's republic of Bangladesh.

The BNBC requires the “the owner of the property” under construction to comply with the obligations in the Code. The owner is defined to include not only private persons or government departments - but also developers. In addition, engineers, architects and planners have a duty to ensure compliance” with the Code.

In relation to the BNBC, there is at present no agency empowered to enforce the code. The BNBC states that: “The Government will establish a new or designate an existing agency responsible for enforcement of this Code with a given area of Jurisdiction. For the purpose of administering and enforcing the provisions of the Code, the enforcing agency shall have the authority of the Government and shall herein be referred to as the authority.” However, this has not yet happened, and RAJUK officials (responsible in Dhaka for enforcement of the 1952 Act, under which the Code was enacted) and Inspectors do not enforce the part of the Code relating to health and safety.

#### **2.5.6 Applicable laws in other countries**



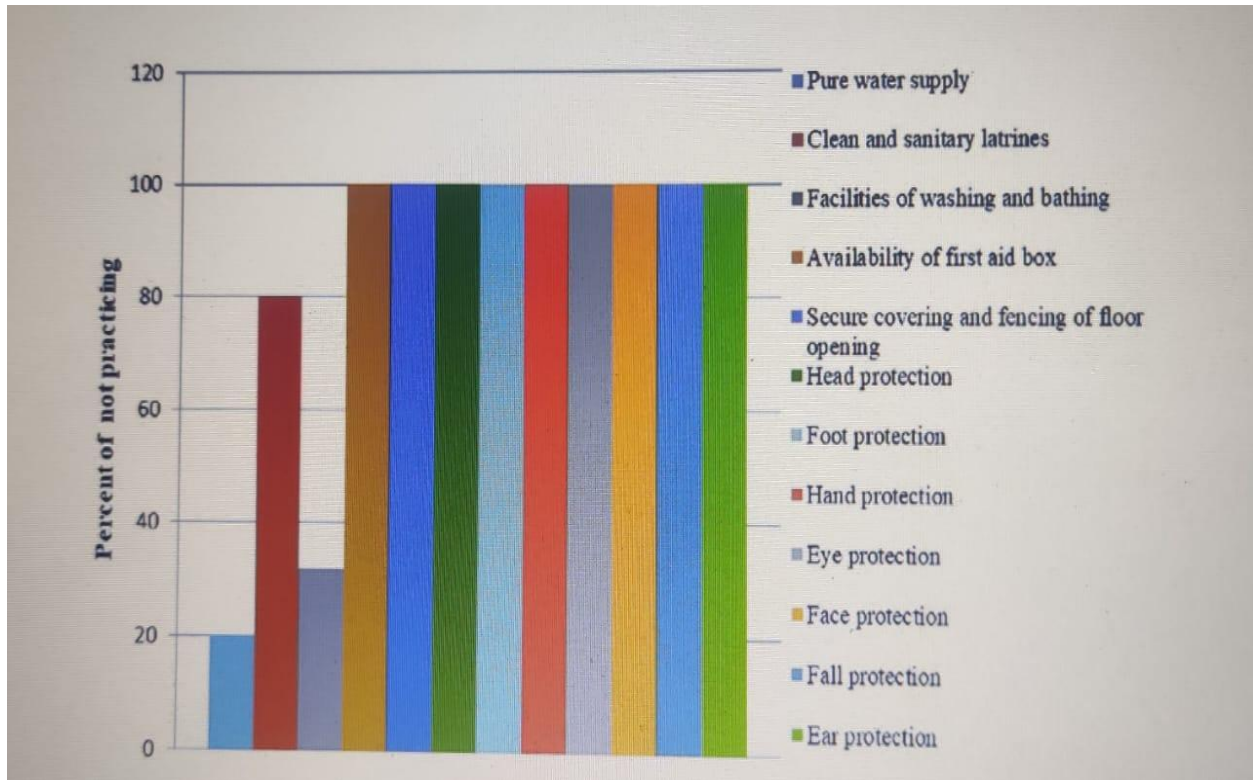
In Angola, the contracts for execution of public works are mainly governed by the Public Procurement Law, enacted by Law No. 9/16 of 16 June 2016 with the corrections of the Rectification no. 23/16 of 27 October 2016 and the Presidential Decree No. 202/17 of 6 September 2017. Construction works that are procured by private (non-public sector) entities are governed by the Civil Code, approved by Decree-Law No. 47344, of 25 November 1966, as amended by Decree-Law No. 9/11, of 16 February 2011. Often, contracts for private works foresee the subsidiary application of the Public Procurement Law.

Under European Union Law, there are European Union Directives in place to protect workers, notably Directive 89/391 (the Framework Directive) and Directive 92/57 (the Temporary and Mobile Sites Directive). This legislation is transposed into the Member States and places requirements on employers (and others) to assess and protect workers' health and safety. In the United States the Occupational Safety and Health Administration (OSHA) sets and enforces standards concerning workplace safety and health.

## **2.6 Common reasons of injuries**

Most Common Causes of Accidents on Construction Sites:

- Slips, trips and falls
- Falls from height
- Defective equipment
- Electric shock
- Manual handling
- Excessive noise and vibrating power tool hazards
- Vehicle accidents



**Figure 2.6:** Current Safety Status in Construction Sites at Bangladesh.

### 2.6.1 Slips, Trips and Falls

Loose cables, building equipment and holes in the ground can be commonplace in construction sites making it more likely for employees to experience a slip, trip or fall in the workplace.

Employers and employees can do their best to mitigate the risk of slips, trips and falls in the workplace by:

- Keeping walkways clear of obstructions
- Being aware of their surroundings and reporting any hazards to management
- Keep sites clear and free of debris



**Figure 2.6.1:** Anatomy of Slips, Trips and Falls.

### 2.6.2 Falls from Height

Faulty scaffolding, unsecured ladders, lack of safety railings and PPE can increase the likelihood of a fall from height. Falls from height can result in more severe damages such as spinal, head and brain injuries and can even prove to be fatal.

The Work at Height Regulations 2005 states that employers must ensure that the following requirements are met to ensure the safety of their staff whilst working at height:

- Provide employees with appropriate training
- Provide employees with the right personal protection equipment (PPE).
- Conduct a risk assessment
- Ensure all equipment is in good working order
- Ensure that surfaces are dry, sturdy and free from obstacles



**Figure 2.6.2:** Example of Falls from Height in Construction Sites at Bangladesh.

### 2.6.3 Defective Equipment

When working on a construction site you would expect that tools and equipment would be in safe and good working order. Unfortunately, this isn't always the case and accidents can happen as a result of employees being given faulty or defective equipment to work with.

In order to avoid employees incurring injuries as a result of using defective products employers should:

- Regularly maintain and inspect tools and machinery
- Provide appropriate PPE
- Conduct a full health and safety assessment on tools and equipment



Figure 2.6.3: Defective Equipment.

## 2.6.4 Electric Shock

Construction sites contain a lot of electrical equipment which if used incorrectly, or is faulty, can result in electric shock injury. Electric shocks can lead to injuries including burns, scarring, long term nerve damage and even death.

