

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF ARCHITECTURE AND PLANNING

DEPARTMENT OF BUILDING TECHNOLOGY

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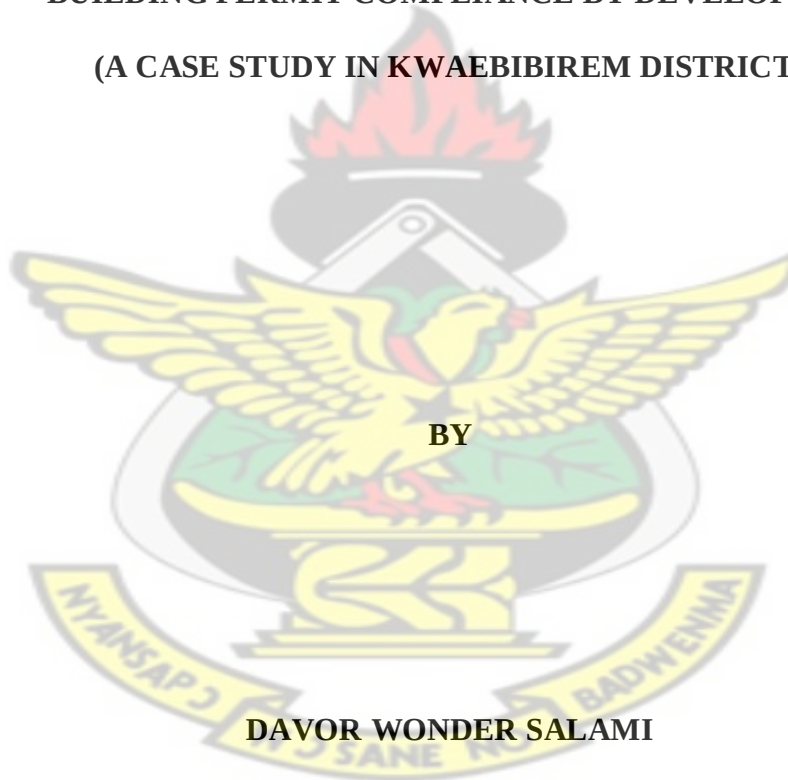
BUILDING PERMIT COMPLIANCE BY DEVELOPERS

(A CASE STUDY IN KWAEBIBIREM DISTRICT)

BY

DAVOR WONDER SALAMI

(BSc. CONSTRUCTION TECHNOLOGY)



NOVEMBER, 2014

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KNUST

**A THESIS SUBMITTED TO THE DEPARTMENT OF BUILDING
TECHNOLOGY, KWAME NKRUMAH UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

BY

**DAVOR WONDER SALAMI
(BSc. CONSTRUCTION TECHNOLOGY)**

**IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
DEGREE**

OF

MASTER OF SCIENCE IN CONSTRUCTION MANAGEMENT

College of Architecture and Planning

NOVEMBER, 2014

DECLARATION AND CERTIFICATION

I hereby declare that this submission is my own work towards the M.Sc 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 acknowledgment has been made in the text.

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ABSTRACT

The development of housing units must be regulated and monitored to ensure standards, safety of occupants and the effectiveness of all buildings in order to prevent collapse, loss of lives and properties. Accordingly, the Government of Ghana through Ministry of water Resources Works & Housing and Ministry of Local Government & Rural Development promulgated Legislative Instrument LI 1630 regulating development to comply with minimum design and construction standards. The MMDAs are therefore required to ensure enforcement, by vetting every development application before they are certified and issued in a form of Building Permit. Once the Building Permit is issued, the developer is obliged to comply with all the conditions in it. If the developer wish to make any change in the original plan however, he or she is required to reapply for alteration from the approving authority (National Building Regulation, 1996). However, recent observations indicated that some developers obtain Building Permit and develop contrary to the conditions of the permit, putting the Building and the occupants at risk. This research was aimed at investigating the effects of noncompliance with building Permit on development.

An extensive Literature review identified three main effects of noncompliance, namely 1) Slum development, 2) Weak Building and 3) Collapse Building.

The strategy and method used include design of questionnaire to collect data which was analysed using SPSS and the results compared with the outcome of literature Review.

The results revealed that 80% of the respondents are aware of building permit, and 93.33 did not comply with their building permit.

It was recommended that National Building Commission be established to oversee and enforce Building Permit Compliance, and services extended to new buildings only on condition that the Building has a certificate of Construction Compliance.

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DEDICATION

This Research is dedicated to the Almighty God for helping me to complete the course successfully among all odds, my wife, my children and Davor Family as a whole.

Finally, to Dr. Bernard K. Baiden of the department of Building Technology, KNUST, for his timely intervention to enable me complete the dissertation on schedule. His personal, bold, and selfless intervention, really rescued me from the initial challenges I was facing under previous supervision.



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My heartfelt gratitude also goes to Mr. Selorm Akai of Ghana Technology University, for his special supports, proof reading, corrections and expert directions for the Research work even at his crucial moments.

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ABBREVIATIONS

<u>S/N</u>	<u>ELLIPSIS</u>	<u>FULL MEANING</u>
1	BI	Building Inspector
2	DA	District Assembly
3	DASIP	District Assemblies Service Improvement Programme
4	DE	District Engineer
5	DEHO	District Environmental Health Officer
6	EPA	Environmental Protection Agency
7	FIDIC	Federation Internationale Des Ingenieurs-Conseils
8	GIS	Ghana Institution of Surveyors
9	ICT	Information and Communication Technology
10	KNUST	Kwame Nkrumah University of Science and Technology
11	L.I.	Legislative Instrument
12	MMDA	Metropolitan/Municipal/District Assembly
13	OECD	Organization for Economic Co-operation and Development of UN
14	PWD	Public Works Department
15	R&D	Research and Development
16	SCC	State Construction Companies / State Construction Corporation
17	SHC	State Housing Companies / State Housing Corporation
18	SPSS	Statistical Package for Social Sciences
19	TDC	Tema Development Corporation
20	TCPO	Town and Country planning Officer

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

An individual or organization intending to commence with the construction of a building whether for residential or for other purposes, must obtain a building permit (Awu, 2012). Housing (shelter) is one of the basic necessities of life. Every individual is expected to provide a decent and safe housing for himself and or his family at one stage in life to improve his or her standard of living, since there is a direct relationship between the quality of housing and the quality of life (Mensa & Donkor, 1993). The development of housing units must therefore, be regulated and monitored to ensure standards, safety of occupants and the effectiveness of all buildings in order to prevent its collapse, loss of lives and properties.

In exercising powers conferred on the Minister for Works and Housing by section 63 of the Local Government Act (Act 462), the National Building Regulation was promulgated to regulate the activities of every developer and their development in the country (National Building Regulation, 1996). The Local Authorities (Metropolitan, Municipal and District Assemblies) are also required to ensure that all development plans submitted for approval meet structural stability and soundness in line with Ghana National Building Regulation before giving out approved Building Permit for development.

This is to ensure that plans approved for development are in conformity with the development schemes of the locality and also to serve as “Checks” for ensuring structural soundness of every Building, Installations and Constructions before their execution to avoid collapse (Local Government Law, 1993).

Meanwhile, the rate at which buildings are collapsing in Ghana, called for a critical look at the approved plans and their developments. If the plans submitted for approval are well designed (as checked and approved by the approving authorities), then the only reason why it could fail during or after development may be due to non-compliance with the approved plans as in the Building Permit. For the purposes of economizing land, room space/number and building resources, developers may submit one plan for Building Permit but rather develop different one on the ground, which can easily result into structural alteration and failure(Vandapuije, 2012). This research therefore desires to use quantitative and qualitative approaches to find out the extent of compliance with the approved building permits by the Building developers (Permitees).

1.2 STATEMENT OF THE PROBLEM

Many Ghanaians were met with the reality of collapsed buildings in recent times as several buildings such as Melcom Building in Accra, O&A Travel and Tour Building in Kumasi, Mr. S. K. Omari's Building at NiiBoi town-Accra, Ebenezer Methodist Church Building in Dansoman and other individual buildings collapsed without any adverse occurrences such as earthquake, tsunami, etc. and Kwaebibirem District is not in exception. The question that immediately comes to mind is whether the buildings in question were duly permitted to be built in a form of approved Building Permit? And were they permitted in accordance with the National Building Regulation? Did the Developers comply strictly with the approved Building Permit during the construction?

Ghana Institution of Surveyors in a press statement during MelcomDisaster stated:“what we find and very often was the case is that, you see a foundation started, which in our professional point of view is for a single storey building or maximum a 2-storey building. With time, the ground floor is completed, they may wait for a while and add another floor, then another and another...”(Ghana Institution of Surveyors, 2012). The GIS statement is an indication that, either developers develop without an approved building plan (Building Permit) or they do not comply with whatever has been approved in a form of building permit for them. According to Parker (2000), “Though there is little hard evidence, a growing body of anecdotes and studies from OECD countries suggests that inadequate compliance underlies many such failures. This is a common but little understood form of regulatory failure”. Vandapuije(2012), considered developers’ attitude of converting every space available including toilets into bedroom for rentals, thereby altering approved buildings as designed as improper and must be stopped immediately. Several Researchers such as Awu (2012), have already researched into the acquisition of building permit in Ghana and the various challenges fraught with the process, the Assembly’s capability to vet permits before approval etc. The aspect that has not been critically considered and which this researcher researched into was how strictly the developers comply with their approved Building Permit in order to ensure sound building as designed. A building can only be sound and safe if the design approved by the authorities is strictly complied during the construction.

1.3 RESEARCH QUESTIONS

The study was guided by the following basic questions which were relevant to the area of the research.

