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KUMASI, GHANA

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An Investigation into Worker Satisfaction with Construction Site Welfare  
Provisions

by

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College of Art and Built Environment

in partial fulfilment of the requirements for the degree of

MASTER OF SCIENCE

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DECLARATION

I hereby declare that this submission is my own work towards the MSc Construction Management and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University except where due acknowledgement has been made in the text.

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## ABSTRACT

Provision of welfare facilities on construction site tends to have an impact on productivity of works and can be costly if workers are dissatisfied. Construction workers on site need a place to change, drink water, eat meals and snacks, visit lavatory and wash hands. Also during break, they need a place to rest and to recover from fatigue each working

day and if welfare facilities are not available for use it affects their output and makes them dissatisfied. The thrust of this research was to investigate worker satisfaction with construction site welfare provisions in Ghana. The study set objectives to determine the adequacy of welfare facilities on construction sites; to assess the state of welfare facilities on construction sites; to assess worker satisfaction with construction site welfare provision; and to establish factors that influence level of satisfaction of workers with welfare provisions. A questionnaire survey was conducted on permanent workers at the construction site of class D1K1 contractors at Kotoka International Airport vicinity. The data collected was analysed using statistical package for social sciences (SPSS) to perform descriptive statistics and the results presented using tables. The study revealed that minimum welfare facilities were mostly not provided on site and in cases where they were provided the numbers were not adequate. Workers were generally dissatisfied with the provision, adequacy and condition of welfare facilities on their site. The recommendation made were that, construction firms should be committed to providing adequate welfare facilities at sites, client and consultant should ensure the minimum welfare facilities are provided on site before approval is given to start actual construction works, welfare facilities on sites should be properly maintained, adequate number must be provided and the space should be well ventilated. Facilities should be accessible, properly identified, clean and hygienic to use.



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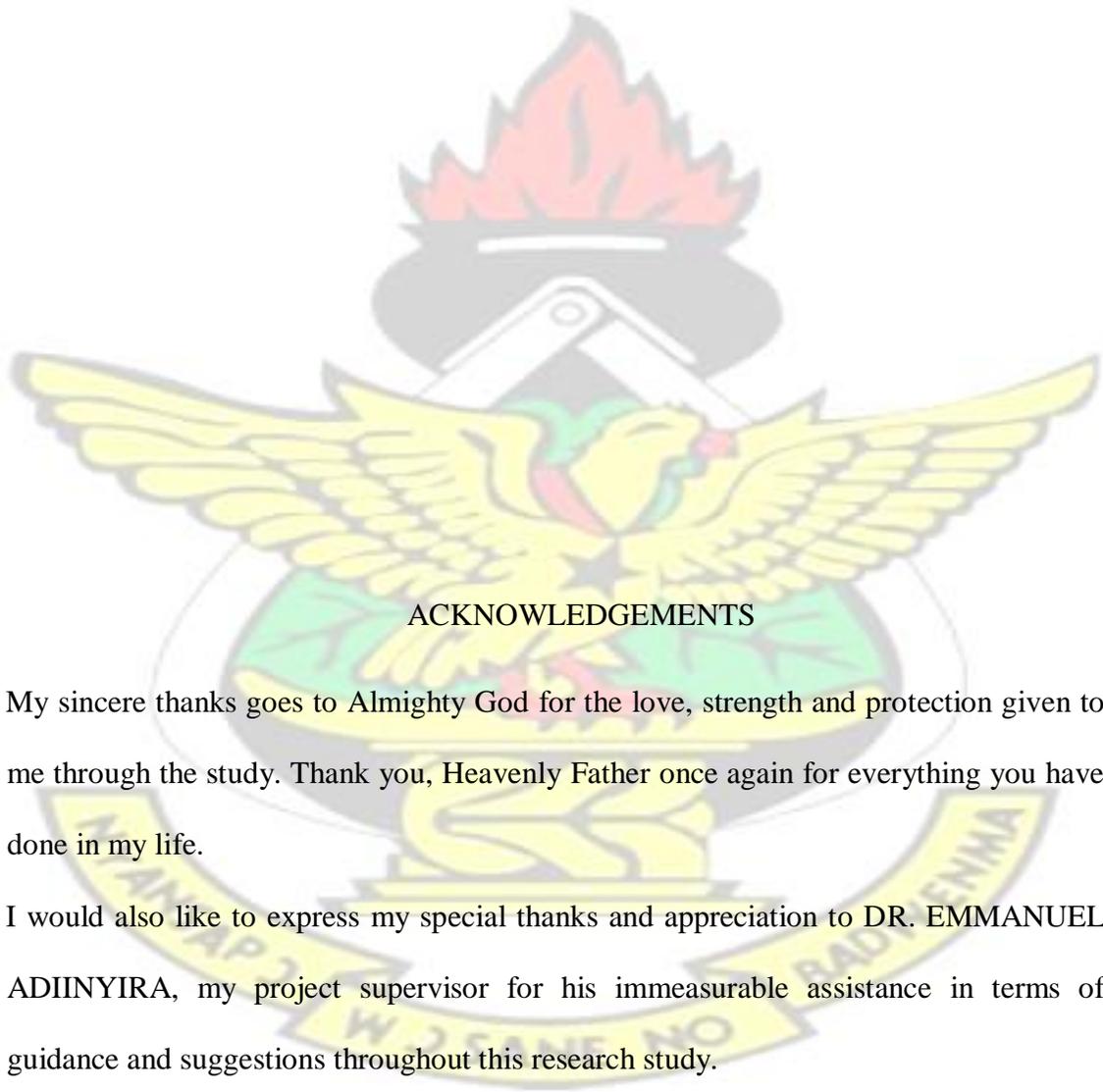
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## DEDICATION

This study is dedicated to Almighty God firstly, to my family and to all friends and love ones.

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## CHAPTER ONE

### GENERAL INTRODUCTION

#### 1.1 BACKGROUND OF STUDY

Health and Safety Executive (HSE), 2007 defined welfare facilities as those facilities that are essential for the well-being of your workers, such as washing, toilet, rest and changing facilities, and somewhere clean to eat and drink during breaks. Welfare facilities is an aspect of health and safety regulations. It plays an important role in workers wellbeing and health (HSE, 2010).

The Construction (Design and Management) Regulations 2007, and Ghana Labour Act, 2003 (ACT 651) defined well the basic legal requirement of welfare facilities. This means that any failure to provide adequate welfare could have serious implications for HSE's confidence in a contractors' general management arrangements. A Cornish company was fined for not providing welfare facilities to its workers (CIOB, 2013).

During planning and preparation phase of all construction projects, the presence of welfare facilities, where they are located on site and maintained must be taken into consideration earlier before works begins which include demolition (HSE, 2010).

A survey through D1K1 site reveals that some organizations do not give welfare facilities the priority it deserves notwithstanding the obvious need to provide it for workers. This may be due to lack of knowledge, skills and motivation. Cost is also a vital issue for providing and maintaining these facilities and most construction companies feel that they lack the funds to make investments in welfare facilities failing to appreciate the importance of this investment. The importance of welfare facilities is appreciated by few

companies who understand that good welfare facilities have significant role in organizational performance output.

## 1.2 PROBLEM STATEMENT

According to Construction (Design and Management) Regulations 2015 (CDM 2015), construction site needs to be provided with minimum welfare facilities such as suitable toilet and washing facilities, potable drinking water, facilities for storage and rest. It is also mandatory for employers to provide welfare facilities in the Labour Act 651 of Ghana, Section 118. Section 16, 19-22 of Factories, Offices and Shop Act 328 also talks about provision of welfare facilities for persons employed at the workplace. However, the basic requirements for welfare facilities are often neglected by contractors (HSE, 2010). Hiba (1998) also explains that, in each working day, workers need to take water, eat food and snacks, wash and clean their hands, visit wash room and relax to regain from fatigue and if these welfare facilities are not available for use it will affect their output. A survey on construction sites reveal that most construction sites in Ghana has either some of these facilities or some have but they are not in suitable conditions. Welfare facilities turn to have negative effect on workers if they are not adequately provided and maintained in good state. However, little research has been done in Ghana to find out worker satisfaction with site welfare facilities provided. This research will tend to investigate worker satisfaction with construction site welfare provisions towards addressing the problem of poor welfare facilities on Ghanaian construction sites.

### 1.3 AIM OF STUDY

The aim of the study is to investigate construction worker satisfaction with site welfare provisions in Ghana.

### 1.4 OBJECTIVES OF STUDY

To achieve the aim of the study, the following objectives were set out:

1. To determine the adequacy of welfare facilities on construction sites.
2. To assess the state of welfare facilities on construction sites.
3. To assess worker satisfaction with construction site welfare provision.
4. To establish factors that influence the level of satisfaction of welfare provisions.

### 1.5 SCOPE OF THE STUDY

The scope of the study was limited to building construction site of D1K1 Building and Civil Engineering Contractor at Kotoka International Airport (KIA) in Accra. The study is further delimited only to investigate a worker satisfaction with construction site welfare provisions.

### 1.6 SIGNIFICANCE OF THE STUDY

This study was to help construction companies to fully appreciate the significance or importance of welfare facilities and its effect on workers. This will enable them to provide and maintain good welfare facilities for their workers at their various construction sites.

Workers will also feel safe and comfortable when using these welfare facilities on site.

The fear of discomfort and getting infections when using these welfare facilities would be cleared.

## 1.7 RESEARCH METHODOLOGY

This study employed a descriptive study design, employing self-administration of structured questionnaire to collect the study data. In short, to obtain adequate facts regarding the subject matter the study was based on the following methods:

- Reading relevant literature / Journals.
- Questionnaire to permanent workers at construction site.
- Site studies of some selected construction site at Kotoka International Airport.

## 1.8 ORGANIZATION OF THE STUDY

This research work is composed of five chapters which covers the general introduction, literature review, research methodology, data presentation and analysis, and conclusion and recommendations. The various chapters have been briefly highlighted as follows:

Chapter One: This chapter presented the general introduction of the study. This included the problem statement, the aim, and objectives, and the methodology of the research.

