



COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

**THE ASSESSMENT OF THE SAFETY MANAGEMENT PRACTICE IN
REAL ESTATE PROJECT:**

IN THE CASE OF NOAH REAL ESTATE

**Thesis Submitted to Addis Ababa University School of Commerce for the
Master of Arts Degree in Project Management**

By: Hiven Abadi

Advisor: Dr. Worku M. (PhD)

July 18, 2024

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE GRADUATE
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**The Assessment of the Safety Management Practices: The case of Noah Real
Estate**

By: Hiven Abadi

A thesis Submitted to Addis Ababa University School of Commerce for the Partial
Fulfillment of the Requirements for Master of Arts Degree in Project Management

Advisor: Worku M. (PhD)

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APPROVED BY BOARD OF EXAMINERS

Members of the Board of Examiners agree that Hiven Abadi Gebreyohannes's research project "The Assessment of the Safety Management Practices in the Case of Noah Real Estate" meets the requirements for the Master of Arts in Project Management degree and is acceptable in terms of the University's standards and regulations.

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STATEMENT OF DECLARATION

With the guidance and support of the research project advisor, I hereby declare that this study, titled "The Assessment of the Safety Management Practices in the Case of Noah Real Estate" is my original work and has not been presented for a degree or other purposes in any university or place. I further confirm that all the sources of materials used for this thesis are properly acknowledged.

Declared by: Hiven Abadi Gebreyohannes

Signature

A handwritten signature in black ink, appearing to be 'Hiven Abadi Gebreyohannes', written over a light blue grid background.

Letter of certification

This is to certify that Hiven Abadi has carried out this project work entitled —The Assessment of the Safety Management Practice: In the Case of Noah Real Estate under my supervision. This work is original and has not been submitted to any institution.

Worku M. (PhD),

Project work Advisor

Signature _____

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Abstract

In developing nations such as Ethiopia, the construction industry plays a vital role in driving economic and social development by expanding physical infrastructure. The vibrant construction scene in Addis Ababa showcases the city's continuous urban evolution with its high-rise buildings, bustling cranes, and heavy machinery. This study is essential as the company has neglected safety, resulting in multiple accidents over time. Identifying the deficiencies in safety management within the company can lead to the development of solutions to improve safety practices. This involves analyzing organizational and cultural factors, engaging stakeholders, implementing effective safety methods, and striving for ongoing enhancements. The study delves into how the organizational climate influences safety management at Noah Real Estate, employing both quantitative and qualitative methodologies. Utilizing Slovin's formula and stratified sampling, 53 questionnaires were distributed, with approximately 50 returned, although some were incomplete. The research follows a descriptive design to evaluate the company's existing safety protocols. Issues such as limited access to personal protective equipment, inadequate staff training, and a lack of safety officers contribute to substandard safety procedures at Noah Real Estate. To address these shortcomings, the organization should prioritize regular safety training, proactive safety meetings, and a culture that values safety compliance. Empowering employees to take responsibility for safety, enforcing standards consistently, and fostering open communication are crucial steps in enhancing safety practices. By moving away from a traditional top-down safety approach and encouraging a more participatory safety culture, senior management can create a safer work environment where employees are empowered and supported with the necessary resources to perform their duties safely.

Key words: construction safety, safety practices, safety management, real estate

Abbreviations and Acronyms

H&S: - Health and safety

ILO: - International Labor Organization

OSHA: - Occupational Safety and Health Administration

PPE: - Personal Protective Equipment

BBS: - Behavior-based safety

Chapter 1: Introduction

1.1 Background of the study

Addis Ababa, Ethiopia's largest city, is grappling with rapid urbanization, leading to a significant demand for infrastructure to support its burgeoning population. The city's existing physical structures are struggling to keep pace with this growth, as highlighted by projections from the World Bank Group indicating a 5.1% increase in urbanization between 2012 and 2037. This surge in urban development has underscored the critical need for affordable housing solutions and the implementation of new regulations to support the construction of such units. Encouraging collaborations between international investors and local real estate developers is seen as a strategic move to bring in expertise, financial resources, and boost productivity in the sector.

The construction industry in Ethiopia, mirroring global trends, has experienced substantial growth and demand as urbanization and population expansion drive the need for housing developments. This growth has paved the way for the rapid expansion of construction companies, necessitating clear and efficient legislation to govern contractual relationships within the industry. As highlighted by Shewangzaw & Tecle (2012), the construction sector plays a pivotal role in modernization and industrialization efforts in Ethiopia, contributing significantly to the country's capital and serving as a key employer and driver of technological innovation and overall development.

In developing nations like Ethiopia, the construction industry holds immense significance, serving as a crucial driver for economic and social development through the expansion of physical infrastructure. Gebru (2017) emphasizes the essential role that the construction industry plays in meeting the diverse structural and facility needs of contemporary societies. The bustling construction activity in Addis Ababa, characterized by towering structures, mobile cranes, and earth-moving machinery, reflects the city's ongoing urban transformation.

The swift pace of development of the industry has brought safety practices to the forefront, underscoring the imperative to draw upon international knowledge, expertise, and best practices to minimize risks and safeguard the well-being of workers, the environment, and construction materials.

1.1.1 Safety management practices in the construction industry

Safety management practices in the construction industry encompass a range of strategies and protocols designed to ensure the safety and well-being of workers on construction sites. This includes:

conducting thorough risk assessments to identify potential hazards on the construction site, such as working at heights, hazardous materials, or heavy machinery, and developing strategies to mitigate these risks.

Providing comprehensive safety training to all workers on the construction site, including proper use of PPE, emergency procedures, and hazard recognition. Establishing clear safety policies and procedures that outline expectations for safe work practices, reporting of hazards, and emergency response protocols.

Conducting regular inspections of the construction site to identify any safety hazards or violations and taking corrective action promptly. Ensuring that all workers have access to and properly use appropriate safety equipment, such as hard hats, safety goggles, gloves, and harnesses.

Promoting open communication between workers, supervisors, and management regarding safety concerns, near misses, and incidents to address issues promptly. Establishing a safety committee comprised of workers and management to regularly review safety practices, address concerns, and make recommendations for improvement. Implementing a system for reporting and investigating incidents, near misses, and accidents to identify root causes and prevent future occurrences.

Developing and practicing emergency response plans for various scenarios, such as fires, medical emergencies, or natural disasters. Regularly reviewing and updating safety management practices based on feedback, lessons learned, and industry best practices to ensure ongoing improvement in safety performance. By implementing these safety management practices, construction companies can create a safer work environment, reduce the risk of accidents and injuries, and protect the well-being of their workers.

1.1.2 Relevance of safety management practices

Safety management practices are crucial in the construction industry for several reasons.

The primary goal of safety management practices is to ensure the safety and well-being of construction workers. By implementing safety measures and protocols, the risk of accidents, injuries, and fatalities can be significantly reduced. And this helps ensure compliance with safety regulations, reducing the risk of legal penalties and liabilities.

Accidents and injuries in the construction industry can lead to costly medical expenses, legal fees, and project delays. By investing in safety management practices, companies can prevent accidents and minimize the associated costs.

A safe work environment promotes employee morale and productivity. When workers feel safe and supported, they are more likely to focus on their tasks and work efficiently, leading to better project outcomes.

Prioritizing safety management procedures shows that a construction company cares about the health of its workers and the community. In the eyes of stakeholders like as investors and clients, this can improve their standing and foster confidence.

Using safety management techniques to identify and mitigate possible safety hazards lowers the overall risk profile of building projects. By being proactive, the company's assets can be safeguarded and expensive incidents can be avoided.

In conclusion, safety management techniques are critical to the construction industry's ability to safeguard employees, adhere to legal requirements, cut expenses, boost output, maintain a positive reputation, and successfully manage risks.

This study aims to assess existing safety management practices within Noah real estate projects. The findings of this assessment will provide readers with a comprehensive snapshot of the current state of safety management practices in real estate endeavors, highlighting common challenges encountered and offering recommendations for future directions.

1.2 Background of the organization

Since its founding in 2013 G.C., Noah Real Estate PLC has completed 16 residential, 5 commercial, and 8 mixed-use, mid- to large-scale developments. Ten more projects are now in development at various locations in Addis Ababa. With ten years of experience, Noah has built and is now building thirty-nine projects.

Noah is a well-thought-out construction company with a strong financial foundation, exceptional innovation, quality, and on-time delivery. This combination makes it possible to produce powerful visual representations and could prompt a sudden desire for in-depth research. Noah wants to be a major player in the real estate market. Dedicated to delivering an excellent transaction experience to customers by living according to the tagline "Design, Build, and Deliver."

The simplest way to explain the methodology is to call it responsible selling. When the pieces are finished, the company sells the completed pieces. Delivery occurs after the construction is completed in its entirety. The objectives are audacious: to become the leading brand in the real estate sector and to embody performance excellence via superior design, construction, and delivery.

