AN ASSESSMENT OF THE HEALTH AND SAFETY PRACTICES IN BUILDING CONSTRUCTION SITES
(*A Case Study of Some Selected building Construction Companies in Benin City*)

BY

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CERTIFICATION

This to certify that this project work titled "An Assessment of the Health and Safety Practices in Building Construction Sites (A Case Study of Some Selected Building Construction Companies)" was carried out by **DANIEL ILESANMI** with Matriculation Number; **ENV/2032001351** in the Department of Building Technology, School of Environmental Studies, Auchi Polytechnic, Auchi, Edo State.

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DEDICATION

This project work is dedicated to God Almighty for his preservation, protection and kindness throughout the completion of my programme in Auchi Polytechnic, Auchi.

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Research like this could not have been completed without the immense contribution of some persons that i will not fail to acknowledge.

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ABSTRACT

This work was carried out to access the role health and safety practices in building construction sites using some selected building construction companies in Benin City, Edo State as a case study. To achieve this goal, descriptive survey method was used. Consequently, a questionnaire was constructed and validated using test and retest method. Hence, since the population of the study is relatively small no sampling technique was employed, there researcher surveyed all the 180 respondents. The constructed questionnaire was then served on all the responds in the study area. The data gathered was subjected to statistical tables, sample percentage and chi-square test. The results of the analyses show amongst other things that there are inherent risks in the building construction industry.

The researcher concluded that accidents in construction are almost incalculable, but a proactive safety management system has the core attributes of systematic identification of hazards, assessment and control of risks, evaluation and effective implementation of risk control measures. Based on the findings and conclusion, the researcher recommended amongst others that all employees must be given health and safety induction training when they start work, which should cover basics such as first aid and fire safety.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Construction is a risky business prone to accidents due to the physical environment of the work, nature of operations involved, types of materials, methods used for construction and the utilization of sophisticated equipment**.** Occurrence of accidents or injury to workers tends to demoralize the workers in some cases and leads to suspension of construction activities. Persistent health and safety challenges in Nigerian construction industry which ultimately results in different types of loss and magnitude is on the increase (Akinwale and Olusanya, 2016).

The labour intensive nature of construction industry demands more human involvement at the production stage. However, the magnitude of casualty suffered in execution of building projects across the globe, has made the construction industry the most dangerous or highly hazardous industry. Construction industry is viewed as labour intensive because labour cost amounts to 40-65% of the overall cost of a project (Alkilani, Jupp, and Sawhney, 2013).

Health and safety is of extreme importance within the construction industry as different construction operations take place at about the same time. This can be attributed to building project delivery dates agreed upon during bidding for construction jobs by building contractors. Health and safety is relevant to all branches of industry, a practice that is particularly imperative for the construction industry (Zohreh and Napsiah, 2014). In advanced countries of the world, visibly improvements have since been made to mitigate site accident. This in turn cannot be completed said of Nigeria as the industry is blighted by reports of accidents on construction site with even the multinational companies falling prey

of such distasteful occurrence. Construction managers over time have devised a cheaper means of employing laborers on casual or temporary (Tan and Nadeer, 2014).

The construction industry has therefore earned the reputation of being a dangerous or highly hazardous industry because of the disproportionately high incidence of accidents and fatalities that occur on construction sites around the world (Kadiri *et al*, 2014). Similarly Okoye *et al.,* (2016) labels construction industry as very hazardous. Internationally, construction workers are two to three times more likely to die on the job than workers in other industries are, while the risk of serious injury is almost three times higher.

Health and safety therefore is an economic as well as humanitarian concern that requires proper management control. One of the most common myths that have plagued this industry is that health & safety comes at a cost. Construction managers tend to believe that introducing and executing measures that ensure health and safety in construction sector lead to higher cost, and hence lower profitability. However, it has been proved that investment in construction health and safety actually increases the profitability by increasing productivity rates, boosting employee morale and decreasing attrition (Muhammad Abdulateef and Ladi, 2015).

Construction safety and health management deals with actions that managers at all levels can take to create an organizational setting in which workers is trained and motivated to perform safe and productive construction work. The system should delineate responsibilities and accountabilities. It should also outline procedures for eliminating hazards and identifying potential hazards before they become the contributing factors to unfortunate accidents (International labour Organization (ILO) 2020).

1.2 Statement of the Problem

Effective Management of health and safety principles has been a tough battle and a plague for most contractors as they do the initial planning on paper and win contracts but integrating this comprehensive Management health and safety principles into construction process becomes difficult because of tradition.

The construction industry operates in a very uncertain environment where conditions can change due to the complexity of each project (Agwu and Olele, 2014). Risk and uncertainty are associated to any project regardless of the industry, and it differs from project to project; since every project is unique especially on construction sites. In other words, adequate comprehensive knowledge of the commercial, political, construction, and operations uncertainties and risks associated with a project determines the success/delivery of such project and in some cases the viability of the organization (Isa, Jimoh and Achuenu, 2013). Despite the awareness of risks and their consequences, there are still many practitioners that have not realized the importance of including risk management in the process of project delivery. Thereby contradicting the fact that the industry is trying to be more cost and time efficient as well as have more control over projects.

Health and safety has been identified as a parameter which should be used along with the traditional parameters: cost, quality and time, to measure the success of projects. The reasons for considering safety and health are human factor, legislation and financial issues (Olutuase, 2014). A general survey in the construction industry indicates that adequate measures for health and safety in the sites have not been put in place and also various challenges are encountered in the management of health and safety in construction. This manifests itself on construction sites as numerous accidents/ injuries, health problems which result to hospitalization and absenteeism. Unfortunately, health, safety and the environment are often neglected on construction sites and rarely managed. Safety and health is often discussed in

site management meetings as a priority, while in reality safety and health takes a low priority to budget and time discussions.

This ugly trend often leads to site closures, loss of man-hours, payment of compensation and loss of reputations which affects the performance of the industry and its contribution to national development. The problem therefore is how to implement health and safety measures in construction sites with a view to reducing accidents in construction sites.

1.3 Aim and Objectives of the Study

The main aim of this work is to access the health and safety practices in building construction sites. Specifically the study sought to:

i. Evaluate the construction risks inherent in the building construction industry.
ii. Investigate the health and safety measures used on construction sites
iii. Examine the challenges in the management of health and safety in construction sites
iv. To investigate the effects of occupational health hazards on the building construction sites

1.4 Research Questions

To this end, this study shall attempt to provide answers for the following research questions:

i. What are the construction risks inherent in the building construction industry?
ii. What are the health and safety measures employed on construction sites?
iii. What are the challenges in the management of health and safety in construction sites?
iv. What are the effects of occupational health hazards on building construction sites?

1.5 Research Hypotheses

The following hypotheses stated in both null and alternate forms will also guide the study

Hypothesis I

Ho: There are no inherent risks in the building construction industry

Hi: There are inherent risks in the building construction industry

Hypothesis II

Ho: Health and safety measures are not employed on construction sites

Hi: Health and safety measures are employed on construction sites

1.6 Scope of the Study

The study will investigate the health and safety practices in building construction sites using selected construction site in Benin city, Edo State as a case study.

1.7 Significance of the Study

The study will add to knowledge and it will serve as contribution to current literature on the subject matter. The outcome of the study will provide protection requirements for workers' health and the acceptable risk approach to safety in the workplace. The outcome of the study will benefit the parties responsible for ensuring the implementation of the internationally acceptable standards of health and safety on construction sites in Nigeria such as Government, clients, consultants, contractors, workers and civil society by educating them to ensure that every construction contract takes comprehensive account of health and safety requirements for the project, environment and the workers.

1.8 Limitation of the Study

i. In carrying out an academic research of this nature, there will be a lot of factors militating against this it. Among many others is financial constraint, the cost involved in searching and browsing for the materials as well as typesetting the project work.
ii. There is also problem of locating the selected sites and the respondents in question.
iii. Another constraint militating against the study is time; this is because the researcher carried out this study alongside class room work and exam preparation.

1.9 Operational Definitions of Terms

Health: The Oxford dictionary of current English language defines health as the state of being free form illness or injury; a person's mental or physical condition.

Collins gem English language dictionary defines health as the state of soundness of the body. It is the condition of the body. Webster's Encyclopedia dictionary of English language put it that "health" is the state of fitness of the body or mind with reference to soundness and vigor.

Safety: The Oxford dictionary of current English language defines safety as the condition of being safe. Webster's encyclopedia dictionary of English language defines safety as the conditions of beingsafe from risk or danger. It is the quality of averting or not causing injury, danger or loss.

Occupational health and safety (OHS): Occupational health and safety (OHS) is a branch of public health aimed at improving workplace health and safety standards.

Occupational Safety and Health Act: it's also known as **OSHA**. This act grants the federal government the power to establish and enforce occupational safety and health standards for businesses.

Health and safety (H&S): This is a regulations and procedures intended to prevent accident or injury in workplaces or public environments. The laws, rules, and principles that are intended to keep people safe from injury or disease at work and in public places.