- Do the Building Permittees fully comply with the approved permits in their development?
- If they do not comply fully contrary to the National Building Regulations, then could that be one of the reasons for the recent Buildings Collapse in the country?
- If they do comply with the conditions of the Building permit, then what is the extent of compliance and its possible effect on the structural stability of the building?
- Are Buildings constructed issued with Certificate of Completion for Habitation before occupation by the developers in accordance with the National Building Regulation LI 1630? And what is the extent to which this provision is complied with.

1.4 AIM AND OBJECTIVES

i) Aim of the study

The aim of this research was to investigate the effect of noncompliance with approved Building permit on development in Kwaebibirem District.

ii) Objectives of the study

The objectives of this research are to find out:

- a) the indigenous developers' awareness of Building Permit.
- b) developers level of compliance with approved Building permit.

- c) the effects of noncompliance on development.

1.5 SIGNIFICANCE OF THE STUDY

Building Permits are issued to developers at most on quarterly bases (National Building Regulation, 1996). The drawings for these Permits are usually designed by Architects and Engineers with structural calculations. The smallest deviation from these designs is a recipe for disaster. How sure are we as a country that these developers are in full compliance with the approved plans or designs? This research therefore is not only significant in unraveling what developers do after obtaining their approved permits and the possible effects on the completed building, but would also contribute to existing knowledge in the study area. The recommendations from the research will also go a long way to help the relevant stakeholders in streamlining their operations in the Kwaebibirem District.

1.6 RESEARCH METHODOLOGY

The Researcher gathered data from both primary and secondary sources. Literature was reviewed and questionnaires designed to collect primary data from the stakeholders. Finally the above were complemented with interviews and personal observations. The researcher adapted deductive approach, where literature was reviewed followed by data analysis and the results of data analysis compared with the findings of the literature review. Conclusions were then drawn out of the comparison and recommendations made. Finally, from the literature review, it was apparent that no one had undertaken a research specific to the area of interest, and hence the need to continue this research to a successful conclusion in order to improve or add up to existing knowledge in the study area.

1.7 SCOPE OF THE RESEARCH

The National Building Regulation and the permitting for development concern the whole country Ghana. The research is therefore expected to reflect the true compliance with the approved development plans by every individuals and or organizations in the Country. However, due to limited time and resources, Kwaebibirem District in the Eastern Region of Ghana was selected as a case study for the Research. Indigenous Building Developers were targeted for data collection for the research but data was equally elicited from the Building permit Approving Authorities to supplement data gathered from the developers in order to have a fair and balanced view of the situation on the District.

1.8 ORGANIZATION OF STUDY

The research work is organised infive(5) chaptersand presented as;

1.8.1 Chapter 1: Introduction

This chapter provides an overall introduction and backgroundto the research work by examining and presenting the aim, objectives, research questions and scopeof thework.

1.8.2 Chapter 2: Literature Review

The review and critical examination of previous works in published and unpublished literature wasdone inthischapter. Focuswasonprojectrisksfactorsidentification, classification,assessment,managementandalternative procurementmethodsusedinworks procurements.

1.8.3 Chapter 3: Research Methodology

Thischapterexplainsandjustifiestheoverallphilosophy,conceptualframework,approac h, strategy, techniques, design andmethod of analysis used in the study.

1.8.4 Chapter 4: Data Analysis

Data obtained from the field was used for analysis and evaluation in order to satisfy the aim and objectives of the research work

1.8.5 Chapter 5: Conclusion and Recommendation

This chapter consists of conclusions drawn from the analysis of the empirical data collected and also provides recommendations for further research.



CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

The concentration on development of building properties in Ghana probably started in the late fifties to early sixties as Ghana became independence from their colonial rulers. “As part of the 1960- 65 National Development Plan, provision of housing was central as two main state bodies were formed to address housing issues: the State Housing Corporation (SHC) and the Tema Development Corporation (TDC)” (Bank of Ghana Report, 2007).

Whereas Tema Development Cooperation was created with special purpose to create Housing Units for the people in urban settlements such as Tema, the State Housing Corporation was also created to provide Housing Units across the Regions in the Country (Bank of Ghana Report, 2007). Unfortunately however, the resources allocated in the form of subventions, loans or grants for these ventures began to dwindle as Ghana’s economic difficulties began to take a toll (Bank of Ghana Report, 2007). Thus the housing sector began to experience a disjointed growth accompanied by urban sprawl as individuals built their own houses in an uncontrolled manner. To provide a standard guide and structurally sound buildings for individuals and corporate bodies engaged in development, Ghana Building Code “was developed by the Building and Road Research Institute of the Council for Scientific and Industrial Research, a state institution” (CASA Association 2012, P.6). Whereas this Building Code produced in the year 1988 is a document of immense importance and relevance, it lacks legal Authority as far as the compliance is concerned (CASA Association, 2012). To ensure legal enforcement of standards and holistic coordination of National Shelter Programme by the Local Authorities, the Minister responsible for Water

Resources Works and Housing in exercising powers conferred on him by the Local Government Act 462, made the National Building Regulation L.I 1630 in the year 1996 (National Building Regulation, 1996). “The Republic of Ghana as far as the Building Code regime is concerned is governed by the National Building Regulations L.I. 1630 (1996) derived out of Act 462 – The Local Government Act of 1993” (CASA Association 2012, P. 6). All local authorities (Metropolitan, Municipal and District Assemblies) are expected to comply fully with the requirements of this Building Regulation before issuing out development permits to developers. The developers are also required to comply fully with the conditions specified in the building permit as issued by the Local Authorities. In as much as the Researcher agrees with Oppong and Badu (2012) in their publication entitled ‘Building material preferences in warm-humid and hot-dry climates in Ghana’ that the National Building Regulation should be reviewed, which was again corroborated by CASA Association (2012), it is still believed that a strict adherence with the standards and Technical specifications in the National Building Regulation L. I. 1630 by the Local Authorities and the strict compliance with the conditions specified in the approved permits by developers will drastically reduce Building failures, if not completely eliminated. The National Building Regulation (1996), presently has nineteen parts with each part containing detail minimum standard specifications for building works as indicated below:

- Application of Regulations and Building Plans
- Pot development
- Site preparation and landscape
- Materials for Building
- Structural stability

- Structural Fire precautions
- Access Accommodations
- Air Movement and Ventilation
- Thermal Insulation
- Hearths, Chimneys and Heat Producing Appliances
- Sound Insulation
- Pest control and Protection Against Decay
- Drainage
- Sanitary Conveniences
- Refuse Disposal
- Water supply
- Lighting and Electrical installations
- Special Requirements for Rural Buildings
- Miscellaneous provisions

It is believed that if the requirements under each part are fully comply with when issuing Building permit by the Authorities and the Developers also comply fully when developing their buildings, failure should be very rear in the construction industry and in the country as whole. It is therefore, unbelievable the rate at which buildings are collapsing with or without permit these days. This Literature is reviewed with the purpose of establishing the ground upon which such phenomenon can occur, what other researchers have said about the phenomenon and to prepare the ground to conveniently corroborate or otherwise of the outcome of the field survey work.

2.2 BUILDING PERMIT

Building permit can be said to be a permission given by Authority to any developer in carrying out any new work, alteration, abatement, extension to existing building,

renovation or even change of use of existing building (National Building Regulation, 1996). Awu (2012) defines it as a license to build, and it is required for new building works, extension to existing structures, repairs, demolition, change of use and those affecting plumbing, electrical and mechanical systems of buildings. A person to whom Building permit is issued is referred to as “developer” (National Building Regulation, 1996).

Any person who intends to:

- a) Erect any building or
- b) Make any structural alteration to any building or
- c) Execute any works or install any fittings in connection with any building,

shall apply to the District Planning Authority of the District where the building, structure or works is or is intended to be and shall submit the relevant plans with the form (National Building Regulation, 1996).

Every individual is required to obtain approved Building Permit before commencing any development work. It is further emphasized that “No physical development shall be carried out in a District without prior approval in a form of written permit granted by the District Planning Authority (Local Government Act 1993, P. 30).

To obtain Building Permit, the applicant must apply to the Local Authority (Metropolitan, Municipal or District Assembly) and must submit other relevant documents to the application such as title to the land in a form of indenture, working drawing by a qualified Architect, Calculations, soil tests, and other information as the Local Authority may demand (National Building Regulation, 1996). The Local authorities are required to scrutinize the application and ensure all requirements are fully met and that they conform to the requirements of the National Building

Regulation before approval. If approved, the developer is expected to comply fully with the conditions specified therein.

2.3 BUILDING PERMIT APPROVING PROCESS

According to UN-HABITAT (2011), the process starts with acquisition of Land title, Block and site plans, fire report, soil investigation report, EPA report and other relevant documents as the particular Assembly may demand on the type building or structure.

This is followed by submission of application for Building Permit by the applicant together with all necessary documents to Municipal/Metropolitan/District Engineer. The Engineer then passes it on to the MMDA Planning Committee for approval. According to the process, unsuccessful applicants may re-apply using the process again.

The process however omitted a very vital step where a Technical sub-committee is expected to scrutinize the documents to ensure all the minimum standard requirements and specifications are fully complied with.