1.3 Statement of the problem

The real estate sector is a rapidly evolving and complex industry involving various stakeholders such as builders, designers, and contractors. This thesis aims to evaluate the current safety management practices within Noah real estate projects to identify areas for improvement. Previous studies have not adequately explored the impact of these cultural factors on safety outcomes in real estate projects. While quantitative studies dominate the literature on safety management practices in real estate projects, there is a need for more qualitative research to explore the subjective experiences, perceptions, and attitudes of stakeholders involved in safety management. With the advancement of technology in the construction industry, there is a gap in research examining the integration of digital tools, sensors, and data analytics in enhancing safety management practices in real estate projects. This paper assessed the existing safety management practices, the key stakeholders involved, the organizational climate, the challenges and strategies for enhanced safety management.

1.4 Research questions

The study tried to answer the following basic questions,

1. What are the existing safety management practices within Noah Real Estate projects in Addis Ababa, Ethiopia?
2. Who are the key stakeholders in project safety management at Noah Real Estate, and how does organizational climate influence their contributions to successful safety management in Addis Ababa?
3. What are the primary challenges encountered in implementing safety practices on construction projects and what effective strategies can be employed to overcome safety management challenges within Noah Real Estate projects?
4. What are the best practices for integrating safety management into the project management framework at Noah Real Estate?

1.5 Objective of the research

1.5.1 General Objectives

The study's general objective is to assess the current safety management practice in Noah Real Estate Company in Addis Ababa.

1.5.2 Specific Objectives

1. Identify existing safety management practices within Noah Real Estate projects.
2. Analyze key stakeholders involved in project safety management and investigate relationship between organizational climate influence and the adoption and success of safety management practices.
3. Identify the primary challenges encountered in implementing safety practices on construction projects and suggest effective strategies that can be employed to overcome them.
4. Identify best practices for integrating safety management into the project management framework.

1.6 Significance of the study

The study holds significant implications across various dimensions. Firstly, through its contribution to the existing body of knowledge on project safety management practices in the real estate industry, it is poised to offer valuable insights and recommendations for mitigating accidents and promoting a safer work environment for all stakeholders. Secondly, by proposing enhancements to project safety management practices, the study has the potential to elevate safety performance and instill a culture of safety within the organization, ultimately leading to heightened overall success. Furthermore, the identification of best practices and areas for improvement in project safety management can inform the development of policies and regulations aimed at raising safety standards industry-wide. The study's impact extends beyond the company itself to the broader construction sector, as it disseminates innovative strategies and best practices for fostering a safety-centric culture in construction project management. Additionally, the clarification of stakeholder roles and expectations in project safety management can enhance communication, collaboration, and accountability among all involved parties. Understanding the influence of cultural and organizational factors on safety practices allows for the identification and mitigation of cultural barriers, ensuring safety prioritization across all organizational levels. Moreover, delving into the impact of industry regulations on safety management practices aids in fostering compliance and upholding the highest safety standards in projects. Finally, leveraging insights from past incidents enables continuous improvement in safety management practices, showcasing a dedication to learning and enhancement while actively preventing future accidents.

1.7 Scope of the study

The study titled "Safety Management Practices in Real Estate Projects: A Case Study in Noah Real Estate" will encompass the implementation, effectiveness, and impact of safety management practices within residential, commercial, and mixed-use projects situated in the vicinity of Addis Ababa for the past 5 to 6 years to provide a comprehensive understanding of the subject. The study will emphasize safety measures, protocols, policies, training programs, risk assessments, incident reporting and compliance with safety regulations in real estate projects. The study will examine safety management practices from the perspectives of various

stakeholders including contractors, architects, engineers, purchasers, finance personnel, and technical teams involved in the projects. The study aims to provide valuable insights to the field and offering practical recommendations for improving safety standards in the industry.

1.8 Limitation

If I could have conducted one-on-one interviews with the contractors and safety officers, included recommendations based on the specific practices of other nations, and observed some of the safety practices in person at construction sites, how safety officers participate, and how workers adhere to safety rules and regulations, among other safety-related activities, this research would have been extremely insightful and rich in knowledge.

1.9 Organization

This thesis proposal has five chapters. Chapter one constitutes the introduction, which focuses mainly on the background of the study, the background of the organization, the statement of the problem, the research questions, the objective of the research, the significance of the study, the scope of the study, and the organization of the study. Chapter two consists of a review of different literature; and theories focused on real estate project safety management practice; the challenges, stakeholder involvement, the best practices, and strategies to improve safety management. Chapter Three will deal with the methodological approach and the research design. Chapter Four covers the result and discussion. Finally, Chapter Five constitutes the findings, conclusion, and recommendations of the study.

Chapter 2: Literature Review

2.1. Definition

Safety in general means to identify and become aware of possible hazards that can be preventable before they happen. Risks to human life, losses of prosperity, and the environment including fauna, flora and biodiversity are among the things exposed to risks and concerns of safety (NIOSH, 2016).

Construction safety means freedom from hazard, risk, and harm to the workers involved in construction activities and taking protection actions to protect the lives of laborers against deadly harms and death and the consequence of safety in construction is internal and instant. (NIOSH, 2016) Construction work is a hazardous work.

Hazard is any source of potential injury, damage, or varied health effects on something or someone under certain conditions at work (HSE, 2004).

Safety Management is the systematic approach and processes employed to identify, assess, and mitigate safety risks in real estate projects.

Real Estate Projects are construction activities involved in developing, renovating, or maintaining real estate properties such as residential, commercial, and industrial buildings.

2.2. Theoretical Review

2.2.1. Accident Causation Theory

According to (Yijiao C. and Zeming W., 2020) The whole analysis process of accident causation theory mainly includes four factors: human, machine, material and environment. Through various experiments and current events, it is finally found that as long as any two factors exist at the same time, the accident will occur. When three or more factors exist at the same time, the probability of accidents is higher. The analysis of the theory leading to accidents can provide an effective basis for the formulation of measures to prevent accidents, as well as a basis for safety

management. The findings recommend the application of accident cause theory in construction management can effectively improve safety.

2.2.2. Behavior-based Safety Theory

According to (Rafiq M. Choudhry, 2014), BBS is the systematic application of psychological research on human behavior to the problems of safety (Cooper, 1994). Heinrich (1959) estimated that 85% of accidents can be attributed to unsafe acts. Blackmon and Gramopadhye (1995) stated that 98% of all accidents are caused by unsafe behavior. HSE (2002) revealed that 80–90% of all workplace accidents and incidents are attributed to unsafe behaviors. The researcher emphasized the importance of implementing the BBS management on subcontractors' works due to the ever-changing nature of construction (not like manufacturing) and particularly the multi-layer subcontracting system in construction. In this situation, the BBS can offer the best solution. Nevertheless, the objective of any such intervention needs to be communicated to the site personnel. The company needs to inform its subcontractors, ideally at the tendering stage about the idea of BBS safety intervention, involving each subcontractor adopting the system and producing their feedback charts. The process can ensure that the subcontractors to obtain online training for improving the safe behavior of their operatives without stoppage of site construction work. The BBS approach used in this work has had a positive impact in improving construction site safety and is in line with other researchers (Duff et al., 1994; Blackmon and Gramopadhye, 1995). The BBS results were also in line with Robertson et al. (1999) and Al Hemoud and Al-Asfoor (2006). The results of this case study showed that an approach based on goal setting, feedback, and an effective measure of safety behavior if properly applied by committed management, can improve safety performance significantly in construction site environments. The researcher postulates that the BBS management system can be applied to any country's culture and it is an excellent technique for improving the safety of front-line workers and operatives on construction sites.

2.2.3. Cognitive Theory

As (N.A. Ankrah1, D.G. Proverbs and D.K. Ahadzie, 2008) presented that social cognitive theory has some applicability within the construction project context. The evidence confirms an association between personal factors, situational contexts and behaviors within the construction

project organization indicating the triadic reciprocal relationships. purported by the SCT are valid. Bandura (2004) and later Sharma (2005) identified the primary constructs underpinning this theory as including knowledge, self-efficacy or behavior-specific confidence, outcome expectations about expected costs and benefits for different habits, goals that people set for themselves, and perceived facilitators and impediments. Bringing these constructs into a construction project context, it may be argued that to stimulate behavior change about client orientation (and beyond) on construction projects, any efforts to be applied must be directed towards these five primary constructs. This is what will engender the cognitive and environmental conditions for change. Indeed, most current efforts to stimulate behavioral change already focus on these constructs. For instance, the focus of all the training provided for project participants including toolbox talks during project execution, is to develop the construct of knowledge, which is a cognitive or personal factor that influences behavior.

