



SHORTFALLS OF SPECIFICATION WRITING IN NIGERIAN ARCHITECTURAL PRACTICE

B.A. Adewale

Architecture Department, Covenant University, Ota, Nigeria

A.A. Oluwatayo

Architecture Department, Covenant University, Ota, Nigeria

O.U. Uwakonye

Architecture Department, Covenant University, Ota, Nigeria

A.B. Ogunkoya

Architecture Department, Covenant University, Ota, Nigeria

ABSTRACT

Specification documents are vital documents of any construction contract and forms the backbone for the success of any project. However, despite its huge importance in construction projects, anecdotal evidence revealed that specification documents are seldom used in Nigeria. In Nigeria, the building sector pays less attention to specification due to some misconceptions. It is widely thought that except in very large projects with huge financial capability, the idea of specification is not useful to construction. Considering its prominence to construction documentation, specification documents are legal documents and may be valid documents in cases of legal tussles. For this reason, this paper investigates the shortfalls caused by legal, communication, formatting, technical and people management deficiencies, which are likely to reduce the efficiency of specification documents. The quantitative design approach was used for the research. A well-structured questionnaire was used to elicit response from randomly selected 15 professional architects from three of the six geo-political zones in Nigeria. It also provides suggestions on how these deficiencies can be remedied in order to reinstate the importance of specification writing in construction projects in Nigeria.

Key words: Architectural Practice, Nigeria, Prospects, Shortfalls, Specification.

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1. INTRODUCTION

The Nigerian construction industry is plagued with many shortfalls amongst which is the issue of the utilization of sub-standard building materials (Adenike, 2006; Grema, 2006) [3, 12], and poor implementation techniques and methodologies. This is believed to be a product of non-enforcement of standards and contract specifications sometimes are non-existent or are in need of improvement both in drafting and usage. As a result of this, there have been cases of sub-standard buildings and outright structural failures and collapse (Folagbade, 2001 and Badejo, 2009) [9,6]. Hence, clients and users are not fully satisfied with the input of the architect because buildings fail to attain their expected life cycle. The major cause of this condition is neglect of specifications. Specifications are neglected because of fear of failure inherent in specifying new materials (Emmitt, 2011) [8].

Also, specification is most neglected in practice in Nigeria because architects and engineers tend to cling more to graphics at the detriment of specifications (Haruna, 2006) [13]. The primary goal of specification writing is to avoid the wastage of time, money and other resources as well as building in compliance to the client's needs. In the building construction industry, a lot of wastages are attributed to delays, rework and the subsequent non-productive efforts expended in resolving disputes arising from such inefficiencies (Lam, Kumaraswamy and Thomas, 2001) [15]. In this paper, the causes of deficiencies in specifications are examined under five (5) broad groups as postulated by Lam, Kumaraswamy and Thomas (2001) [15].

The aim of this study is to examine the shortfalls of specifications in Nigerian architectural practice and with the view to proposing remedial actions for improved construction output. The objectives are:

- To explore the approaches of specification writing in Nigerian architectural practice.
- To examine the various shortfalls of specification writing in the Nigerian architectural practice.

1.1. Specification writing in general

Specifications are “that portion of the contract documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the work, and performance of related services,” according to American Institute of Architects (AIA, 2007). The technical specifications sections (Divisions 02 through 49) are a written description of the materials, products, and workmanship used to construct a building. The General Requirements, Division 01, are the requirements for administering and performing the work of constructing the building (O’Sullivan, 2016) [20].

Specifications describe the materials and workmanship required for a development. They do not include cost, quantity or drawn information, and so need to be read alongside other information such as quantities, schedules and drawings (The construction industry knowledge base, 2016) [24].

Specification can be defined as a description of the physical or functional characteristics, or of the nature of a supply, service, or construction item; the requirements to be satisfied by a product, material, or process indicating, if appropriate, the procedures to determine whether the requirements are satisfied. In essence a specification is a statement of the attributes of a product, process or service a user wishes to purchase, and consequently, which the supplier is expected to supply. As far as practicable, it is desirable that the requirements be expressed numerically in terms of appropriate units together with their limits (UL Procurement Office, n.d.) [25].

Specifications are an integral practice of architectural profession which cannot be neglected because the architect is saddled with the responsibility of writing an effective specification. Graphics without specifications would only result in litigations. In other word, specifications

are important contract documents that complement the drawing and make it effectively implemented in construction (Kalin, Weygant and Rosen, 2011) [14].

1.2. Approaches of specification writing

Specifications are written using different methods. The two most common approaches are the performance-based specification and descriptive specification. Specifying by performance entails the illustration of the desired end-result of building materials and installation method. According to Masterspec (2009) [17], the performance-based approach should permit greater innovation and competition but the benefits are farfetched because of the time and cost of producing essential performance definition, methods of verification and confirmation of performance values. Performance specifications allow for maximum flexibility (window state) on the part of contractor as it only focuses on the result and not on the method.