Employers can mitigate the risk of their staff members experiencing an electrical shock injury by:

- Only asking qualified staff members to carry out electrical work
- Carrying out regular maintenance and safety checks on electrical tools and machinery



**Figure 2.6.4:** Example of Electric Shock in Construction Sites.

## 2.6.5 Manual Handling

Manual handling injuries can happen as a result of employees transporting heavy loads, by lifting, pushing, pulling and carrying. When employees try to move objects that are too heavy, or don't use the correct techniques that they have been taught in training, injuries can occur.

The Manual handling Operations Regulations (1992) sets out the rules that employers must adhere to, in order to protect the well-being of their staff if their job involves manual handling. Employer should do the following before allowing to carry out any manual handling:

- Carry out a risk assessment
- Implement any measures that can aid in the heavy lifting such as using pallet trucks, hoists or conveyors
- Conduct health and safety training to show employees the safe way to conduct the task



**Figure 2.6.5:** Example of Manual Handling in Construction Sites.

## 2.6.6 Excessive Noise and Vibrating Power Tool Hazards

Construction sites are extremely noisy environments, workers should always wear ear defenders to protect their hearing from long term damage.

Employers have a legal duty to protect their staff in the workplace and should implement measures to limit the risk of hearing loss and HAVS through:

- Providing employees with the appropriate PPE such as ear defenders
- Limiting their employee's exposure to excessive noise
- Limiting the time employees spend working with vibrating hand tools



**Figure 2.6.6:** Excessive Noise and Vibrating Power Tool Hazards in Construction Sites.

### **2.6.7 Vehicle Accidents**

According to the HSE, on average, around 7 workers die and a further 93 are seriously injured, each year as a result of accidents involving vehicles on construction sites. The risk of accidents can be minimized through effective traffic management on site, including:

- Keeping vehicles and pedestrians apart
- Hiring the right people
- Prevent vehicles from reversing
- Increase visibility
- Signs and instructions



**Figure 2.6.7:** Vehicle Accident in Construction Sites at Bangladesh.

## **2.7 Construction site rules and regulations**

There are rules and regulations that provide for the safety of the worker. All rules and regulations should be followed to the letter.

There are too many to list in full, but some examples are:

- A fire escape plan must be in place. This will be approved by the fire department. The site must be accessible to fire department equipment, including trucks and hoses.
- Workers should dress properly. The basic attire is a basic shirt and long pants. Safety equipment includes hard hats, glasses, earplugs, gloves, and work boots.
- Long hair should be tied back, and jewellery should never be worn.
- Electric tools should be unplugged when not in use or if they need parts changed like a blade or bits. Blade guards should be set, and tools must be carried properly to avoid injury to yourself and others.
- Lifting should be done properly. Avoid lifting with your back and instead, use your legs. Never carry something too heavy alone, even if you're capable. Have a co-worker help you.



The employer must follow many laws in place to give its workers a safe working environment. The laws are extensive, many too many to list in full, and they vary from state to state.



Figure 2.7: Site Safety Note.

## **2.8 Safety checklist**

Here are the top 10 safety inspections checklists used by construction companies on Safe site.

- Jobsite hazard identification checklist
- PPE inspection
- Housekeeping inspection
- Electrical cord, plug equipment and tool safety checklist
- Fall protection checklist
- Scaffolding safety checklist
- First Aid/CPR/AED checklist
- Hand and power safety tools checklist
- General ladder safety checklist
- Hot work and welding inspection template

### **2.8.1 Jobsite Hazard Identification Checklist**

The top eleven safety hazards in construction are:

- Working at height
- Moving objects
- Slips, trips, and falls
- Noise
- Hand-arm vibration syndrome
- Material handling – manual and by equipment
- Excavations
- Asbestos

### **2.8.2 PPE Inspection**

5 Steps to Effective PPE Assessment and Selection:

- Conduct a walk-through survey of work areas to identify workplace hazards
- Consider sources of risk
- Organize data
- Analyse data
- Select appropriate PPE

### 2.8.3 Housekeeping Inspection

10 Good Housekeeping Rules for A Tidy Construction Site:

- Designate an area for rubbish and waste
- Stack and store materials safely
- Maintain a safe work area
- Keep access routes clear
- Put tools away when you're done
- Set a tidy example
- If it is broken, fix it

### 2.8.4: Electrical Cord, Plug Equipment and Tool Safety Checklist

**Electrical Cord:** The 5 safety rules at a glance:

- Disconnect completely
- Secure against re-connection
- Verify that the installation is dead
- Carry out earthing and short-circuiting
- Provide protection against adjacent live parts

#### **Electrical Plug Equipment:**

Basic safety precautions:

- Avoid overloading sockets by providing enough socket-outlets
- where possible switch off all appliances at the mains at the end of the working day
- switch off and unplug equipment before you clean it or make adjustments

#### **Electrical Tool Safety:**

- Reciprocating Saw. The reciprocating saw is an essential power tool for any remodelling work or demolition
- Oscillating Multi-Tool. Multi-tools have interchangeable heads so that they can be used for many kinds of applications
- Angle Grinder

- Impact Driver
- Nailery
- Powering Up

### **2.8.5 Fall Protection Checklist**

- Environment. dust, gases, fumes, sprays, lighting, noise, ventilation.
- Buildings. windows, doors, floors, stairs, roofs, walls, elevators.
- Containers
- Electrical
- Fire protection equipment
- Hand tools
- Hazardous products
- Materials handling

### **2.8.6 Scaffolding Safety Checklist**

- Use Proper Safety Equipment
- Mind Load Limits
- Know Relevant Regulations and Standards
- Inspect Scaffolding Materials
- Build Properly
- Inspect the Site and Equipment
- Keep Vehicles and Heavy Equipment Clear
- Stay Organized

### **2.8.7 First Aid/CPR/AED Checklist**

- Adhesive tape or bandage
- Antiseptic
- Gel-soaked burn dressing
- Breathing barrier

- Cold pack
- Skin or eyewash
- Face mask
- Antibiotics

### **2.8.8 Hand and power safety tools checklist**

Below are some of the most widely used hand and power tools for workers in different industries:

- Hammer. A hammer is used in almost all professional and amateur construction work
- Power Drill
- Wire Cutters
- Angle Grinder
- Screwdrivers
- Chainsaw
- Pliers

### **2.8.9 General ladder safety checklist**

#### 5 Basic Rules for Ladder Safety

- Use the right ladder for the job. It is important to choose a ladder that has the proper load capacity for the job
- Inspect the ladder before and after use
- Set the ladder up correctly
- Climb and descend the ladder with caution
- Be safe and use common sense when using a ladder

### **2.8.10 Hot work and welding inspection template**

Hot work presents direct personnel hazards to those involved in the task, or working nearby.