2.2.4. Social Exchange Theory

Safety researchers have become increasingly interested in understanding how social exchange processes help shape the safety-related perceptions and behaviors of employees (e.g., Hofmann & Morgeson, 1999; Mearns & Reader, 2008; Michael, Evans, Jansen, & Haight, 2005; Tucker, Chmiel, Turner, Hershcovis, & Stride, 2008). Much of this interest can be traced to the accumulation of findings showing that management commitment plays a fundamental role in the formation of safety climate perceptions among employees. Research on exchange relationships within work organizations generally focuses on the concept of reciprocity (Cole, Schaninger, & Harris, 2002). From the perspective of general social exchange theory (Blau, 1964), this means that an individual who provides a service for another does so with the expectation that there will be some future positive return for them based on this action. Extending this reasoning to workplace safety, when managers and supervisors demonstrate their commitment to and support of safety, employees should reciprocate by expending greater efforts to follow safe work practices and other safety-related recommendations. Inherent here is the idea that management actions in support of safety help to create a positive psychological environment that raises safety expectations and motivates good safety behavior (Neal & Griffin, 2004).

As (David M. et al, 2010) concluded that organizations striving to augment safety at work should focus on developing a strong foundation of committed employees through the implementation of

policies and practices that consistently demonstrate management's commitment to employee safety and health. In this way, when management wants to implement specific workplace safety initiatives, the initiatives will be perceived as an extension of the organization's continuing general support for its workforce.

2.3. Empirical Review

In a research study by Tadesse (2018) examining construction safety among grade one contractors in Addis Ababa, it was discovered that failure to meet safety standards in construction projects can lead to significant repercussions such as material loss, loss of human life, harm to the public, and environmental damage. These consequences are often attributed to factors such as the use of substandard materials, inadequate supervision, lack of workers' safety awareness, and poor quality of workmanship.

(Birhan, 2021) founded However, in many Ethiopian construction firms, there are notable deficiencies in safety protocols. Issues such as the absence of health and safety boards, insufficient training, lack of safety meetings and risk assessments, as well as inadequate emergency response planning and record-keeping procedures, contribute to a hazardous work environment for construction workers (Birhan, 2021).

According to (Kibe, K. N., 2016) falls from high have been viewed as one of the most frequent killers of the workers on construction sites. many people are injured due to being chopped and cut by equipment and hand-held working tools such as chisels, screwdrivers, knives, saws, hammers, and drilling machines. (Chi and Wu, 1997) reported in their finding that more than 30% of fatalities in Taiwan can be attributed to falls.

(Hughes & Ferrett, 2011) noted that electricity is widely used on construction sites but has the potential to be very hazardous with possibly fatal results. For example, in the UK 2% of all fatalities at work are caused by electric shocks. (Kibe, K. N., 2016) also supported the idea that fire is also one of the many hazards that construction workers face on site.

(Hinze, 1997) found out that safety in developing countries is underrated especially at very low levels chiefly because of the lack of adequate regulations and means of enforcing them. In developing countries, safety rules hardly exist and many of them do not work suitably and

effectively. This drawback is mostly because of the lack of effectiveness of the authority in implementing safety rules and programs.

(Othman, 2017) supports the finding of SAEED reporting that safety training and awareness, worker's attitude towards safety, availability of safety equipment, safety inspections and organization safety policy are the top five most important factors affecting safety at construction sites and are part of the safety management practices. If these factors are addressed and monitored closely, safety cases at construction sites can be minimized. In conclusion, safety affects all levels of the construction organization from government, company management, supervisor, and workers (Othman, 2017). Tam et al (2004) also concluded from their research of Chinese construction firms that the most common factors poignant to safety performance include management's poor safety awareness, lack of coaching, project managers' poor safety awareness, reluctance to i/p resources for safety, and reckless operations.

Safety management practices are essential in identifying and mitigating health and safety risks within construction projects (SAEED, Y. S., 2017). (Mekuria Y. W., 2022) added that management commitment, clear safety objectives, personal protection equipment, teamwork, safety coaching, engineering and administrative control, and first aid arrangements are very necessary to decrease accidents and injuries.

Based on (Ibukun et. Al, 2020) findings, there are countless challenges in the construction safety area and to soothe and reduce the effect of these challenges on health and safety regulations on construction sites, there is a need to review and update existing health and safety laws and regulations to align with current realities including severe penalty for violation of labor laws and insurance for workers; make provision for training and education of new employees and improve capacity building for old employees; and maintain and periodically review safety records to enhance future planning of construction projects.

Warnings in the form of signs and symbols have been recognized as one of the effective tools to influence behavior and develop the risk awareness of stakeholders. (Chapanis, 1994), (Edworthy and Adams, 1996). In addition, the work environment reward and punishment system have a very high degree of impact on safety and health performance in the construction industry. Safety and health performance are highly affected by project duration and risk assessment as indicated by (Kumlachew, T. 2021).

Not only this but, (Sawacha, et al, 1999) and (Shibani, et al, 2012) found out that the reduction of accidents would be accomplished when top management takes dynamic attention and is dedicated to safety and health improvement as well as maintaining good safety and health policy. Management's first duty is to formulate a safety policy. Its second duty is to implement and sustain this policy through a loss control program such a program has 4 components, safety budgets, safety records, management personal concerns, and management's good example according to the findings of (Cascio, 2006).

(Fiktor B., 2020) added on the role of managers in the construction sites who are generally considered as captains of the health and safety management. Thus, all construction managers need to demonstrate their firm commitment to the health and safety of high-rising building construction projects through allocating adequate budget, providing adequate health and safety orientation and training, overseeing, recording and reporting all kinds of accidents to the concerned authorities to bring change in the health and safety management of the country construction industry. As explained by (Zou Patrick 2011) to foster a strong construction safety culture, the art and science of safety management should be balanced. Again, the top management should support both the art and science of safety management. Reward and recognition should be considered within it to appreciate those who are conscious when it comes to safety; disciplinary action needs to be executed when people disregard health and safety procedures and practices. Some of the art of safety management include training of workers, employee empowerment and stakeholder and supply chain member involvement. The science covers safety management standards, systems, and manuals, life cycle safety risk management, safety knowledge management systems and databases (Zou Patrick 2011)

(Mohammed, 2003) emphasized that investing in construction safety not only enhances profitability but also yields productivity increases, boosts employee morale, and reduces attrition rates as a result the top management should invest happily and willingly in safety management practices.

2.4. Safety Standards

2.4.1 The Ethiopian Labor Proclamation No 377/06

Article 92: Spells out the fundamental obligations of an employer to put in place all the necessary measures to ensure, workplaces are safe, healthy, and free of any danger to the well-

being of workers. In the same article, the employer is obliged to take, in particular, the following measures to safeguard the health and safety of the workers;

- Employers must comply with occupational safety and health regulations by providing proper instruction to workers about the hazards of their jobs, assigning safety officers, establishing safety committees, providing protective equipment, registering occupational accidents and diseases, arranging medical examinations for new and hazardous workers, and ensuring that work processes do not pose health and safety risks to workers.

Article 93. In this article, the law provides the obligations of workers about the required cooperation and putting into practice the regulation and instruction given by the employer to ensure safety health and working conditions at workplaces. The following are the major obligations set by the law for workers to abide with.

- Workers are required to cooperate in creating and following work rules for health and safety, report any defects or hazards related to equipment, inform the employer of potential hazards, use safety equipment properly, and follow health and safety instructions from the employer or authorities.

In the same law, it is stipulated that no worker may interfere with remove, displace, damage, or destroy any safety devices or other appliances furnished for his/her protection or the protection of others and may not obstruct any method or process adopted to minimize occupational hazard.

Occupational Injuries: The law has stipulated occupational injuries in its **articles 95-112** as follows;

Employers are responsible for work-related injuries to workers, except in cases of intentional worker actions or non-compliance with safety regulations. The law defines types of disablement for compensating injured workers;

- I. Temporary disablement
- II. Permanent partial disablement
- III. Permanent total disablement
- IV. Death or fatal injury (Article 97-100)

Article 102 of the law specifies that the assessment of permanent and temporary disablement will be determined using a prescribed assessment table, and a medical board will use this table to assess the extent of disablement within twelve months of the injury.

Per the provision of **Articles 104-105** details of special obligations, types of benefits, and duration of benefits liability are put on the employer. It is also stated that these medical benefits of the injured worker shall be withdrawn following the decision of the Medical Board.

Articles 107-110 detail benefits for workers, including payments for temporary disablement, gratuity for permanent disablement, and pensions for survivors. The law sets the maximum compensation for a worker's death at five times their annual wages. Employers can handle liability through pension or insurance schemes and must pay disablement compensation to workers not covered by these schemes.

Articles 110-112 included who is entitled to the survivors' benefit for easing the implementation of the law.

Chapter 3: Research design & methodology

3.1 Research Design

The research design used was descriptive research design by gathering information at a certain period to get actual data about the current status of the company about the safety management practice. So, a mixed methods research approach was used encompassing both quantitative and qualitative approaches. (Creswell J, (2009))

The qualitative approach could be done by gathering information from both primary and secondary sources of data.