Descriptive specification outlines, exactly, how the contractor must perform his service or how the product is made. It is used when the means to an end are set out and defined in detail (Masterspec, 2009) [17]. The detail is set out under three main headings: General, products and execution. Descriptive specification could refer to a code, standard or recognised document (reference specification), brand name or proprietary material which leaves no room for substitute. This is the most restrictive type of specification according to Otter and Geddes (2010) [22].

Apart from the approaches mentioned above, a combination of the two is used in some cases, for example, the MasterSpec is generally descriptive but contains elements of the performance approach. Also, Master Format is the specifications writing standard for most commercial building design and construction projects in North America. It lists titles and section numbers for organizing data about construction requirements, products, and activities. By standardizing such information, Master Format facilitates communication among architects, specifiers, contractors and suppliers, which helps them meet building owners' requirements, timelines and budgets (MasterFormat, 2016) [18].

Master Format initially consisted of 16 Divisions of construction, such as Masonry, Electrical, Finishes, Mechanical divisions etc. The MasterSpec is based on the Master Format 2004; a product of the Construction Specification Institute (CSI) (used to have 16 divisions, but expanded to 48 divisions) and Construction Specification Canada (CSC). It is widely adopted in America and Canada and available in three forms of varying levels of complexity. Each division contains several sections and each section is divided into "general," "products," and "execution."

NBS specification is the Master Specification for the UK and is part of RIBA Enterprises Ltd, which is wholly owned by the Royal Institute of British Architects (RIBA). The NBS is available as standard, intermediate and minor specification versions, for varying degrees of building complexity. The NBS is structured on the Common Arrangement of Work Sections (CAWS). It is organized according to the sequence of construction.

1.3. The architectural practice in Nigeria

The practice of architecture in Nigeria has been posed with several challenges. Havillah (1996) cited in Oluwatayo (2009) [21] noted that professional designers no longer design but the responsibility has been shifted to non-designers. Abdulkarim and Badiru (2004) [1] observed that there had been economic fluctuations in the industry, which resulted in the cyclical nature of the industry. Haruna (2008) [13] also identified some of the absurdities witnessed in architectural practice in Nigeria in the last 20 years as non-compliance with requirements of the Nigeria Institute Architects (NIA) Code of Conduct and the ease with which anyone (qualified or unqualified) can register a construction business.

Similarly, Arc. Roti Delano, the President of the Association of Consulting Architects of Nigeria (ACANigeria) opined that a knot of architectural practice in Nigeria is the over-reliance on expatriates to work illegally on projects at the expense of qualified indigenous practices (Njoku 2011) [19]. He affirmed that before now, projects were awarded to “Nigerian architects provided they showed they have the technical experts”. In this sense, the Nigerian practice gets the project and “then engaged his counterparts from anywhere in the world because probably at that time, they didn’t have the skills to design some of those large projects”. Sagada, (2002) [23] also stated that architectural services industry had also become increasingly competitive because of an increase in the number of practices which contended for the few jobs, as well as the infringement of allied professions on the roles of the architect.

Furthermore, architectural firms are being confronted with these challenges probably because their services are not appreciated by the citizens. This may not be farfetched from the motives behind the establishment of these firms which were mostly about profit other than motives like Architectural innovation, non-profit driven economies of scale and passion (Oluwatayo, 2009) [21]. For these firms (which are mostly sole proprietorship), specifications may not be an important aspect of their presentations.

It is evident from the few articles reviewed that the architectural practice in Nigeria is faced with several challenges which may result in construction failure if not addressed promptly. Furthermore, literature revealed that non-compliance to building code is a major problem of architectural practice in Nigeria. This serves as a pointer to the need for further study into the issues of standards and shortfalls of specification writing.

Despite the complementing role of specification writing in the construction industry to architectural drawings (by giving additional relevant information on how the project is to be carried out), it has not always performed such function successfully. Where the specification offered is unable to provide clear information to relevant parties involved in a project, it becomes challenging to execute the project as desired by the designer – hence a short fall is said to have occurred.

In Nigeria, a major cause of deficient specification is unfamiliarity with building construction standards (Bamisile, 2004) [7]. Designers adopt British and American standards and codes which they are not familiar with and do not suit our contextual requirements.. In an article in The Guardian newspaper dated Sept 13, 2013, it was revealed that the national building codes are compiled from essentially foreign codes. The purpose is therefore defeated as building collapse and other environmental challenges linger. Other available local standards are not known to most construction professionals or when known, they are not being applied.

Another major challenge of specification is the lack of knowledge of building materials on the part of the specifier. More often than not, he has limitations to the type of materials he specifies because of his myopic exposure (Adafin et. al, 2011) [2]; Folorunso and Ahmad, 2013) [10].