Health, safety and welfare (HSW) : The health, safety and welfare (HSW) regulations apply to all aspects of the working environment and require employers to provide a workplace that is not only safe but also suitable for the duties that are being carried out within it.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Common health and Safety Risks on Construction Sites

The construction industry's accident fatality rate stands at more than double those of the other sectors average. Minor accidents in construction are almost incalculable, where construction sites are health and safety nightmare, and almost every conceivable hazard exists within this constantly changing work environment (Guha and Biswas, 2013). Various researchers have divided health and safety hazards into two categories, namely: the physical injury hazards and the ill-health hazards. Hazard of physical injury include death consequences. Hazard of ill-health can only be notified after a long period and shall cause sickness or death after a certain period of time (Sarireh and Tarawneh, 2013). Awwad, El-Souki and Jabbour (2016), recommended the following common hazards on construction sites irrespective of the physical injury: antagonism, aggression and maltreatment of workers, working at heights, dusts, moving objects, slips, outing and falls, noise, vibration and arm disorder, movement of materials, combustion, collapse, airborne strands and materials, electricity, and chemical substance.

Kolawole (2014) noted that building activities usually involve the uses of substances that contain toxic chemicals like adhesives, paints, varnishes and pesticides which can cause various health challenges (eye irritation, faintness, headaches, dizziness, and sleepiness) to site workers. At the sites, employees are exposed to these substances through ingestions, inhalation and direct contact. Among other health problems that exposure to these chemical substances can cause are like cancer, reproductive disorder, kidney, liver and skin. Also, these toxic solvents, lead to defects in human reproduction (Kolawole 2014).

The latest results in construction show:

i. 49 fatal injuries to workers. 23 of these fatalities were to the self-employed. This compares with an average of 59 over the previous five years – including an average of 19 to the self-employed (RIDDOR)
ii. Over 5 000 occupational cancer cases are estimated to arise each year as a result of past exposures in the construction sector (Research report 931 "The burden of occupational cancer in Great Britain")
iii. There were an estimated 74 000 total cases and 31 000 new cases of work-related ill health (LFS)
iv. An estimated 1.7 million working days were lost due to work-related ill health and a further 0.6 million due to workplace injuries. This equates to 0.87 and 0.34 days per worker (LFS) (Health and Safety, 2013)

According to Statistics for Construction published by Work Safe BC from 2006 to 2008, among the accident type that is most common on construction sites is Fall accounting for 25% followed by Overexertion and Struck By with 23% and 22% respectively.

Falls are the most frequently occurring and costly accidents across the construction sector. *Falls* represent 25 percent of all claim volumes and 36 percent of all claim costs. The other dominant accident categories in construction are *overexertion* and *struck by*. These three mechanisms of injury account for about 70 percent of all claim volumes and 71 percent of all costs (Work Safe BC, 2013).

2.2 Health and Safety Programs on Construction Sites

With respect to Occupational Health and Safety (OHS), the program comprises of direction in danger acknowledgment and control measures, learning safe work hones and appropriate utilization of personal protective gear, and obtaining information about crisis strategies and preventive activities. The program likewise furnishes workers with approach to get included data about potential perils and their control; they could pick up aptitudes to expect a more

dynamic part in actualizing danger control programs or to impact authoritative changes that would improve the work-site insurance (Ibrahim, 2015). The author further noted that site workers needed to be given serious H&S training involving fire safety and medical aid, before engaged in any work at the site. Add to this training, is the specialist training that focuses only on employee specific duty. On carrying out the duty, there should be training in case there is change in the risks. The common health and safety programs on construction site could include the following: acquiring new H&S equipment, personal protective equipment, first aid kits, fire safety measures, employment and training of H&S personnel, safety policy, H&S risk assessment, warning signs and so forth (Tan and Nadeer, 2014).

2.3 Safety Culture

Safety culture is held in high regard within the construction industry. It is described as the product of individual or group values, attitudes, perception and patterns of behaviour that determine the commitment to, and proficiency of an organizations health and safety management. Agwu and Olele (2014**)** defined safety culture also as an agglomeration of individuals as well as group that are concerned with abating the risks and exposure of workers and the public to unsafe acts and conditions in a construction environment. This goes to show that for an effective safety culture, all organization members must share a set of belief about risk as well as accidents. Culture is seen to have a hand in accident causation which is predicated on the obvious migration of construction workers across developed countries of the world. This was stressed by Balch and Geddes (2003) that a structurally embedded reliance on cheap and flexible sources of regularly and irregularly employed migrant workers has always been a key feature of the UK construction sector. The way of life of people differ from place to place which in turn take its toll on construction work. Alhajeri (2011) opined that the importance of culture to health and safety management cannot be overemphasized because it does help in understanding the different approaches to accident

prevention. The different characteristics that help to identify culture which ranges from; Culture being a system of values, Culture influencing beliefs, attitudes, perception, and behavior, and Culture distinguishing one group from another.

Accident causes are ironically known to all building construction employers and also almost preventable but as other business issues, occupational safety and health can be managed in the enterprise. Human factors, Mechanical factors, and Environmental factors are also seen to be important factors that causes accident. It can be seen as discussed by several authors that the issue of OHS encompasses a whole lot which is not limited to wearing Personal Protective Equipment alone (Shamsuddin *et al.*, 2015). It is a philosophy that discourages work practices that place individuals at risk of injury and the integration of Health and safety into the daily work process. Construction accidents according to the Workmen's compensation decree of 1987 include but not limited to; Permanent partial incapacity, Permanent total incapacity, Temporary incapacity and Fatal accidents, where death results (International Labour Organisation, (ILO) (2020).

2.4 Health and Safety Performance on Construction Project Cost

The reduction in accidents rates and construction related H&S costs do not give off an impression of being the contributing factors for powerful H&S administration. Many conditions have shown to be of more motivational factors to encourage better H&S culture in the building industry. These conditions lead to reduction of risk claims; prompt handling of legal right; implementation of insurance rules; proper control of client and the customer desires; meeting of target set by the government; adoption of moral settings; gaining of confidence of the employee; and good maintenance and enrollment. Therefore, H&S failure is well known to affect the cost of project execution (Dodo, 2014).

On these bases, Guha and Biswas (2013) concluded that the assumption of H&S cannot be overemphasized, and that there is need for a logical verdict for H&S to maintain the cost related to severe health problems in developing nations like Nigeria. This is basically unsustainable due financial implication, particularly when the cost of accident is low comparable to the economy. Many industries were seen to already possess zeal to enhance H&S continuously, such that the need for further motivation seems to be important. Conversely, a series of conditions were noted as being the major controls for this adjustment, this includes: amount spent on interventions, the expenses incurred due to H&S failures; decreases in premiums of the insurance firms; decrease in exposure of legal claims and unacceptable drift in the rate of incidents.

It is commonly believed that the cost of H&S is compulsory and useful to production cost. Also, alleged gains of complying is far below the expense incur on legislation. This last observation is the common beliefs among the representatives of medium size firms. Most participatory industries had not clearly established savings of cost due to H&S interference. According to Haefeli *et al.* (2005), both direct and indirect H&S performance cost includes; cost of providing of safety programs; training and re-training costs; designing and planning costs; and costs of implementation.

2.5 Health and Safety Regulations

Effective regulations are fundamental in ensuring employees state of work in the delivery of construction projects in safe atmosphere. The Factories Act of 1990 is an adaptation of the UK Factories Act of 1961, while the Occupation Safety and Health OSH Act of 1970 was said to originate from America. The control of substances hazardous to health regulation of 1988, the PPE at work regulations of 1992, and management of health and safety at work regulations of 1999 are all British regulations (Idoro, 2011). The first effort in terms of regulation relating to health and safety at work in Nigeria was the Factories Act of 1958

(Dodo, 2014). This Act was repealed and replaced by Factories decree 16 and workman compensation decree No. 17 which became effective in 1990. The Factories Act of 1990 (Article 47 and 48) contains regulations governing the provisions of Personal Protective Equipment (PPE) for workers. Idoro (2011) concluded that neither the Factories act of 1990 nor the PPE (EC directive) 1992, sufficiently capture the construction sites and their operations, which indicated that construction works in Nigeria is unregulated in terms of occupational health and safety.

2.6 Enforcement of Health and Safety Regulations

The enforcement of any type of regulation is basically crucial for ensuring the efficacy of such regulation. Idubur and Osiamoje (2013) stated that "regulation devoid of enforcement is tantamount to no law". This by implication means that lack of proper enforcement of health and safety regulations often permits non-compliance which consequently contributes to poor state of occupational health and safety. The Federal ministry of Labour and Productivity (Inspectorate Division) is responsible for the enforcement of these regulations whose main focus is the protection of health and welfare of people in the workplace and people that may be adversely affected by the activities of the workplace. The enforcement of occupational safety and Health in Nigeria has not been effective over the years, which could be attributed to lack of proper funding and lack of basic resources and training (Dodo, 2014), lack of safety culture, lack of implementation culture dimensions and lack of training. The benefits of enforcement of occupational health and safety regulations are evident in countries with remarkable health and safety records like the UK, USA and Germany. Even though there is no reliable data to establish the level of compliance and enforcement of health and safety regulations in Nigeria, anecdotal evidences have indicated that enforcement and compliance to regulations is not a typical activity which is considered as a contributor for the low performance of the Nigerian construction industry (Olutuase, 2014).