The quantitative approach uses surveys to collect data and test existing theories to verify the data. Baker (2010) Walden University Press argues that the mixed methods approach is better than the methods alone because it provides more information.

The advantage of the mixed method approach is: -

- The capacity to respond to questions requiring more research
- Combining both inductive and deductive reasoning

3.2 Data collection method

A questionnaire with both close-ended and open-ended questions was used to gather the data.

Along with the survey, secondary sources like books, published and unpublished materials, and manuals were analyzed.

3.3 Population of the study

Contractors, stakeholders, project managers, project coordinators, site engineers, office engineers, and project team members who work on Noah real estate projects were the study's target population and are 53 in number.

3.4 Data type & source

A mixed methods research approach will be used in which it uses both quantitative and qualitative approaches.

The qualitative approach was done by gathering information from both primary and secondary sources of data. The primary source of data is gathered by using questionnaires; while the secondary source of data is gathered from published resources, reviewed articles, literature, journals and others. In quantitative research, data is analyzed through statistical tests, which allow researchers to conclude the relationship between the variables being studied. It involves collecting data through structured surveys to answer research questions.

3.5 Sampling technique and sample size

In this study, the sample population is selected by Stratified sampling which involves dividing the population into subgroups or strata based on their position and occupation to create a homogenous group and then selecting a random sample from each stratum. Then Slovin's formula was used to calculate the sample size and the number of respondents from each stratum.

$$n = N / (1 + N (e)^2) \quad \text{Where: } n \text{ is the sample size}$$

N is the population size = 61

e is the level of precision or sampling error (0.05)

By using the above formula, the sample size is 53.

Respondents' sample size = $RPS \cdot n / N$

Table 1: Sample size from each stratum

Respondents	Population size	Sample size
Project Managers	19	16
Residential Engineers	5	4
Site Engineers	9	8
Senior Office Engineers	5	4
Site Inspectors	5	4
Quality Officers	3	3

Contractors	9	8
Contract Administration Heads	3	3
Contract Administrators	3	3

3.6 Method of Data Analysis

The analysis of research at Noah Real Estate Company in Addis Ababa will be done by using questionnaires. Close-ended and open-ended questions are used for the questionnaire”. The data through primary and secondary sources were analyzed using quantitative and qualitative approaches. Simple statistical analysis like percentage, mean and standard deviation are used to analyze the data.

3.7 Research Validity and Reliability

3.7.1 Research Validity

Validity, describes how well a measurement tool matches its intended purpose. (Kothari, 2004) What the researcher seeks to assess is measured by an instrument's precision or effectiveness. The data collection tool's content validity will be attempted to guarantee that the survey questions accurately represent the themes that will be measured. Questionnaires and interviews will be utilized as a methodology, and their validity and reliability will be evaluated and revised per the literature review. The advisor will additionally check for validity. It ensures that the research results are trustworthy and tough. To achieve high levels of validity it requires careful research design, data collection, and analysis methods.

3.7.2 Research Reliability

Research reliability is described as the extent to which a research study's findings may be repeated under comparable circumstances with little to no change in the outcomes. The consistency with which a research tool or instrument measures the variables it is designed to measure. Cronbach's alpha test will be utilized to assess the questionnaire’s internal consistency.

Table 2: Reliability test result

No.	Components	No. of items	Cronbach’s Alpha
1	Employees’ level of safety knowledge	2	0.787
2	Availability & implementation of safety policy	12	0.811
3	General safety practice in Noah Real Estate	9	0.822

4	Construction activities emphasis level	6	0.71
5	Workers' & management's commitment to safety	10	0.71

The most used test to assess a measure's internal consistency is Cronbach's Alpha. A number between 0 and 1 represents the Cronbach's α result. A dependability score with a value of 0.7 or greater is considered acceptable.

3.8 Ethical consideration

The research will only be conducted with Noah Real Estate's permission. The research will be conducted with the approval of the parties who will be participating, and managers and employees will have access to any necessary data. The information provided by the respondents and the information gathered from the interviews will determine the study's findings, and the procedure will be practical in considering the information gained. Respondents will be informed of the goal and advantages of the study, as well as their complete right to agree or disagree with participation. The personal data of the participants will be kept private and safe.

Chapter 4: Data Presentation, Analysis and Interpretation

4.1 Introduction

This chapter covers the presentation, analysis and interpretation of information obtained through questionnaires. Descriptive statistics like frequencies were used to analyze the data. Interpretations are created using the data's frequency and percentages. The completion and return of 50 out of the 53 questionnaires that were distributed to respondents in order to be representative of the entire population. There are three sections to the questionnaire. Respondent's demographic data is included in the first part. In the second segment, open ended questions were included to determine the Noah Real Estate's organizational safety culture and to what extent respondents agreed, declined to comment, or disagreed with the claims. The final section of the question is made up of open-ended surveys that have in-depth responses in order to gather additional data that was not covered in the second section.

The questionnaire was distributed at various project sites of Noah real estate and at the Noah real estate company's Addis Ababa headquarters. Employees, site engineers, consultants, and contractors all received the survey. Site engineers, office engineers, project coordinators, project managers, contractors, consultants, contract administrators, site inspectors, safety officers and construction technical managers are among the respondents.

4.2 General Information of the Respondents

This section presents the description of the respondents who participated in this study. Variables related to the respondents' demographic characteristics, such as gender are presented below among the 50 respondents 34% (17) of the respondents were Male and 66% (33) of the respondents were Female. The other variable is related to the work experience of the respondents among the 50 respondents 60% (30) of the respondents have experience of 1 – 5 years, and 40% (20) of the respondent have experience of 6 – 10 years. The third indicator of the demographic characteristics of respondents is the educational background of the respondents, according to the survey 48% (24) of the respondents have a bachelor's degree, and 52% (26) of the respondents have a master's degree. The fourth indicator of the demography characteristics of the respondents is their current working position in which according to the survey 16% (8) of the respondents are site engineers, 8% (4) of the respondents are senior office engineers, 16% (8) of the respondents

are from the contractor side) and 32% (16) of the respondents are project managers, 4% (2) are contract administration heads, 4% (2) are contract administrators, 4% (2) quality, 8% (4) of them are residential engineers, 16% (8) of them are site engineers.

Table 3: - Frequency distribution of respondents' demographic data

Items	Variables	Frequency	Percent
Gender	Female	33	66%
	Male	17	34%
	Total	50	100%
Work Experience	From 1 – 5 years	30	60%
	From 6 – 10 years	20	40%
	Total	50	100%
Educational Background	Master's Degree	26	52%
	Bachelor's Degree	24	48%
	Total	40	100%
Current working position	Project Manager	16	32%
	Residential Engineers	4	8%
	Site Engineer	8	16%
	Senior Office Engineer	4	8%
	Site Inspector	4	8%
	Quality Officer	2	4%
	Contractor	8	16%
	Contract administration head	2	4%
	Contract administrator	2	4%
	Total	50	100%

4.3 Descriptive analysis result

Descriptive analysis is done and the study evaluated the responses based on (Zaidation and Bagheri, 2009) rating benchmark score as a guideline. According to them, if the mean score below 3.39 is considered as low, the mean score from 3.40 up to 3.79 is considered moderate and a mean score above 3.8 is considered as high. Questionnaires were interpreted using mean and standard deviations.

Table 4: The level of knowledge of respondents about safety practices

No.	Description	<i>Excellent/5</i>		<i>Very Good/4</i>		<i>Good/3</i>		<i>Fair/2</i>		<i>Poor/1</i>		<i>Mean</i>	<i>Standard Deviation</i>
		<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>		
1	What is your level of knowledge regarding safety protocols in the workplace?	11	22%	28	56%	9	18%	2	4%	0		3.96	0.54
2	How familiar are you with potential incidents that could occur on-site?	12	24%	20	40%	11	22%	5	10%	2	4%	3.7	0.5

In evaluating employee safety knowledge, the initial aspect with the highest mean score is their understanding of workplace safety protocols 22% of respondents have excellent safety knowledge, 56% have very good safety knowledge, 18% have good safety knowledge, 4% have fair safety knowledge with (mean = 3.96, standard deviation = 0.54), surpassing the average mean. This finding highlights the employees' proficiency regarding safety protocols at work.

Another aspect assessed is employees' awareness of potential on-site incidents, 24% are well familiarized with potential incidents, 40% have a very good understanding of potential incidents, 22% have a good know-how of potential incidents, 10% have fair

understanding and 4% or 2 of the respondents have poor understanding, with (a mean score of 3.7 and a standard deviation of 0.5), above the average mean. This indicates employees' know-how about potential on-site incidents is at a moderate level.