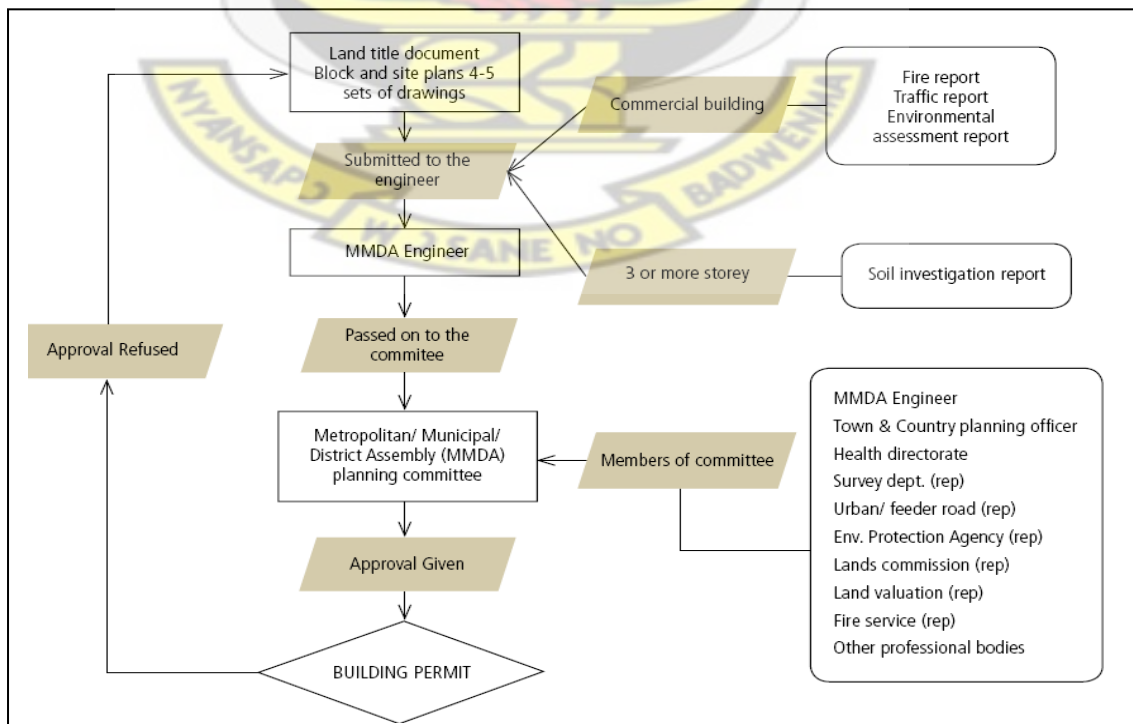


Figure 2.1 Building Permit Process Chart : UN-HABITAT (2011)

Meanwhile, in the United Kingdom, the Building permit process starts with engagement of Building Surveyor and ends with Final Inspection Certificate or Certificate of Occupancy (Victoria Auditor General, 2011). The process however, kept silence on the procedures that go into the approving the permit, including vetting of plans, site inspection and endorsement of permit.

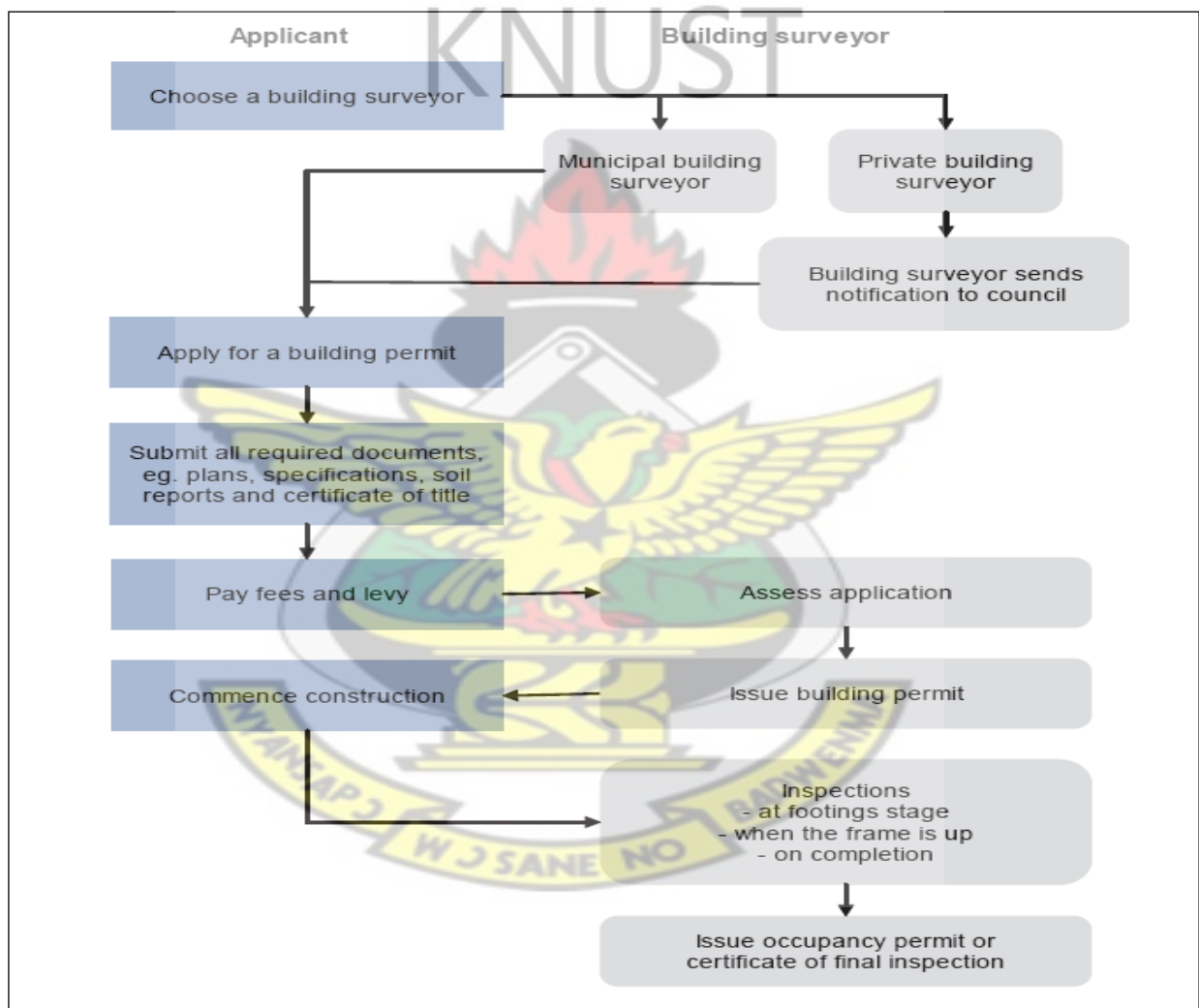


Figure 2.2 Building Permit Process Chart flow: Victoria Auditor General Report 2011, P.4

Awu (2012) however categorised the process into five (5) main steps. His process also started with application by the applicant with the relevant documents, followed

by assessment by the Technical sub-committee & site inspection and consideration and approval by the Planning Committee. This is followed by notification to pay fees and issuance of permit to developer. His process is very coherent, important, and includes another vital point to ensure compliance. That is site inspection before submission to the planning Committee for approval. However, the process flow is silence on non-approved permits and whether they can reapply and the steps involve.

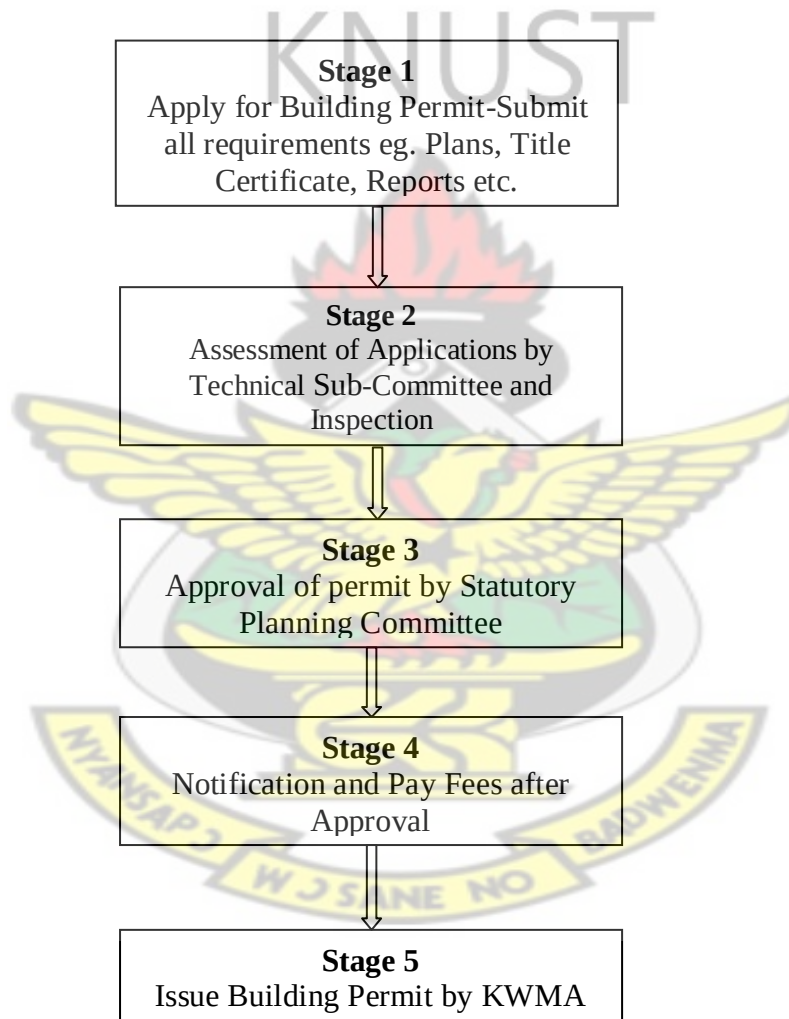


Figure 2.3 Building Permit Process Chart : Awu Bruce (2012)

The National Building Regulation (1996) however did not state a clear cut process for approving the building permit. The non-availability of a clear cut process in obtaining Building permit and its implementation may contribute to some Local Authorities

omitting some vital steps in the approving process and therefore resulting in none compliance. This may also result in non-uniform process of approving building permit in the country with one District Assembly's approving process being different from the other.