2.7 Health and Safety Management

A proactive safety management system has the core attributes of systematic identification of hazards, assessment and control of risks, evaluation and effective implementation of risk control measures. The integration of health and safety measures in to the total quality management system within the construction sector could significantly contribute to cost efficiency, quality assurance, environmental sustainability and better employer-employee relationship (Okolie and Okoye, 2012). The adoption of health and safety management system demonstrates in practical terms the readiness of any organization to bring to minimum the frequency and severity of accidents, ill health and damage to property. Health and safety management system therefore highlights and emboldens the awareness of responsibilities and aspects of occupational safety and health as well as the impact of health and safety standards on the performance of organizations. Diugwu *et al.* (2012) is of the view that the potency of health and safety management system depends on the existence of functional health and safety laws which guarantees the health, safety and welfare of workers and visitors. Digwu *et al.*, (2012) further observed that there is a serious gap in health and safety management in Nigeria due largely to dysfunctional laws causing apparent lack of regulations which conforms with the assertion of Idoro (2011) that the country is lacking requisite statutory occupational health and safety laws, reiterating that even those in force are skeletal in nature and non-functional. Olutuase (2014) also concluded that the existing safety management system is poorly organized and characterized by ineffective and poor documentation. This is further demonstrated by the frequency of number of accidents being recorded by construction companies (Olutuase, 2014).

2.8 Construction Industry and Safety Practices

Safety can be viewed as a point at which all associated risks with a particular job are well managed in a reasonable manner. Safety has been defined as unique event that is paramount

to continuous attainment of productivity. In the same vein, safety should focus on curbing accidents at work setting and its negative effect on the workers in all manner. (Ahmad, Iqbal, Rashid & Roomi 2016). Management of safety in construction project reveals that adoption and compliance with health and safety provision served as catalyst in optimizing construction production process. Without compliance to health and safety practices, more accident will result in pains, accidents and legal actions thereby escalating production cost. Safety practices are parameter to measure successful project delivery which is most paramount to the client because they greatly influenced in achieving efficiency and effectiveness amongst professionals and even workers in the construction industry.

The anomalies as seen in the construction firm's failure to comply with minimum requirement of health and safety practices might cause the victim waste of time and loss of money to the firms. Although construction firms may be covered with life assurance for their staffers from certain direct costs resulting from injury suffered, however some cost may be involved which cannot be insured against, such as loss of trained personnel, loss of production hours due to other operatives stopping the progress of the work out of concern or assisting the injured persons (Dodo, 2014). Thus, the lack of adherence to safety practices will delay the production process and invariably affect sustainable development.

Several attempts have been considered by the construction industry towards improving its safety performance. However, the paradigm shifts from monitoring safety performance to preventive measures of improving safety performance is necessary. Some developing nations like Nigeria are among the nations that lack adaptive laws and regulations on health and safety practices. Management of safety practices can only be effective when it is approached from socio-humanitarian perspective, and economic perspective. (Muhammad, Abdulateef & Ladi 2015).

2.9 Health and Safety Measures in Construction

2.9.1 Site Layout and Planning

A badly planned and untidy site is the underlying cause of many accidents. This results from falls of material and collisions between workers and plant or equipment. Space constraints, particularly in urban work sites, are nearly always the biggest limiting factor and a layout which caters best for the safety and health of workers may appear to be difficult to reconcile with productivity. Proper planning by management is an essential part of preparation and budgeting for the safe and efficient running of a construction operation (HSE 2020). There are many accidents due to tripping, slipping or falling over materials and equipment which have been left lying around, and stepping on nails which have been left projecting from timber.

2.9.2 Personal Protective Clothing (PPE)

Personal protective equipment (PPE) refers to protective clothing, helmets, goggles , or other garment or equipment designed to protect the wearer's body from injury by blunt impacts, electrical hazards, heat, chemicals, and infection, for job-related occupational health and safety purposes. OSHA (2021) requires the use of personal protective equipment (PPE) to reduce employee exposure to hazards when engineering and administrative controls are not feasible or effective in reducing these exposures to acceptable levels. If PPE is to be used, a PPE program should be implemented. This program should address the hazards present; the selection, maintenance, and use of PPE; the training of employees; and monitoring of the program to ensure its ongoing effectiveness. The PPE required in the construction sites include; eye protection and face protection, hearing protection, respiratory protection, hand and arm protection, foot and leg protection, head protection and body and fall protection mechanisms During this survey it was observed that construction workers on the sites lacked appropriate protective equipment for instance workers were noted carrying out high risk

activities such as painting, excavations, concreting among others without the right protective gear such as helmets, masks, ear muffs, goggles and overalls (OSHA, 2021).

2.9.3 First aid Kits and Accident Reporting

Construction sites are dangerous places, and first aid and rescue equipment should always be available. What is needed depends on the size of the site and the numbers employed, but there should be a blanket and a stretcher. On large sites with more than 200 people are employed, there should be a properly equipped first aid room. On any construction site of that size, at least one person on every shift should have been trained in first aid to a nationally recognized standard. On day -to-day works procedures, an accident register book should be kept at the site, in which all types of minor injury such as bruises, to major accidents like imputing disability and fatal should be recorded (OSHA, 2021).

This survey established that the construction sites that had first aid boxes were ill equipped with only spirit, bandage and cotton wool. Again the requirement that at least one person on every shift should be trained in first aid to a nationally recognized standard was not met since no respondent indicated having been trained as a first aider. First aid is a life saving exercise which is taken for granted on the sites visited and shows that workers are exposed to danger and risks when injured. Considering that accidents are rampant in construction sites as respondents indicated having witnessed some sort of accident first aid facilities is necessary.

2.9.4 Health and Safety Warning Signs

Safety Signs and Signals are one of the main means of communicating health and safety information. This includes the use of illuminated signs, hand and acoustic signals (e.g. fire alarms), spoken communication and the marking of pipework containing dangerous substances (HSE 2020). Traditional signboards, such as prohibition and warning signs, signs for fire exits, fire action plan notices (fire drills) and fire-fighting equipment are also considered to be Safety Signs. It is critical that all Safety Signs and Signals can be easily

understood. Where signboards are used in a workplace they should be sufficiently large and clear so that they can be easily seen and understood. Signboards also need to be durable, securely fastened and properly maintained to ensure they remain visible. Care must be taken to avoid using too many signboards in close proximity, signboards are only effective if they can be seen and understood. If too many signs are placed together there is a danger of confusion or of important information being overlooked (HSE 2020).

2.9.10 Safety Policy

Site managers should have a written safety policy for their enterprise setting out the safety and health standards which it is their objective to achieve. The policy should name the senior executive who is responsible for seeing that the standards are achieved, and who has authority to allocate responsibilities to management and supervisors at all levels and to see they are carried out. Construction safety policy therefore is something that must be developed by each site manager and operating company prior to starting any construction job. Once developed the development safety plan should be placed into a training program that's needed to be participated in by every site worker previous to partaking in any job found on the positioning irrespective of the roles simplicity (OSHA, 2021). The absence of site meetings as established in this survey implies that workers are not given a forum learn about various risks on the sites and supervisors equally do not have opportunities to communicate important health and safety matters to the workers. Site meetings are one of the ways of sensitizing workers on their health and safety in the site and should therefore be held frequently (OSHA, 2021).

2.9.11 Health and Safety Risk Assessment

Health and safety risk assessment in a construction site is an important measure towards reduction of hazards and injuries. In the context of health and safety, common definitions used for risk are that: risk is the likelihood of a substance to cause harm; and risk is a

combination of the likelihood of an occurrence of a hazardous event or exposure(s) and the severity of injury or ill health that can be caused by the event or exposure. According to HSE 2020), employers are required to make an assessment of the health and safety risks to which employees and others are exposed on construction sites. The significant findings must be recorded where five of more people are employed. Since managing health and safety is different from managing any other aspect in construction there need to do a risk assessment to find out about the risks, and to put sensible measures in place to control them, and make sure they stay controlled (HSE 2020).

2.9.12 Health and Safety Training in Construction Sites

With regard to Occupational Safety and Health, training consist of instruction in hazard recognition and control measures, learning safe work practices and proper use of personal protective equipment, and acquiring knowledge of emergency procedures and preventive actions. Training also provide workers with ways to obtain added information about potential hazards and their control; they could gain skills to assume a more active role in implementing hazard control programs or to effect organizational changes that would enhance worksite protection (OSHA 2021). Employees must therefore be given health and safety induction training when they start work, which should cover basics such as first aid and fire safety. There should also be job specific health and safety training. Training must also be provided if risks change, and refresher training when skills are not frequently used.

The training and induction carried out in construction sites is inadequate and hence there is need to review the same and probably implement a training program on health and safety since it is required that all employees must be given health and safety induction training when they start work, if risks change, and refresher training when skills are not frequently used (OSHA, 2021).

2.9.13 Working Environment

According to ILO (2020), chemical Substances are a major health hazards since there are many chemicals used in the construction industry, which include insecticides, adhesives, cleaning agents, wood preservatives, fungicides, and paints among others. Many of these chemicals are hazardous, with a potential to cause poisoning. Toxic substances can cause both acute and chronic effects resulting from exposure for a long period. Dusts from many sources are also a prominent hazard in construction. Silica and asbestos dust can permanently damage the lung tissue, whilst lead in dust is absorbed into lungs and enters the blood stream causing poisoning. Cement mixes is also a well known cause of skin disease. Lead is found in electricity cables, pipes gutters and lead sheet roofs. Excessive lead absorption causes constipation, abdominal pain, anaemia, weak muscles and kidney failure (HSE, 2020).

2.9.12 Welfare Facilities

Work in the construction industry is tough and involves much manual or physical activity. It is also hazardous and dirty and therefore good welfare facilities not only improve workers' welfare but also enhance efficiency. Welfare facilities such as the provision of drinking-water, washing, sanitary and changing accommodation, rest-rooms and shelter, facilities for preparing and eating meals, temporary housing, assistance in transport from place of residence to the work site and back, all help to reduce fatigue and improve workers' health.