- Skin/eye burns and electric shock are potential direct hazards. A hot surface or a spark can burn skin, either by contact or from radiated heat
- Potential of personnel overexposure to welding or flame cutting fumes, especially

## **2.9 Most common accident in Dhaka city of Bangladesh**

Falls are the most common construction site injury, making up about 35% of all construction accidents. These often occur when a worker falls from scaffolding, ladders, roofs, chimneys, etc. The severity of the fall depends on how far from the ground the worker was when they fell and the circumstances of the fall.

The most common accident in Bangladesh and the reasons of the accidents are described below.

### **2.9.1 Crush Injuries in excavation works**

#### **Reasons:**

- Excavation without protection like shore pile.
- Shore piles are not properly designed.
- Do not maintain slop ratio properly.
- Surcharge or moving vehicle in the edge of excavation.
- Lac knowledge of engineer, supervisor and labor.

#### **Possible Remedy:**

- Properly design of foundation and design shore pile if applicable and soil test must be done before excavation work.
- Cut slopes for permanent excavations shall not be steeper than one unit vertical in two unit horizontal (50-percent slope).
- No fill or other surcharge loads shall be placed adjacent to any building or structure unless such building or structure is capable of withstanding the additional loads caused by the fill or surcharge.
- Use safe guard instruments.

## **2.9.2 Being Struck by Falling Objects:**

### **Reasons:**

- Store of construction materials are not in proper place.
- Not well blundered.
- Not use net around the site.
- Not use safety sign.
- Not use helmet.

### **Possible Remade:**

- Proper Store management.
- Take possible stapes for pedestrian protection like boundary, netting, safety sign board etc.
- Follow safety rules properly.

## **2.9.3 Slips and Trips:**

### **Reasons:**

- Not use safety belt.
- Not use safety belt
- Use unsafe scaffolding.

### **Possible Remade:**

- Use lift carrier when work in elevated place of the outside of building.
- Use steel scaffolding.
- Use temporary railing or ladder in stair and open space.
- Always use safety belt when work in elevated space.

## 2.9.4 Electrocutation:

### Reasons:

- Faulty appliances.
- Damaged or frayed cords or extension leads.
- Electrical appliances in contact with water.
- Incorrect, damaged or deteriorated household wiring.
- Downed powerlines.
- Lightning strike.

### Possible Remade:

- Legal power connection.
- Use new and safe electric fixture.
- Use Three pronged sockets.
- Conform to safety rules and regulation.



Figure 2.9.4: Focus Four Hazards.

## 2.9.5 Receiving injuries from hand tools:

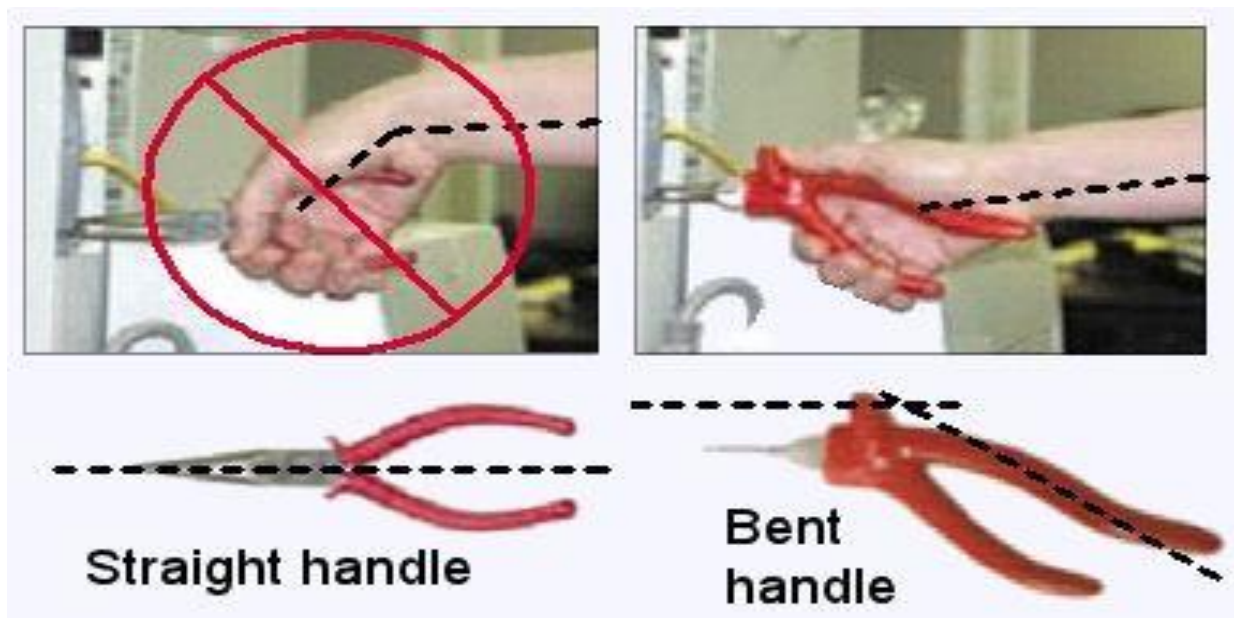
### Reasons:

- Neglect to use gloves, safety goggles and helmet.
- Tendency to show unnecessary braveness.
- Lack of knowledge and monitoring about safety rules and regulation.



**Possible Remade:**

- Regular monitoring.
- Force to labor to follow safety rules.
- Labor and site engineer should be trained about safety.



**Figure 2.9.5:** Handing the Tools.

## **CHAPTER 3**

### **METHODOLOGY**

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#### **3.1 Introduction**

Although the National Building Code details the safety measures that a worker must take during their working hours, the issues are mostly neglected. According to Bangladesh Building Construction Workers Union and Rehab, the number of building construction workers across the country is about 4.0 million. In most cases construction workers are working in dangerous environment. Accidents are often fatal. Many are injured. However, it has been seen in various areas of the capital, the safety of workers is neglected in most places. There is no available data base on building construction related accidents in Dhaka city and published records are few and far between. Building construction companies are also not eager to reveal such data. The methodology also includes discussion on various processors of control construction accidents for different country. Different countries have different procedures to control the risk and minimise the number of accidents at construction sites. Analyse the reason of most construction accident in Bangladesh and then make a questionnaire about to know the present situation of construction site safety in Bangladesh.

#### **3.2 Structure of methodology**

The structure of Methodology is described by the flowing list:

- Problem identification
- Prepare questionnaire
- Data collection
- Evaluate Data

#### **3.3 Problem identification**

The concerned institutions do not have any accurate information about how many buildings are being constructed at risk in the capital. 65Rajuk claims that they are looking into whether the building is being constructed as per the building code. However, the main responsibility of the Department of Inspection of Factories and Establishments is to look after the safety of the workers in the construction. A large number of high-rise buildings are being built all over the country including the capital. But proper measures are not being taken to avoid the accidents of the construction workers in the construction of those buildings. As a result, the number of deaths of construction workers is constantly increasing at an alarming rate.

Even the pedestrians are not spared from the accident. Besides, some are seriously injured and many are alive with the curse of paralysis. Basically, due to lack of proper supervision such situation is being created. This information is known from sources related to Bangladesh Institute of Labour Studies (BILS).