In the year 2010, the Ministry of Local Government and Rural Development of Ghana in its effort to improve service delivery in Metropolitan/Municipal/District Assemblies set a task force to come up with a clear assessment of procedures and processes involved in obtaining permit. The Task force came up with a document detailing the processes and procedures including monitoring of projects and issuance of certificate of Habitation to completed projects (Local Government Service Improvement Program, 2010). This process as shown is seen to be the most appropriate processes observed so far, but whether the Metropolitan/Municipal/District Assemblies are fully complying with these recommendations, this research is seeking to find out.

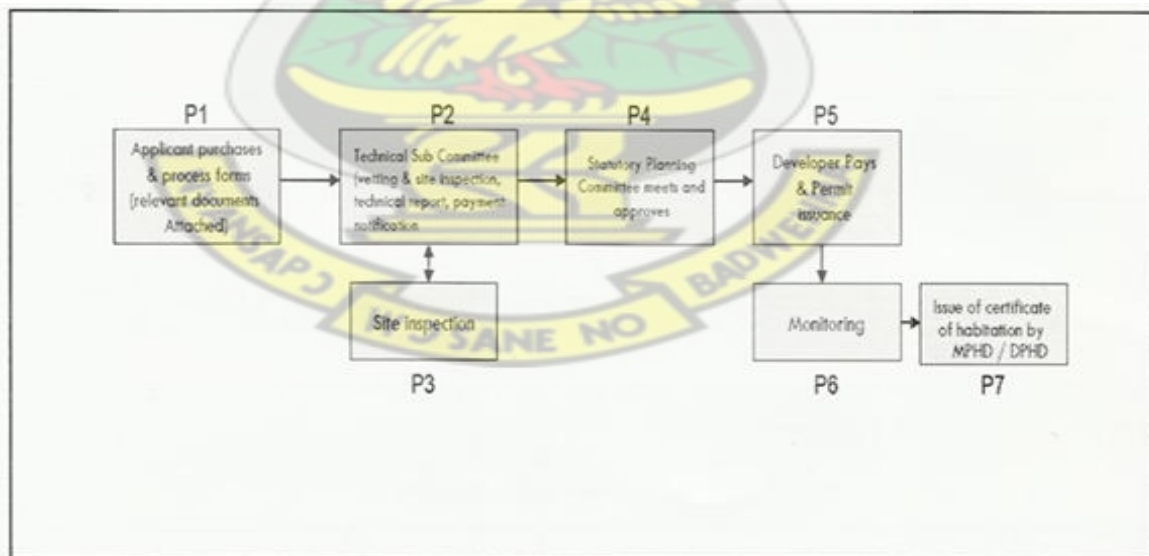


Figure 2.4 District Assembly Service Improvement Program (DASIP 2010)

2.4 BUILDING DEVELOPMENT

Building development or estate development which is sometimes called property development is a process of making changes and enhancement to a piece of real estate so that the property is capable of supporting a desired function (Tatum, 2013). In recognizing the importance of sustainable building development, Ashworth (2010) indicated that the construction industry is challenged to provide built assets that:

- Regenerate and revitalize town centers and other urban areas where decay has taken place
- Plan communities to place less reliance on the motor car
- Use energy more efficiently
- Minimise mineral extraction
- Cause minimum damage to the natural and social environments
- Provide training through schemes such as Welfare to Work and the New Deal
- Enhance the quality of life
- Will be acceptable to future generations

Whether involving residential or commercial property, the process of property development involves compliance with local standard and the need to make space functional within the area (Tatum, 2013).

Slough however, recommended the use of local developers as there was not much difference between National Planning Policy Framework for development (Slough Borough Council, 2013).

2.5 DEVELOPERS

Developer or a real estate developer is a real estate professional who specializes in creating new developments or renovating existing ones, marketing them successfully, and selling them (Elizabeth, 2013). These developers according to Elizabeth

(2013), often work with partners to share the risk and the workload, and they may work for big companies which conduct real estate development on a large scale or use real estate development as one investment tool in a diverse portfolio. People can approach a career as a real estate developer from a number of perspectives; developers may hold degrees in real estate development, or come from a background as a real estate agent, contractor, or architect.

2.6 INDIGENOUS DEVELOPER/CONTRACTOR

Indigenous development according to Asian Development conference is defined as “the growth or progress of an indigenous community in their originality or within the context of their ethnic identity in a holistic way” (UN Economic and Social Council, 2010). Indigenous People are custodians of some of the most biologically diverse territories in the world and they are also responsible for a great deal of the world’s linguistic and cultural diversity, and their traditional knowledge has been and continues to be an invaluable resources that benefits all of mankind (DESA OF UN, 2009). Furthermore, “Indigenous peoples have vital contributions to make in addressing the contemporary challenges to renew ecological and social ethics and relationships, and in the fulfillment of peace, human rights and sustainable development.” (DESA OF UN 2009, p.7).

According to Laryea and Sarfo (2010), Local or indigenous construction firms are those established and owned by locals and citizens of a country whereas foreign firms are owned by foreign nationals. An indigenous developer is regarded as a person or a group of persons or firms contractors who offer with special skills and services and accept the challenge of executing the works in exchange for financial reward within their own country or community from which they come (Ugochukwu & Onyekwena, 2014).

It was further observed that the common challenges facing indigenous contractors are in the area of working capital management are low awareness of the need for working capital management, one-man business setbacks, under-capitalization, poor funding and cash flow problems, high cost of construction finance, economic recession, reckless spending and diversion of funds, poor project planning and control. Factors affecting the level of working capital requirements comprises: inflation, delays in interim payments, taxation at source and deduction of retention funds and they also recorded a low level of participation on major public contracts (Ugochukwu & Onyekwena, 2014).

These indigenous contractors or developers unlike UK and elsewhere, are not clearly documented and therefore may not be monitored to see whether they are in compliance with the standards and lay down rules (Laryea & Sarfo, 2010).

2.7 EVOLUTION OF INDIGENOUS CONTRACTOR/DEVELOPERS

It is evidenced in Laryea and Sarfo (2010) that Ghanaian indigenous contractors or developers dated back in the early days of Ghana. With the advent of independence from British colonial rule on the 6th of March 1957, more local people were encouraged to go into contracting. In fact, right from the time preceding independence when Dr Kwame Nkrumah became Leader of Government Business in 1951 more local people were encouraged to go into construction. The Public Works Department (PWD) had grown in capacity in terms of number of skilled workers and operatives. As a result, some master craftsmen and technical supervisors who were employees of the PWD decided to set up their own private construction firms (Laryea & Sarfo, 2010).

This happened when Ghana had independent and there was the need to develop the country. Dr. Kwame Nkrumah encouraged individual professionals to engage in

construction of public buildings in PWD, who later left to form gangs to engage in private development. It was also clear that, because professionals such as Engineers and Architects were paid well and they could not come out of the Public Works Department to join the gangs in providing quality and acceptable service to individual. This led to the gang's inability to deliver acceptable service and Government organizations and professionals having high demand.

According to Laryea & Sarfo (2010), as the years developed, strong private construction firms started to evolve alongside the state-run State Construction Companies (SCC) and State Housing Companies (SHC). The private firms grew as a result of expanding construction activity in the country. With time, some of the private contractors were able to compete and even provide better remuneration for staff in comparison to the state institutions. They were thus able to attract more skilled and experienced staff. As a result, state institutions like the SCC started to decline around the early 1990s and privately owned construction firms now dominated the construction market in Ghana. This was how indigenous developers evolved in Ghana.

2.8 COMPLIANCE WITH BUILDING PERMIT

Compliance according to Parker (2000) is defined as obedience by a target population with regulatory rules or with government policy objectives. Compliance with building permit can be said to be strict adherence with the dictates and conditions approved in the permit (National Building Regulation, 1996). Compliance with building permit can be seen at two levels; namely compliance by the Local Authority and Compliance by the Developer.

2.8.1 Compliance by Local Authorities

The Local Authorities are required to ensure that before Permit is issued, the application conforms to all the minimum standards and specifications set out in the National Building Regulation and Byelaws. “If the Building control body (the Local Authority) is not satisfied that the proposal comply with the Building Regulations, they may send the applicant a list of amendments or additional information considered necessary” before approval (UK Department of Communities and Local Government, 2007). Once the Local Authority (Metropolitan/Municipal/District Assembly) is satisfied that the necessary requirements are provided and they are bound to process the permit within 3 months from the date of receipt of application. “In the event that the local authority fails to respond to an application for a building permit for 3 months, prospective developers gain the automatic right to initiate or continue with the construction activities without the official approval granted to the Assembly” (UN-HABITAT 2011, p.22). Meanwhile an audit conducted indicated that the Local Authorities “cannot demonstrate that the building permit system is working effectively or that building surveyors are effectively discharging their role to uphold and enforce minimum building and safety standards” (Victoria Auditor General, 2011). This finding is also corroborated by Boamahet. al (2012) as cited by Oppong and Badu (2012).

The finding is very worrying because if the Building Permit approved is of sub-standard or does not conform to the standards set out in the National Building Regulation, then it can be said that no matter how strict the approved Building Permit is adhered to, the result is likely to be a sub-standard work. Thus “garbage-in garbage-out”. Again, if the field survey of this Research proved the above stated point to be

true, then one can understand why buildings of today collapse without any additional external load by ‘pancake’ collapse.

2.8.2 Compliance by Developer

All approved development plans shall be complied with by any person, body or organ in the District responsible for or connected with the implementation of the plan (Local Government Act 1993, p.30).