Therefore health and safety measures employed on construction sites are inadequate and fail to meet the required standards. The culture and attitude of construction workers and the site supervisors about health and safety often condone risk taking and unsafe work practices. Lack of proper information and ignorance are also to blame for the poor safety measures in construction sites. For instance some workers felt that the safety equipments such as hard helmets and reinforced boots are too cumbersome and uncomfortable (Kadiri *et al.,* 2014).

2.10 Common Accidents on Construction Sites

Accidents according to Guo and Gonzalez (2015) are unplanned and unexpected events, which result from mistake somewhere, somehow and by somebody. The causes of accidents on construction sites are a subject of many studies across the world. Kolawole (2014) categorised construction related accidents causing factors as those at the Macro level consisting of factors such as lack of enforcement, lack of accident data; Mezzo; consisting of factors including inappropriate procurement and supply chain arrangements and Micro level factors such as inadequate competent supervisors, lack of training of personnel among others. Guo and Gonzalez (2015) also identified major accident causing factors as use of faulty tools and equipments, non-compliance with standards, improper scaffolding, lack of experience and improper storage of dangerous and flammable substances. The eccentric problems causing accidents on construction sites in Nigeria are improper keeping of records, non-reporting of accidents by employees, unsafe practices by contractors and lack of safety management as a whole on the side of the clients. A cross section of occupational fatalities in the construction sector showed that for developed countries, such as United State had over 22%, across the European Union had 30%, United Kingdom had 32%. The accident rate situation highlighted in developing countries is worse. Several factors have been attributed to this phenomenon. It had been observed that priorities are not given to safety consideration on construction projects in developing countries (Akinwale and Olusanya, 2016). Stakeholders in Nigeria do not attach much seriousness to the issue of safety, most accidents and injuries are not often reported, and on many site, no training programmes on safety for the staff and workers exist (Dodo, 2014). Report from Nigeria revealed that there are 2 accidents and 5 injuries per 100 workers. Most fatalities in construction related accidents that become known are those aired via media on collapse of ongoing building construction works and this is on the increase. It has also been estimated that around 5,500 workers die daily from work related

accidents or diseases. Perceived increment in the number of casualties and illnesses reported on construction project sites are unacceptably high, considering the numerous regulatory standards and control systems for construction projects. Thus, proactive step must be taken to identify this factors and be averted accordingly (Akinwale and Olusanya, 2016).

2.11 Legislation and Enforcement of Health and Safety Regulations

Cotton *et al.,* (2015) noted that the institutional and legal governance frameworks on occupational health and safety in developing countries have little impact. The majority of contractors are small and medium Enterprises operating within their domestic markets where enforcement of health and safety standards and labour standards is very lax. Enforcement of health and safety regulations remains a problem due to lack of adequate resources available to government institutions responsible for occupational health and safety administration. Also, there remains an acute need for contract provisions to support the enforcement of labour laws in developing countries (Health and Safety Executives 2013).

2.11.1 The Occupational Safety and Health (OSH)

Occupational Safety and Health (OSH) is commonly defined as the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupation. It means the totality of all activities and programmes that are engaged upon, aiming to attain and maintain the highest level of health and safety for all people who are engaged in any type of work. It involves the protection of workers' health from any hazard to which they may be exposed in the work environment (OSHA, 2012).

The human, social and economic costs of occupational accidents, injuries and diseases and major industrial disasters have long been a cause for concern at all levels from the individual workplace to the national and international levels (Dugeri, 2016). Globally, it is estimated that every 15 seconds, 153 workers have a work-related accident, which results in at least one death. In sub-Saharan Africa, the fatality rate per 100,000 workers is 21 and the accident rate

is 16,000. This means that each year 54,000 workers die and 42 million work-related accidents take place that cause at least three days' absence from work. Recent studies put the annual work-related death rate of Nigeria at about 24 fatalities per 100,000 employees, which is one of the highest in the world. OSH is concerned with protecting the safety, health and welfare of people engaged in work or employment. The enjoyment of these standards at the highest levels is a basic human right that should be accessible by each and every worker. Regardless of the nature of their work, workers should be able to carry out their responsibilities in a safe and secure working environment, free from hazards (Dugeri, 2016).

These rights are usually set out in appropriate laws to ensure that both employers and employees are clear about the obligations and the consequences for neglecting them. OSH in Nigeria is largely based on the Factories Act, enacted in 1987 and a few other complementary legal provisions in the Labour Act 1974 and the Employees Compensation Act 2010. These legal provisions, put together, are clearly inadequate in terms of coverage and currency. The Factories Act, for instance, does not include the construction industry in the definition of premises, and hence construction firms frequently have to rely on OSH regulations from other jurisdictions, which are not necessarily enforceable in Nigeria. The severity of penalties for violation under the extant OSH laws is also inadequate to sufficiently deter offenders. It is surprising that Nigeria is yet to enact a comprehensive law on OSH even with its high occurrences of occupational accidents. However, with the sheer size and documentation of accident/disaster experiences across factories and other workplaces, there is no basis whatsoever for a developing country like Nigeria to be reactionary to accidents (LSHW, 2012).

The Factories Act empowers the Inspectorate Department of the Federal Ministry of Labour and Productivity to enforce the minimum standard requirements on OSH. The enforcement

processes require issuing of warning or notices to offenders, after which the lower level of enforcement, which includes the sealing of a defaulting factory, takes place. Correspondingly, the Nigerian Social Insurance Trust Fund Management Board implements the Employee's Compensation Act of 2010, which makes provisions for compensation for any death, injuries, and diseases or disabilities due to employment. The provisions of the Labour Act that touch on OSH relate to the employment of women and young persons in agricultural and industrial undertakings. There is little or no reference to OSH for other categories of workers (LSHW, 2012).

2.11.2 Labour, Safety, Health and Welfare (LSHW)

In 2012, the National Assembly passed into law a Bill termed Labour, Safety, Health and Welfare (LSHW), which seeks to establish the National Council for Occupational Safety and Health and empower it to:

i. Enforce and implement OSH measures in the workplace;
ii. promote the protection of lives and properties;
iii. Promote OSH awareness;
iv. Carry out inspection of the workplaces and
v. Monitor the compliance of all regulations or other OSH measures under the law.

The LSHW Bill is yet the most comprehensive OSH legislation in Nigeria, even though the President is yet to assent to the Bill; hence, lacking the force of law (LSHW, 2012).

The ideal that there should be daily inspection of workplaces by factory inspectors and monthly reports sent to the Federal Ministry of Labour and Productivity is not achievable, as the Ministry is said to have less than 150 factory inspectors for the entire country. Lack of skilled manpower is one of the major reasons for poor enforcement of OSH regulations and is also the reason why regulatory enforcement is reactive rather than proactive. The LSHW Bill

adopts a proactive and collective participatory approach of enforcement in accordance with international best practice. It requires the participation of the Nigerian Institute of Safety Professionals, National Council for Occupational Safety and Health, OSH committees, safety and health representatives, employers, research institutes, principal contractors and the education sector. It places due responsibilities on OSH committees and the safety and health representatives at the grass-roots level, by having them monitor, regulate and maintain the safety of employees in the workplace. The logic here is that OSH is the responsibility of all and should be taken as such (LSHW, 2012).

In practice, citation contests and disputes between OSH regulatory authorities and the duty holders are not completely avoidable; hence, an efficient system must be put in place to address those issues. Section 254C (1) of the 1999 Constitution (as amended) grants exclusive jurisdiction to the National Industrial Court over matters relating to OSH. This is also the position of the LSHW Bill. Directing OSH related cases to a single specialised court has its pros and cons. Used carefully, the approach could significantly reduce the usual litigation delays seen in regular courts, which is good for the OSH regulatory purposes. However, left with no commensurate capability in terms of staffing, funding or otherwise, it could stand as one of the weakest links in the OSH regulation process with huge negative consequence on the entire regulatory regime (OSHA, 2012).

Success of OSH regulatory and enforcement framework is commonly measured in terms of its ability to reduce human vulnerability (fatalities, injuries and loss time injuries), environmental damage and commercial losses to a tolerable level and without entailing disproportionate costs. An effective OSH legal framework should be designed to ensure that healthy and safe workplaces, and a compensation and rehabilitation system, which ensures that no worker is disadvantaged should they be injured at work. An effective OSH legal framework should spell out commensurate penalties to defaulters and grant the inspectors

adequate, but controlled, powers to enforce its provisions. To avoid jurisdictional conflicts among related agencies, the law should also clearly define the scope of the OSH management authority.

Government in Nigeria has demonstrated a shocking lack of commitment towards effective OSH regulation. It is more than four years since the National Assembly passed the LSHW Bill, yet it still awaits presidential assent. Every moment that the construction industry or other workplaces remain unrecognised by unenforceable OSH regulations, or the penalties for violation remain insignificant, more injuries, fatalities and accidents occur. However, the responsibility rests on the government to improve the state of OSH in Nigeria, along with active participation of the trade unions, professional bodies, educational institutions and the employees and employers. Above all, the proactive and collective participatory approach to enforcement of OSH regulations should be practiced at an optimum level, requiring much more than enactment of laws and regulations (OSHA, 2012). This Act applies to all workplaces where any person is at work, whether temporarily or permanently. Therefore the act and its provisions apply to the construction industry since the construction site is regarded as a factory. The Act provides for duties of both employer/occupier and the employees in ensuring the safety, health and welfare at work.

i. **Health and Safety committee**- The Act requires every occupier to establish a safety and health committee at the workplace in accordance with regulations prescribed by the Minister if there are twenty or more persons employed at the workplace; or the Director directs the establishment of such a committee at any other workplace
ii. **Health and Safety Audit**- the Act in Section 11 requires the occupier of a workplace to cause a thorough safety and health audit of his workplace to be carried out at least once in every period of twelve months by a safety and health advisor, and a copy thereof sent to the Director.