Table 5: - Availability and implementation of safety policies and regulations

No.	Description	Yes/1		No/2		Mean	Standard Deviation
		No	%	No	%		
1	Does your construction firm have a Health & Safety policy in place?	36	72%	14	28%	1.28	0.11
2	Is there written in-house Health & Safety rules & regulations and implementation in your construction firm?	24	48%	26	52%	1.52	0.10
3	Do your projects have a site-specific Health & Safety plan?	24	48%	26	52%	1.52	0.10
4	Does your construction project/site have a Safety Officer?	22	44%	28	56%	1.57	0.099
5	Does your firm coordinate its Health & Safety policies with other human resource policies to ensure the well-being of workers?	23	46%	27	54%	1.54	0.10
6	Does your firm provide awareness with written information about Health & Safety procedures to its workers?	22	44%	28	56%	1.56	0.10
7	Does your firm prepare a written circular/brochure that informs workers about the risk identification associated with their work?	17	34%	33	66%	1.66	0.10
8	Do workers undergo induction in Health & Safety before commencing work on a particular site?	21	42%	29	58%	1.58	0.101

9	Have you received training on hazard identification in the workplace?	21	42%	29	58%	1.58	0.101
10	Is the layout of the site designed to consider Health & Safety aspects?	27	54%	23	46%	1.54	0.10
11	Have you ever experienced an injury or impairment while on the job?	27	54%	23	46%	1.54	0.10
12	Are there designated first aid personnel or individuals trained in administering first aid?	16	32%	34	68%	1.68	0.106

A median split approach of descriptive data analysis is used to categorize data as high and low, percentage below 50 % is low and above 50% is high.

In assessing Noah Real Estate's current safety management practices, the initial item is whether it has a health and safety policy applicable 72% said YES which is above the median split of 50% showing that Noah Real Estate does have a safety and health policy, but it isn't applicable as it is shown in the open-ended question discussions.

The second item is whether there is a written in-house health and safety rules, regulations and implementations in Noah Real Estate, 52% said NO, which is above the median split indicating that the company does not implement the in-house safety and health rules and regulations.

The third one is if projects have site-specific safety and health plans, 56% said NO which is above the median split and it shows that there are no site-specific safety and health plans.

The fourth item is whether there are safety officers in construction project sites, 54% said NO, which is above the median split implying that there are few to no safety officers in project sites.

The next item focuses on whether Noah Real Estate coordinates its health and safety policies with other human resource policies to ensure the well-being of workers, 54% said NO, which is above the median split and indicates that the organization is not fully engaged in coordinating the health and safety policies with human resource policies.

The next item is if the firm provides awareness with written information about health and safety procedures to its workers, 56% said NO, which is above the median split and this indicates that Noah Real Estate doesn't consider giving awareness with written information about health and safety procedures to its workers seriously.

The next item is if your firm prepares a written brochure that informs workers about the risk identification associated with their work, 66% said NO, which is above the median split indicates that the organization doesn't prepare a written brochure to inform the employees about the risk identification.

The next item is if workers undergo induction in Health & Safety before commencing work on a particular site, 58% said NO, which is above the median split indicating that workers don't undergo induction before commencing work on a particular site, which in return increases the rate of the accident.

The next one is if employees have received training on hazard identification in the workplace, 58% said NO, which is above the average mean showing that there is less commitment to give safety training to employees.

The next item is regarding the site design per health and safety aspects, 54% said YES, which is above the median split that indicates the construction sites are not designed considering the safety and health aspects.

The next item shows if the employees have ever experienced an injury while on the job, 54% said YES, which is above the median split indicating that 27 out of 50 respondents had experienced an injury during work.

The last item is whether there are designated personnel trained in administering first aid, 68% said NO, which is above the median split showing that there are few to no well-trained personnel on-site that administer first aid.

Table 6: General Safety Practices in Noah Real Estate

No.	Description	<i>Always/5</i>		<i>Often/4</i>		<i>Sometimes/3</i>		<i>Rarely/2</i>		<i>Never/1</i>		<i>Mean</i>	<i>Standard Deviation</i>
		<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>		
1	How frequently are safety meetings conducted in your organization?	4	8%	7	14%	22	44%	12	24%	5	10%	2.86	0.45
2	How often is safety training scheduled at your workplace?	2	4%	7	14%	11	22%	23	46%	7	14%	2.48	0.48
3	How frequently are safety inspections conducted at Noah?	4	8%	12	28%	20	36%	11	22%	4	8%	3.02	0.44
4	How often do you report near misses and accidents to the safety office?	5	10%	9	18%	18	36%	14	28%	4	8%	2.94	0.45
5	How consistently are records of worker injuries and their causes maintained on-site?	4	8%	14	28%	14	28%	16	32%	2	4%	3.04	0.45
6	How often do accidents occur due to the lack of proper PPE usage?	6	12%	20	40%	14	28%	10	20%			3.44	0.47

7	How often are PPEs replaced?	2	4%	4	8%	22	44%	18	36%	4	8%	2.64	0.46
8	How frequently are PPEs replaced and worn by workers during their tasks?	4	8%	12	24%	14	28%	20	40%			3	0.45
9	To what extent do you follow specific safety regulations or guidelines in your construction projects?	5	10%	15	30%	14	28%	14	28%	2	4%	3.14	0.45

The first item under Noah Real Estate's current safety practices is how frequently safety meetings are conducted in the organization, 44% of which said that safety meetings are conducted sometimes, with (mean=2.86, standard deviation=0.45), which is below the average mean and indicates that the organization's culture in conducting safety meetings is very low.

The next item is how often safety training is scheduled at the workplace, with (mean=2.48, standard deviation=0.48), which is below the average mean and indicates that safety training is scheduled rarely at the workplace.

The next item is how frequently safety inspections are conducted at Noah, with (mean=3.02, standard deviation=0.44), which is below 3.39 which shows that the safety inspections are rarely conducted.

The next item is how often near misses and accidents are reported to the safety offices, with (mean=2.94, standard deviation=0.45), which is below 3.39, showing that accidents are not reported regularly.

The next item is how consistently workers' injury is recorded and their cause is maintained, with (mean=3.04, standard deviation=0.45), which is below 3.3.9, showing workers' injuries are not consistently marinated but considered sometimes.

The next item is how often accidents occur due to lack of usage of PPE, with (mean=3.44, standard deviation=0.47), which is moderate but still indicating that the accidents due to lack of usage of PPE are minimal relatively.

The next item is how often PPEs are replaced in construction sites, with (mean=2.64, standard deviation=0.46), which is below 3.39 indicating that PPEs are rarely replaced in construction sites.

The next item is how frequently workers use or wear these PPEs, with (mean=3, standard deviation=0.45), which is below the standard showing that workers wear these PPEs once in a while, not on a daily or weekly basis.

The last item is to what extent employees follow safety regulations in the construction projects with (mean=3.14, standard deviation=0.45), which is below 3.39 showing that employees don't follow the safety regulations always or frequently.

Table 7: Emphasis level of construction activities

No.	Description	<i>1/less emphasis</i>		<i>2</i>		<i>3</i>		<i>4</i>		<i>5/more emphasis</i>		<i>Mean</i>	<i>Standard Deviation</i>
		<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>		
1	Site layout and other preparatory works	5	10%	25	50%	7	14%	5	10%	7	14%	2.67	0.46
2	Foundation excavation and other Earthworks	7	14%	0	0%	5	10%	21	42%	16	32%	3.8	0.5
3	Substructure Concrete works	2	4%	4	8%	18	36%	11	22%	16	32%	3.7	0.5
4	Superstructure concrete works	5	10%	4	8%	13	26%	14	28%	14	28%	3.6	0.48
5	Cladding and other finishing works	4	8%	9	18%	11	22%	12	24%	14	28%	3.5	0.47
6	Electrical and waterline installation works	2	4%	9	18%	11	22%	13	26%	15	30%	3.6	0.49

The first item under the list of activities is site layout and preparatory works, with (mean=2.67, standard deviation=0.46), which is below 3.39 in which 50% of the respondents think it needs less emphasis which implies that site layout and preparatory works are one of the construction activities that require a much less emphasis to be given.

The next item is foundation, excavation, and earthworks, with (mean=3.8, standard deviation=0.5), which is above the average mean which indicates that the foundation, excavation, and earthworks need much emphasis with 64% of the respondents support the idea of giving more emphasis to these activities.

The third activity is substructure concrete work, with (mean=3.7, standard deviation=0.5), which is moderate indicating that the substructure concrete work needs more emphasis than site layout but less than foundation and earthworks.

This next item is the superstructure concrete work, with (mean=3.6, standard deviation=0.48), which is moderate indicating that superstructure activity needs moderate emphasis at construction sites according to 82% of the respondents.

The next item is cladding and finishing work, with (mean=3.5, standard deviation=0.47), which is at a moderate level, with 74 % of the respondents supporting the idea that cladding and finishing work needs moderate emphasis during construction.

The last item is electrical and waterline installation work, with (mean=3.6, standard deviation=0.49), which is at a moderate level showing that both the electrical and waterline installation should be given a moderate emphasis as 56% of the respondents supported the questionnaire.