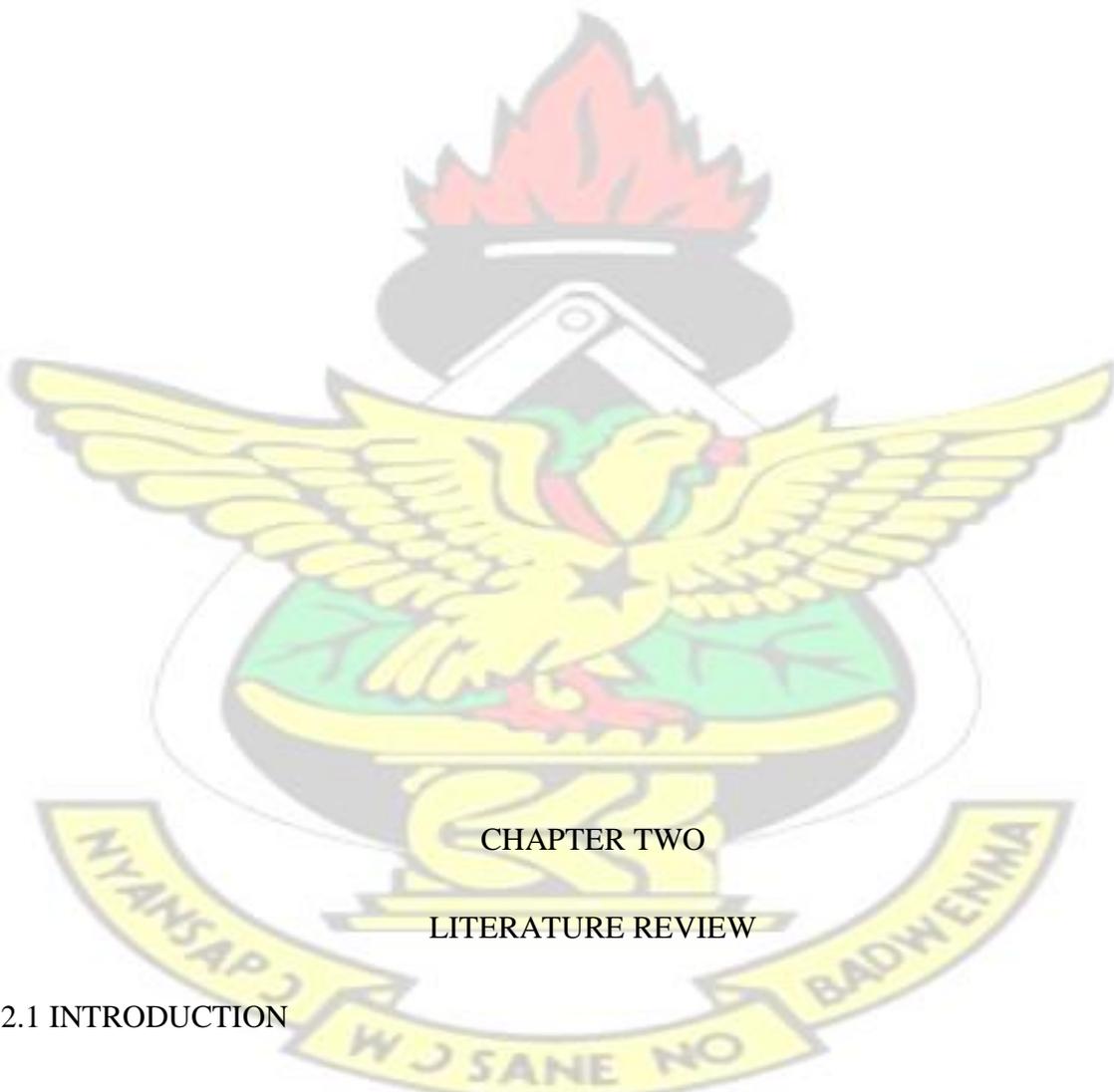
Chapter Two: This chapter comprised a historical and relevant literature review from previous studies on welfare provisions.

Chapter Three: This chapter generally presented and justified the research strategy and data collection techniques. It covered a discussion of the research methods used in this study, and data analysis techniques that will be used.

Chapter Four: This chapter presented the data analysis, the presentation, and discussion of results.

Chapter Five: This chapter revisited the aim and objectives of this research work, where findings were summarized and related to the research objectives. Conclusions from this research work will be obtained and linked to the research objectives, and based on these conclusions, recommendations were made.

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## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 INTRODUCTION

This chapter reviews relevant literature in the aspect of welfare provisions in construction. It describes welfare facilities, importance of welfare facilities, people responsible for provision of welfare facilities and planning of welfare facilities.

It also acknowledges the international and local legislations and policies of occupational health and safety (OHS) in the construction industry in relation to welfare provision.

Construction site workers need to be provided with adequate welfare facilities, however, these fundamental requirements are often neglected (HSE, 2010). According to Hiba (1998), provision of welfare facilities has impact on productivity of work and can be costly if workers are dissatisfied. Good welfare facilities have a positive contribution to the health and well-being of construction workers.

## 2.2 WELFARE FACILITIES

HSE (2011) describe welfare facilities as those facilities that are essential for the comfort of your workers, such as washing, toilet, rest and changing facilities and a place clean to eat and drink during breaks. Construction (Design and Management) Regulations 2015 also described the minimum welfare facilities vital for all construction sites, which includes toilets, washing facilities, access to drinking water, changing rooms and lockers, and rest facilities. The following welfare facilities can also be provided to a worker at construction site; work cloths, recreational facilities, transport facilities, first aid and sick bay.

### 2.2.1 Types of Welfare Facilities

Welfare facilities can be classified under two types namely; intra-mural and extra-mural. Intra-mural activities consist of facilities provided within the organizations or sites and its include sick bay, supply of water, washing and bathing facilities, changing rooms, canteens, provision of safety measures, tasks which assist in improving the conditions of work, and such like.

Extra-mural activities include the facilities and services provided outside the construction site or factory such as housing accommodation, indoor and outdoor recreational facilities, educational facilities and the like.

### 2.2.2 Importance of Welfare Facilities

According to Hiba (1998), provision of welfare facilities has an impact on productivity of works and can be costly if workers are dissatisfied. Hiba (1998) explains that, in each working day, workers need to take water, eat food and snacks, wash and clean their hands, visit washroom and relax to regain from fatigue and if these welfare facilities are not available for use it will affect their output. Also good welfare facilities are often appreciated far beyond the time and money invested and helps workers to overcome problems which are important to them.

It also related fatigue and disease as enemies of efficient work and essential welfare facilities can reduce fatigue and maintain health. HSE (2010) also reported that good welfare facilities can really benefit health and well being, and can also help to preclude skin inflammation.

#### 2.2.2.1 Drinking water

Water is essential for life and survival of humankind so is drinking water necessary for all workers. If adequate and safe water is not provided, workers become thirsty and gradually dehydrated. This greatly increases fatigue and lowers productivity, especially in a hot environment.

Position water in a central place or close to group of workers to reduce time lost in going to get a drink. Generally, drinking water should not be position in washrooms or toilet,

near dangerous machine of hazards, nor in locations where it can be polluted by dust and chemicals (HSE, 2010).

#### 2.2.2.2 Sanitary facilities

Provision of washing facilities is very important to the health. The reasons are; dirt and filth can be ingested and cause sickness or disease and they are also unpleasant and demotivating, washing of hands is required after visiting the toilet, and washing is a necessity when women have their monthly periods.

There should be sufficient number of sanitary facilities on construction site and each should be rightly located to avoid long walks, waiting and frustration (HSE, 2010). Adequate number of toilet facilities has to be provided for the worker and the place must be kept clean and neat. Proper illumination must be provided inside the toilet.

#### 2.2.2.3 Rest area

Workers usually start the working day attentive and productive, but their level of activity reduces as the day progresses (Hiba,1998). Fatigue grows progressively before it starts to have a strong impact. Fatigue can be minimized if a good rest area is provided. Workers are able to recover from fatigue and continued productive work. Rest areas should be away from noisy, polluted workstation and free from disturbances and this helps to relax and recover from fatigue.

#### 2.2.2.4 Changing rooms and Lockers

Facilities to secure personal belongings such as lockable lockers and changing rooms critically helps workers with their personal hygiene, appearance and neatness, avoid

anxiety about the theft of personal possessions. Changing rooms are very necessary where workers have to change from street clothes to protective or working clothing. Changing rooms provides privacy to all worker and must be provided for both sex that male and female.

Lockers or storage facilities should be properly located so that they will not impede work or obstruct light or ventilation.

#### 2.2.2.5 Canteens and eating area

Creating a good canteen service is the best way of inspiring workers to eat adequate nutritious food during break period from work. Canteen at work place helps workers to stay on site during break time and have some rest than going out of site looking for food which can be contaminated.

Where canteens are not available, an eating-place or room has to be provided for workers to eat their own packed lunch or food brought from home.

### 2.3 RESPONSIBILITIES FOR PROVIDING WELFARE FACILITIES

According to Labour Act of Ghana, Section 118, it is the responsibility of an employer to make sure that every employee works under safe, healthy and satisfactory conditions.

Also from CDM 2015, the responsibility for providing welfare facilities may fall to multiple duty holders:

- Clients have a clear duty to check that adequate welfare facilities are in place before work begins.
- Main Contractors must provide welfare facilities throughout the construction phase, and ensure that these are maintained and reviewed throughout the work.

- Sub-contractors are responsible for planning and managing their work in order to comply with legal requirements. They must make sure that adequate welfare arrangement is put in place for their workers.

## 2.4 PLANNING OF WELFARE FACILITIES

Before construction work begins, the availability of welfare facilities, their location on site, and how they are maintained must be taken into consideration at the planning, and preparation phase of every construction project (HSE, 2010).

According to Ridley et al, (1999), before construction works begins, it is generally a common practice that most contractors supply sufficient welfare facilities for it operatives.

The following are consideration done when planning for welfare provisions:

- the nature of the activity or work to be executed and the health implication of it. Example, where filthy or dangerous chemicals are present shower provision is considered for project, e.g. concrete pouring, maintenance of sewer, dusty demolition activities, working on polluted grounds,
- the distance operatives will have to move to the facilities provided,
- the duration and the number of locations of the project,
- the number of people who will be using the facilities,
- the maintenance of the facilities,
- whether the facilities will be re-positioned in the process of construction.

## 2.5 INTERNATIONAL CODE OF PRACTICE RELATED TO WELFARE FACILITIES

Generally, a code of practice is a set of rules and guidelines according to which people in a particular profession are expected to behave or practice. The relevant code of practice which will be consider in this studies are listed below;

- Safety and health in Construction: An International Labour Organization Code of Practice 1992 (ILO).
- The Construction (Design and Management) Regulations 2015(CDM).
- Workplace (Health, Safety and Welfare) Regulations 1992.