2.11.2 Enforcement Mechanisms of Health and Safety Regulations

Enforcement mechanisms are part of health and safety management. An organizational framework must be set up to facilitate the implementation of the policy (OSHA, 2012). A structure that clearly defines the duties and responsibilities of the various levels as far as safety is concerned must be designed. It should ensure that safety is integrated rather than separated from production thereby facilitating total commitment to safety. Health and Safety organization on a site includes the following: Safety officer, supervisor / Foreman, worker, safety Committee, safety Representatives and Government representative. In Ngeria, Occupational, Health and Safety Act (OSHA) provides for the legislation and the enforcement mechanisms on health and safety matters in the construction industry. The health and safety officers are required to inspect the sites to ensure that the provisions of this Act are adhered to by all parties (OSHA, 2012).

OSHA (2012) requires every occupier to establish a safety and health committee at the workplace in accordance with regulations prescribed by the Minister if there are twenty or more persons employed at the workplace. However the study established that health and safety committees on construction sites is a key aspect in enforcement of health and safety but as established in this study the same are not constituted in most construction sites. Further factory inspections as required by the Occupational Health and Safety Act (2012) are hardly carried out implying that enforcement is inadequate. This is further exemplified by the indication that only one of the respondents had been penalized for failure to observe health and safety regulations. This shows that enforcement mechanisms of health and safety in construction sites are not adequate.

Health and safety audits on construction sites are key aspect in enforcing health and safety measures, however a high percentage indicated that they do not carry out audits. This

contravenes the law since the Occupational Health and safety Act in Section 11 requires the occupier of a workplace to cause a thorough safety and health audit of his workplace to be carried out at least once in every period of twelve months by a safety and health advisor (OSHA, 2012).

In regard to compliance with occupational health and safety Act a notification of intent before commencement of construction is required to be given to Directorate of occupational health and safety services none of the respondents indicated that they complied with this requirement. The enforcement mechanism for health and safety can be said to be weak and wanting. The absence of pressure which can be brought to bear on occupiers/contractors of construction means some less scrupulous owner/managers usually take advantage of the lack of punitive deterrent measures to place economic gain above other business objectives including health and safety. It was therefore not uncommon to find some occupiers/contractors who would manage the sites without bothering the least about health and safety issues. Proper healthy and safety mechanisms not only contribute to the well-being of the worker but the effectiveness of the entire project (Kadiri *et al.,* 2014).

2.12 Challenges in the Management of Health and Safety in Construction Sites

Some of the major challenges in the management of health and safety in the constructions sites noted by the survey included but not limited to; inadequate personal and protective equipment, poor maintenance of personal protective gear, lack of top management support in the management of health and safety in construction sites, inadequate enforcement mechanisms, inadequate welfare facilities, absence of safety and health committees, unawareness of health and safety matters among the workers and lack of equipped first aid kits on the construction sites (Kassu and Kitaw, 2016). Welfare facilities were also noted as a big challenge since they are not adequately provided as well as personal protective equipment. Some site supervisors indicated that lack of adequate funds, lack of monitoring

and evaluation, lack of personal protective equipment implementation programs among others as some of the factors that give rise to the above challenges (Akinwale and Olusanya 2016).

The site supervisory staff and construction workers suggested that the provision of protective gear, formation of safety committees, inspections by the government, and training and education as measures to mitigate some of the major challenges encountered in the construction sites However due to lack of enforcement mechanisms such as site inspections to check adherence to health and safety requirements on the various measures the suggestions still remain unimplemented (Kassu and Kitaw, 2016).

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the methods and procedure to be adopted in collecting and analyzing data for the study. The chapter covers research design, population, sample and sampling techniques, sources of data, validity of instrument used, method of data collection and method of data analysis.

3.2 Research Design

This is basically exploratory study assessing into health and safety practices in building construction sites. The research is designed to enable the researcher obtain data validly, accurately and objectively. It will employ survey research method for collecting the primary data. This mode of research will be used in view of the nature of the study.

3.3 Population for the Study

The study will concentrate on five (5) selected building construction companies located in Benin City. The members of staff will include a total of Hundred and eighty (180) workers working under the five (5) selected building construction companies in Benin City. They will constitute the population for this study. Table 3.1 below shows the population distribution.

3.1 Population Distribution

S/N	Building Construction Companies	Population
1.	**Pekuric Limited** 1 Immaghodor Street, Off Oba-Eweka street, Ihama Rd, GRA, Benin City	41
2.	**Airos Synergy Nigeria Limited** G.R.A, 4b, Aghayubini Cresent, off Upper Adesuwa Grammar School Rd, Benin City	37
3	**Beracah Works Limited** by slope, 144 Akpakpava St, opposite unity park, Avbiama 300104, Benin City	28
4	**Landsmith Constructions limited** Hamilton Plaza, KM 10 Benin Sapele Rd, opp. Rock of Ages, Oka 300105, Benin City	38
5	**Raycon & Co** KM 4, Bypass, Benin City	36
	Total	**180**

Source: Field survey, 2022

3.4 Sample Size and Sampling Technique

No sampling technique was employed; this is because the total population is of a manageable size. Hence, all the 180 workers in five construction companies located in Benin City were used for the study.

3.5 Sources of Data Collection

For thorough research work, primary and secondary source of data will be used.

Primary Data

The primary data will be obtained through interviews of workers in the various construction companies and questionnaire will be used to elicit the views of the workers regarding health and safety practices in building construction sites. In the course of the study, attempts will be

made by interviewer (s) and interviewee (s) to interact; during the interviewing process specific questions will be asked..

Secondary Source

The secondary source will be through examination of companies building codes and health safety plans. And also several textbooks and journals will be consulted in order for the researcher to be able to access the health and safety practices in building construction sites.

3.6 Validity of Instrument Used

The research will ensure that the instrument sampled a significant aspect on the variable being investigated in an unambiguous way. Infact, all types of validity including content, concurrent fact, construct and prediction validities were observed in the construction of the questions. The questionnaire will be properly be scrutinized and modified to ensure that the instrument measured what it claimed to measure and also improve the fact of the validity. The questionnaires will also be validated by this project supervisor who will vet it and make some corrections/modifications.

3.7 Method of Data Collection

The method of data presentation will be based on how the researcher collected his data. The questionnaire will be administered by the researcher on face to face approach supplement with interview with the respondents. The data collection with aid of questionnaire will be arranged, itemized and presented in table in accordance with the response sought in the questions.

3.8 Method of Data Analysis.

Frequency tables and simple percentage statistics will be a major tool used to gather the data for this study and chi-square statistics will be used to analyze the hypotheses. The data collected will be first of all aggregated into frequency table before simple percentage and chi-square will be applied.

The formula for simple percentage is given below:

$$\text{Simple percentage} = \frac{\text{No of Responses}}{\text{No of Respondents}} \times \frac{100}{1}$$

And the formula for Chi-square (x^2) is $= \frac{(o-e)^2}{e}$

Where 0 = Observed value

e = Expected value

Therefore level of significance = 5% degree of freedom = (R-1) (C-1) where r = row C= Column.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter is aimed at analyzing the health and safety practices in building construction sites. It deals with the analysis of data generated from the retrieved questionnaire. A total of 180 questionnaires were administered on five (5) selected building construction companies located in Benin City. Two (2) was filled wrongly and eight (8) was not returned.

4.2 Data Presentation

This presents the responses obtained from the completed questionnaire. A total number of One hundred and eighty (180) questionnaire were distributed but one hundred and seventy (170) were completely retrieved which represents the response rate of 94%.

Table 4.1: Distribution of Respondents According to Sex

Sex	Frequency	Percent
Male	90	53
Female	80	47
Total	**170**	**100**

Source: Field Survey (2022)

The table above shows that there are 90 respondents representing 53% were males, while 80 respondents are representing 47% were females. We can conclude that Males are more in the population of study.

Table 4.2: Distribution of Respondents According to Marital Status

Marital Status	Frequency	Percent
Married	86	51
Singles	84	49
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.2 above shows that 86 respondents are representing 51% married while 84% respondent are representing 49% single.

Table 4.3: Level of Education of Respondents

Certificate	Frequency	Percent
Olevel	48	28
HND/BSc	79	46
Masters/PhD	20	12
Others	23	14
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.3 above shows that 48 respondents are representing 28% possess Olevel certificate, 79 respondents are representing 46% possess HND/BSc as their highest qualification while 20 respondents represented by 12% possess Masters/PhD degrees. We can conclude that the respondents who possess HND/BSc were more in the population.

Table 4.4: Age Distribution of Respondent

Age	Frequency	Percent
21-30	58	34
31-40	50	29
41-50	43	25
51 and above	19	11
Total	**170**	**100**

Source: Field Survey (2022)

The table above shows that 58 respondents are representing 34% who are between the age 21 – 30, 50 respondents are representing 29% who are between the age of 31 – 40, 43 respondents who are between the age bracket of 41-50 are representing 26%. And the remaining 19 respondents representing 11% were 50 years and above. This is to say that respondents within the age bracket of 21-30 are the majority in the population.