Compliance with approved Building permit refers to adherence with the terms, Conditions and standards specified in the approved Building Permit during development by the developer. The responsibility for compliance with the requirements of the approved Building Permit is placed first and foremost on the owner and the builder/developer of a building (Department of the Environment, Community and Local Government, 2011).

Section 10(1) of the National Building Regulation (1996) provides that “a person to whom a Building Permit has been issued referred to in these regulation as ‘developer’ shall give to the District Statutory Planning Authority at least forty-eight hours’ notice in writing indicating the date on which to begin work, and of the dates on which the following stages of construction will be ready for inspection by the District Planning Authority—

- (a) Demarcation of the site of the plot and siting of the building;
- (b) Foundations of buildings setout;
- (c) Foundations excavated and level pegs for concreting;
- (d) Foundations concreted;
- (e) Trenches for drainage work excavated to levels and gradients
- (f) Drains laid and jointed and ready for testing;
- (g) Reinforcing steel fixed in position before concreting;

- (h) Concrete shuttering ready for striking;
- (i) Walls completed to wall plate levels;
- (j) Roof framed-work completed for before covering”.

This requirement is further emphasized that “No construction shall be covered until it has been inspected and approved by the District Planning Authority” (National Building Regulation 1996, p.11). In addition to that, “it is the responsibility of anyone carrying out building work to comply with the relevant requirements of the Building Regulation” (UK Department of Communities and Local Government 2007, p.8).

In the United Kingdom however, to effectively ensure compliance, the developer is permitted to propose a Building Surveyor (Building Inspector) for the approved development plan, who supervises the project according to the approved permit. “If approved Inspector is engaged, the person intending to carry out the work (the developer) and the Inspector must jointly give to the Local Authority an initial notice. The Local Authority has five days in which to accept or reject the notice. If the Local Authorities have neither rejected nor accepted the notice by the end of the period, the notice is deemed to be accepted” and the Inspector is required to supervise the development according to the approved plan (UK Department of Communities and Local Government 2007, p.8). This is different from the practice in Ghana where the Building Inspector is always a staff of the Local Authority and who doesn’t supervise day to day construction of the project, but stage completion (National Building Regulation, 1996).

In Ghana, to ensure that the requirements in the approved Building Permit are fully complied, it is required that a Certificate of Completion for Habitation should be issued in respect of buildings completed in accordance with the Regulations before occupation (National Building Regulation 1996, p.12). This is further emphasized that

“after the final construction, the building is inspected to ensure the internal and external structures comply with the Building Code and the drawings submitted earlier. Other works inspected include fire exits points amongst others and the certificate of habitation is issued” (Local Government Service Improvement Program 2010, p.16)

The Researcher is however, yet to see a copy of such certificates issued in accordance with the above provisions in Ghana. This Research however has brought to light the extent of compliance with these requirements.

2.9 INDIGENOUS DEVELOPERS’ COMPLIANCE

According to Keith (2008), under sub-clause 1.12 of FIDIC, the indigenous contractor is required to provide all such confidential information as the engineer might reasonably require verification that the contractors comply with the contract and conditions. It is also clear that Indigenous developers’ compliance is hampered by lack of skilled capacity and ability to source funds for projects executions (McAllister, 2013). Due to lack of trust, indigenous Companies or developers are made to go through about five times compliance reports as against that of the other developers (McAllister, 2013). To ensure Indigenous developers comply and grow up Olayeni & Omuh (2013) suggested the following :

Indigenous Contractors should network with other R&D centers worldwide in order to develop competitive knowledge and maintain updates on new discoveries and inventions.

- ii. Indigenous Contractors should consciously set money aside for R&D activities.
- iii. Indigenous Contractors should intensify their use of ICT so as to keep abreast of latest innovations in Construction.

The further concluded that the conceptual framework developed by Malaysia model shows the strategies to be employed for improving indigenous contractor capacity

which will ultimately improve their participation in R&D. It concludes that Government has a major role to play in improving indigenous contractor participation in R&D. It is anticipated that the recommendations made based on the Malaysian Construction Industry Model will improve the participation of indigenous contractors in R&D in Nigeria. Ogbechie (2012) concluded that government has put measures in place to guide against non-compliance but these were not adequate

2.10 EXTENT OF COMPLIANCE

The extent of compliance is the extent to which the developer or Permittee adhere to the terms and conditions including structural requirements of an approved permit. This can be measured in percentage or in decimal forms with full compliance equating to 100% or one (1). Every developer is expected to comply fully with the conditions of his/her approved permit before certificate of habitation is issued.

On the contrary however, if as a result of one reason or the other the developer decided to make any change in the permit as approved, he or she is required to confer with the Local Authority for any alteration during construction before the final as-built drawing is prepared, and the change or changes so effected shall not contradict any of the requirements of the Building Regulations(UK Department of Communities and Local Government, 2007). The Ghanaian Local Government however, did not make provision for any alteration after permit has been issued and clearly stated that, “once the Statutory Planning Committee by law has approved a building permit application no further amendments are expected to be made to the building drawings / plans” (Local Government Service Improvement Program 2010, p.15)

2.11 CONSEQUENCES OF NONCOMPLIANCE

In every society, it is the consequences of breach of law that deter people from breaching it. If the consequence of noncompliance with the approved building permit is not deterrent enough, it will naturally lead to persistent and deliberate non-compliance.

2.11.1 Preapproval stage noncompliance

If an applicant who failed to comply with the requirements for grant of permit, shall face the consequence of not getting approved permit. For instance, section 3(2) of the National Building Regulations (1996) states “No approval shall be granted to any applicant who does not have good title to the land, and for the purpose of this regulation, good title shall be in accordance with a certificate issued by the Chief Registrar of Lands Titles or any other agency so authorized”. Consequently, refusal to grant permit means restricting the applicant from development or carrying out with the work. This is because, “No physical development shall be carried out in a District without prior approval in a form of written permit granted by the District Planning Authority” (Local Government Act 1993, p.30)

The Local Authorities are also expected to ensure that every Building Permit approved complies fully with the minimum standards and specifications set out in the Building Regulations. Unfortunately, there is no specific provision that provides for punitive measures for Local Authorities who do not comply with the Building Regulation in granting permit in Ghana. Victoria Auditor General (2011) in providing solution to the problem recommended institution of reforms to establish the Building Commission (the commission), as a new statutory authority to oversee building control, including the competitive building permit system. The commission's functions among other things include:

- enforce compliance with the Building Regulation by the Local Authorities
- participate in the development of national building standards
- monitor developments relevant to the regulation of building standards in the country
- monitor the building permit levy collection system
- inform and train the industry stake holders
- resolve disputes
- etc.

If the field survey proved the fact that there is no specific punitive measure for developers who did not comply with the regulation in issuing Building Permit to Permittees, then the above recommendation by Victoria Auditor General Report would be very relevant.

To ensure that the designs submitted by the applicant for the Building permit application fully comply with the Standards and the requirements of the National Building Act, the Australian Building Act (2011) provided for issuance of certificate of design compliance before the applicant submit drawings for Building permit (Australian Building Commission, 2012).

2.11.2 Post Permit Approval noncompliance

Once the Statutory Planning Committee by law approved a building permit application no further amendments are expected to be made to the building drawings / plans (Local Government Service Improvement Program, 2010). The Permittee is required to strictly comply with the minimum standards and specifications indicated in the permit. To ensure that this is effectively done, section 11 of the National Building Regulations (1996) provides for appointment of a Building Inspector to oversee and inspect daily works on buildings erections and installation of all developments issued with Building Permit. In the United State of America, any

person who negligently violates permit conditions implementing of the Building Acts is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to further criminal penalties (United States Environmental Protection Agency, 2012). In Ghana however, “where conditions incorporated in a permit are not complied with, a District Planning Authority may give written notice in such forms as may be prescribed by regulation to the owner of the land requiring him on or before a date specified in the notice to show cause in written addressed to the District Planning Authority why the unauthorized development should not be prohibited, altered, abated, removed or demolished” (Local Government Act 1993, p.32). The Local Government Act 462 (1999) further provided that, if the owner of the land fails to prove evidence of approval of any development compliance as approved in the permit, the District Assembly (Local Authority) may demolish the structure and recover the cost of the demolishing from the developer as if it were debt due to the District Assembly. This aspect of the Regulations is normally not enforced as the various Assemblies only carryout the demolition without recovering the cost from the unauthorized developer as a punitive measure.

2.12 CERTIFICATE OF COMPLETION FOR HABITATION

The National Building Regulation (1996) decreed that a certificate of completion for habitation shall be issued in respect of a building completed to the satisfaction of the District Planning Authority before occupation. This is quite different from Certificate of design compliance, which is issued a short time before the application for a building permit to indicate that the design complies with the National Building Regulation (Australian Building Commission, 2012).

Certificate of completion for habitation or certificate for habitation, which is also called certificate of Occupancy, is “a document issued by a Local Building or Zoning Authority to the owner of premises attesting that the premises have been built and maintained according to the provisions of building or zoning ordinances, such as those that govern the number of fire exits or the safety of electrical wiring. A certificate of occupancy is evidence that the building complies substantially with the plans and specifications that have been submitted to, and approved by, the local authority. It complements a building permit—a document that must be filed by the applicant with the local authority before construction to indicate that the proposed construction will adhere to zoning laws” (Farlex Incorporation, 2008).

An applicant is required to apply for this certificate after practical completion of the works, and after complying fully with the conditions stated in his / her approved plans (Paulo, 2010).

2.13 CONCLUSION

It is apparent from the literature review that to ensure compliance with the Building Regulations and approved permits, various certificates must be issued at various stages of development process. These include Certificate of design compliance, Construction Compliance certificate or certificate of Completion and certificate of Habitation.