#### 2.5.1 Safety and health in Construction: An ILO code of practice 1992

With reference to the ILO code of practice 1992, welfare provisions can be discussed under the following;

##### 2.5.1.1 General provisions

1. There should be adequate supply of safe drinking water at every normal active construction site at or within reasonable access at site.
2. Facilities such as; sanitary and washing or showers; changing room, storages and places for drying clothing's; places for meals and shelter during adverse weather conditions should be provide onsite.

##### 2.5.1.2 Drinking water

The ILO code of practice 1992 states that the provision of all sources of drinking water should be approved by the right authority. The authority in charge should take all necessary measures to ensure that any form of water provided at site for drinking is healthy for human intake. Furthermore, drinking water for common usage should be

stored in closed vessels or containers and as much as possible dispensed through taps. Also, transport arrangement for drinking water to construction sites must be signed and approved by only competent authorities. Water storage tanks, transport tanks, and containers for distributing water should be designed, cleaned, used and disinfected appropriately at right intervals approved by the right authority. Unwholesome water should be clearly shown by notices forbidding workers from consuming it. In addition, care should be taken to ensure that unfit water supply should never be connected to a supply of drinking water.

#### 2.5.1.3 Sanitary facilities

According to the ILO code of practice 1992, the scale of sanitary facilities provisions such as; toilets, the construction and installation of water flush toilets, closets, privies, plumbing, chemical, or toilet fixtures should conform with the requirements of competent authority.

However, the code recommends that no toilet other than a water flush toilet should be fixed in any edifice within the eating, sleeping, or other living room. Furthermore, there should be adequate ventilation which should not be open directly into occupied rooms. On the other hand, adequate washing facilities should be provided as close as possible to toilet facilities.

#### 2.5.1.4 Washing facilities

Washing facilities including the standards, number and maintenance should conform with the requirements of the competent authority. Also, washing facilities should be for only washing with no drinking. Nevertheless, there should be adequate number of washing

facilities or shower-baths with, as much as possible hot and cool water for construction site workers for cases where workers are exposed to infectious substances, skin contamination by poisonous, or filth, oil or grease (ILO, 1992).

#### 2.5.1.5 Cloakrooms

The ILO (1992) code states that, cloakrooms should be provided at construction sites that can easily be accessed by workers on site. It should have suitable facilities for hanging as well as drying wet clothes where is needed to avoid contamination and also provide suitable lockers to separate working from street clothes. The code also includes that appropriate arrangements be provided on site to disinfect cloakrooms and lockers, and it must conform with the requirements of the competent authority.

#### 2.5.1.6 Facilities for food and drink

Facilities for food and drinks should be provided in appropriate places considering the number of workers, the places of work, the duration, with adequate facilities for preparing of food and drink either at the construction site or a place nearer to the site where it is not available.

#### 2.5.1.7 Shelters and Living accommodation

Furthermore, the ILO code state that, shelters should be provided for site workers which includes facilities for washing, canteens and place for storing and drying of clothing especially for places where those facilities are not available.

Also, the code state that, where the means of transport is not available for construction workers at site to their homes, suitable accommodation should be provided for them.

However, separate facilities such as resting facilities, toilet and washing should be provided taking into consideration male and female gender.

### 2.5.2 The Construction (Design and Management) Regulations 2015

According to the CDM regulations (2015), the minimum welfare facilities required for active construction site includes; sanitary conveniences, washing facilities, drinking water, changing rooms and lockers and also facilities for rest.

#### 2.5.2.1 Sanitary Conveniences

From CDM regulations (2015), appropriate and adequate sanitary conveniences (toilet) should be provided at easily accessible locations. The sanitary conveniences should be clean and tidy, and the rooms for the facilities should have sufficient ventilation and lighting. Separate sanitary convenience should be provided for male and female gender however, where it cannot be possible, rooms with lockable doors will be needed.

#### 2.5.2.2 Washing Facilities

CDM regulations (2015) also requires that, appropriate and adequate washing facilities with adequate lighting and ventilation are required subsequent to both sanitary convenience and changing rooms, follows with cold and hot running water, soap or other cleansing agents, towels or other means of drying hands as well as showers may be required depending on the nature of the works. In addition, washing facilities must be clean and tidy. Provision for separate washing facilities for male and female must be considered, however, where it cannot be possible a rooms with lockable doors will be needed.

### 2.5.2.3 Drinking water

Construction sites should have sufficient wholesome drinking water with suitable vessels for fetching for drinking. In a situation where the water supply is in a jet it can be drunk easily without other drinking vessel.

### 2.5.2.4 Changing Rooms and Lockers

Changing rooms and lockers should be provided as much as possible for workers for changing into their specialist clothing (working gears), with seating and secure areas for storing of personal belongings, clothing, as well as their protective clothing's, with regards to the male and female sex. Again facilities for drying of clothing is required.

### 2.5.2.5 Rest Facilities

Also, CDM (2015) state that rest facilities should be provided on site with the appropriate number of tables and chairs required, alongside methods for warming and heating foods and drinks. Also, special resting facilities provisions should be made for pregnant women and nursing where it is necessary.

### 2.5.3 Workplace (Health, Safety and Welfare) Regulations 1992

This regulation that is Workplace (Health, Safety and Welfare) Regulations 1992 captures a broad range of basic or fundamental health, safety and welfare issues. The regulation is mostly applied to workplaces. Regulation 20 to 25 contains the welfare facilities that are to be provided at the workplaces;  Sanitary conveniences.

- Washing facilities.
- Drinking water.

- Accommodation for clothing.
- Facilities for changing clothing.
- Facilities for rest and to eat meals.

### 2.5.3.1 Minimum number of facilities

The regulations defined the minimum number of toilets, washbasins and urinals that are required to be provided in respect to the number of people at the workplace.

Table 2.1 Number of facilities needed per number of people at work

Number of people at work	Number of cubicles	Number of washbasins
1 – 5	1	1
6 – 25	2	2
26 – 50	3	3
51 – 75	4	4
76 – 100	5	5

Source: Workplace (Health, Safety and Welfare) Regulations 1992

Table 2.2 Number of facilities needed per number of men at workplace

Number of men at work	Number of cubicles	Number of urinals
1 – 15	1	1

16 – 30	2	1
31 – 45	2	2
46 – 60	3	2
61 – 75	3	3
76 – 90	4	3
91 – 100	4	4

Source: Workplace (Health, Safety and Welfare) Regulations 1992

## 2.6 Codes of Practice relating to Welfare Facilities in Ghana

There is no specific code of practice for welfare facilities in Ghana. The codes of practices which captures welfare facilities are the Labour Act, 2003 (ACTS 651) and the Factories, Offices and Shops Act, 1970 (ACTS 328).

### 2.6.1 Labour Act, 2003 (ACT 651, part XV)

According to the provisions made in the Labour Act of Ghana, Section 118, it is the responsibility of an employer to make sure that every employee works under safe, healthy and satisfactory conditions. Any employer who fails to discharge his duty without reasonable excuse is therefore liable to commits and offence with a fine not exceeding 1000 penalty units or sentence to prison for not exceeding 3 years or both.

Also, employer should provide separate, sufficient and suitable washing and toilet facilities for male and female workers. Storage facilities, changing facilities, drying and cleaning facilities for clothing must be provided by the employer.

Finally, the Acts makes provision for the employer to supply clean drinking water at the workplace to it employees.

#### 2.6.2 Provisions of Welfare Facilities in Factories, Offices and Shops Act, 1970 (ACTS 328)

The Factories, Offices and Shops Act, 1970 (ACTS 328) spelt out welfare facilities in details than the Labour Act. Sections 16 of the Act talks about washing facilities, sanitary convenience captured in section 19, section 20 also talks about drinking water provisions to workers, section 21 accommodation for clothing, sections 22 on sitting facilities and meals taking under section 24 of the act all talks about the relevant significant welfares facilities necessary at the work.

##### 2.6.2.1 Washing facilities

Washing facilities under section 16 of the act states that, suitable and appropriate washing facilities which is accessible for all employees should be provided and maintained in a clean and tidy manner in all factory, office and shop. Section 16 also states that, where the Chief Inspector is satisfied by reason of difficulty of obtaining an adequate supply of water or any other special circumstances, it shall be unreasonable to apply this section to any building. However, he may certify in writing exempting those buildings from this sections of the requirements.

##### 2.6.2.2 Sanitary Conveniences

Section 19 of the act states that adequate and suitable sanitary conveniences facilities accessible to workers shall be provided, maintained and kept clean in every factory, office and shop with effective provision made for lighting and ventilation. Also, separate

conveniences should be provided for both gender unless otherwise where the persons employed are less than five or in a situation where the persons engaged are from the same family. Notwithstanding this section the minister may by his executive power order that the requirements of this section be implemented by the local authority.

However, where the Inspector identifies any default in connection with any drain, sanitary convenience or water supply etc. where this act applies appears to be of concern to the local authorities under this section, the inspector may give notification in writing to the authorities.

#### 2.6.2.3 Drinking water

Section 20 of the act states that, adequate supply of clean drinking water should be provided and maintained at appropriate places accessible and convenient for all workers in every factory, office or shop. It again adds that in a situation where provision of clean drinking water is not piped, it should be stored in suitable containers and care should be taking to renew the water at least daily whilst preserving it well. Also, clean drinking water supply, either piped or not, should be marked clearly as "Drinking Water".

#### 2.6.2.4 Accommodation for clothing

Section 21 of the Act talks about provision and maintenance of suitable and adequate accommodation for clothing not worn during working hours by workers. This will ensure that workers can change to appropriate working clothing when they are in the factory, office or sites.

#### 2.6.2.5 Siting Facilities

Sitting facilities is captured under section 22 of the art, it states that, workers in any factory, office or shop in the course of their work have reasonable opportunities for sitting without damage to their work, sitting facilities provision should be made and maintained for them at suitable places accessible and conveniently to them for them to benefit of this opportunities. In addition, where by virtue significant amount of such work can appropriately be done by sitting, a suitable and comfortable seat design and constructed to suite the worker and the kind of work he is doing must be provided and maintained appropriately.

#### 2.6.2.6 Taking of Meals

Section 24 of the art also states that, no person or worker should be allowed to eat or drink in a room in a factory, shop or site where any poisonous or injurious substance is used which emit dust or fumes. Therefore, adequate provision should be made to enable workers to enjoy their meals somewhere in the premises and not in any of such room with poisonous chemicals.