In the last 6 years, 620 workers have been killed in construction accidents in the capital. 578 workers were injured at that time. Many of them live with the curse of paralysis. An average of 40 lakh construction workers are working across the country including the capital every day. But their safety at work is not ensured. As a result, construction workers in multi-storied buildings are forced to work in unprotected conditions. Because no life-saving equipment is provided to the workers at the workplace. As a result, the construction workers as well as the surrounding people and pedestrians under the building remain insecure. In short, construction workers are not getting legal protection.

According to the National Building Code 2014, it is mandatory for workers to wear helmets during work. Moreover, those who are involved in concrete work should wear gloves and glasses for work that is harmful to the eyes. Protective equipment like gloves, safety boots, apron should be used while using welders and gas cutters. Moreover, the National Building Code also mandates the use of safety belts for workers while working on top of buildings. But none of it is seen in reality. It is the building owner's responsibility to ensure that safety equipment is in place. Although there are enough laws for the safety of workers in the workplace. But that law is not being implemented. At present, even 10 percent of the law has not been properly implemented. As a result, the construction sector is not becoming safe. It increases the number of deaths due to accidents. And the owner is getting away with it. There is no one to see it.

Meanwhile, according to Bangladesh Institute of Labour Studies (BILS), 620 workers were killed and 578 injured in workplace accidents in the capital in the last 6 years. Many of them are living crippled lives. Among them, 61 people were killed in 2015, 85 people in 2016, 134 people in 2017, 161 people in 2018, 134 people in 2019 and 45 people were killed till August 2020. The number of accidents is increasing every year. And from 2002 to 2020, 1,706 workers were killed in workplace accidents in 19 years. Mainly lack of good ladders and lack of adequate lighting in ladders, haphazard placing of rods, sand and bricks, absence of nets or use of flimsy nets at workplaces, lack of provision of cranes, lack of provision of helmets, gloves, bare feet, carelessness and unknowing entry into confined spaces, working in hot sun, use of faulty machinery, lack of rest, poor scaffolding, pressing against walls or ground, not using belts while working while hanging, not wearing good shoes or boots, lack of modern machinery and faulty electrical lines cause accidents. Accidents include death from falls from above, dismemberment from falls from above, death from crushing, death from electrical accidents, earth moving vehicle accidents, burns, eye injuries or blindness, head injuries, amputation or amputation of hands, feet and trapped gases.

### **3.4 Prepare questionnaire**

To the picture of safety in Bangladesh, we visited small and large sites in the city to find out what are the common types of accidents at construction sites in Bangladesh and what causes them. All the construction sites are in Dhaka city because more construction work is going on in Dhaka compared to other cities so the data has been collected from Dhaka city. In preparing the questionnaire we have tried to include questions about the most common accidents and lack of safety. Try to keep the questions simple and short. Answer most questions with yes or no. Each accident can have multiple causes, so the questions break down each accident or safety strategy into simple questions that can be answered with yes or no.

### **3.5 Data collection**

After preparing the questionnaire, for collecting data, 13 small and big projects of Dhaka city were visited and the answers were obtained by understanding the situation of the project and interviewing the responsible person. The projects include mostly residential and some commercial projects. Some photographs were taken during the project inspection, so as to understand the actual condition of the project. After receiving the answers these are evaluated, which are divided into four categories. Which are excellent, good, poor, very poor. The information obtained from the projects has been listed.

### **3.6 Evaluate data**

First of all, we try to find the root unit factor to construct the questionnaire. Which directly affects security issues. That is why we have found some supply security problems in our country based on various newspaper reports and other NGO reports, which we define as main questions. The questionnaire contains 11 main questions or problems which we have collected answers by visiting various projects. Moreover, security issues depend on some other factors which we define as sub questions.

### 3.6.1 Site photograph



**Figure 3.6.1:** Photograph during interview in various projects.



**Figure 3.6.1:** Photograph during interview in various projects.



**Figure 3.6.1:** Photograph during interview in various projects.



**Figure 3.6.1:** Photograph during interview in various projects.





**Figure 3.6.1:** Photograph during interview in various projects.



Figure 3.6.1: Photograph during interview in various projects.



**Figure 3.6.1:** Photograph during interview in various projects.



**Figure 3.6.1:** Photograph during interview in various projects.

### 3.6.2 List of visited projects

**Table 3.6.2:** List of visited projects.

Sl. no.	Project Name	Location	Description	Construction Done by	Interview person & Designation
1	Najrul Tower	65/1a English Road, Dhaka	14 Storied Residential Building	Dhaka Builders	Sonjoy Dash Site Engineer
2	SM Accessories Ltd	Gazipur	6 Storied Residential Building	Lamia Construction Ltd	Rakib Hossan Site Engineer
3	Noman Home Textile Ltd	Gazipur	6 Storied Residential Building	Micon	Jhahirul Islam Site Engineer
4	Musharraf Composite	Gazipur	12 Storied Residential Building	Mosharaf Group	Md. Neyamur Project Engineer
5	Humayun Villa	177 Doyagonj, Dhaka.	6 Storied Residential Building	Rupokar Developer Ltd	Abu Sufiyan Site Engineer
6	Bit Garments	63,64 Narinda, Dhaka.	8 Storied Commercial Building	Dhaka Builders Ltd	Humayun Kabir Site Engineer
7	Engineer House	65 Narinda, Dhaka.	10 Storied Residential Building	Building Idea & Technology	Safin Ahmed Project Engineer
8	Laxmi Nivalay	50 Shahsaheb Lane, Dhaka.	16 Storied Residential Building	Laxmi Builder Ltd	Md. Arif Hossain Site Supervisor
9	Hazi Najrul Kutir	Gendariya, Dhaka.	9 Storied Residential Building	Dayem Developer Ltd	Md. Mainul Site Engineer
10	DPDC Power Station	Block-M, Road-8. Banasre, Dhaka.	4 Storied Commercial Building	TAEA Co. Ltd	Zubair Hossen Site Engineer
11	Vista Shamima Tower	Plot-61, Road-5, Sector-1, Aftabnagor.	8 Storied Residential Building	Vista Land and Lifecaps Ltd.	Sohanur Rahman Site Engineer
12	Proposed	Plot-22,24. Block-M, Road-11. Banasre Dhaka.	10 Storied Residential Building	EDD Ltd	Nasim Hasan Project Engineer
13	Monowar Tower	22, Motijheel, Dhaka.	8 Storied Residential Building	Navana Real State Ltd.	Toriquel Islam Site Engineer

## CHAPTER 4

### ANLYSIS AND RESULT

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#### 4.1 Introduction

At first data is collected by manually it is converted as a computer soft copy for analysis data by computer program. Here, we use MS Office program to analysis data. First of all, the manually collected data are converted to soft copy by using MS Excel. There are two categories of analysis is done base on project type and factors.

#### 4.2 Analysis based on project type

Total thirteen company site are visited and collected data. The visited sites are categorized by four main types such as:

- Type-A: Low Rise Residential project develop by developer or consulting firm.
- Type-B: Low Rise Residential project develop by Land owner.
- Type-C: High Rise Residential project develop by developer or consulting firm.
- Type-D: Commercial project develop by developer or consulting firm.
- Type-E: Commercial project develop by Land owner.