Table 8: - Workers' and management's commitment towards safety

No.	Description	<i>Strongly agree/1</i>		<i>Agree/2</i>		<i>Disagree/4</i>		<i>Strongly disagree/5</i>		<i>Neutral/3</i>		<i>Mean</i>	<i>Standard Deviation</i>
		<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>		
1	Workers' reluctance to report minor injuries or near misses due to fear of being sacked is a challenge.	7	14%	20	40%	7	14%	2	4%	14	28%	2.54	0.47
2	Workers' resistance to wearing personal protective equipment (PPEs) in the organization is a challenge.	9	18%	20	40%	8	16%	2	4%	11	22%	2.48	0.48
3	Influencing workers to modify their culture and behaviors toward safety in the organization is a challenge.	9	18%	30	60%	4	8%	0		7	14%	2.12	0.53
4	Co-workers in my organization actively ensure the safety of their fellow workers.	4	8%	23	56%	4	8%	2	4%	18	36%	2.55	0.46

5	Do you believe the safety management plan of your organization is effective?	4	8%	5	10%	7	14%	20	40%	14	28%	3.68	0.5
6	Incidents and accidents are investigated quickly to improve workplace health and safety.	7	14%	32	64%	2	4%	2	4%	7	14%	2.2	0.51
7	Do you agree that the management encourages and supports worker participation, commitment, and involvement in Health & Safety activities?	2	4%	7	14%	18	36%	12	24%	9	18%	3.64	0.5
8	Do you agree or disagree that the management encourages and supports the training of employees in Health & Safety?	5	10%	6	12%	22	44%	12	24%	5	10%	3.6	0.49
9	How would you rate the management's level of active												

	monitoring of Health & Safety performance in their projects?	4	8%	5	10%	20	40%	10	20%	11	22%	3.54	0.48
10	Do you believe that the management ensures that the Health & Safety budget is adequate?	4	8%	7	14%	18	36%	12	24%	9	18%	3.54	0.48

To interpret the Likert scale, I calculated the range and the interval between the range and the highest value 5, then the interval became 0.8 thus, I started from the lowest value 1, and added the interval to each scale.

Strongly agree ----- 1 – 1.80

Agree -----1.80 – 2.60

Neutral -----2.61 – 3.4

Disagree ----- 3.41 – 4.2

Strongly disagree ----- 4.21 – 5.0

Under the workers and management's commitment towards safety, the first item is Workers' reluctance to report minor injuries or near misses due to fear of being sacked is a challenge, with (mean=2.54, standard deviation=0.47), showing that respondents agree that the workers are reluctant to report minor injuries or near misses.

The second item examines how workers' resistance to wearing personal protective equipment (PPEs) in the organization is a challenge, with (mean=2.48, standard deviation=0.48), it shows that respondents agree on how challenging it is to maintain construction safety while workers resist wearing PPE, during construction works at different stages.

The third item shows whether influencing workers to modify their culture and behaviors toward safety in the organization is a challenge or not, with (mean= 2.12, standard deviation=0.53), 60% of the respondents agreed to how challenging it is to influence one's culture, this explains how challenging it is to modify workers culture and behaviors toward safety in Noah Real Estate.

The fourth item shows if co-workers in the organization actively ensure the safety of their fellow workers, with (mean=2.55, standard deviation=0.46), respondents agreed on how workers in this construction firm take the responsibility to ensure their co-workers are safe in every circumstance. More than 50% of the respondents agreed on how they keep each other safe.

The fifth item is whether the safety management plan at Noah is effective, with (mean= 3.68, standard deviation=0.5), indicating that 40% of respondents disagreed that the safety management plan at Noah is ineffective.

The sixth item considered is whether incidents and accidents are investigated quickly to improve workplace health and safety, with (mean=2.2, standard deviation=0.51), respondents agreed that accidents are investigated promptly once they occur, 64% of the respondents agreed to this question, but the problem is there is no plan to avoid similar incidents.

The seventh item is if employees agree that the management encourages and supports worker participation, commitment, and involvement in Health & Safety activities, with (mean=3.64, standard deviation=0.5), respondents disagreed that the management doesn't support the employees to be involved in health and safety activities.

The eighth item is if employees agree that the management encourages and supports the training of employees in Health & Safety, with (mean=3.6, standard deviation=0.49), respondents disagreed that the management isn't actively involved in encouraging and supporting the training of employees.

The ninth item focuses on how would employees rate the management's level of active monitoring of Health & Safety performance in their projects, with (mean=3.54, standard deviation=0.48), respondents disagreed that the management doesn't actively monitor health and safety performance in construction projects.

The last item is if you believe that the management ensures that the Health & Safety budget is adequate, with (mean=3.54, standard deviation=0.48), respondents disagreed that the management doesn't ensure that the health and safety budget is adequate.

4.3 Open-ended questions and responses

These are questions included in the questionnaire to collect qualitative data from respondents.

What safety management practices are currently in place at Noah Real Estate projects in Addis Ababa, Ethiopia?

There is a focus on the importance of reporting unsafe conditions, communication with contractors, and the need for proper procedures. While there are first aid kits available, there are no trained safety officers for all the construction sites, there are only 2 safety officers for 22 sites. safety practices are often implemented only after an accident has already occurred. There is little to no focus to the most of the safety management practices like: safety management monitoring, recording each injuries and accidents and provide solutions accordingly, conducting regular safety audits and inspections of construction sites, implementing comprehensive safety training programs for all workers, providing appropriate personal protective equipment (PPE) and ensuring its proper use, establishing clear safety policies and procedures that are communicated to all workers, encouraging open communication between management and workers regarding safety concerns, enforcing strict safety regulations and disciplinary actions for violations, promoting a safety culture within the organization through regular safety meetings and incentives, identifying and addressing potential hazards on construction sites through risk assessments, implementing emergency response plans and procedures in case of accidents or incidents and regularly monitoring and evaluating safety performance to make continuous improvements.

The analysis of the data presented reveals that Noah Real Estate lacks comprehensive safety measures. Safety meetings are infrequent, with only two safety officers overseeing 22 sites. Management does not prioritize safety, leading to a shortage of safety materials for workers.

There is a lack of awareness among employees, resulting in a reluctance to adhere to safety protocols. Additionally, there are no site-specific health and safety plans in place, and regular safety inspections are not conducted. Overall, the organization's safety protocols are severely lacking and require immediate attention to ensure the well-being of all employees.

As shown in the closed-ended questions, most of the safety management practices like safety training, site safety monitoring, inventory control of the PPEs and others are weakly implemented the safety policy is just written without an implementation, thus, this triangulation helps to conclude that Noah Real Estate's safety management practice is at the early stage.

How are safety procedures communicated and enforced within the organization?

Communication breakdowns are prevalent within the organization, with project managers and engineers failing to communicate effectively before accidents. While there is a reporting system in place for safety concerns, it often results in no immediate action being taken beyond merely reporting the issue. Efforts to improve communication within the organization include keeping contractors informed and utilizing methods such as banners, safety signs, and unofficial directives. Direct communication is emphasized within the organization but mainly in response to accidents, with little focus on regular safety training for new employees regarding safety procedures and communication protocols. Communication strategies must be enhanced and incorporated into the organization's daily operations to prevent future accidents and ensure the safety of all workers.

According to the findings, the organization fails to provide adequate training for new employees, leading to a significant deficiency in safety practices. New hires are not properly informed about safety protocols, and there is a lack of effective communication within the team regarding safety concerns. Accidents are not thoroughly analyzed to prevent future occurrences. Additionally, there is a lack of open communication between stakeholders, and contractors at the site are not held responsible for failing to provide necessary Personal Protective Equipment (PPE) to employees or enforcing site safety regulations. This lack of accountability poses a significant risk to the well-being of workers and underscores the urgent need for improved safety measures and communication protocols within the organization.

Have there been any recent safety incidents or accidents at Noah Real Estate projects? If yes, please provide details.

- Yes, a reinforcing bar from a structural building struck the man who was walking on the street death occurred.
- Yes, there are heavy-body accidents and minor accidents.
- Yes. A worker working on a site recently got stabbed by an iron because he was not wearing safety shoes.
- Yes, it happened because of the lack of safety materials,
- Yes, a contractor's laborer working on a manual winch was dislodged from the wood, one was killed and another was seriously injured. The reason for this is that contractors are to blame for the failure to use an electrical winch and to wear a safety belt.
- Yes, in the unloading process of HCB from the car, HCB fell on his hand and injured himself due to the lack of hand gloves.

What do you believe are the best practices for effectively integrating safety management into the project management framework at Noah Real Estate?