### 2.7 CHALLENGES IN ADHERING TO CONSTRUCTION SITE WELFARE PROVISION

#### 2.7.1 Ineffectiveness of Regulatory Body

According to LaDou (2003), in developing countries the institutional and legal governance frameworks on occupational health and safety have minimum effect. Most construction companies work in the environment where implementation of health and safety standards turns to be low. Inadequate resources available to people in charge of occupational, health and safety administration in government institutions affect

negatively the implementation of health and safety regulations. For example, Clarke (2005) cited in Kheni (2008) also revealed that, one of the major factor causing to poor health and safety conditions at workplaces in Ghana is inadequate resources available to enforcement agencies and prevention services. In addition, Cotton et al (2005) also said that, there remains an acute need for contract provisions to support the enforcement of labour laws in developing countries.

### 2.7.2 Cost of compliance

According to Smallwood (2004), compliance with Health and Safety Regulation which include site welfare is an enabler and catalyst for enhancing performance relative to cost. It is not surprising that contractors perceive regulations as an additional burden (Windapo, 2011), which they have to conform to and which gives rise to unnecessary costs. Geller (2000) views compliance with the occupational health and safety regulations as costly. Baxendale & Owain (2000) also determine that the costs of implementation of health and safety on small construction project are higher than that of larger projects.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 INTRODUCTION

This chapter discusses the methods employed in carrying out this study. Research methodology can be defined as techniques, ways, procedures and methods that are adopted to acquire and gather all the necessary information for the purpose of the research work (Ayyash et al, 2011). The method used has been summarized under the following headings: research design, target population, sample and sample procedure, data collection procedure and data analysis.

#### 3.2 RESEARCH DESIGN

The researcher employed a descriptive survey method since this study intends to investigate worker satisfaction with construction site welfare provision. According to Leedy (2002), descriptive survey involves the collection of data in response to questions concerning the current state of the problem. The major techniques for collecting data in this research are the questionnaire.

#### 3.3 TARGET POPULATION

According to Taylor-Powell (1998), population can be described as group or set of interest located in a geographic sector of interest during the time of interest (TaylorPowell, 1998). The target population of the study included only permanent workers at construction site of D1K1 building and civil engineering contractors at Kotoka

International Airport (KIA) vicinity. This area was chosen for the study because it was an area where a lot of development is ongoing on in Accra and also the projects are undertaken by different construction firms. Also permanent workers were targeted because they are assumed to be the workers on construction site for long and can also give the study better assessment and satisfaction of welfare facilities on the construction site.

#### 3.4 SAMPLE AND SAMPLING SIZE

Sampling is the process of choosing the research unit from the target population. According to Taylor-Powell (1998) choosing a representative part of a population to determine the characteristic of the whole population is termed as sampling. Also when the population size is small and it can be used for the study, sampling may not be necessary. Due to the limited time and resources available for the study, the researcher selected all active construction site at Kotoka International Airport (KIA). The number of active construction site were eight (8) at the KIA vicinity but only five site gave permission to administer the questionnaire. The number of permanent workers at the five construction site was collected and is shown in table 3.1 The total number of permanent workers on the five site was 89 persons and it was used as sample sizes. The respondents consist of permanent workers made up of Project Manager, Project Engineer, Supervisors, Quantity Surveyors, Foreman, Artisans, Helpers, Land Surveyors, Time Keepers and Store Keepers from the five sites.

Table 3.1 Sampling Size

Construction site	Permanent workers
Site 1	13
Site 2	15
Site 3	10
Site 4	27
Site 5	24
Total Sample Size	89

### 3.5 DATA COLLECTION METHOD

According to Thomas (2010), understanding the theoretical background of the study is important when collecting data and also the source from which the data will be collected.

The study made use of primary and secondary data, and observation.

The primary data are first-hand information collected by researcher from the source. For this research work, the primary method for gathering the information or data was self-administered questionnaire which according to Taylor-Powell (1998) serves as the main source of information gathering.

#### 3.5.1 Questionnaire Content

Questionnaire can be referred to as a set of carefully structured questions organized to produce accurate, reliable and statistically valuable data or information from respondents

about the study. However, Saunders et al, (2007), indicated that questionnaires aid the collection of information by requesting the sampler to respond to the same questions.

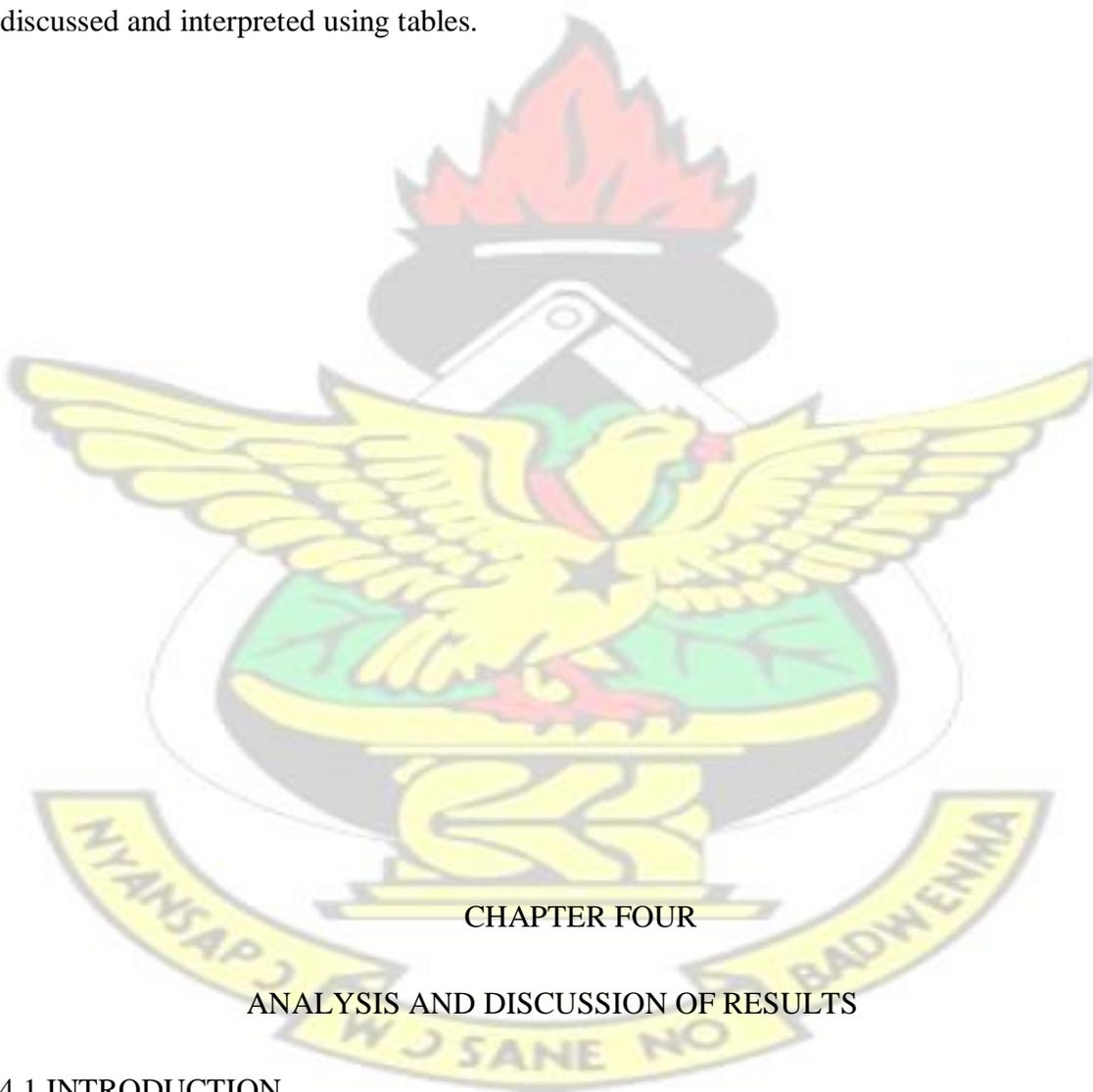
The questionnaire consists of five (5) main sections – A, B, C, D and E

- Section A covers the respondent's profile (e.g. designation, educational level, working experience).
- Section B covers welfare provision requirements and adequacy on site (Please indicate the welfare facilities available on your site? Sanitary convenience (Toilet), Shower, Basins or sink, Soap and towels, Safe Drinking water, Changing room, Lockers, Rest room, Canteen, and Site accommodation).
- Section C covers the state or condition of site welfare facilities (What is the state or condition of the welfare facilities provided at your construction site? Please indicate on a scale of 1-5 your satisfaction level. 1– Very good, 2- Good, 3- Neutral, 4- Bad, 5- Very Bad).
- Section D covers the evaluation of worker satisfaction with site welfare provisions (Please indicate using the scale provided how satisfied you are with the welfare provisions provided on your site. Scale 1 - Highly satisfied, 2 - satisfied, 3 - Neutral, 4 - Dissatisfied, 5 – Highly dissatisfied).
- Section E covers factors influencing the level of satisfaction of welfare facilities (Please indicate using the scale provided how the following factors have influenced your satisfaction with the facilities.  
1 = Very influential, 2 = influential, 3 = moderately influential, 4 = less influential, 5 = not influential).

### 3.6 DATA ANALYSIS

The method of data collection produced qualitative and quantitative data and it was analyzed using both qualitative and quantitative approaches.

Data from questionnaires was compiled, sorted, edited and coded into coding sheet and analysed using Statistical Package for Social Science (SPSS). The findings were discussed and interpreted using tables.



#### 4.1 INTRODUCTION

The studies investigate worker satisfaction with construction site welfare provisions in

Ghana with specific reference to five construction site at Kotoka International Airport Vicinity. To achieve the aim, the following objectives were set to guide the study. The study firstly determines the adequacy of welfare facilities on construction site. The study further assesses the state of welfare facilities on construction site and also assesses worker satisfaction with construction site welfare provisions. The study finally assesses worker satisfaction with construction site welfare provisions establishes the factors that influence the level of satisfaction on welfare provisions.

The chapter presents the analysis of data collected and discussion of the results of the studies in five sections. The first section presents the result on the respondent profile. The second section presents the welfare provision requirement and adequacy while the third section also focuses on the state or condition of welfare facilities at the construction site. The fourth section presents evaluation of worker satisfaction with site welfare provisions and the final section throws light on the factors influencing the level of satisfaction of welfare facilities.

#### 4.2 RESPONSE RATE

Eighty-nine (89) questionnaires were sent out to five construction sites of D1K1 contractors at Kotoka International Airport Vicinity and eighty-seven (87) was retrieved from the respondent which forms a response rate of 97.8%. Table 4.1 indicates the distribution to various construction sites and the rate of response.