The types of visited company are listed in table 5.2.1. The analysis to realize what types of company are in risk and what types are safe are given in table 5.2.2 And a bar chart 5.2.1 include for graphical presentation. The percentage is done by the formula (5.2)

$$\frac{\textit{Counted Point}}{\textit{Total Category value}} \times 100 = \%$$

Example: For A-type project the counted point is 9 for Excellent, so the % should be

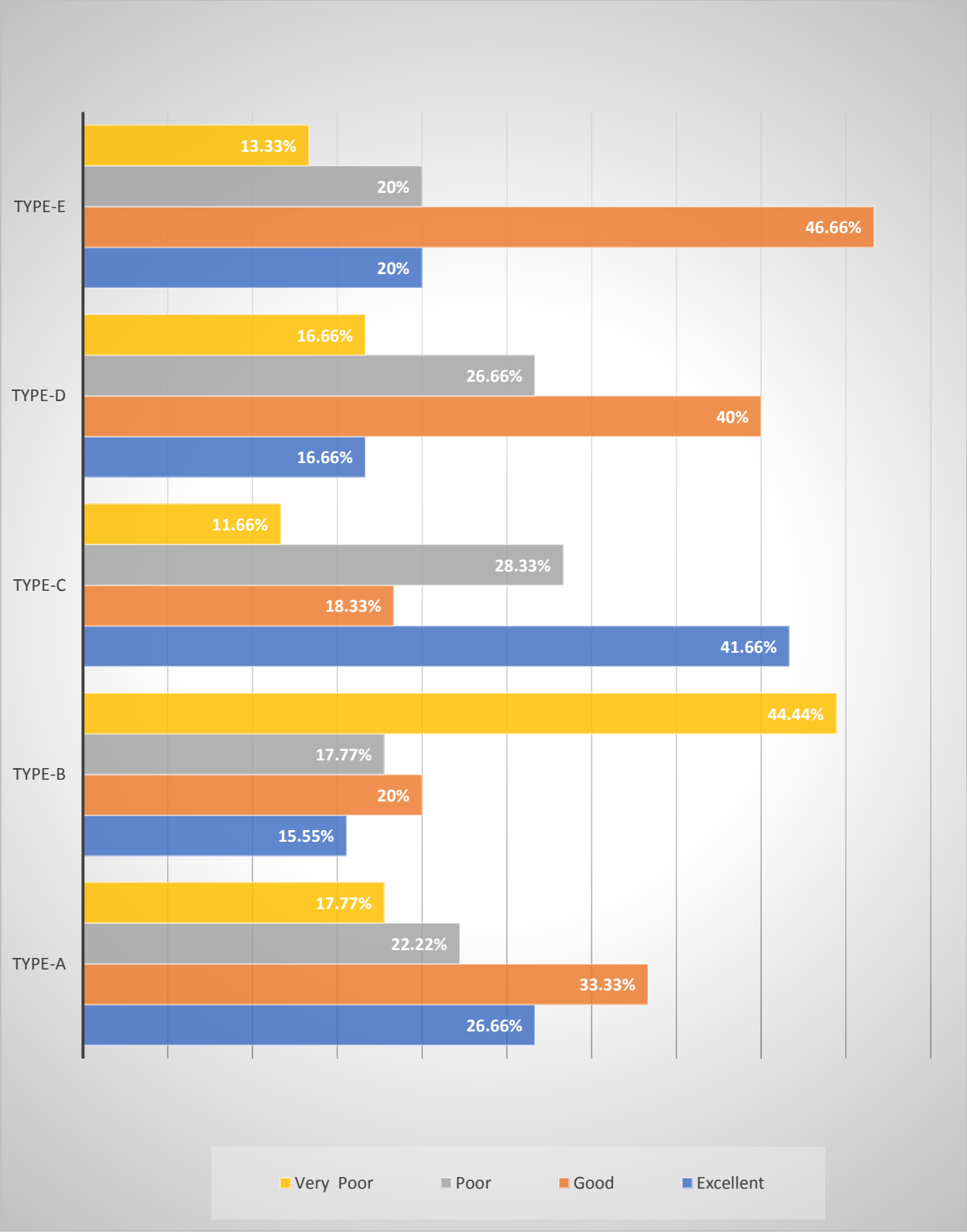
$$\frac{12}{(12 + 15 + 10 + 8)} \times 100 = 26.66\%$$

**Table 4.2.1:** Types of visited projects.

Type	Description	Nos.
A	Low Rise Residential project develop by developer or consulting firm	03
B	High Rise Residential project develop by developer or consulting firm	03
C	Commercial project develops by developer or consulting firm	04
D	Low Rise Residential project develop by Land owner	02
E	Commercial project develops by Land owner	01

**Table 4.2.2:** Analysis based on project type.

Type	Nos	Excellent		Good		Poor		Very Poor	
		Count	%	Count	%	Count	%	Count	%
A	3	12	26.66%	15	33.33%	10	22.22%	8	17.77%
B	3	7	15.55%	9	20	8	17.77%	20	44.44%
C	4	25	41.66%	11	18.33%	17	28.33%	7	11.66%
D	2	5	16.66%	12	40%	8	26.66%	5	16.66%
E	1	3	20%	7	46.66%	3	20%	2	13.33%