To enhance safety measures in the construction industry, it is imperative to establish and implement a robust Safety Management System. This system should be supported by top management, with adequate attention and resources allocated for its effective execution. Mandatory use of Personal Protective Equipment (PPE) and safety vests for all personnel should be enforced, along with providing ongoing training and education to ensure that workers are well-informed on safety protocols. In addition to setting up a safety department, it is crucial to appoint individuals with relevant experience to oversee safety practices on site. Regular meetings should be held to review safety plans and ensure strict adherence to safety regulations. Monitoring and follow-up at the site should be conducted diligently to guarantee that every team member is complying with safety measures. To further promote the culture of safety, it is essential to impose consequences on workers who fail to adhere to safety rules, while rewarding those who prioritize safety by using PPE and following safety guidelines during work activities. By incorporating these strategies into the safety management system, construction sites can

significantly reduce the risk of accidents and create a safer working environment for all employees.

Do you think providing safety training programs for employees can improve safety management practices at Noah Real Estate projects? Why?

Implementing safety training programs for employees can significantly enhance safety management practices at Noah Real Estate projects. Here's why:

Awareness: Safety training programs increase employees' awareness of potential hazards and risks in the workplace. By educating employees about safety protocols, emergency procedures, and proper use of equipment, they become more vigilant and proactive in identifying and mitigating risks. Since most of the daily labors are illiterate, it helps the worker to be alert and careful by understanding the dangers that may occur.

Prevention: Training empowers employees to take preventative measures to avoid accidents and injuries. When employees understand the importance of safety procedures and how to implement them effectively, they are better equipped to prevent incidents from occurring in the first place.

Compliance: Safety training ensures that employees understand and comply with relevant regulations and standards set forth by regulatory authorities. This helps Noah Real Estate projects avoid legal liabilities and penalties associated with non-compliance.

Culture of Safety: By prioritizing safety through training initiatives, Noah Real Estate can foster a culture of safety among its employees. When safety becomes ingrained in the company culture, employees are more likely to prioritize it in their daily activities and hold each other accountable for maintaining safe work practices.

Reduced Incidents: Well-trained employees are less likely to make errors or engage in risky behavior that could lead to accidents or injuries. Consequently, implementing safety training programs can lead to a reduction in workplace incidents, resulting in fewer disruptions, lower insurance costs, and improved productivity.

Who are the key stakeholders involved in project safety management at Noah Real Estate?

- Owner
- Project team members
- Project managers
- Safety Managers/Officers

- Site Supervisors
- Daily labors
- Contractor
- Engineers
- Forman
- Human Resource
- Society around the vicinity

These stakeholders are responsible and accountable regarding the construction safety management practice.

How does the organizational climate at Noah Real Estate influence the contributions of key stakeholders to successful safety management in Addis Ababa?

The influence of safety management in construction projects is significant as key stakeholders, whether directly or indirectly involved, play a crucial role. When top management prioritizes safety, it can positively impact the attitudes of all workers towards safety. Conversely, without proper safety management practices in place, stakeholders may become less tolerant of safety risks. Therefore, placing emphasis on the safety department and ensuring adequate attention is given to safety protocols can lead to improved performance and a safer work environment. By prioritizing safety and engaging all stakeholders in safety initiatives, construction projects can mitigate risks and enhance overall project outcomes.

In your opinion, how does the organizational climate influence the adoption and success of safety management practices at Noah Real Estate?

The safety climate within an organization plays a crucial role in shaping employee motivation towards safety-related tasks, thereby affecting individual behaviors and overall safety outcomes within the organization, as well as influencing employee productivity. However, at times, the safety climate may not exude positive energy due to the lack of active participation from all stakeholders in addressing safety concerns. It is essential for all stakeholders to actively engage in safety initiatives to foster a positive safety culture, enhance employee motivation, and ultimately improve organizational safety performance and productivity.

What are the current practices for integrating safety management into the project management framework at Noah Real Estate?

In the absence of sufficient preventive measures, safety concerns often come to light only after an accident has occurred. It is crucial to raise awareness among all employees about safety protocols to prevent such occurrences. Conducting periodic site visits by site safety officers to the 22 construction sites can help identify potential hazards and address safety issues in a timely manner. Proactive measures, such as ongoing safety training and regular safety inspections, are essential to ensure a safe working environment and prevent accidents before they happen.

What are the current challenges in integrating safety management into the project management framework at Noah Real Estate?

- Lack of attention from the management and stakeholders
- Lack of strong enforcement
- Resource Constraints; which means expenses of safety materials
- Communication and Coordination gap
- The gap in safety training
- The contractor does not follow the inspection which is why every accident happened
- Labors misunderstand safety
- Being careless & Negligence

In your opinion, what are the best practices for improving the integration of safety management into the project management framework at Noah Real Estate?

Collaborating closely with project leaders and safety engineers is key to ensuring effective safety measures within a construction project. Establishing a strong communication mechanism with stakeholders is essential for sharing vital safety information and fostering a culture of safety. Implementing best practices that emphasize safety throughout every phase of the project lifecycle is crucial to minimizing risks and ensuring a safe working environment.

Providing comprehensive training for both top management and labor on safety protocols is essential to ensure that all employees are equipped with the necessary knowledge and skills to prioritize safety. Allocating adequate resources to support safety initiatives and providing personal protective equipment to all workers are critical steps in safeguarding their well-being.

Enforcing safety regulations rigorously and imposing penalties on individuals or contractors who fail to adhere to safety guidelines are necessary measures to maintain safety standards. Additionally, recognizing and rewarding individuals for demonstrating outstanding commitment

to safety practices can serve as a positive reinforcement and encourage a culture of safety excellence within the organization.

4.4. Comparison of responses among respondents

The responses of the respondents don't have a clear pattern but, by looking at most of the responses senior office managers are not that aware of the site activities regarding safety thus, their responses differ from question to question, but since I have repeated a few important questions in a different form I managed to track their response to select their right response when it comes to contractors their response pretty much sides to the managements' commitment they almost blamed everything on the management of Noah Real Estate even if most of the issue is with them, the problem with the management is that they don't make the contractor accountable and there is no penalty system whenever the contractor doesn't fulfill the safety practices. The most honest and reliable responses were given by Residential Engineers, Project Managers of different sites, Site Engineers, Contract Administrators, and Site Inspectors as they worked closely at the construction site and with the contractors.

Chapter 5: Summary of Findings, Conclusions and Recommendations

5.1 Summary of Findings

At Noah Real Estate, safety management practices are lacking, primarily due to several key factors. Firstly, there is a significant deficiency in employee training, leading to a lack of safety awareness and compliance among workers. Additionally, the limited availability of personal protective equipment (PPE) such as gloves, safety shoes, and other gear further exacerbates safety concerns as workers are not adequately equipped to protect themselves. Moreover, the reluctance of employees to wear the available PPE, including safety belts and helmets, poses a serious risk to their well-being.

Furthermore, there is a disparity between the number of construction sites and safety officers assigned, indicating an inadequate allocation of safety resources. Safety meetings are sporadically conducted, often in reaction to accidents rather than being held regularly to proactively address safety issues. The absence of safety training for employees both at the induction stage and throughout their work tenure highlights a glaring gap in safety education within the organization.

The management's apparent lack of emphasis on safety matters has created a disheartening environment for employees, leading to a disregard for safety protocols. Although there exists a safety policy within the organization, its enforcement remains lax, contributing to a culture of negligence toward safety standards. Even when injuries are reported, the absence of proactive measures to prevent future incidents demonstrates a critical oversight in safety management practices.

5.2 Conclusion

According to the collected and analyzed data, a significant portion of educated employees demonstrate a solid grasp of safety protocols and are well-versed in the potential on-site incidents. Despite the existence of a written health and safety policy, its implementation is lacking, with sites lacking site-specific health and safety plans. There is a noticeable absence of personnel trained in administering first aid, infrequent safety meetings, and sporadic inspections. Notably, safety training sessions have never been organized at Noah, leading to frequent accidents caused by the absence of Personal Protective Equipment (PPE) which is not promptly

replaced. Employees often disregard specific safety regulations, even in the face of documented accidents and incidents, with little proactive action taken to prevent similar occurrences. Communication barriers stemming from language and cultural differences make it challenging to effectively engage with on-site workers. Moreover, the management's lack of support for worker participation in safety training and safety-related activities further exacerbates the safety shortcomings within the organization.

In summary, the safety management practices at Noah fall short of meeting safety standards and have only come under scrutiny following recent accidents. Human resources and management are now contemplating the implementation of new safety protocols, albeit at an early stage of development. This transformation underscores the urgent need for a comprehensive overhaul of safety initiatives to prioritize employee well-being and ensure compliance with safety regulations.