Table 4.1 Respondent Rate

SITE	POPULATION	RESPONDENT	PERCENTAGE
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SITE 1	13	13	100%
SITE 2	15	15	100%
SITE 3	10	10	100%
SITE 4	27	25	92.6%
SITE 5	24	24	100%
TOTAL	89	87	97.8%

### 4.3 RESPONDENT'S PROFILE

Section (A) of this chapter focuses on the respondents' profile, it throws more light on designation of the respondents, academic qualification and years of experience in the construction industry.

The table below shows the designation of the respondents of the questionnaire. The participants are permanent workers of the main contractor on site only. The results showed 35.6% of the respondents were artisans representing the majority of the participants. This was followed by Foremen which represent 18.4% and Supervisor which also forms 11.5%. The result further reveals that 6 respondent representing 6.9% were Store Keepers whiles Project Engineers, Quantity Surveyors and Safety Officers forms 5.7% each. Land Surveyors, Project Manager and Time Keepers represent 4.6%, 3.4% and 2.3% participant respectively.

The analysis from table 4.2 reveals that the majority of the respondents on the construction site were artisans.

Table 4.2 Designation of Respondents

	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	TOTAL
Response	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency
	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)
Project Manager	1 (7.7)	1(6.7)	-(-)	-(-)	1(4.2)	3(3.4)
Project Engineer	1(7.7)	1(6.7)	1(10.0)	1(4.0)	1(4.2)	5(5.7)
Quantity Surveyor	1(7.7)	1(6.7)	1(10.0)	1(4.0)	1(4.2)	5(5.7)
Supervisor	-(-)	2(13.3)	1(10.0)	4(16.0)	3(12.5)	10(11.5)
Foreman	4(30.8)	2(13.3)	2(20.0)	4(16.0)	4(16.7)	16(18.4)
Artisan	3(23.1)	5(33.3)	4(40.0)	9(36.0)	10(41.7)	31(35.6)
Safety Officer	1(7.7)	1(6.7)	-(-)	2(8.0)	1(4.2)	5(5.7)
Land Surveyor	-(-)	1(6.7)	-(-)	2(8.0)	1(4.2)	4(4.6)
Store Keeper	1(7.7)	1(6.7)	1(10.0)	2(8.0)	1(4.2)	6(6.9)
Time Keeper	1(7.7)	-(-)	-(-)	-(-)	1(4.2)	2(2.3)

Total	13(100.0)	15(100.0)	10(100.0)	25(100.0)	24(100.0)	87(100.0)
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Table 4.3 Academic Qualification

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	TOTAL
	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency
	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)
MSc	-(-)	-(-)	-(-)	-(-)	1(4.2)	1(1.1)
BSc	2(15.4)	5(33.3)	3(30.0)	4(16.0)	3(12.5)	17(19.5)
HND	2(15.4)	2(13.3)	-(-)	4(16.0)	4(16.7)	12(13.8)
SHS	6(46.2)	3(20.0)	3(30.0)	2(8.0)	4(16.7)	18(20.7)
JHS	1(7.7)	5(33.3)	4(40.0)	11(44.0)	10(41.7)	31(35.6)
CTC	2(15.4)	-(-)	-(-)	4(16.0)	2(8.3)	8(9.2)
Total	13(100.0)	15(100.0)	10(100.0)	25(100.0)	24(100.0)	87(100.0)

The above table shows the educational levels of the respondents who were part of the study. The results showed that 35.6% of the respondents are JHS leavers representing the majority of the participants whiles 20.7% were SHS leavers. The result also shows that 19.5% were BSc. Graduates, 13.8% were HND graduates and 8 respondents representing 9.2% had CTC level of education. Only 1 person representing 1.1% had Masters of Science degree in academics.

From table 4.3, it can be deduced that majority of the respondents were individuals with low level of educational background.

KNUST

Table 4.4 Years of experience

	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	TOTAL
Response	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency
	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)
1-3 years	2(15.4)	3(20.0)	-(-)	1(4.0)	2(8.3)	8(9.2)
3-5 years	4(30.8)	5(33.3)	-(-)	5(20.0)	5(20.8)	19(21.8)
5-10 years	6(46.2)	3(20.0)	4(40.0)	10(40.0)	9(37.5)	32(36.8)
11 years and above	1(7.7)	4(26.7)	6(60.0)	9(36.0)	8(33.3)	28(32.2)
Total	13(100.0)	15(100)	10(100.0)	25(100.0)	24(100.0)	87(100.0)

Table 4.4 above shows the number of years of experience of the respondents. Majority of the respondent have worked within the period of 5–10 years representing 36.8% of the participant. This was followed by respondent having 11 years and above working

experience who forms 32.2%. The result further shows that 21.8% had working experience from 3–5 years whiles 9.2% respondents had 1-3years.

# KNUST

## 4.4 WELFARE PROVISION REQUIREMENTS AND ADEQUACY

Section B of this chapter presents data on the number of workers, welfare facilities available and the quantity on respective site.

Table 4.5 below shows the number of workers available on various construction sites. Site 1 and site 2 have the highest number of workers followed by site 3 and 4. Site 2 has the minimum number of workers on site.

Table 4.5 Workers on site

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5
1 - 25 people		√			
26 - 50 people					
51 - 75 people					
76 - 100 people			√		√
101 people and above	√			√	

Table 4.6 shows the welfare facilities available at the five (5) construction site for the study. All the 5 site were having the following welfare facilities; Sanitary convenience (toilet), shower, safe drinking water and first aid box. Site 1 was the only construction site among the 5 site which was having most of the welfare facilities required by Labour Act, 2003 (Act 651) and Factories, Offices and Shops Act, 1970 (Acts 328) None of the site was also able to meet the minimum requirement specified by CDM regulations 2015.

Table 4.6 Welfare facilities on site

Response	SITE 1		SITE 2		SITE 3		SITE 4		SITE 5	
	Yes	No								
Sanitary Convenience (toilet)	√		√		√		√		√	
Shower	√		√		√		√		√	
Basins or sink	√			√	√		√		√	
Soap and Towels		√	√			√		√	√	
Safe Drinking water	√		√		√		√		√	
Changing room	√		√			√	√		√	
Lockers	√		√		√			√		√
Rest room	√			√		√	√		√	
Canteen	√			√		√		√	√	
Site accommodation		√	√			√		√	√	
First Aid box(es)	√		√		√		√		√	

Urinals	√			√		√		√		√
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Table 4.7 shows the number of welfare facilities available at the five construction site for the study. The number of welfare facilities to be provided on site depends on the number of workers available on site. From table 2.1 and 2.2, the number of toilet provided must be equal to the number of basins or urinals. Also, 5 workers need to have 1 toilet, 6 to 25 workers need to have 2 toilet and thereafter ever 25 workers needs to have additional toilet. Only Site 4 has adequate number of toilet to the number of workers but does not have adequate number of toilet to hand wash basin. Site 1 has more than 100 workers but had only 5 number of toilets which is not adequate whiles site 2 also had more than 5 workers but had only 1 toilets. Site 3 and site 5 also were having 76 to 100 workers but have less than the required 5 number of toilet. This shows the sites did not have adequate number of welfare facilities to it workers.

Table 4.7 Number of Welfare facilities on site

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5
	Qty	Qty	Qty	Qty	Qty
Sanitary Convenience (toilet)	5	1	3	10	4
Shower	4	1	4	5	2
Basins or sink	4	-	2	8	3
Soap and Towels	-	1	-	-	3

Safe Drinking water (delivery point)	1	2	1	3	1
Changing room	1	1	-	2	1
Lockers	50	4	4	-	-
Rest room	1	-	-	1	1
Canteen	1	-	-	-	1
Site accommodation	-	3	-	-	1
First Aid box(es)	1	1	1	1	1
Urinal	4	-	-	-	-

#### 4.5 THE STATE OR CONDITION OF SITE WELFARE FACILITIES

Section C talks about the state or condition of welfare facilities available at each of construction site for the study.

Table 4.8 State of Sanitary convenience(toilet)

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5
	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)
Very good	-(-)	-(-)	-(-)	-(-)	-(-)
Good	-(-)	4(40.0)	3(30.0)	14(56.0)	6(25)
Neutral	3(23.1)	9(60.0)	1(10.0)	2(8.0)	3(12.5)

Bad	8(61.5)	-(-)	6(60.0)	9(36.0)	15(62.5)
Very Bad	2(15.4)	-(-)	-(-)	-(-)	-(-)
Total	13(100.0)	15(100.0)	10(100.0)	25(100.0)	24(100.0)

Table 4.8 revealed that, site 1 had 61.5% of its respondents saying that the state of sanitary of convenience were bad, while 23.1% of the respondents were indecisive and 15.4% of the respondents indicating that the state of welfare facilities is very bad. From site 2, 60% of the participants were indecisive about the state of sanitary convenience while 40% of the respondents said the state of sanitary convenience were good. Also site 3 was having 10 respondents for the study, 60% of the respondents said the state of sanitary convenience was bad while 30% of respondents said it was good and 10% of the respondents were indecisive. Site 4 recorded the highest of 56% respondents saying the state of welfare facilities were good, 36% of respondents said the state of the facilities were bad and the remaining 8% of the respondents were indecisive. Finally, site 5 was having a 24 respondents for the study, 62.5% of the respondents indicated that the state of the facility was bad while 25% of the respondents indicated good state of the facilities and 12.5% were in neutral position.

No site however recorded very good state or condition of the sanitary convenience. The researcher also observed that the sanitary convenience at most of the sites was in bad conditions (refer to appendix A).

Table 4.9 State of Shower

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5
	Frequency	Frequency	Frequency	Frequency	Frequency
	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)
Very good	-(-)	-(-)	-(-)	-(-)	-(-)
Good	-(-)	-(-)	2(20.0)	11(44.0)	12(50.0)
Neutral	3(23.1)	6(40.0)	4(20.0)	9(36.0)	5(20.8)
Bad	9(69.2)	9(60.0)	4(40.0)	5(20.0)	7(29.2)
Very Bad	1(7.7)	-(-)	-(-)	-(-)	-(-)
Total	13(100.0)	15(100.0)	10(100.0)	25(100.0)	24(100.0)

Table 4.9 above shows a summary of the state of shower as stated by the respondents on the various sites. None of the respondents across the various site stated a ‘very condition’ for the state of shower. Site 5 and site 3 recorded the highest percentage of 50% and lowest 20% respectively for good condition. Site 2 and site 3 had 40% highest and 20% lowest respectively of their respondents been indecisive and hence a neutral position. This may also be attributed to the fact that these respondents never used the shower provided on the site. Also a greater percentage of the respondents stated a ‘bad condition’ with site 1 and site 4 recording the highest of 69.2% and the lowest 20% respectively. Only site 1 had 7.7% of its respondent indicating very bad state or condition of shower on site. This can be referred to in appendix A. From the respondents, it can be inferred that the condition of showers on site is bad.