**Chart 4.2.1:** Analysis based on project types.



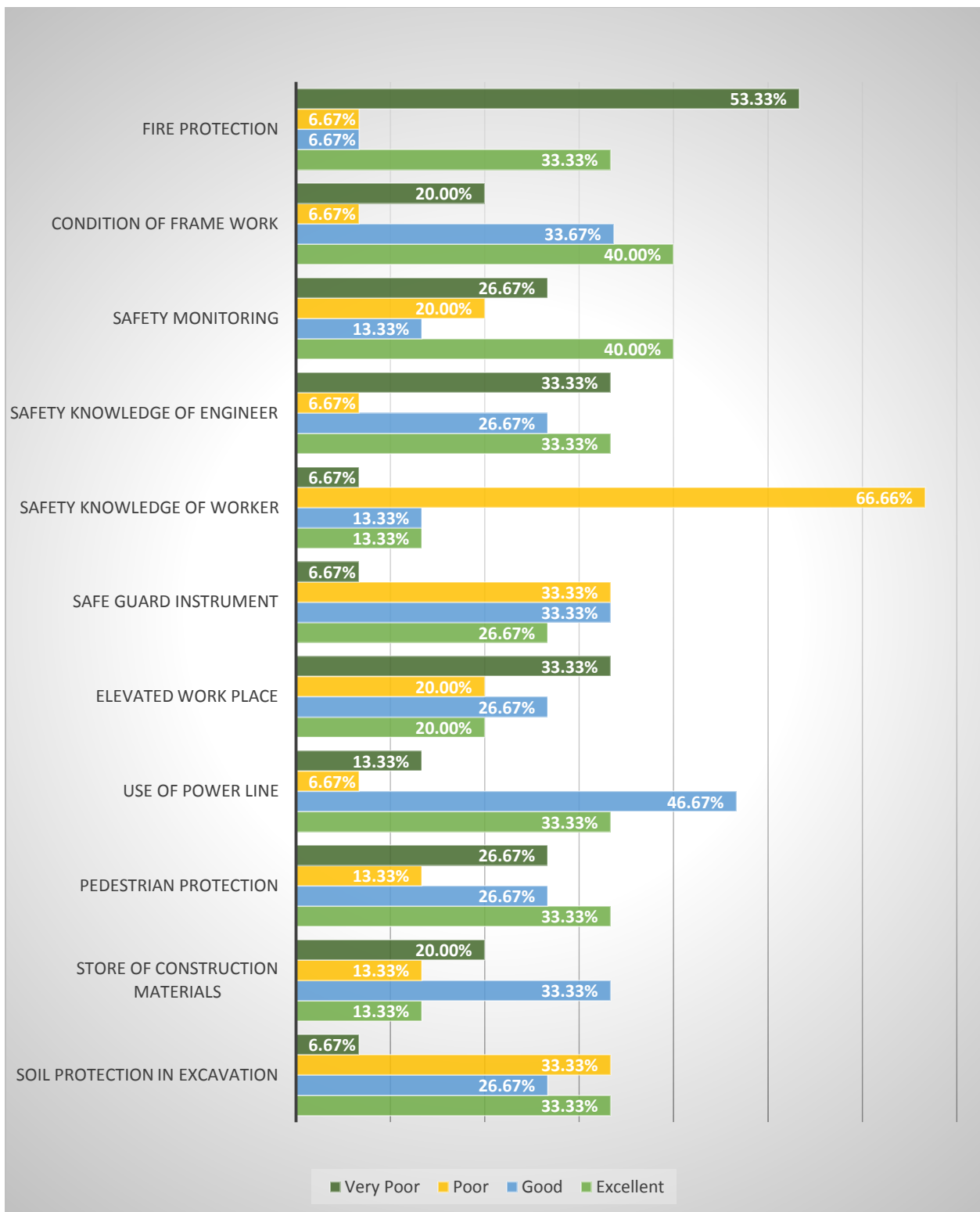
### 4.3 Analysis based on safety factors

**Table 4.3.1:** Most Common Safety Factors.

<b>Factor nos.</b>	<b>Safety Factors</b>
1	Soil Protection in Excavation
2	Store of construction Materials
3	Pedestrian Protection
4	Use of Power Line
5	Elevated Work Place
6	Safe Guard Instrument
7	Safety Knowledge of Worker
8	Safety Knowledge of Engineer
9	Safety Monitoring
10	Condition of Frame Work
11	Fire Protection

**Table 4.3.2: Analysis based on Safety Factors.**

Factor nos.	Safety Factor	Excellent		Good		Poor		Very Poor	
		Count	%	Count	%	Count	%	Count	%
1	Soil Protection in Excavation	5	33.33%	4	26.67%	5	33.33%	1	6.67%
2	Store of construction Materials	2	13.33%	8	53.33%	2	13.33%	3	20.00%
3	Pedestrian Protection	5	33.33%	4	26.67%	2	13.33%	4	26.67%
4	Use of Power Line	5	33.33%	7	46.67%	1	6.67%	2	13.33%
5	Elevated Work Place	3	20.00%	4	26.67%	3	20.00%	5	33.33%
6	Safe Guard Instrument	4	26.67%	5	33.33%	5	33.33%	1	6.67%
7	Safety Knowledge of Worker	2	13.33%	2	13.33%	10	66.66%	1	6.67%
8	Safety Knowledge of Engineer	5	33.33%	4	26.67%	1	6.67%	5	33.33%
9	Safety Monitoring	6	40.00%	2	13.33%	3	20.00%	4	26.67%
10	Condition of Frame Work	6	40.00%	5	33.67%	1	6.67%	3	20.00%
11	Fire Protection	5	33.33%	1	6.67%	1	6.67%	8	53.33%



**Chart 4.3.1:** Analysis based on Safety factor.

#### 4.4 Analysis result based on project type

From the analysis base on project type, we can say that:

Type-A: (Low Rise Residential project develops by developer or consulting firm) are consider as medium risk.

Type-B: (Low Rise Residential project develop by Land owner) is in serious risk.

Type-C: (High Rise Residential project develop by developer or consulting firm) are consider as low risk.

Type-D: (Commercial project develop by developer or consulting firm) are consider as medium risk.

Type-E: (Commercial project develop by Land owner) are consider as low risk.

#### 4.5 Analysis result based on safety factors

Analysis base on safety factors we can divide the factors in three divisions. Such as medium risk, low risk, high risk. We rearrange the factors in this division, we found the table 5.5.1.

**Table 4.5.1:** Result base on safety factors

High risk	Medium risk	Low risk
5. Elevated Work Place	1. Soil Protection in Excavation	2. Store of construction Materials
7. Safety Knowledge of Worker	4. Use of Power Line	3. Pedestrian Protection
9. Safety Monitoring	6. Safe Guard Instrument	8. Safety Knowledge of Engineer
	11. Fire Protection	10. Condition of Frame Work

## 4.6 Discussion

In this thesis only thirteen construction project is visited which is not enough for judgment. On the basis of our thesis result it is observed that the commercial project developed by developer or consulting firm is in medium risk and the low-rise residential project developed by land owner is in high risk. On the other hand, the high-risk factors are worked in elevated work place, lack of safety knowledge of worker and site engineer also. Safety monitoring is one of neglected factor in our country.

The present safety condition of Bangladesh is not good enough compare with other countries. On the other hand, every visited project in Dhaka city so the real situation of whole country is not assumed by this thesis result. The result will be more realistic if moor project is visited and consider other big cities in Bangladesh like Khulna, Rangpur, Mymensingh, Sylhet etc.

## **CHEPTER 5**

### **CONCLUSION AND RECOMMEDATION**

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#### **5.1 Conclusion**

From the questioner and survey, it has been seen that the following are not maintained in the construction site:

1. Maximum construction workers don't use googles.
2. Most of the construction sites don't use fire alarm.
3. Almost every construction sites never use railing for hoist protection.
4. Most of the construction sites never use helmets during removing the shuttering work.
5. Most of the construction sites never use boots during construction work.

From the questioner and survey, it has been seen that the following are maintained in the construction sites:

1. Most of the worker use helmets for own safety.
2. Nylon net use high rise construction for safety.
3. Most of the project use MS railing around the void for safety.
4. Almost all construction sites use fire bucket for fire protection.
5. For primary treatment First Aid Box are use same construction sites.

#### **5.2 Recommendation**

Our study included only 13 contains sites in Dhaka from which. We have it's really too difficult to know the real scenery of Bangladesh. So further studies by incorporating many more construction sites throughout the whole Bangladesh can be done to get the real picture.