Table 4.5 Job Title

Title	Frequency	Percent
Builder	66	39
Architect	48	28
Civil engineer	33	19
Quantity surveyor	20	14
others	3	2
Total	**170**	**100**

Source: Field Survey (2022)

The table above shows that 66 respondents are representing 39% were builders, 48 respondents representing 28% were architect, 33 respondents representing 19% were civil engineers, and 20 respondents representing 14% were quantity surveyor while the remaining 3 representing 2% where from other job titles. This is to say that builders are more in the population,

4.3 Questions Regarding Construction Risks Inherent in Building Construction Industry

Table 4.6: Falls often occurs in building construction site

Response	Frequency	Percent
Agree	86	51
Strongly agree	17	10
Neutral	04	2
Disagree	40	24
Strongly Disagree	23	13
Total	**170**	**100**

Source: Field Survey (2022)

The table above shows that 103 respondents represented by 61% agreed that falls often occurs in building construction site. 4 respondents were neutral while 63 respondents represented by 37%. It is agreeable that falls often occurs as an inherent risk in building construction site.

Table 4.7:. Struck-by hazard are common in building construction

Response	Frequency	Percent
Agree	60	7
Strongly agree	56	18
Neutral	12	7
Disagree	12	35
Strongly Disagree	30	33
Total	**170**	**100**

Source: Field Survey (2022)

The table above shows that a total of 116 respondents represented by 68% agreed that the struck-by hazard are common in building construction. 12 respondents were Neutral, while a total 42 respondents represented by 25% disagreed that struck-by hazard are common in building construction. We can conclude that struck-by hazard are common in building construction

Table 4.8: Caught-in-between is an inherent risk is building Construction

Response	Frequency	Percent
Agree	71	42
Strongly agree	23	14
Neutral	0	0
Disagree	45	26
Strongly Disagree	31	18
Total	**170**	**100**

Source: Field Survey (2022)

The table above shows that a total of 94 respondents represented by 56% agreed that caught-in-between is an inherent risk is building construction. While a total 76 respondents represented by 44% disagreed that caught-in-between is an inherent risk is building Construction. We can conclude that Caught-in-between is an inherent risk is building Construction

Table 4.9. Electrocution do occurs on site during building construction

Response	Frequency	Percent
Agree	56	33
Strongly agree	33	19
Neutral	0	0
Disagree	45	26
Strongly Disagree	36	18
Total	**170**	**100**

Source: Field Survey (2022)

The table above shows that a total of 89 respondents represented by 52% agreed that electrocution do occurs on site during building construction. While a total 81 respondents represented by 44% disagreed that buildings, bridges and roads are the product of the construction industry, leading to exportation of finished goods to neighboring countries. We can conclude that electrocution is an inherent risk in building construction.

Table 4.10: Faulty site plan is an inherent risk in building construction

Response	Frequency	Percent
Agree	60	14
Strongly agree	74	8
Neutral	0	0
Disagree	23	35
Strongly Disagree	13	44
Total	**170**	**100%**

Source: Field Survey (2022)

The table above shows that a total of 134 respondents represented by 79% agreed that Faulty site plan is an inherent risk in building construction. While a total 36 respondents represented by 22% disagreed that Faulty site plan is an inherent risk in building construction

4.4 Investigate the Health And Safety Measures Used On Construction Sites

Table 4.11: Establishing a Strong Safety Culture is a safety measure in construction sites

Response	**Frequency**	**Percent**
Agree	56	14
Strongly agree	50	8
Neutral	0	0
Disagree	34	35
Strongly Disagree	30	44
Total	**170**	**100**

Source: Field Survey (2022)

The table above shows that a total of 106 respondents represented by 79% agreed that the pandemic led to the shortage of distribution of raw material for building projects.. While a total 64 respondents represented by 22% disagreed. We can conclude that lack of communication is a challenge in construction sites.

Table 4.12: Monitor and Assess Each Site to Identify and Minimize Dangers

Response	**Frequency**	**Percent**
Agree	46	24
Strongly agree	54	18
Neutral	0	0
Disagree	40	27
Strongly Disagree	30	32
Total	170	100

Source: Field Survey (2022)

The table above shows that a total of 100 respondents represented by 59% agreed that high turnover is challenge facing the management of health safety in construction sites. While a total 70 respondents represented by 22% disagreed. We can conclude that builders have reported delays and increasing costs for imported raw materials during the pandemic

Table 4.13: Require Every Worker to Wear Protective Equipment

Response	**Frequency**	**Percent**
Agree	71	42
Strongly agree	28	16
Neutral	0	0
Disagree	40	24
Strongly Disagree	31	18
Total	170	100

Source: Field Survey (2022)

The table 4.13 above shows that a total of 99 respondents represented by 58% agreed that limited transportation and travel bans have slowed project delivery, and equipment Manufacturers. While a total 71 respondents represented by 42% disagreed. We can say that limited transportation and travel bans have slowed project delivery.

Table 4.14: Install Signs to Remind People of the Risks and Requirements

Response	**Frequency**	**Percent**
Agree	69	40
Strongly agree	53	31
Neutral	0	0
Disagree	20	12
Strongly Disagree	28	16
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.14 above shows that a total of 122 respondents represented by 72% disagreed that airborne fibers & materials causing respiratory diseases posse a challenge to building construction site. While a total 48 respondents represented by 28% agreed. Therefore we can conclude that airborne fibers & materials causing respiratory diseases posse a challenge to building construction site.

Table 4.15: Establish Procedures for Reporting Faulty Equipment

Response	**Frequency**	**Percent**
Agree	**110**	**19**
Strongly agree	**28**	**5**
Neutral	**0**	**0**
Disagree	**32**	**41**
Strongly Disagree	**9**	**31**
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.15 above shows that a total of 138 respondents represented by 72% agreed that hand arm vibration syndrome is posse a challenge to construction workers.. While a total 41 respondents represented by 28% disagreed. The researcher concluded that hand arm vibration Syndrome is posse a challenge to construction workers.

4.5 Investigate the health and safety measures used on construction sites

Table 4.16: Lack of communication is one of the challenges in the management of health and safety in construction sites

Response	Frequency	Percent
Agree	45	26
Strongly agree	67	39
Neutral	0	0
Disagree	36	21
Strongly Disagree	22	13
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.16 above shows that a total of 112 respondents represented by 65% agreed that lack of communication is one of the challenges in the management of health and safety in construction sites. While a total 58 respondents represented by 35% disagreed. We can say that lack of communication is one of the challenges in the management of health and safety in construction sites

Table 4.17: High turnover is a challenge facing the management of health safety in construction sites

Response	Frequency	Percent
Agree	45	27
Strongly agree	56	33
Neutral	0	0
Disagree	36	21
Strongly Disagree	33	19
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.17 above shows that a total of 101 respondents represented by 60% agreed that there were virtual inspections of construction sites through either a Zoom or a Microsoft Teams video calls between engineers on site and building control officials. While a total 69 respondents represented by 40% disagreed. We can say that there were virtual inspections of

construction sites through either a Zoom or Microsoft Teams video calls between engineers on site and building control officials.

Table 4.18: Power outage is a challenge facing the management of health safety in a construction site

Response	Frequency	Percent
Agree	67	27
Strongly agree	48	6
Neutral	0	0
Disagree	45	39
Strongly Disagree	10	28
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.18 above shows that a total of 115 respondents represented by 67% agreed that power outage is a challenge facing the management of health safety in a construction site. While a total 55 respondents represented by 33% disagreed. We can say that power outage is a challenge facing the management of health safety in a construction site.

Table 4.19: Airborne Fibers & Materials Causing Respiratory Diseases posse a challenge to building construction site

Response	Frequency	Percent
Agree	64	37
Strongly agree	42	25
Neutral	0	0
Disagree	34	20
Strongly Disagree	30	18
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.19 above shows that a total of 106 respondents represented by 62% agreed that airborne fibers & materials causing respiratory diseases posse a challenge to building construction site. While a total 64 respondents represented by 38% disagreed.

Therefore we can conclude that airborne fibers & materials causing respiratory diseases posse a challenge to building construction site.

Table 4.20: Hand Arm Vibration Syndrome is posse a challenge to construction workers

Response	Frequency	Percent
Agree	-	-
Strongly agree	-	-
Neutral	-	-
Disagree	141	83
Strongly Disagree	29	17
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.20 above shows that all the 170 respondents represented by 100% disagreed that construction engineers adopt the use of online conferencing as against onsite meetings during the pandemic. Therefore we can that construction engineers adopt the use of online conferencing as against onsite meetings during the pandemic.

4.6. Question Regarding the Effects Of Occupational Health Hazards On The Building Construction Sites

Table 4.21: Occupational Health Hazards Breeds Unhealthy Workforce

Response	Frequency	Percent
Agree	71	42
Strongly agree	28	16
Neutral	0	0
Disagree	40	24
Strongly Disagree	31	18
Total	170	100

Source: Field Survey (2022)

The table 4.13 above shows that a total of 99 respondents represented by 58% agreed that occupational health hazards breed's unhealthy workforce. While a total 71 respondents represented by 42% disagreed. We can say that occupational health hazards breeds unhealthy workforce.