It is also observed that the building inspectors’ work of supervising development is not very effective to ensure developers’ compliance as corroborated by Boamahet. al (2012) cited by Oppong and Badu (2012).

It is also obvious that there is no strict and enough punitive measure in place for developers who do not comply with the approved building permit to serve as deterrent to the others, apart from demolition by the local authorities.

Again, it was further observed that in Ghana, there is no commission to oversee the permitting authorities (Local Authorities) in complying with the requirements of the building Regulations when approving permit for development.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1 RESEARCH APPROACH

In order to provide decisive solutions and answers to the research questions, the Researcher planned and systematically collected, analyzed and interpreted data gathered for the research.

3.1.1 Review of Literature

The research took a deductive approach (literature reviewed and compared with data from field survey) in which literature was reviewed to acquaint the Researcher with the requisite knowledge and also to find out what has been said by previous writers relating to the topic, through Journal search, Internet, published Books, researches, and other publications.

3.1.2 Field Survey

A survey was then conducted through a designed questionnaire as shown at Appendix 'A' which is aimed at targeted sample respondents. The questionnaire was developed in accordance with the objectives of the research which was to assess the extent of compliance with the approved building permit by the developers and its impact on the structural stability with their development.

3.1.3 Deductive approach to draw conclusion

The responses from the respondents were complemented by physical field observation and the overall result compared with the Literature Review in order to draw a realistic and meaningful conclusion.

3.2 REVIEW OF RELATED DOCUMENTS

The researcher reviewed documents on the topic ranging from Books written by professionals in the Building and Permitting industry, Laws or Acts of Parliaments, National Building Regulations within and outside the country Ghana, Journals published by firms and government publications, Papers presented by resource persons, documents published on the internet, Researches presented for award of other degrees, etc., relating to the field of the study. The conclusions and recommendations from these reviews helped to arrive at a decisive conclusion and also informed the formulation of the research questionnaires.

3.3 RESEARCH STRATEGY

3.3.1 Quantitative approach

The researcher used quantitative research strategy approach partly with a structured questionnaire. Quantitative Research as defined by Creswell (1994) cited in Naoum (2007, p.38) is an inquiry into a social or human problem, based on a hypothesis testing or a theory composed of variables, measured with numbers, and analyzed with statistical procedures, in order to determine whether the hypothesis or the theory hold true. Since the research is aimed at assessing the extent of compliance with approved building permit, it would therefore be appropriate to use quantitative approach in attaining the overall goal of the research.

3.3.2 Qualitative Approach

In addition to the quantitative approach used in eliciting information from the respondents, qualitative approach was also used to gather information during physical observation of the development, in order to complement the outcome of the data received from the questionnaire survey. This was premised on the fact that, the use of

qualitative approach equally helps in the area of education in historical and philosophical research to uncover what is unknown (Singh, 2006). Therefore, the use of qualitative approach to elicit information during field survey would help to uncover philosophical beliefs of the developers which are unknown to the Researcher from the beginning.

3.3.3 Use of Questionnaire to obtain data

The use of questionnaires was premised on its three (3) main advantages as described by Naoum (2007) below:

a)*Economy*. Postal questionnaires are perceived as offering relatively high validity of results because of their wide geographic coverage. As a result, it is more suited to assembling a mass of information at a minimum expense in terms of finance, human and other resources.

b)*Speed*. Postal questionnaires are certainly a quick method of conducting a survey. If administered properly, the bulk of the returns will probably be received within two weeks. However, time must be allowed for late returns and responses to follow-up attempts. For example, if there is a lack of response to the first return of replies (beginning about two weeks after initial posting), a reminder needs to be sent to those who have not yet returned the questionnaire. Therefore, a period of about four weeks needs to be allowed in the programme of work from the date of the initial mailing to the commencement of the final analysis.

c)*Consultation*. In certain cases respondents may not have the information at hand, particularly when the questions are quantitative in nature, and may need to consult a document or a colleague in order to give accurate answers. Examples are questions like: 'When was the building permit given to you?' or 'How officers from the District Assembly came to certify your project at each development stage in line with

National Building Regulation?’. Such questions may have to be answered in the respondent’s own time, rather than provided on the spot as it is usually associated with interviews. However, such a problem can be overcome in the interview of the fact that the questionnaire is sent to the respondent in advance.

3.4 SAMPLING AND SAMPLING TECHNIQUE

3.4.1 Sample frame

The Building Permit and development control concern the whole country Ghana. As this research is a case study of Kwaebibirem Municipal Assembly, it is expected that the outcome of this research will reflect one of the several happenings in the building development in Ghana. The Sample frame is therefore limited to the Kwaebibirem District Assembly in the Eastern Region of Ghana.

3.4.2 Sources of Data

Building Permit issuance and implementers in Ghana involve the Permittee (developer) and the Local Authorities. Thus Metropolitan/Municipal/District Assemblies (which is made up of a group of professionals including Metropolitan/Municipal/District Engineers, Building Inspectors, Environmental Health officers, and Town &Country Planning Officers, etc.) as confirmed by Awu (2012).The key officers in the Metropolitan/Municipal/District Assemblies who play important roles in the granting of Permit and its implementation as mentioned above and the Permittees were the targeted populations and have been selected for the exercise, from which data was elicited for analysis.

It is important to identify these officers as the primary source of raw and primary data in finding out issues relating to building Permit and its compliance by the developers. Again, the developers are the sole people required to comply with the approved permit and are the main target for gathering data. All the other individuals

whose works connect one way or the other in development compliance with permit were identified and selected using snowball. Questionnaires were therefore used to elicit information from them for the research work. This is because, the use of questionnaire for research survey was identified as one of the most convenient and most popular ways of gathering information from people for research work (Osei 2012, P.79) Some Developers in the research area were also selected for the questionnaire using snowball sampling method, in a view of obtaining an “on-the-ground” and a fair response from all the stake holders. The Snowball method of none probability sampling was selected for the research because it helps the researcher to get the right target population. The researcher identifies one member of the population, that person introduces the researcher to another member and then those new members introduce the researcher to additional people who fall in line with the population of study until the researcher’s desired sample size is obtained (Osei, 2012). Again since this sampling method is built on “informant” bases (Neville, 2005), where the researcher starts with one person who then suggests the next person and so on, it is considered appropriate for this research as the population is not clearly identified apart from the data obtained from the Assembly’s register of developers given to the researcher.

3.4.3 Determination of Sample Size

Curwin and Slater (2010) argued that the higher the sample size, the more accurate the results obtained but were quick to explain that it is not a simple linear relationship, meaning that findings may not necessarily be representative of the entire population. The argument underscores the importance of determining the optimum sample size.

3.4.4 Determination of Sample Size for Contractors

As the time of this research work, there were 125 developers granted with permit at Kwaebibirem District Assembly. The minimum sample size was thus computed using the Kish formula developed by L. Kish in 1965.

The Kish Formula is given as:

$$n = \frac{k}{1 + \frac{k}{N}}$$

Where n is the Sample Size;

$$k = \frac{S^2}{V^2} = N \text{ is the Population Size;}$$

S is the maximum standard deviation in the population size (total error = 0.1 at a confidence level of 95%);

V is standard error of sampling distribution is 0.05;

$$S^2 = P (1 - P)$$

Where P is the proportion of the population element that belongs to the defined class.

Therefore, using this formula

$$S^2 = P (1 - P) = 0.5(1-0.5) = 0.25$$

$$V^2 = 0.05^2 = 0.0025$$

Therefore, in determining the minimum sample size, N is taken as 125.

$$k = \frac{S^2}{V^2} = \frac{0.25}{0.0025}$$

$$k = 100$$

$$n = \frac{k}{1 + \frac{k}{N}}$$

$$n = \frac{100}{1 + \frac{100}{125}}$$

$n = 55.56$ or approximately 56.

It is still necessary to establish the actual sample size for the research study in light of some irregularities associated with questionnaire survey including poor response rate, inability to locate respondents, ineligibility to respond to questionnaire. Consequently, it was essential to adjust the sample size to account for these irregularities. Therefore, the minimum sample was corrected to obtain the actual sample size using 10% error calculation can be given as below:

Estimated Sample size.....	56
Add 10% Error.....	<u>.6</u>

Actual Sample size established for the survey = 62

3.4.3 Questionnaire distribution

In view of the above stated facts questionnaires were distributed as follows:

District Environmental Health Officer (DEHO)	1
District Engineer,	1
District Town and Country Planning Officer.....	1
Building Inspectors.....	1
Permitees (Developer).....	<u>58</u>
Total	<u>62</u>

3.5 CONSTRAINTS

The research was limited by three major constraints:

3.5.1 Financial Constraints

The Researcher would have wished to obtain data from all the developers in the Kwaebibirem District of the country Ghana. However, this could not be possible as financial resources required to undertake this exercise, including amount required to

produce and present questionnaires and collecting them back for analysis were quite substantial. However, using Kishformula, a realistic sample size was obtained which was sampled using Snowball sampling method for convenience.

3.5.2 Time Constraints

The researcher started the research work only when approval of research Synopsis was given by the Research Committee of Kwame Nkrumah University for Science and Technology (KNUST). In view of the limited time table for submission of the Research findings, time became quite limited in carrying out the research in the District using the normal random sampling. To factor this in achieving realistic result, there was the need to use more realistic research design in arriving at more acceptable conclusion, and hence, the choice of Snowball sampling technique for convenience.

3.5.3 Commitment by Respondents

It was frustrating to realize that, some officers who willingly accepted to offer response to the questionnaire, failed to return them after several visits to their offices. Some pretended to be too busy and did not have the time to complete the questionnaires and finally wished to return them uncompleted.

To ensure that correct and authentic data is obtained at all cost for the research, the researcher allowed more time for these respondents and the final result was overwhelming.