1. Every construction site will recruit qualified engineer who knows about BNBC.
2. Every construction site will follow BNBC Code.
3. Instruction about necessary safety measure should be including in every construction related drawing and design like structural drawing, architectural drawing etc.
4. Rules and regulations should be formulated considering present situation in the field of safety regarding building construction.
5. For awareness of construction engineer and workers increase safety knowledge need proper training.
6. Provision of education and awareness of management about the necessity of maintaining safe environment in the site should be arranged.
7. Many constructions site use wooden bully pile for earth protection in foundation but it will be better to used RCC shore pile.
8. Enacting laws that will force management to abide by the rules and regulations regarding safety at construction sites.

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## APPENDIX

**(1) Project Name: Laxmi Nivalay (16 Storied Residential Building)**

**Company name: Laxmi Builder Ltd**

1. Are the employees working here today using the safety equipment that they have been provided?

Ans: Yes.

2. Do all the workers at your site follow standard safety measures?

Ans: Yes.

3. Do all the workers at your site proper uniform, with helmet?

Ans: Yes.

4. Do all the workers at your site proper uniform, with boots?

Ans: Yes.

5. Do all the workers at your site proper uniform, with hand gloves?

Ans: Yes.

6. Do the workers use safety belts while working on scaffolding?

Ans: Yes.

7. Do you use temporary railing/partition for the open spaces, where there is a possibility to fall?

Ans: Yes.

8. Do you take emergency fire safety measures at your site i.e., water bucket or sand bucket and fire extinguisher?

Ans: Yes.

9. Do you take the hazardous object covered at your site?

Ans: No.

10. Do you use proper props for supporting under-construction slab or beam?

Ans: Yes.

11. Do you take proper measures to prevent accidents while working on scaffolding?

Ans: Yes.



**Number of Accident of this project:**

❖ Fire	0 Nos
❖ Fall Accident	1 Nos
❖ Nail Injuries	5 Nos
❖ Vehicle Accident	0 Nos
❖ Electric sock	2 Nos

**(2) Project Name:** Musharraf Composite (12 Storied Residential Building) Gazipur  
**Company name:** Musharraf Group

1. Are the employees working here today using the safety equipment that they have been provided?

Ans: Yes.

2. Do all the workers at your site follow standard safety measures?

Ans: Yes.

3. Do the workers use safety belts while working on scaffolding?

Ans: Yes.

4. Do you use temporary railing/partition for the open spaces, where there is a possibility to fall?

Ans: Yes.

5. Do you workers use proper safety guards while working with welding/grinding/cutting machine?

Ans: Yes.

6. Do all the workers at your site proper uniform, with helmet and hand gloves?

Ans: No.

7. Do all the workers at your site proper uniform, with boots?

Ans: Yes.

8. Do you take emergency fire safety measures at your site i.e., water bucket or sand bucket and fire extinguisher?

Ans: Yes.

9. Do you take the hazardous object covered at your site?

Ans: No.

10. Do you use proper props for supporting under-construction slab or beam?

Ans: Yes.

11. Do you take proper measures to prevent accidents while working on scaffolding?

Ans: Yes.

**Number of Accident of this project:**

❖ Fire	1 Nos
❖ Fall Accident	2 Nos
❖ Nail Injuries	3 Nos
❖ Vehicle Accident	0 Nos
❖ Electric sock	0 Nos

**(3) Project Name:** Vista Shamima Tower (8 Storied Residential Building)

**Company name:** Vista Land and Life caps Ltd.

1. Are the employees working here today using the safety equipment that they have been provided?

Ans: No.

2. Do all the workers at your site follow standard safety measures?

Ans: No.

3. Do all the workers at your site proper uniform, with helmet?

Ans: Yes.

4. Do all the workers at your site proper uniform, with boots?

Ans: No.

5. Do all the workers at your site proper uniform, with hand gloves?

Ans: No.

6. Do the workers use safety belts while working on scaffolding?

Ans: No.

7. Do you use temporary railing/partition for the open spaces, where there is a possibility to fall?

Ans: Yes.

8. Do you take emergency fire safety measures at your site i.e., water bucket or sand bucket and fire extinguisher?

Ans: Yes.

9. Do you take the hazardous object covered at your site?

Ans: No.

10. Do you use proper props for supporting under-construction slab or beam?

Ans: Yes.

11. Do you take proper measures to prevent accidents while working on scaffolding?

Ans: Yes.

**Number of Accident of this project:**

❖ Fire	3 Nos
❖ Fall Accident	2 Nos
❖ Nail Injuries	12 Nos
❖ Vehicle Accident	8 Nos
❖ Electric sock	2 Nos

**Provided Safety Equipment for this project:**

- Rubber Boot
- Face Mask
- Easy Safety Shield
- Flame Proof Skull Cap
- Fire Resistant Gauntlet Gloves

**(4) Project Name:** SM Accessories Ltd, Gazipur (6 Storied Residential Building)

**Company name:** Lamia Construction Ltd

1. Are the employees working here today using the safety equipment that they have been provided?

Ans: Yes.

2. Do all the workers at your site follow standard safety measures?

Ans: No.

3. Do all the workers at your site proper uniform, with helmet?

Ans: No.

4. Do all the workers at your site proper uniform, with boots?

Ans: Yes.

5. Do all the workers at your site proper uniform, with hand gloves?

Ans: No.

6. Do the workers use safety belts while working on scaffolding?

Ans: Yes.

7. Do you use temporary railing/partition for the open spaces, where there is a possibility to fall?

Ans: No.

8. Do you take emergency fire safety measures at your site i.e., water bucket or sand bucket and fire extinguisher?

Ans: Yes.

9. Do you take the hazardous object covered at your site?

Ans: No.

10. Do you use proper props for supporting under-construction slab or beam?

Ans: Yes.

11. Do you take proper measures to prevent accidents while working on scaffolding?

Ans: Yes.

**Number of Accident of this project:**

❖ Fire	3 Nos
❖ Fall Accident	2 Nos
❖ Nail Injuries	2 Nos
❖ Vehicle Accident	0 Nos
❖ Electric sock	2 Nos

**Provided Safety Equipment for this project:**

- Rubber Boot
- Face Mask
- Easy Safety Shield
- Safety Helmet
- Temporary Railing

**(5) Project Name:** Hazi Najrul Kutir (9 Storied Residential Building)

**Company name:** Dayem Developer Ltd

1. Are the employees working here today using the safety equipment that they have been provided?

Ans: Yes.

2. Do all the workers at your site follow standard safety measures?

Ans: Yes.

3. Do all the workers at your site proper uniform, with helmet?

Ans: Yes.

4. Do all the workers at your site proper uniform, with boots?

Ans: Yes.

5. Do all the workers at your site proper uniform, with hand gloves?

Ans: Yes.

6. Do the workers use safety belts while working on scaffolding?

Ans: Yes.

7. Do you use temporary railing/partition for the open spaces, where there is a possibility to fall?

Ans: Yes.

8. Do you take emergency fire safety measures at your site i.e., water bucket or sand bucket and fire extinguisher?

Ans: Yes.

9. Do you take the hazardous object covered at your site?

Ans: No.