Table 4.22: Occupational Health Hazards reduce life expectancy of construction workers

Response	Frequency	Percent
Agree	69	12
Strongly agree	53	16
Neutral	0	0
Disagree	20	41
Strongly Disagree	28	31
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.14 above shows that a total of 122 respondents represented by 72% disagreed that occupational health hazards reduces life expectancy of construction workers. While a total 48 respondents represented by 28% agreed. Therefore we can conclude that occupational health hazards reduces life expectancy of construction workers

Table 4.23: Workplace hazards drain workers' income when the workers are not under any form of health insurance scheme

Response	**Frequency**	**Percent**
Agree	**110**	**19**
Strongly agree	**28**	**5**
Neutral	**0**	**0**
Disagree	**32**	**41**
Strongly Disagree	**9**	**31**
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.15 above shows that a total of 138 respondents represented by 72% agreed that workplace hazards drain workers' income when the workers are not under any form of health insurance scheme. While a total 41 respondents represented by 28% disagreed. The researcher concluded that workplace hazards drain workers' income when the workers are not under any form of health insurance scheme

Table 4.24: Poor productivity as a result of Occupational Health Hazards can affect project performance which leads to client dissatisfaction

Response	**Frequency**	**Percent**
Agree	45	26
Strongly agree	67	39
Neutral	0	0
Disagree	36	21
Strongly Disagree	22	13
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.16 above shows that a total of 112 respondents represented by 65% agreed that poor productivity as a result of Occupational Health Hazards can affect project performance which leads to client dissatisfaction While a total 58 respondents represented by 35% disagreed. We can say that poor productivity as a result of Occupational Health Hazards can affect project performance which leads to client dissatisfaction.

Table 4.25: The hazardous nature of the construction sector contributes to the poor image of the industry

Response	Frequency	Percent
Agree	45	27
Strongly agree	56	33
Neutral	0	0
Disagree	36	21
Strongly Disagree	33	19
Total	**170**	**100**

Source: Field Survey (2022)

The table 4.17 above shows that a total of 101 respondents represented by 60% agreed that the hazardous nature of the construction sector contributes to the poor image of the industry. While a total 69 respondents represented by 40% disagreed. We can say that the hazardous nature of the construction sector contributes to the poor image of the industry.

Test of hypotheses

The test of hypothesis was done using Chi-square technique. Hypothesis testing basically is a technique for statistical data collection used to answer questions with the aid of statistical models. Each opinion is posed on a null hypothesis (Ho) and the alternative hypothesis (Hi). The significance level of 0.05 which signifies that only a % probability of output occurred by chance.

Hypothesis I

Ho: There are no inherent risks in the building construction industry

Hi: There are inherent risks in the building construction industry

Table 4.6, 4.7, 4.8, 4.9 and 4.10 will be used in testing hypothesis 1.

Table 4.26

Option		**No of responses**				
Question	1	2	3	4	5	**Total**
Agree	86	60	71	56	60	333
Strongly Agree	17	56	23	33	74	203
Neutral	04	12	0	0	0	16
Disagree	40	12	45	45	23	165
Strongly disagree	23	30	31	36	13	133
Total	**170**	**170**	**170**	**170**	**170**	**850**

Source: field survey 2022

Expected frequency = (column total) Row total
Grand total

The expected frequencies are obtained as follows

$R_1C_1 = \frac{170x333}{850} = 66.6$

$R_2C_1 = \frac{170x\ 203}{850} = 40.6$

$R_3C_1 = \frac{170x16}{850} = 3.2$

$R_4C_1 = \frac{170x165}{850} = 33$

$R_5C_1 = \frac{170\ x133}{850} = 26.6$

Table 4.22: ***Computation of Chi-square (2^2)***

Oi	**Ei**	**(oi-ei)**	**$(oi-ei)^2$**	**$\frac{(oi-ei)^2}{Ei}$**
86	66.6	19.4	376.36	5.651051
60	66.6	-6.599	43.56	0.654054
71	66.6	4.400	19.36	0.290691
56	66.6	-10.6	112.36	1.687087
60	66.6	-6.599	43.56	0.654054
17	40.6	-23.6	556.96	13.71823
56	40.6	15.4	237.16	5.841379
23	40.6	-17.6	309.76	7.629557
33	40.6	-7.6	57.76	1.42266
74	40.6	33.4	1115.56	27.47685
04	3.2	0.8	0.64	0
12	3.2	8.8	77.44	0
0	3.2	-3.2	10.24	0
0	3.2	-3.2	10.24	0
0	3.2	-3.2	10.24	0
40	33	7	49	1.484848
12	33	-21	441	13.36364

45	33	12	144	4.363636
45	33	12	144	4.363636
23	33	-10	100	3.030303
23	26.6	-3.6	12.96	0.487218
30	26.6	3.4	11.56	0.434586
31	26.6	4.4	19.36	0.72782
36	26.6	9.4	88.36	3.321805
13	26.6	-13.6	184.96	6.953383
TOTAL				**103.5565**

Source: field survey 2022

The degree of freedom is determine from the contingency table

df= (R-1)(C-1)

df= (5-1) (5-1) = 16 degree of freedom

= 4x4= 16

The test of significance is conducted at 5% level.

Decision

From the Chi-square the critical value at 16 degree of freedom and 5% of significance 26.30

The computed value is 103.557 which are greater than critical value of 26.30. Therefore the null hypotheses are rejected while the alternate hypothesis is accepted. It is therefore concluded that there are inherent risks in the building construction industry.

Hypothesis Two

Ho: Health and safety measures are not employed on construction sites

Hi: Health and safety measures are employed on construction sites

Table 4.11, 4.12, 4.13, 4.14 and 4.15 will be used in testing hypothesis II.

Table 4.27

Option		No of responses				
Question	**1**	**2**	**3**	**4**	**5**	Total
Agree	56	46	71	69	110	352
Strongly Agree	50	54	28	53	28	213
Neutral	0	0	0	0	0	0
Disagree	34	40	40	20	32	166
Strongly disagree	30	30	31	28	9	128
Total	**170**	**170**	**170**	**170**	**170**	859

Source: field survey, 2022

Expected frequency = (column total) row total
Grand total

The expected frequencies are obtained as follows

$R_1C_1 = \frac{170x352}{859} = 69.6$

$R_2C_1 = \frac{170x\ 213}{859} = 42.1$

$R_3C_1 = \frac{170x0}{859} = 0$

$R_4C_1 = \frac{170x166}{859} = 32.8$

$R_5C_1 = \frac{170\ x128}{859} = 25.3$

Table 4.28. computation of Chi- square (χ^2)

Oi	**Ei**	**(oi-ei)**	**$(oi-ei)^2$**	**$\frac{(oi-ei)^2}{Ei}$**
56	69.6	-13.6	184.96	2.657471
46	69.6	-23.6	556.96	8.002299
71	69.6	1.400	1.96	0.028161
69	69.6	-0.599	0.36	0.005172
110	69.6	40.4	1632.16	23.45057
50	42.1	7.9	62.41	1.482423
54	42.1	11.9	141.61	3.363658
28	42.1	-14.1	198.81	4.722328
53	42.1	10.9	118.81	2.82209
28	42.1	-14.1	198.81	4.722328
0	0	0	0	0
0	0	0	0	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
34	32.8	1.2	1.44	0.043902
40	32.8	7.2	51.84	1.580488
40	32.8	7.2	51.84	1.580488
20	32.8	-12.8	163.84	4.995122
32	32.8	-0.7997	0.64	0.019512
30	25.3	4.7	22.09	0.873123
30	25.3	4.7	22.09	0.873123
31	25.3	5.7	32.49	1.28419
28	25.3	2.7	7.29	0.288142
9	25.3	-16.3	265.69	10.50158
TOTAL				73.29618

Source: field survey, 2022.

The degree of freedom is determined from the contingency table.

Df = (R-1)(C-1)

df =(5-1) (5-1) 16 degree of freedom

= 4x4=16

The test of significance is conducted at 5% level.

Decision

From the chi-square the critical value at 16 degree of freedom and 5% level of significance 26.30

The computed value is 73.29618 which are greater than critical value of 26.30. Therefore the null hypothesis is rejected while the alternative hypothesis is accepted. It will be therefore concluded that health and safety measures are employed on construction sites

Table 4.29 the respondents were asked to rate the construction risks inherent in building construction industry and this was carried out in Likert scale. The result was analyzed with the use of SPSS, the analysis is presented in table 4.26

Table 4.29 Construction Risks Inherent In Building Construction Industry

S/N	**Construction Risks Inherent In Building Construction Industry**	Mean	Rank
1	Falls often occurs in building construction site	4.33	1st
2	struck-by hazard are common in building construction	4.26	2nd
3	caught-in-between is an inherent risk is building construction	4.10	3rd
4	Electrocution do occurs on site during building construction	3.89	4th
5	Faulty site plan is an inherent risk in building construction	3.50	5th

From the ranking in table 4.29, the most frequent or the highest rank regarding construction risks inherent in building construction industry was Falls often occurs in building construction site with a mean score factor of 4.33 followed by struck-by hazard are common in building construction with a mean score factor of 4.26, this was flowered by caught-in-with a mean score factor of 4.10. Electrocution as a risk in building construction is with a mean score factors of 3.89 and faulty site plan is an inherent risk in building construction with a mean score factors of 3.50.