Again, most developers were quite reluctant to accept the questionnaires, probably because they were afraid that, their non-compliance would be made known to the approving authorities. Some of those who willingly accepted also failed initially to return them, but after they were informed that the data collected would be treated confidentially and the outcome of the research would be useful to prevent building failures including their buildings, they hurriedly completed and returned them.

Furthermore, some respondents indicated that they strictly complied with their approved building permit in the questionnaire. However it was observed in the follow up question that they do not comply fully with the approved design. Changes were made to the actual approved plans the in the column location and sizes, room sizes etc.

3.6 DATA ANALYSIS

The data collected with the use of questionnaire was analyzed using SPSS and the results presented using statistical tools. Again the use of relative important index helped to simplify results. Percentages were then found and further displayed in tables. Bar charts, pie charts, Histograms, etc. were also used to enhance the visibility and simplified the result to enhance graphical presentation of the outcomes.

3.7 CONCLUSIONS AND RECOMMENDATIONS

Conclusions were then drawn for each question answered in the questionnaire, which was further discussed in chapter four with overall conclusions for the research. Following the conclusions drawn, various recommendations were made to address the problem. It is the researcher's believe that if the recommendations are executed, the problems would be completely minimized if not eliminated.

CHAPTER FOUR

DATA COLLECTION AND ANALYSES

4.1 INTRODUCTION

This Chapter concerns with the collection of data and its analysis. It involves statistical figures, charts, and sketches to demonstrate the outcome of various analyses.

4.2 DATA COLLECTION

Following the results of Kish formula and after a factor of 10% nonresponse consideration, 62 Questionnaires were distributed developers and key authorities who are in charge of Building Permit. Out of the number, 60 were collected for analysis. It was not possible to collect back two questionnaires and this was considered as part of the 10% factor of safety considered in the sample sizing.

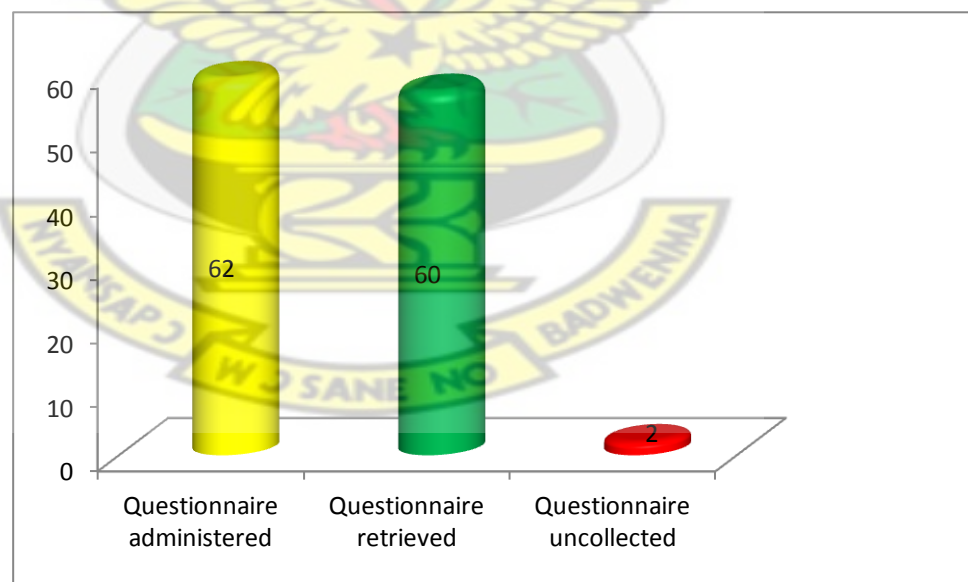


Figure 4.1 Questionnaire Response Rate

4.3 Data Analysis

4.3.1 Developers' awareness of a Building Permit

Table 4.1 what do you know about building permit?

Response	Frequency	Percent
It is a building plan	6	10.0
It is a license to build	48	80.0
It is a development guide	6	10.0
Total	60	100.0

From Table 4.1 above, 10% indicated that building permit was a plan and another 10% indicated that it was a guide to development. Meanwhile 80% were aware of a building permit as a License to Build. This indicates that majority of developers were aware about Building Permit.

4.3.2 Importance of Building Permit

Table 2.0 How important is approved permit in Building development?

Response	Frequency	Percent
Quiet important	18	30.0
Very important	14	23.3
Extremely important	28	46.7
Total	60	100.0

From the table 2 above, 23.3% said Building Permit is very important, 30% said it is quite important and 46.7% said it is extremely important. This goes to stress the fact that developers are very much aware of the importance of Building Permit

4.3.3. Permit Possession

Table 4.3 Building Permit from the local authority (the Assembly)

Response	Frequency	Percent
Yes	57	95
No	3	5
Total	60	100.0

From Table 4.3 above, 95% of the respondents said they have Permit while 5% said they do not have permit. The high percentage permit possession shown on the table might be due to the fact that the sampling was done by snowball sampling technique which was targeted at developers issued with permit, and another research may be required to obtain the true permit possession before development in general.

4.3.4 Compliance with Approved Permit

Table 4.4 Changes to the original plan in the Building Permit?

Response	Frequency	Percent
Yes	42	93.33
No	3	6.67
Total	45	100.0

From table 4.4 above, 6.67% indicated that they did not make any change to their original plan. However, 93.33% of people granted permit have made changes in one

way or the other to their original plan approved for them, confirming the assertion by the Ghana Institution of Surveyors during the Melcom Disaster (Ghana Institution of Surveyors, 2012).

Table 4.5 Reasons for the change/alterations in the original Plan in the Building Permit?

Response	Frequency	Percent
More rooms and/or room space	18	31.6
Site condition demand	12	21.1
Change of mind	12	21.1
Others	15	26.2
Total	57	100.0

From Table 4.5 above, and out of the total respondents who said they changed their plan, 31.6% of them changed their original plans because they wanted more rooms. Another 26.2% cited other conditions such as reduced plot of land during profiling, and 21.1% each cited change of mind and site conditions as the reason for the alteration of the original plan approved for the development. The majority 32% however, changed the original plan in order to increase the number of rooms in the building permit.

Question: if no change is made to the original design, do you have the room dimensions as it is originally drawn?

Table 4.6 Structural alterations

Response	Frequency	Percent
Yes	1	33.3
No	2	66.6
Total	3	100.0

A follow up question to the respondents who said they did not make any change to their permit indicated that 66.6% actually made one change or the other to the design dimensions. This further goes to confirm Vandapuije (2012) statement that developers always make a change to their approved buildings in one way or the other after approval it has been approved without coming back to approving authority for alteration as stipulated by the National Building Regulations.

Question: How often do you refer to the approved permit during development?

Table 4.5 The Use of Building permits drawings to build

Response	Frequency	Percent
Not at all	21	35.0
Occasionally	28	46.7
More often	4	6.7
Always	7	11.7
Total	60	100.0

From table 7.0 above, 6.7% of the respondent said they often consult their approved plans during the project execution, 11.7% said they always consult, 46.7 said they occasionally consult their approved plans and 35% confirmed that they actually do not consult their approved plans after approval but directs their artisans to work in accordance land size and their own desire. It is not surprising therefore to develop completely contrary with the approved plans.

Question: Did you invite the local authority to inspect and certify all the stages of your development works?

Table 4.6 Local Authorities Certification of development stages

Response	Frequency	Percent
Yes	21	35.0
No	39	65.0
Total	60	100.0

From table 4.8 above, 65% of the respondents never invited any MMDA official to inspect and certify any of the ten development stages for them, in contravention with section 10 of the law (National Building Regulation, 1996). Out of the 35% respondents who said they invited Assembly staff to certify the stages of their development, only 29.6% invited the District Engineer, and the remaining 71.4 invited the Building Inspector as indicated on table 9.0 below. The remedy to this violation according to the LI 1630 is to demolish the building at one's own cost.

Question: If yes to (Q8) indicate the officer who came to certify the works

Table 4.7 DA Officer invited for stage certification in accordance with the law

Response	Frequency	Percent
Building Inspector	15	71.4
District Engineer	6	28.6
Town Planning officer	0	0
Others	0	0
Total	21	100

4.3.6: Reason for None Compliance

Question: if "No" to (Q8) give the reason why you could not fulfill this requirement

Table 4.8 Refusal to comply with LI 1630

Response	Frequency	Percent
I had no time	6	15.4
I have no idea about the requirement	28	71.8
I invited them but they failed to turn-up	5	12.8
Others	0	0.0
Total	39	100

From table 4.10 above, out of the total of 39 respondents, 15.4% had no time to invite the local government officials as stipulated in the law (National Building Regulation,

1996). 12.8 indicated that they invited them but they failed to turn-up, and finally 71.8% are ignorant of such requirement.

Table 4.9 Certificate of Habitation for Compliance

Question: Did you obtain or intend to obtain certificate of completion for habitation from the local authority before occupying the building?

Response	Frequency	Percent
Yes	9	15.0
No	51	85.0
Total	60	100.0

From table 4.11 above, only 15% of the respondent have or intend to have Certificate of Habitation before they occupy their building but total of 85% do not have an idea about such requirements as stipulated by the law to ensure compliance.

Table 4.10 Recommended Agents for Supervision to ensure Compliance

Question: : Who among the following do you want to supervise your developmental project to ensure compliance?

Response	Frequency	Percent
building inspector appointed by local authority	43	71.7
a private licensed building expert or inspector	17	28.3
Total	60	100.0

From table 4.12 above, 71.7 recommended that BIs should supervise to endure compliance while 28.3% recommended that a private individual should be engaged to ensure compliance. This contradicts the literature that recommended Private Building Inspector for ensuring compliance.