Table 4.10 State of Basins

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5
	Frequency	Frequency	Frequency	Frequency	Frequency
	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)
Very good	-(-)	-(-)	-(-)	-(-)	-(-)
Good	-(-)	-(-)	4(40.0)	16(64.0)	14(58.3)
Neutral	2(15.3)	-(-)	4(40.0)	5(20.0)	8(33.3)
Bad	9(69.2)	-(-)	1(10)	4(16.0)	2(8.3)
Very Bad	2(15.4)	-(-)	-(-)	-(-)	-(-)
Total	13(100.0)	-(-)	10(100.0)	25(100.0)	24(100.0)

The above table shows the state or condition of basins or sink at the four site. Site 2 did not have basin or sink and none of the site recorded very good state. Site 4 recorded highest of 64% and site 3 recorded lowest of 40% of their respondents saying the state or condition of basins are good. Site 3 and site 1 had 40% respondents and 15.3% respondents respectively been indecisive with their view of the condition of the basin being neutral. Also site 1 had highest of 69.2% and site 5 had lowest of 8.3% of their respondents indicating that the condition of the basins was bad. However, only site 1 had 15.4% of its respondents indicated very bad state for it basin facilities.

Table 4.11 Soap and towel

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5
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	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)
Very good	-(-)	-(-)	-(-)	-(-)	-(-)
Good	-(-)	12(80.0)	-(-)	-(-)	17(70.8)
Neutral	-(-)	1(6.7)	-(-)	-(-)	4(16.7)
Bad	-(-)	2(13.3)	-(-)	-(-)	3(12.5)
Very Bad	-(-)	-(-)	-(-)	-(-)	-(-)
Total	-(-)	15(100)	-(-)	-(-)	24(100.0)

Table 4.11 depicts a summary of soap and towel as stated by respondents at two sites. Three sites did not provide soap and towel to it workers. Site 2 had 80% of its respondents indicating that the state of soap and towel provided on site is good whiles 13.3% of the respondents indicated bad state and 6.7% were indecisive about the state of soap and towel on site. However, none of the two site recorded very bad or very good state of the facility.

Table 4.12 Safe drinking water

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5
	Frequency	Frequency	Frequency	Frequency	Frequency
	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)
Very good	3(23.1)	6(40.0)	1(10.0)	10(40.0)	9(37.5)
Good	8(61.5)	9(60.0)	9(90.0)	14(56.0)	15(62.5)

Neutral	2(15.4)	-(-)	-(-)	1(4.0)	-(-)
Bad	-(-)	-(-)	-(-)	-(-)	-(-)
Very Bad	-(-)	-(-)	-(-)	-(-)	-(-)
Total	13(100.0)	15(100.0)	-(-)	25(100.0)	24(100.0)

Table 4.12 shows a summary of the state of safe drinking water provided at site as stated by respondent at all the sites. The results revealed that 40% respondents from either site 2 or site 4, 37.5% respondents from site 5 and 23.1% respondents from site 1 said the state or condition of drinking water were very good. Also 90% respondents from site 3 said the state or condition for drinking water were good while 62.5% respondents from site 5, 61.5% respondents from site 1 and 56% respondents from site 4 said likewise that the state of drinking water was good. Site 1 and site 4 had 15.4% and 4% of it respondents respectively been indecisive or neutral to the state or condition of safe drinking water. However, none of the site recorded bad or very bad state of the facility. The researcher also observed that permanent staff on site are being supplied with bottled and sachet water.

Table 4.13 State of changing room

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5
	Frequency	Frequency	Frequency	Frequency	Frequency
	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)
Very good	1(7.8)	2(13.3)	-(-)	4(16.0)	2(8.3)

Good	6(46.5)	3(20.0)	-(-)	20(80.0)	14(58.3)
Neutral	4(30.8)	10(66.7)	-(-)	1(4.0)	8(33.3)
Bad	2(15.4)	-(-)	-(-)	-(-)	-(-)
Very Bad	-(-)	-(-)	-(-)	-(-)	-(-)
Total	13(100.0)	15(100.0)	-(-)	25(100.0)	24(100.0)

The above table 4.13 shows a summary of the state or condition of changing room indicated by respondents at four sites. The results revealed that 4 respondents from site 4 representing 16%, 2 respondents from site 2 representing 13.3%, 2 respondents from site 5 representing 8.3% and 1 respondent representing 7.8% said the state or condition of changing room were very good.

Also 20 respondents from site 4 representing 80%, 14 respondents from site 4 representing 58.3%, 6 respondents from site 1 representing 46.5% and 3 respondents representing 20% said the state or condition of changing room were good.

In addition, Site 2, site 5, site 1 and site 4 had respondents of 66.7%, 33.3%, 30.8% and 4% respectively been indecisive or neutral to the state or condition of changing room while 15.4% respondents from site 1 the state of changing room was very bad. However, none of the site recorded very bad state of the facility. The researcher also observed that the changing room for the site management are in good condition than the artisans or junior staff (refer to appendix A).

Table 4.14 State of Lockers

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5
	Frequency	Frequency	Frequency	Frequency	Frequency
	No.(%)	No.(%)	No.(%)	No.(%)	No.(%)
Very good	-(-)	-(-)	-(-)	-(-)	-(-)
Good	2(15.4)	7(46.7)	4(40.0)	-(-)	-(-)
Neutral	10(76.9)	8(53.3)	6(60)	-(-)	-(-)
Bad	1(7.7)	-(-)	-(-)	-(-)	-(-)
Very Bad	-(-)	-(-)	-(-)	-(-)	-(-)
Total	(-)	15(100.0)	10(100.0)	-(-)	-(-)

From table 4.14, it can be observed that 76.9% of the respondents from site 1 are indecisive about the state of lockers while 15.4% indicated good and 7.7% indicated bad about the state or condition of lockers at their sites. Also, from site 2, 53.33% of the respondents were indecisive about the state of lockers and 46.7% indicated good. On site 3, 60% of the respondents were indecisive whereas 40% said the state of lockers were good. From the analysis it can be said that the opinion of the respondents was neutral about the state of lockers provided on site. However, the researcher noted that the lockers provided on site are not standard lockers for workers. Refer to appendix A where wooden boxes with locks are used as lockers on site.

Table 4.15 State of Restroom

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5
----------	--------	--------	--------	--------	--------

	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)
Very good	-(-)	-(-)	-(-)	5(20.0)	2(8.3)
Good	2(15.4)	-(-)	-(-)	20(80.0)	13(54.2)
Neutral	1(7.7)	-(-)	-(-)	-(-)	9(37.5)
Bad	10(76.9)	-(-)	-(-)	-(-)	-(-)
Very Bad	-(-)	-(-)	-(-)	-(-)	-(-)
Total	13(100.0)	-(-)	-(-)	25(100.0)	24(100.0)

Also from table 4.15, it can be observed that 80% of the respondents from site 4 indicated that the state of restroom are good while 20% indicated very good. However, 76.9% of the respondents from site 1 indicated bad, 15.4% indicated good and 7.7% were indecisive about the state of restroom provided. On site 5, 54.2% of the respondents indicated good for the state of restroom whereas 37.5% were indecisive and 8.3% of the respondents said the state of restroom were very good. From the analysis it can be said that the opinion of the respondents in respect to the state of restroom is good.

Table 4.16 State of Canteen

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5

	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)
Very good	-(-)	-(-)	-(-)	-(-)	-(-)
Good	11(84.6)	-(-)	-(-)	-(-)	21(87.5)
Neutral	2(15.4)	-(-)	-(-)	-(-)	3(12.5)
Bad	-(-)	-(-)	-(-)	-(-)	-(-)
Very Bad	-(-)	-(-)	-(-)	-(-)	-(-)
Total	13(100.0)	-(-)	-(-)	-(-)	24(100.0)

The table 4.16 depicts that, 87.5% of the respondents from site 5 indicated that the state of canteen was good while 12.5% were indecisive. However, 84.6% of the respondents from site 1 also indicated good and 15.4% were indecisive about the state of canteen provided. Three of the site did not have canteen facility. It can be inferred that the respondent from the two site feels good about the state of canteen provided.

Table 4.17 State of Site accommodation

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5

	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)
Very good	-(-)	-(-)	-(-)	-(-)	-(-)
Good	-(-)	11(73.3)	-(-)	-(-)	14(58.3)
Neutral	-(-)	4(26.7)	-(-)	-(-)	4(16.7)
Bad	-(-)	-(-)	-(-)	-(-)	6(25.0)
Very Bad	-(-)	-(-)	-(-)	-(-)	-(-)
Total	-(-)	15(100.0)	-(-)	-(-)	24(100.0)

From table 4.17, it can be observed that 73.3% of the respondents from site 2 indicated good about the state of site accommodation whereas 26.7% were indecisive about the state of the accommodation. Also 58.3% from site 5 indicated good, 25% indicated bad whereas 16.7% were indecisive about the state of site accommodation. It can be inferred that the opinion of the respondents is good regarding the state of accommodation for the two sites.

Table 4.18 State of First Aid Box(es)

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5

	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)
Very good	5(38.5)	6(40.0)	1(10.0)	-(-)	15(62.5)
Good	8(61.5)	11(60.0)	9(90.0)	3(12.0)	9(37.5)
Neutral	-(-)	-(-)	-(-)	8(32.0)	-(-)
Bad	-(-)	-(-)	-(-)	4(56.0)	-(-)
Very Bad	-(-)	-(-)	-(-)	-(-)	-(-)
Total	13(100.0)	15(100.0)	10(100.0)	-(-)	24(100.0)

From table 4.18 it can be observed that 90% of the respondents from site 3 indicated that the state of first aid box was good while 10% indicated very good. Also from site 5, 62.5% of the respondent stated that the state of first aid box was very good whereas 37.5% said it was good.

From site 1, 61.5% of the respondents said that the state of first aid box was good and 38.5% indicated very good. On site 3 however, 60% of the respondents indicated good whereas 40% also indicated very good. 56% of the respondents from site 4 indicated bad state of first aid box, 32% were indecisive whereas 12% indicated good. From the analysis it can be said that the opinion of the respondent is good about the state of first aid box(es) for all the site.