10. Do you use proper props for supporting under-construction slab or beam?

Ans: Yes.

11. Do you take proper measures to prevent accidents while working on scaffolding?

Ans: Yes.

**Number of Accident of this project:**

❖ Fire	0 Nos
❖ Fall Accident	0 Nos
❖ Nail Injuries	2 Nos
❖ Vehicle Accident	0 Nos
❖ Electric sock	2 Nos

**(6) Project Name:** Humayun Villa (6 Storied Residential Building)

**Company name:** Rupokar Developer Ltd

1. Are the employees working here today using the safety equipment that they have been provided?

Ans: Yes.

2. Do all the workers at your site follow standard safety measures?

Ans: Yes.

3. Do all the workers at your site proper uniform, with helmet?

Ans: Yes.

4. Do all the workers at your site proper uniform, with boots?

Ans: Yes.

5. Do all the workers at your site proper uniform, with hand gloves?

Ans: Yes.

6. Do the workers use safety belts while working on scaffolding?

Ans: Yes.

7. Do you use temporary railing/partition for the open spaces, where there is a possibility to fall?

Ans: Yes.

8. Do you take emergency fire safety measures at your site i.e., water bucket or sand bucket and fire extinguisher?

Ans: Yes.

9. Do you take the hazardous object covered at your site?

Ans: No.

10. Do you use proper props for supporting under-construction slab or beam?

Ans: Yes.

11. Do you take proper measures to prevent accidents while working on scaffolding?

Ans: Yes.

**Number of Accident of this project:**

❖ Fire	3 Nos
❖ Fall Accident	5 Nos
❖ Nail Injuries	6 Nos
❖ Vehicle Accident	1 Nos
❖ Electric sock	2 Nos

**Provided Safety Equipment for this project:**

- Rubber Boot
- Face Mask
- Easy Safety Shield
- Safety Helmet

**(7) Project Name:** Engineer House (10 Storied Residential Building)

**Company Name:** Building Idea & Technology

1. Are the employees working here today using the safety equipment that they have been provided?

Ans: Yes.

2. Do all the workers at your site follow standard safety measures?

Ans: Yes.

3. Do all the workers at your site proper uniform, with helmet?

Ans: Yes.

4. Do all the workers at your site proper uniform, with boots?

Ans: Yes.

5. Do all the workers at your site proper uniform, with hand gloves?

Ans: Yes.

6. Do the workers use safety belts while working on scaffolding?

Ans: Yes.

7. Do you use temporary railing/partition for the open spaces, where there is a possibility to fall?

Ans: Yes.

8. Do you take emergency fire safety measures ai your site i.e., water bucket or sand bucket and fire extinguisher?

Ans: Yes.

9. Do you take the hazardous object covered at your site?

Ans: No.

10. Do you use proper props for supporting under-construction slab or beam?

Ans: Yes.

11. Do you take proper measures to prevent accidents while working on scaffolding?

Ans: Yes.

**Number of Accident of this project:**

❖ Fire	0 Nos
❖ Fall Accident	0 Nos
❖ Nail Injuries	2 Nos
❖ Vehicle Accident	1 Nos
❖ Electric sock	1 Nos



**(8) Project Name:** DPDC Power Station (4 Storied Residential Building)

**Company Name:** TBEA Co. Ltd.

1. Are the employees working here today using the safety equipment that they have been provided?

Ans: Yes.

2. Do all the workers at your site follow standard safety measures?

Ans: Yes.

3. Do all the workers at your site proper uniform, with helmet?

Ans: Yes.

4. Do all the workers at your site proper uniform, with boots?

Ans: Yes.

5. Do all the workers at your site proper uniform, with hand gloves?

Ans: Yes.

6. Do the workers use safety belts while working on scaffolding?

Ans: Yes.

7. Do you use temporary railing/partition for the open spaces, where there is a possibility to fall?

Ans: Yes.

8. Do you take emergency fire safety measures at your site i.e., water bucket or sand bucket and fire extinguisher?

Ans: Yes.

9. Do you take the hazardous object covered at your site?

Ans: No.

10. Do you use proper props for supporting under-construction slab or beam?

Ans: Yes.

11. Do you take proper measures to prevent accidents while working on scaffolding?

Ans: Yes.

**Number of Accident of this project:**

❖ Fire	0 Nos
❖ Fall Accident	0 Nos
❖ Nail Injuries	1 Nos
❖ Vehicle Accident	1 Nos
❖ Electric sock	0 Nos

**(9) Project Name:** Najrul Tower (14 Storied Residential Building)  
**Company name:** Dhaka Builders Ltd.

1. Are the employees working here today using the safety equipment that they have been provided?

Ans: Yes.

2. Do all the workers at your site follow standard safety measures?

Ans: Yes.

3. Do all the workers at your site proper uniform, with helmet?

Ans: Yes.

4. Do all the workers at your site proper uniform, with boots?

Ans: Yes.

5. Do all the workers at your site proper uniform, with hand gloves?

Ans: Yes.

6. Do the workers use safety belts while working on scaffolding?

Ans: Yes.

7. Do you use temporary railing/partition for the open spaces, where there is a possibility to fall?

Ans: Yes.

8. Do you take emergency fire safety measures at your site i.e., water bucket or sand bucket and fire extinguisher?

Ans: Yes.

9. Do you take the hazardous object covered at your site?

Ans: No.

10. Do you use proper props for supporting under-construction slab or beam?

Ans: Yes.

11. Do you take proper measures to prevent accidents while working on scaffolding?

Ans: Yes.

**Number of Accident of this project:**

❖ Fire	0 Nos
❖ Fall Accident	0 Nos
❖ Nail Injuries	1 Nos
❖ Vehicle Accident	0 Nos
❖ Electric sock	1 Nos

**(10) Project Name:** Monowar Tower (8 Storied Residential Building)

**Company Name:** Navana Real State Ltd.

1. Are the employees working here today using the safety equipment that they have been provided?

Ans: Yes.

2. Do all the workers at your site follow standard safety measures?

Ans: Yes.

3. Do all the workers at your site proper uniform, with helmet?

Ans: Yes.

4. Do all the workers at your site proper uniform, with boots?

Ans: Yes.

5. Do all the workers at your site proper uniform, with hand gloves?

Ans: Yes.

6. Do the workers use safety belts while working on scaffolding?

Ans: Yes.

7. Do you use temporary railing/partition for the open spaces, where there is a possibility to fall?

Ans: Yes.

8. Do you take emergency fire safety measures at your site i.e., water bucket or sand bucket and fire extinguisher?

Ans: Yes.

9. Do you take the hazardous object covered at your site?

Ans: No.

10. Do you use proper props for supporting under-construction slab or beam?

Ans: Yes.

11. Do you take proper measures to prevent accidents while working on scaffolding?

Ans: Yes.

**Number of Accident of this project:**

❖ Fire	0 Nos
❖ Fall Accident	3 Nos
❖ Nail Injuries	2 Nos
❖ Vehicle Accident	2 Nos
❖ Electric sock	1 Nos