Table 4.11 Establishment of National Building Commission

Question: What is your concern about establishment of national buildings commission to oversee building control at regional and local levels?

National Building Commission	Frequency	Percent
I don't agree, it will compound problems	3	5.0
I agree, it will solve the development control problems	42	70.0
I am indifferent about the proposition	13	21.7
None of the above	2	3.3
Total	60	100.0

As indicated on table 4.13 above, 5% do not agree with establishment of National Building commission to oversee development control. 3.3% recommended other recommendations such as recruiting more Building Inspectors, 21.7% were indifferent and 70% agreed with the establishment of National Building Commission.

Question: Effects of noncompliance with building permit

Table 4.12 Effects of none compliance

Effects of noncompliance	Extremely severe No. (%)	Very severe No. (%)	Moderate No. (%)	Less severe No. (%)	Not severe No. (%)	Total No. (%)
Building cracks	6(10.0)	12(20.0)	7(11.7)	<u>22(36.7)</u>	13(21.7)	60(100)
Building collapse	14(23.3)	<u>27(45.0)</u>	10(16.7)	6(10.0)	3(5.0)	60(100)
Very strong building	5(8.3)	4(6.7)	8(13.3)	10(16.7)	<u>33(55.0)</u>	60(100)
Very weak building	7(11.7)	10(26.3)	<u>20(33.3)</u>	17(28.3)	6(10.0)	60(100)
Slum development/city	<u>32(53.3)</u>	2(3.3)	11(18.3)	9(15.0)	6(10.0)	60(100)

From table 4.14 above, 55% of the respondents strongly believed that noncompliance with approved permit do not contribute to strong building development and this is followed by 53.3% of the respondents strongly believing that none compliance extremely contributesto slum development and 45 % however, believe that none compliance contributes very severelyto collapsed building.

Question: Which of the following contributes very much to building collapse in Ghana

Table 4.13 Causes of Building Collapse in Ghana

Response	Frequency	Percent
Noncompliance with approved permit	17	28.3
Use of substandard materials	8	13.3
Use of unprofessional in building	7	11.7
All of the above	28	46.7
Total	60	100.0

From table 4.15 above, 46.7% believed that the use of unprofessional, substandard material and none compliance contribute very much in collapse buildings in Ghana. This is followed by 28.7% saying none compliance with approved permit is the sole cause of building collapse in Ghana. The use of substandard was said to the second at 13.3%, followed by substandard materials at 13.3%

Question: Rank the Ways to minimize building Permit noncompliance in the order of severity

Table 4.14 Way of minimize Building Collapse

Ways to Minimize Building Collapse	Extremely severe No. (%)	Very severe No. (%)	Moderate No. (%)	Less severe No. (%)	Not severe No. (%)	Total No. (%)
Obtain certificate of design compliance	12(20.0)	10(16.7)	13(21.7)	8(13.3)	<u>17(28.3)</u>	60(100)
Obtain certificate of construction compliance	1(1.7)	10(16.7)	14(23.3)	<u>23(38.3)</u>	12(20.0)	60(100)
Obtain certificate of habitation	3(5.0)	9(15.0)	14(23.3)	<u>20(33.3)</u>	14(23.3)	60(100)
Establishment of National Building Commission to oversee development control	<u>21(35.0)</u>	16(26.7)	8(13.3)	10(16.7)	5(8.3)	60(100)
Making none compliance a criminal offence with stiffer penalties	<u>21(35.0)</u>	11(18.3)	11(18.3)	5(8.3)	1(1.7)	60(100)

From the table 4.16 above, 21% of the respondents representing the highest percentage indicated that establishment of National Building Commission and making of none compliance a criminal offence will extremely minimize building noncompliance in Ghana. This is closely followed by obtaining certificate of construction compliance and certificate of design compliance in that order.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 FINDINGS

The study revealed that very 80%percentage of the developers are aware of theimportance of Building Permit. However,93.33% developer develop contrary to the conditions of their permit without alteration approval from the authoritiesin contravention with the National Building Regulation.

The above point confirms the Ghana Institution of Surveyor's Press statement made on the Melcom disaster thatvery often you see a foundation started, which in their professional point of view is for a single storey building or maximum a 2-storey building, but with time, the ground floor is completed, and another floor is added and developers kept adding floor upon floor without any professional consultation.

5.1 CONCLUSION

Finally the situations in Kwaebibirem being one of the fast growing District in the country, the findings from this Research which includes extreme noncompliance with approved permit as stated above is applicable to other fast growing Districts and the country as a whole.The recommendations are therefore equally important in addressing the problem nationwide.

5.3 RECOMMENDATION

This section is phased in two parts. The first part concerns recommendations arising from the Research (Section 5.2.1) and the second part also concerns recommendations for future Research (5.2.2).

5.3.1 Recommendation Arising from the Research

- The Government must institute **National Building Commission** to have National, Regional and District offices to enforce compliance with approved permit / development control and with stiffer criminal penalties for none compliance to deter offenders as the present situation according to the law does no deter developers.
- The Authorities must be made to issue the following certificates before any property or building is occupied. Again no business should be allowed to commence operation in any premises if the following certificates are not issued and displayed in the premises.
 - Certificate of design compliance
 - Certificate of Construction compliance
 - Certificate of Completion / Habitation
- To ensure good workmanship is used by developers, the Local Authorities must register all artisans and professionals in their jurisdiction to ensure that they are given periodic training. Further to that, and apart from the good workmanship, certificate of construction compliance should only be issued if the developer used at least one of the trained professionals to supervise their work.

5.3.2 Recommendation for future Research

This research was limited to the compliance with approved permit. Another research is therefore recommended to unravel the level of permit acquisition by all developers.

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KNUST



APPENDIX

QUESTIONNAIRE



KWAME NKUMAH UNIVERSITY FOR SCIENCE AND TECHNOLOGY

(Faculty of Architecture and Planning-Building Technology Department)

QUESTIONNAIRE ON “COMPLIANCE WITH APPROVED BUILDING PERMIT”

(Indigenous Developers)

Introduction

I am a final year student of the above University researching on the topic “COMPLIANCE WITH APPROVED BUILDING PERMIT BY DEVELOPERS (GHANA)” and I would be very grateful if you could kindly help me to complete the questionnaire below. The information gathered shall be used solely for the research purposes and shall be treated confidentially.

Optional(for the Developer)

Name:.....LocationContact No.....

Please tick or circle appropriate answer

1. What do you know about Building Permit?

(a) It is a building Plan (b) It is a license to build (c) It is a development guide (d) all the above

2. How important is Building Permit in development

(a) Not important (b) quite important (c) Very important (d) Extremely important

3. Do you have a Building Permit from the Local Authority (the Assembly)? Yes ☐

No ☐

4. If yes to question 3, then did you make any change(s) to the original plan? Yes ☐

No ☐

5. If No to question 3, then can you indicate the reason for the change?

(a) More rooms and/or room space (b) Site condition demand (c) Change of mind

(d) Other reason(s) (*please state*).....

6. Do you have the room dimensions, room heights and sizes of beams/columns etc.

all built the same as it is originally drawn?..... Yes ☐ No ☐

7. How often do you refer to working drawings/approved permit during the construction?

(a) Not at all (b) Occasionally (c) more often (d) always

8. Did you invite the Local Authority to inspect and certify all the stages of your development works in accordance with section 10 of the National Building

Regulation? Yes ☐ No ☐

9. If yes to 8 above, indicate the officer who came to certify the works

(a) Building Inspector..... ☐

(b) District Engineer..... ☐

(c) Town Planning Officer..... ☐

(d) None of the above (*please state*).....

10. If No to 8 above, can you give the reason why you couldn't fulfill this requirement?

a) I had no time ☐

b) I have no idea about that requirement ☐

c) I invited them but they failed to turn-up..... ☐

d) None of the above: (*please state*).....

11. Did you obtain or intend to obtain certificate of Completion for habitation from the Local Authority (Assembly) before occupying the building? Yes ☐ No ☐

12. Please give reason for your answer in 11 above:.....

13. Who among the ff who do you want to supervise your development project(s) to ensure compliance?

(a) Building Inspector appointed by Local Authority.....☐

(b) A Private Licensed building expert or Inspector.....☐

(c) TDC Chairman.....☐

(d) None of the above, (*please state*):.....

14. What is your concern about establishment of National Building Commission to oversee Building Control at Regional and Local Levels?

(a) I don't agree, it will **compound** problems.....☐

(b) I agree, it will solve the development control problems.....☐

(c) I am indifferent about the proposition.....☐

(e) None of the above, (*please state*):.....

15. Please Rank the following. The effects of none-compliance with Building permit.

(1=Extremely severe 2=Very Severe 3= Moderate 4= Less sever 5=Not severe)

i) Building cracks.....☐

ii) Building Collapse.....☐

iii) Very strong Building.....☐

iv) Very Weak Building.....☐

v) Slum development/ city.....☐

16. Which of the following contributes very much to building collapse in Ghana?

(a) Non-Compliance with approved permit☐

(b) Use of substandard materials.....☐

(c) Use of unprofessional in building☐

(d) All of the above..... ☐

(e) None of the above, please state.....

17. Please rank the following in the order of importance, what do you think will ensure compliance and minimize building collapse:

(1=Extremely important 2=Very important 3=important 4=less important 5=less important)

(a) Obtain certificate of design compliance..... ☐

(b) Obtain certificate of construction compliance..... ☐

(c) Obtain certificate of Habitation..... ☐

(d) Establishment of National Building Commission to oversee development controls. ☐

(e) Making none compliance a criminal offence with stiffer penalties..... ☐

18. What is/are your recommendation(s) to ensure that approved building permits are strictly complied with?

-----Thank you very much for your time-----

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