Table 4.19 State of Urinals

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5

	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)
Very good	-(-)	-(-)	-(-)	-(-)	-(-)
Good	-(-)	-(-)	-(-)	-(-)	-(-)
Neutral	1(7.7)	-(-)	-(-)	-(-)	-(-)
Bad	8(61.5)	-(-)	-(-)	-(-)	-(-)
Very Bad	4(30.8)	-(-)	-(-)	-(-)	-(-)
Total	13(100.0)	-(-)	-(-)	-(-)	-(-)

The table 4.19 shows the state or condition of urinals at site 1 only. It was observed that, 61.5% of the respondents said the state of urinal was bad, 30.8% said very bad and 7.7% were indecisive about the condition of the urinals. It can be inferred that site 1 state of urinals is bad using the opinion of the respondents. Refer to appendix A for picture showing the state of urinals

#### 4.6 EVALUATION OF WORKER SATISFACTION WITH SITE WELFARE PROVISIONS

Section D evaluate worker satisfaction with site welfare provisions. Table 4.20 shows how satisfied are workers with welfare provisions provided on various site.

It can be observed that 46.2% of the respondents from site 1 are dissatisfied with the welfare provisions provided on site, whiles 30.8% are also highly dissatisfied about the provisions on site and 15.4% of the respondents are indecisive whereas 7.7% of the respondents are satisfied with the welfare provisions on site. On site 2, 46.7% of the

respondents are dissatisfied with the welfare provisions provided, while 20% are either highly dissatisfied or indecisive about the provisions on site and 13.3% of the respondents are satisfied with the welfare provisions on their site. Also site 3 has 40% of the respondents been dissatisfied with the provisions on site, 20% of the respondents are either highly satisfied or indecisive about the provisions and 10% are also either satisfied or highly satisfied with the provisions. Site 4 also have 28% of its respondents been satisfied with the provisions on site while 20% are either highly dissatisfied or indecisive with the provisions and 16% also are either dissatisfied or highly satisfied with the provisions on site. Site 5 has 50% of its respondents dissatisfied with the provisions on site, 25% of the respondents are indecisive while 16.7% of the respondents are highly dissatisfied and 4.2% of the respondents are either satisfied or highly dissatisfied. From the analysis, it can be inferred that majority of the respondents are dissatisfied with the welfare provisions provided at their site.

Table 4.20 Workers satisfaction with welfare facilities provided on various site

Response	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	TOTAL
----------	--------	--------	--------	--------	--------	-------

	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)	Frequency No.(%)
Highly Satisfied	-(-)	-(-)	1(10)	4(16)	1(4.2)	6(6.9)
Satisfied	1(7.7)	2(13.3)	1(10)	7(28)	1(4.2)	12(13.8)
Neutral	2(15.4)	3(20)	2(20)	5(20)	6(25)	18(20.7)
Dissatisfied	6(46.2)	7(46.7)	4(40)	4(16)	12(50)	33(37.9)
Highly dissatisfied	4(30.8)	3(20)	2(20)	5(20)	4(16.7)	18(20.7)
Total	13(100.0)	15(100)	10(100)	25(100)	24(100)	87(100)

#### 4.7 FACTORS INFLUENCING THE LEVEL OF SATISFACTION OF WELFARE FACILITIES

This final section discussed the factors that influence the level of satisfaction of welfare facilities on construction workers.

Table 4.21 Factors influencing the level of satisfaction of welfare facilities

Factors	Very influential	Influential	Moderately influential	Less influential	Not influential	Total
	No(%)	No(%)	No(%)	No(%)	No(%)	No(%)

Maintenance of welfare facilities	48(55.2)	34(39.1)	4(4.6)	1(1.1)	-(-)	87(100)
Adequate number of welfare facilities	57(65.5)	28(32.2)	2(2.3)	-(-)	-(-)	87(100)
Closeness of welfare facilities	16(18.4)	43(49.4)	28(32.2)	-(-)	-(-)	87(100)
Ventilation of space	56(64.4)	31(35.6)	-(-)	-(-)	-(-)	87(100)
Accessibility of facilities	31(35.6)	56(64.4)	-(-)	-(-)	-(-)	87(100)
Illumination of space	30(34.5)	37(42.5)	18(20.7)	2(2.3)	-(-)	87(100)
Identification of facilities	48(55.2)	32(36.8)	7(8.0)	-(-)	-(-)	87(100)
Enough tables and seats (canteen, changing room and resting room)	-(-)	21(24.1)	53(60.9)	13(14.9)	-(-)	87(100)
Adequate space or room provided	5(5.7)	39(44.8)	43(49.4)	-(-)	-(-)	87(100)
Separate facilities for both gender	15(17.2)	20(23.0)	19(21.8)	33(37.9)	-(-)	87(100)
Clean and hygienic environment	39(44.8)	48(55.2)	-(-)	-(-)	-(-)	87(100)

The table 4.22 above indicated that, 48 respondents representing 55.2% said maintenance of welfare facilities is very influential factor in influencing their level of satisfaction on welfare provisions on site whiles 34 respondents representing 39.1% said it influential factor, 4.6% respondent indicated moderately influential and 1.1% also said it less influential factor. This inferred that maintenance of welfare facilities is a very influential factor that influence the level of satisfaction of welfare facilities on site.

Also, for adequate number of welfare facilities factor, 65.5% of the respondents choose very influential, 32.2% choose influential and 2.3% choose moderately influential. This indicates that adequate number of welfare facilities is very influential factor that influence the level of satisfaction of welfare facilities.

Furthermore, for closeness of welfare facilities factor, 49.4% of the respondents indicated influential, 32.2% indicated moderately influential and 18.4% indicated very influential. This inferred that closeness of welfare facilities is influential factor that influence the level of satisfaction of welfare facilities.

Not all, for ventilation of space factor, 64.4% of the respondents indicated very influential while 35.6% indicated influential. This inferred that ventilation of space or room is very influential factor that influence the level of satisfaction of welfare facilities.

Again, for accessibility of facilities factor, 64.4% of the respondents indicated influential while 35.6% indicated very influential. This inferred that accessibility of facilities is an influential factor that influence the level of satisfaction of welfare facilities.

In addition, for illumination of space or room factor, 42.5% of the respondents indicated influential, 34.5% indicated very influential, 20.7% indicated moderately influential and 2.3% indicated less influential. This can be inferred that illumination of space or room is influential factor influencing the level of satisfaction of welfare facilities.

For identification of facilities factor, 55.2% of the respondents indicated very influential, 36.8% indicated influential and 8% indicated moderately influential. This inferred that identification of facilities is very influential factor influencing the level of satisfaction of welfare facilities.

For enough tables and seats (canteen, changing and resting room) factor, 60.9% of the respondents indicated moderately influential, 24.1% indicated influential and 14.9% indicated less influential. This inferred that enough tables and seat (canteen, changing and resting room) is moderately influential factor that influence the level of satisfaction of welfare facilities.

For adequate space or room factor, 49.4% of the respondents indicated moderately influential, 44.8% indicated influential and 5.7% indicated very influential. This inferred that adequate space or room provided is moderately influential factor influencing the level of satisfaction of welfare facilities.

For Separate facilities for both gender, 37.9% of the respondents indicated less influential, 23% indicated influential, 21.8% indicated moderately influential and 17.2% indicated very influential. This can be inferred that separate facilities for both gender is less influential factor influencing the level of satisfaction of welfare facilities.

Finally, for clean and hygienic environment, 55.2% of the respondents indicated influential while 44.8% indicated very influential. This inferred that clean and hygienic environment is an influential factor that influence the level of satisfaction of welfare facilities on site.

## CHAPTER FIVE

### CONCLUSION AND RECOMMENDATIONS

#### 5.1 INTRODUCTION

The availability of welfare facilities, their location on site and regular maintenance must be considered at the planning and preparation stages of every construction project before

construction works start (HSE, 2010). This final chapter carries the report further by presenting the conclusion and recommendations of the findings.

The aim of this study was to investigate worker satisfaction with construction site welfare provisions. And the following objectives were set to achieve the aim of the study;

1. To determine the adequacy of welfare facilities on construction sites.
2. To assess the state of welfare facilities on construction sites.
3. To assess worker satisfaction with construction site welfare provision.
4. To establish factors that influence the level of satisfaction of welfare provisions.

## 5.2 CONCLUSION

The results from the study shows clearly that, contractors do not provide adequate welfare facilities at the construction site. From the respondents and observations on site shows that majority of the site did not have welfare facilities stated in Labour Act and Factory, Office and Stores Act of Ghana. Also according to the respondents, there were not adequate number of welfare facilities to the number of workers. The facilities on site cannot match the number of workers on site

According to the respondents, the state of most welfare facilities on site were bad. This an indication that the welfare facilities on site are not properly cleaned and maintained throughout the project duration.

From the respondents on site also shows that, construction workers are dissatisfied with current welfare provisions on their site. Most of the construction firms do not provide all the minimum welfare facilities needed at the construction site.

Lastly, the respondents indicated that the following factors influence the level of satisfaction of welfare provisions on site; maintenance of welfare facilities, adequate number of welfare facilities, closeness of welfare facilities, ventilation of space, accessibility of facilities, illumination of space or rooms, identification of facilities, and clean and hygienic environment.

### 5.3 LIMITATIONS OF THE STUDY

The study focused only on worker satisfaction with construction site welfare provisions at Kotoka International Airport Vicinity. The study was also limited to only permanent workers on D1K1 construction site.

### 5.4 RECOMMENDATIONS

Construction firms should be committed in providing welfare facilities at their sites. This must be done before actual construction works start on site.