Table 4.30 the respondents were asked to rate health and safety measures used on construction sites and this was carried out in Likert scale. The result was analyzed with the use of SPSS, the analysis is presented in table 4.30

Table 4.30 Health And Safety Measures Used On Construction Sites

S/N	**Health And Safety Measures Used On Construction Sites**	Mean	Rank
1	Establishing a Strong Safety Culture is a safety measure in construction sites	4.40	1st
2	Monitor and Assess Each Site to Identify and Minimize Dangers	4.21	2nd
3	Require Every Worker to Wear Protective Equipment	4.19	3rd
4	Install Signs to Remind People of the Risks and Requirements	3.84	4th
5	Establish Procedures for Reporting Faulty Equipment	3.70	5th

From the ranking in table 4.30, the most frequent or the highest rank regarding the health and safety measures used on construction sites, establishing a strong safety culture is a safety measure in construction sites was ranked the highest with a mean score factor of 4.40 followed by the monitoring and assessment of each site to identify and minimize dangers with a mean score factor of 4.21, this was flowered by requiring every worker to wear protective equipment with a mean score factor of 4.19. The least score factors are were Install signs to remind people of the risks and requirements and establish procedures for reporting faulty equipment, with a mean score factors of 3.84 and 3.70 respectively.

4.7. Discussion of Findings

4.7.1 Construction risks inherent in building construction industry

The results of the study shows that construction risks inherent in building construction industry are fall during building construction, struck-by hazard and caught-in-between are inherent risk in the building construction. Electrocution also does occur on site during building construction. Muost of this risk come as a result of faulty site plan or layout. This is inline with research work of Awwad, El-Souki and Jabbour (2016), the following common hazards on construction sites irrespective of the physical injury: antagonism outing and falls, airborne strands and materials and electricity.

4.7.2 The health and safety measures used on construction sites

This result of the study also revealed that health and safety measures used on construction sites are establishing a strong safety culture , assess each site to identify and minimize dangers, the company must require every worker to wear protective equipment. This is inline with OSHA (2021), requires the use of personal protective equipment (PPE) to reduce employee exposure to hazards when engineering and administrative controls are not feasible or effective in reducing these exposures to acceptable levels, as well as install signs to remind people of the risks and requirements. Lastly, establish procedures for reporting faulty equipment.

4.7.3 The challenges in the management of health and safety in construction sites

The work revealed that there are challenges in the management of health and safety in construction sites. This challenges includes are lack of communication, high turnover, power outage and airborne fibers & materials causing respiratory diseases posse a challenge to building construction site. Lastly hand arm vibration syndrome is posse a challenge to construction worker.

4.7.4 The effects of occupational health hazards on the building construction sites

The work shows that occupational health hazards has negative effects of workers in construction sites, health hazards breeds unhealthy workforce, it reduces life expectancy of construction workers, it drain workers' income when the workers are not under any form of health insurance scheme and poor productivity as a result of occupational health hazards can affect project performance which leads to client dissatisfaction. Consequently, the hazardous nature of the construction sector contributes to the poor image of the industry.

CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1 Summary

This study has accessed the health and safety practices in building construction sites. Construction risks inherent in building construction industry are fall during building construction, struck-by hazard and caught-in-between are inherent risk in the building construction. Electrocution also does occur on site during building construction.

The health and safety measures used on construction sites are establishing a strong safety culture, assess each site to identify and minimize dangers, the company must require every worker to wear protective equipment. as well as install signs to remind people of the risks and requirements..

The challenges in the management of health and safety in construction sites are lack of communication, high turnover, power outage and airborne fibers & materials causing respiratory diseases posse a challenge to building construction site. Lastly hand arm vibration syndrome is posse a challenge to construction worker.

The occupational health hazards has negative effects of workers in construction sites, health hazards breeds unhealthy workforce, it reduces life expectancy of construction workers, it drain workers' income when the workers are not under any form of health insurance scheme and poor productivity. Consequently, the hazardous nature of the construction sector contributes to the poor image of the industry

5.2 Conclusion

Accidents in construction are almost incalculable, where construction sites are health and safety nightmare, and almost every conceivable hazard exists within this constantly changing work environment. Hazard of physical injury include death consequences. Hazard of ill-health can only be notified after a long period and shall cause sickness or death after a certain

period of time. A proactive safety management system has the core attributes of systematic identification of hazards, assessment and control of risks, evaluation and effective implementation of risk control measures. The integration of health and safety measures in to the total quality management system within the construction sector could significantly contribute to cost efficiency, quality assurance, environmental sustainability and better employer-employee relationship.

5.3 Recommendations

Inline with the study, the following recommendation was made**:**

- Employers and contractors should provide suitable programmes that are consistent with national Laws and Regulations to ensure the health and safety of workers. This includes maintaining a workplace that has minimal risks and accidents that can result in injury or death.
- Since managing health and safety is different from managing any other aspect in construction, there need to do a risk assessment to find out about the risks, and to put sensible measures in place to control them, and make sure they stay controlled.
- Contractors must keep accident registers at sites, and make record of all kind of accidents from minor bruises to major and fatal accidents, and submit reports to Directorate of Occupational Health and safety services. All employees must be given health and safety induction training when they start work, which should cover basics such as first aid and fire safety. Training must also be provided if risks change, and refresher training when skills are not frequently used.
- Contractors should make provision for safety, the costs for personal protective equipment's measures should be explored and explicitly be part of tendering and costing for the project implementation.

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APPENDIX

Department of Building Technology
Auchi Polytechnic,
P. M. B. 13, Auchi
Edo State

20th Septemeber, 2022.

Dear Respondent,

LETTER OF INTRODUCTION

I am a final year student of the above named Department and I am currently carrying out a project research on the topic "An Assessment of the Health and Safety Practices In Building Construction Sites (A Case Study of Some Selected building Construction Companies in Benin City)". This is in partial fulfillment of the award of Higher National Diploma (HND) in Building Technology.

I shall be most grateful if you could assist me in completing the attached questionnaire to enable me clear my research questions and objectives raised in the study. Please be assured that any information given shall be used solely for this academic purpose and will be treated with absolute confidentiality.

Thank you for your anticipated cooperation.

Yours Faithfully,

DANIEL ILESANMI
(Researcher)

QUESTIONNAIRE

Note: Please read carefully tick the appropriate ones

SECTION A: Background Information of Respondents

1]. Age of Respondent 21-30 [ ] 31-40 [ ] 41-50 [ ] 51 and above [ ]

2]. Sex: Male [ ] Female [ ]

3]. Marital Status: Single [ ] Married [ ]

4]. Educational Qualification: No. Qualification [ ] O'level [ ] B.Sc/HND [ ] Masters/Ph.D [ ]

7. Job Title (a) Builder [ ] (b) Architect [ ] (c) Civil engineer [ ] (d) Quantity surveyor [ ]

(e) others [ ] specify _____

7]. GSM:_____

SECTION B: QUESTIONS REGARDING CONSTRUCTION RISKS INHERENT IN BUILDING CONSTRUCTION INDUSTRY.

Kindly rate your opinion by ticking (x) each of the following health and safety measures in construction sites.

5-strongly agree, 4-Agree, 3-Neutral, 2-Disagree, 1 – Strongly Disagree

S/N			**Rating**			
	Construction Risks Inherent In Building Construction Industry	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
		5	4	3	2	1
1	Falls often occurs in building construction site					
2	struck-by hazard are common in building construction					
3	caught-in-between is an inherent risk is building construction					
4	Electrocution do occurs on site during building construction					

5	Faulty site plan is an inherent risk in building construction					

SECTION C: INVESTIGATE THE HEALTH AND SAFETY MEASURES USED ON CONSTRUCTION SITES

Kindly rate your opinion by ticking (x) each of the following health and safety measures in construction sites.

5-strongly agree, 4-Agree, 3-Neutral, 2-Disagree, 1 – Strongly Disagree

S/N			**Rating**			
	Health And Safety Measures Used On Construction Sites	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
		5	4	3	2	1
1	Establishing a Strong Safety Culture is a safety measure in construction sites					
2	Monitor and Assess Each Site to Identify and Minimize Dangers					
3	Require Every Worker to Wear Protective Equipment					
4	Install Signs to Remind People of the Risks and Requirements					
5	Establish Procedures for Reporting Faulty Equipment					

SECTION D: EXAMINE THE CHALLENGES IN THE MANAGEMENT OF HEALTH AND SAFETY IN CONSTRUCTION SITES

Kindly rate your opinion by ticking (x) each of the following health and safety measures in construction sites.

5-strongly agree, 4-Agree, 3-Neutral, 2-Disagree, 1 – Strongly Disagree

S/N			**Rating**			
	The Challenges In The Management Of Health And Safety In Construction Sites	Strongly agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
1	Lack of communication is one of the challenges in the management of health and safety in construction sites					
2	High turnover is challenge facing the management of health safety in construction sites					
3	Power outage is a challenge facing the management of health safety in a construction site					
4	Airborne Fibers & Materials Causing Respiratory Diseases posse a challenge to building construction site					
5	Hand Arm Vibration Syndrome is posse a challenge to construction workers					

SECTION E: TO INVESTIGATE THE EFFECTS OF OCCUPATIONAL HEALTH HAZARDS ON THE BUILDING CONSTRUCTION SITES

Kindly rate your opinion by ticking (x) each of the following health and safety measures in construction sites.

5-strongly agree, 4-Agree, 3-Neutral, 2-Disagree, 1 – Strongly Disagree

S/N			**Rating**			
	Effects Of Occupational Health Hazards On The Building Construction Site	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
		5	4	3	2	1
1	Occupational Health Hazards Breeds Unhealthy Workforce					
2	Occupational Health Hazards reduce life expectancy of construction workers					
3	Workplace hazards drain workers' income when the workers are not under any form of health insurance scheme					
4	Poor productivity as a result of Occupational Health Hazards can affect project performance which leads to client dissatisfaction					
5	The hazardous nature of the construction sector contributes to the poor image of the industry					