5.3 Recommendation

Based on the shortcomings identified in the safety management practices at Noah Real Estate, immediate steps must be taken to address these concerns and prioritize the well-being of employees and people who live and pass by the construction sites. Here are some key recommendations to enhance safety practices within the organization:

1. **Comprehensive Safety Training:** Implement a thorough safety training program for all employees, emphasizing the importance of wearing PPE, safe work practices, and emergency procedures. Regular refresher training sessions should be conducted to reinforce safety protocols which in return will change the safety culture in the firm for good if the culture is changed everything related to safety will run smoothly among employees without struggling.
2. **Enhanced PPE Availability:** Ensure sufficient stock of essential PPE items such as gloves, safety shoes, and helmets. Encourage and enforce the mandatory use of PPE by all workers to mitigate occupational hazards. And safe site layout starts from site clearance up to completion, once there is enough stock of PPEs the next assignment would be creating awareness of the necessity of wearing the PPEs during construction works among the site workers and employees.
3. **Regular Safety Meetings:** Schedule frequent safety meetings to discuss potential risks, review safety procedures, and address any safety concerns raised by employees. Conducting

proactive meetings is essential in preventing accidents and fostering a culture of safety consciousness. These meetings serve as a valuable platform for reflecting on past incidents, implementing corrective actions, documenting action plans, and outlining necessary activities. They also serve as a tool for holding individuals accountable based on the discussions and decisions documented in the meeting minutes.

4. Proactive Safety Inspections: Conduct regular safety inspections at construction sites to identify and rectify safety hazards promptly. Ensure that the number of safety officers is adequate to effectively monitor and enforce safety protocols across all sites.

5. Strict Enforcement of Safety Policies: Emphasize the importance of adhering to safety policies and regulations. Take disciplinary action against individuals or contractors who violate safety guidelines to create a culture of accountability and compliance.

6. Continuous Improvement: Implement a system for reporting and investigating incidents and near misses to identify root causes and implement preventive measures. Learning from past incidents is essential to continuously improve safety practices. Every employee should be part of this improvement and that will be applicable if the management and all the stakeholders get involved in safety matters. Otherwise, the effort of the employees without management support would be less impactful to change the safety culture.

7. Management Involvement: Involve senior management in safety initiatives and emphasize their commitment to prioritizing safety within the organization. Provide resources and support to ensure that safety measures are effectively implemented and monitored. Noah Real Estate's management and stakeholders have a huge responsibility to improve safety management practices.

By implementing these recommendations, Noah Real Estate can establish a robust safety management system that not only complies with safety standards but also prioritizes the well-being of its employees. Investing in a strong safety culture will not only prevent accidents and injuries but also enhance productivity and morale among workers.

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Appendix 1

MA Thesis Questionnaire

Re: Request to respond to a questionnaire for an MA thesis work

I am currently undertaking an MA degree in Project Management at Addis Ababa University [College of Business and Economics, School of Commerce]. As part of my academic requirements, I am conducting a study on “Safety Management Practices in Real Estate Project: In Case of Noah Real Estate”

The primary aim of this research questionnaire is to gather insights on the current safety management practices at Noah Real Estate Company in Addis Ababa. As a key member of staff at the company, your participation in this survey is highly valued. The information you provide through the questionnaire will be crucial for the study's data collection.

Rest assured that all information shared will be treated with the utmost confidentiality and solely utilized for academic research purposes. Your expertise and educational background in the construction industry are essential contributions to the success of my study. I firmly believe that this research will play a significant role in advancing the construction industry. Therefore, I kindly request your thoughtful responses to each question.

If you have any further questions, I can be reached at the address below.

Sincerely,

Hiven Abadi

0983-34-02-76

Part I. Respondents Demographic Data

1. Gender
 - A. Male
 - B. Female
2. Age
 - A. 25-30
 - B. 31-35
 - C. 36-40
 - D. 41 and above
3. Education Level
 - A. PhD
 - B. Masters
 - C. Degree
 - D. Diploma
 - E. Certificate
 - F. Illiterate
4. Your current job position
 - A. Project manager
 - B. Site engineer
 - C. Contractor
 - D. Safety engineer
 - E. Foreman
 - F. Residential engineer
 - G. Site Inspector

- H. Skilled Person
 - I. Semi-Skilled person
5. Your total work experience in years
- A. 1-5 years
 - B. 6-10 years
 - C. 11-15 years
 - D. above 16 years
6. How many hours do you work a day?
- A. Less than 8 hours
 - B. 8 hours
 - C. Over 8 hours

Part II: Close-ended questions

Please tick (✓) in the box that best indicates your level of agreement with each of the statements below:

Workers' safety awareness

No.	Questions	<i>Excellent</i>	<i>Very good</i>	<i>Good</i>	<i>Fair</i>	<i>Poor</i>
7	What is your level of knowledge regarding safety protocols in the workplace?					
8	How familiar are you with potential incidents that could occur on-site?					

Availability and implementation of safety policies and regulations

No.	Questions	<i>Yes</i>	<i>No</i>
9	Does your construction firm have a Health & Safety policy in place?		
10	Is there written in-house Health & Safety rules & regulations and implementation in your construction firm?		
11	Do your projects have a site-specific Health & Safety plan?		
12	Does your construction project/site have a Safety Officer?		

No.	Questions	Yes	No
13	Does your firm coordinate its Health & Safety policies with other human resource policies to ensure the well-being of workers?		
14	Does your firm provide awareness with written information about Health & Safety procedures to its workers?		
15	Does your firm prepare a written circular/brochure that informs workers about the risk identification associated with their work?		
16	Do workers undergo induction in Health & Safety before commencing work on a particular site?		
17	Have you received training on hazard identification in the workplace?		
18	Is the layout of the site designed to consider Health & Safety aspects?		
19	Have you ever experienced an injury or impairment while on the job?		
20	Are there designated first aid personnel or individuals trained in administering first aid?		

General safety practices in the firm

No.	Questions	<i>Always</i>	<i>Often</i>	<i>Sometimes</i>	<i>Rarely</i>	<i>Never</i>
21	How frequently are safety meetings conducted in your organization?					
22	How often are safety trainings scheduled at your workplace?					
23	How frequently are safety inspections conducted at Noah?					
24	How often do you report near misses and accidents to the safety office?					
25	How consistently are records of worker injuries and their causes maintained on-site?					
26	How often do accidents occur due to the lack of proper PPE usage?					
27	How often are PPEs replaced?					

28	How frequently are PPEs replaced and worn by workers during their tasks?					
29	To what extent do you follow specific safety regulations or guidelines in your construction projects?					

In which phase of construction should safety and health management practices be emphasized more? Please scale from 1 to 5 in the space provided

No.	Questions	Scale
30	Site layout and other preparatory works	
31	Foundation excavation and other Earthworks	
32	Substructure concrete works	
33	Superstructure concrete works	
34	Cladding and other finishing works	
35	Electrical and waterline installation works	

Workers' and management's commitment to safety

No.	Questions	<i>Strongly Agree</i>	<i>Agree</i>	<i>Disagree</i>	<i>Strongly Disagree</i>	<i>Neutral</i>
36	Workers' reluctance to report minor injuries or near misses due to fear of being sacked is a challenge.					
37	Workers' resistance to wearing personal protective equipment (PPEs) in the organization is a challenge.					
38	Influencing workers to modify their culture and behaviors toward safety in the organization is a challenge.					
39	Co-workers in my organization actively ensure the safety of their fellow workers.					

No.	Questions	<i>Strongly Agree</i>	<i>Agree</i>	<i>Disagree</i>	<i>Strongly Disagree</i>	<i>Neutral</i>
40	Do you believe the safety management plan of your organization is effective?					
41	Incidents and accidents are investigated quickly to improve workplace health and safety.					
42	To what extent do you agree that the management encourages and supports worker participation, commitment, and involvement in Health & Safety activities?					
43	Do you agree or disagree that the management encourages and supports the training of employees in Health & Safety?					
44	How would you rate the management's level of active monitoring of Health & Safety performance in their projects?					
45	Do you believe that the management ensures that the Health & Safety budget is adequate?					

Part III: Open-ended questions

Section 1: Existing Safety Management Practices

46. What safety management practices are currently in place at Noah Real Estate projects in Addis Ababa, Ethiopia?

47. How are safety procedures communicated and enforced within the organization?

48. Have there been any recent safety incidents or accidents at Noah Real Estate projects? If yes, please provide details.

49. What do you believe are the best practices for effectively integrating safety management into the project management framework at Noah Real Estate?

50. Do you think providing safety training programs for employees can improve safety management practices at Noah Real Estate projects? Why?

Section 2: Key Stakeholders and Organizational Climate

51. Who are the key stakeholders involved in project safety management at Noah Real Estate?

52. How does the organizational climate at Noah Real Estate influence the contributions of key stakeholders to successful safety management in Addis Ababa?

53. In your opinion, how does the organizational climate influence the adoption and success of safety management practices at Noah Real Estate?

Section 3: Integrating Safety Management into Project Management Framework

54. What are the current practices for integrating safety management into the project management framework at Noah Real Estate?

55. What are the current challenges in integrating safety management into the project management framework at Noah Real Estate?

56. In your opinion, what are the best practices for improving the integration of safety management into the project management framework at Noah Real Estate?

Thank you for your time!