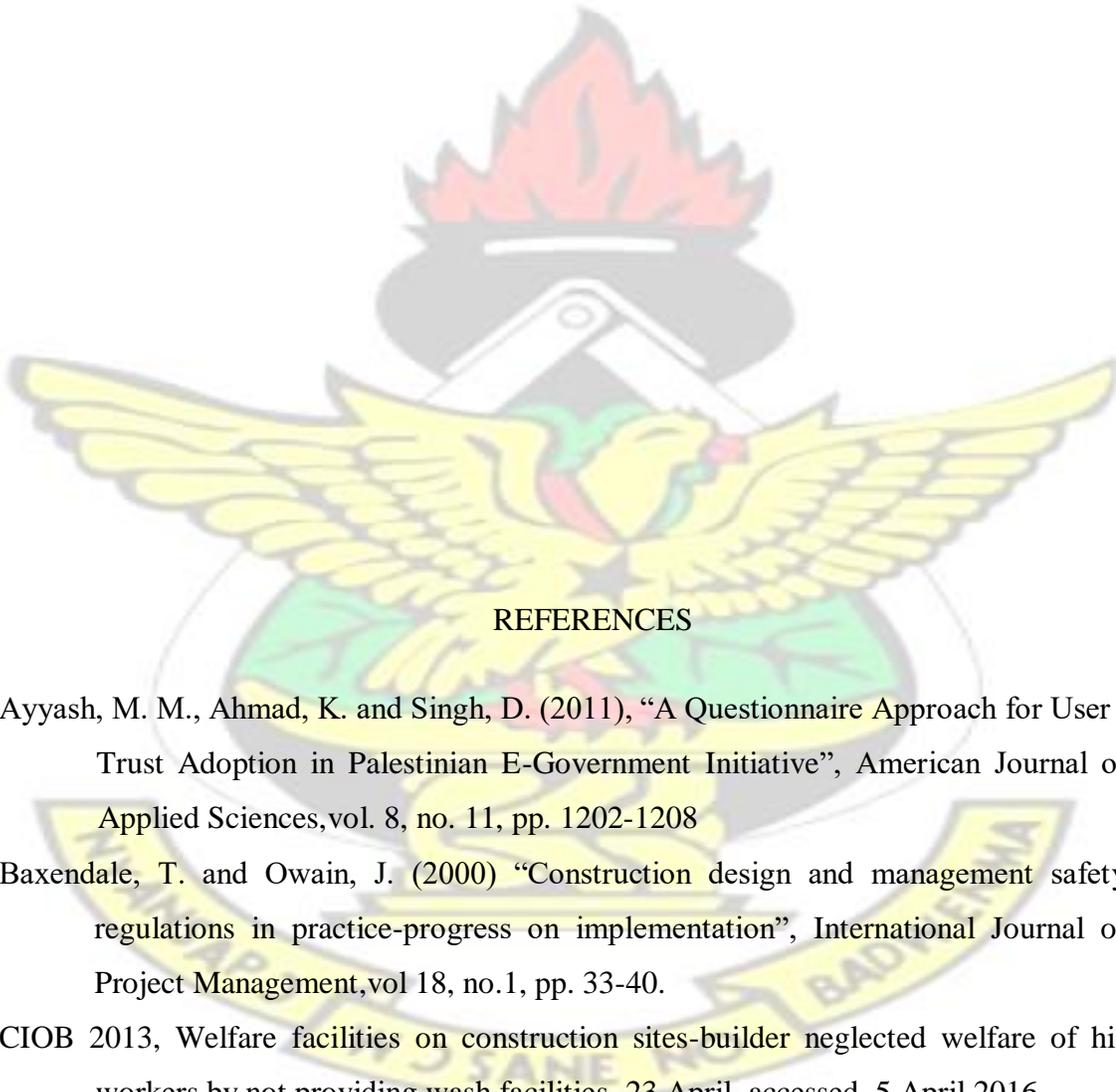
Client and consultant should ensure that the minimum welfare facilities are provided on site before approval is given to start the actual construction works.

Policy makers should conduct routine checks on welfare facilities needed to be provided at construction site.

Welfare facilities on sites should be properly maintained, adequate number must be provided and the space should be well ventilated.

Welfare facilities on site should be accessible, properly identified, clean and hygienic to use.

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## APPENDIX A: PICTURES OF WELFARE FACILITIES ON SITE



Picture showing cubicle of toilet at site



Picture showing toilet facility at site



Picture showing state of shower at site



Pictures showing state of bathroom



Picture showing condition of handwash basins



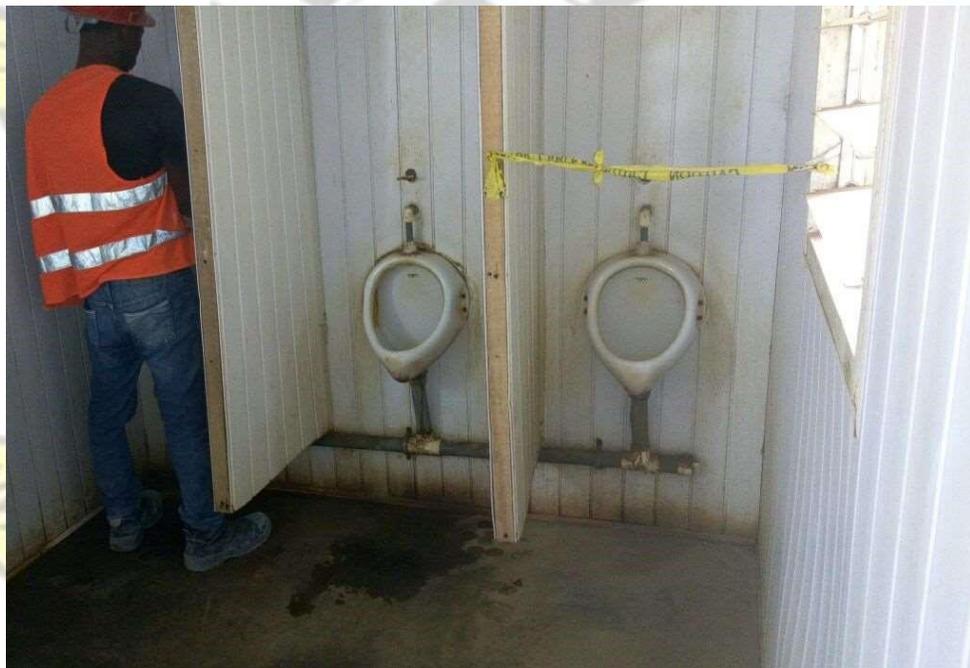
Picture showing toilet facility with basin in front



Changing and restroom for junior staff with wooden boxes as lockers



Picture showing changing and restroom for senior staff



Picture showing the state of urinal (One not functional)

## APPENDIX B: RESEARCH QUESTIONNAIRE

### SURVEY QUESTIONNAIRE ON WORKER SATISFACTION WITH

## CONSTRUCTION SITE WELFARE PROVISIONS.

This questionnaire forms part of the research work for the partial fulfilment of the award of Master's degree in Construction Management on the topic "AN INVESTIGATION OF WORKER SATISFACTION ON CONSTRUCTION SITE WELFARE PROVISIONS". This research seeks to obtain vital feedback from construction workers to improve on welfare provisions on site. Response will be completely anonymous; your name or company name will not appear anywhere in any publication. Your participation in the survey is voluntary and your answer will be kept strictly confidential.

There are five section of the questionnaire:

Section A: Particulars of Respondent

Section B: Welfare provision requirements and adequacy

Section C: The state or condition of site welfare facilities

Section D: Evaluation of worker satisfaction with site welfare provisions

Section E: Factors influencing the level of satisfaction of welfare facilities

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SECTION A: RESPONDENT'S PROFILE

1. Company's Name and Address (Optional) .....

2. Designation of Respondents

a) Project Manager [ ]

b) Project Engineer [ ]

c) Quantity Surveyor [ ]

d) Supervisor [ ]

e) Foreman [ ]

f) Artisan [ ]

g) Helper/Labourer [ ]

h) Others, please specify .....

3. Highest Level of Education

a) MSc [ ]

b) BSc [ ]

c) HND [ ]

d) SHS [ ]

e) JHS [ ]

f) Others, please specify.....

4. Years of experience

a) 1 – 3 years [ ]

b) 3 – 5 years [ ]

c) 5 – 10 years [ ]

d) 11 years and above [ ]

**SECTION B: WELFARE PROVISION REQUIREMENTS AND ADEQUACY**

1. Please indicate how many workers are available on site daily

- i. 1 – 25 people [ ]
- ii. 26 – 50 people [ ]
- iii. 51 – 75 people [ ]
- iv. 76 – 100 people [ ]
- v. 101 people and above [ ]

2. Please indicate the welfare facilities available on your site by ticking.

Welfare facilities	Yes	No
Sanitary convenience (Toilet)		
Shower		
Basins or sink		
Soap and Towels		
Safe Drinking water		
Changing room		
Lockers		

Rest Room		
Canteen		
Site accommodation		
First Aid box(es)		
Others please specify .....		

3. Please state the number or quantity of each of welfare facilities ticked available on the site.

Welfare facilities	Quantity
Sanitary convenience (Toilet)	
Shower	
Basins or sink	
Soap and Towels	
Safe Drinking water(delivery point)	

Changing room	
Lockers	
Rest Room	
Canteen	
Site accommodation	
First Aid box(es)	
Others please specify .....	

**SECTION C: THE STATE OR CONDITION OF SITE WELFARE FACILITIES**

What is the state or condition of the welfare facilities provided at your construction site?

Very Good means the facility is always clean, maintained, usable, adequately resourced and functional;

Good means the facility is clean, maintained, usable, resourced and functional;

Neutral means the facility is scarcely clean, maintained, resourced and functional;

Bad means the facility is dirty, poorly maintained or resourced and not functional;

Very Bad means the facility is very dirty, not maintained or resourced and not functional

Please indicate on a scale of 1-5 your satisfaction level. 1– Very good, 2- Good, 3-

Neutral, 4- Bad, 5- Very Bad

Please tick only the welfare facilities available at your site

Welfare facilities	1	2	3	4	5
Sanitary convenience (Toilet)					
Shower					
Basins or sink					
Soap and Towels					
Safe Drinking water					
Changing room					
Lockers					
Rest Room					
Canteen					
Site accommodation					

First Aid box(es)					
Others please specify .....					

**SECTION D: EVALUATION OF WORKER SATISFACTION WITH SITE**

**WELFARE PROVISIONS**

1. Please indicate using the scale provided how satisfied you are with the welfare provisions provided on your site.

Scale 1 = Highly satisfied, 2 = satisfied, 3 = Neutral, 4 = Dissatisfied, 5 = Highly dissatisfied

Welfare Provisions	1	2	3	4	5
Highly satisfied					
Satisfied					
Neutral					
Dissatisfied					
Highly dissatisfied					

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## SECTION F: FACTOR INFLUENCING THE LEVEL OF SATISFACTION OF WELFARE FACILITIES

Please indicate using the scale provided how the following factors have influenced your satisfaction with the welfare provisions.

1 = Very influential, 2 = influential, 3 = moderately influential, 4 = less influential, 5 = not influential

Factors	1	2	3	4	5
Maintenance of welfare facilities					
Adequate number of welfare facilities					
Closeness of welfare facilities					
Ventilation of space					
Accessibility of facilities					
Illumination of space					
Identification of facilities					
Enough tables and seats(canteen, changing room and resting room)					

Adequate space provided					
Separate facilities for both gender					
Clean and hygienic environment					