Lam et al (2001) classified the deficiencies of specification into five broad categories namely: 1. Communication deficiencies, 2. Formatting deficiencies, 3. Technical deficiencies, 4. Legal deficiencies, and 5. People management issues. Similarly, Gelder (2001) [11] postulated two broad groups of specification problems, unsound specifications and unused specifications.

Unsound specifications arise when specifications are not well written in terms of communication (that is, lack of consistency among specifications and other contract documents; language problem and shallow knowledge of the required information); formatting (rolling specifications and wrong approach to specification); technical deficiencies (over-specifying, use of unfamiliar standards, fitness for purpose, verification of compliance, and constructability and maintainability issues).

Unused specifications are specifications that cannot be used by contractors due to unsoundness. This usually results into legal tussle due to claims for time extension and additional cost. Construction output can be greatly improved if designers and specifiers would strongly mitigate the stated challenges of specifications.

In the light of this, the main thrust of this study is to examine the problems of construction specification, as it relates to the architect, who is also the specifier, as well as suggest ways of mitigations, for improved construction output.

2. DATA USED

The quantitative design approach was used for the research. A well-structured questionnaire was the instrument of data collection. The questionnaire was organised into three parts: 1) firms/organisations of respondents, 2) specification profiles of firms/organisations, and 3) shortfalls of specifications. The sampling frame consisted of architects from three (3) of Nigeria six (6) geo-political zones (south west, south east and south south) and Abuja. A random sampling technique was adopted in selecting 15 professional architects at the architects' colloquium, which took place in Abuja between 25th and 28th April, 2016

The shortfalls section was put on a dichotomous scale of "Yes" and "No". This is to indicate the existence or non-existence of specification deficiencies identified by Lam et al (2001) [15]. Results were analysed with the Statistical Package for Social sciences (SPSS 15.0), and presented with simple frequencies and percentages.

3. RESULTS AND DISCUSSION

In this study, the shortfalls of specification writing were investigated from the point of view of architects in Nigeria. Most of the respondents have their firms located in Abuja (52.9%), while an appreciable percentage (17.6%) had their firms located in Port Harcourt. Other locations of the firms of the respondents were Delta, Enugu and Ota as shown in Figure 1. Figure 2 also shows that most (66.7%) of the respondents worked in architectural firms, while the others worked in construction firms (20%) and government establishments (13.3%).

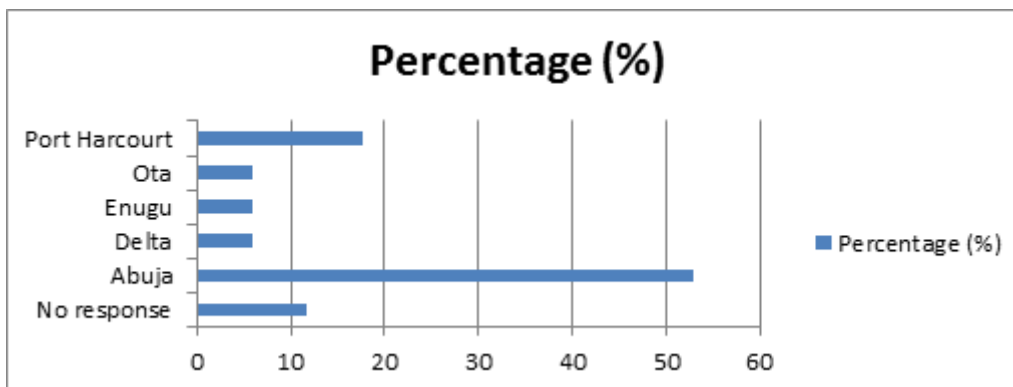


Figure 1 Location of firms of respondents

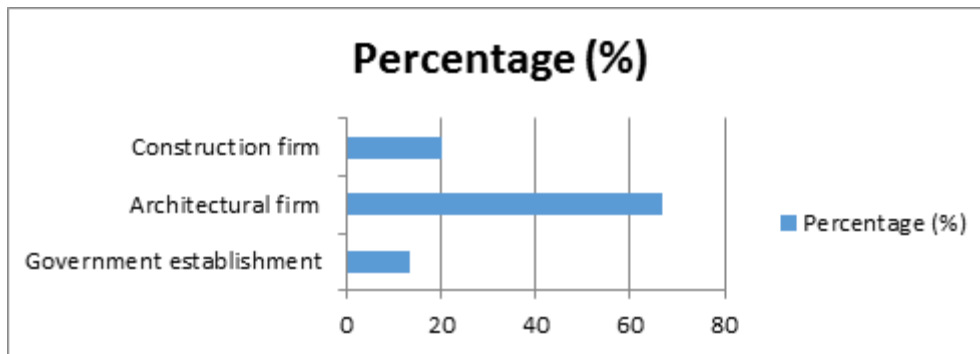


Figure 2 Type of firm/organisations that respondents worked in

The data also show that more than half of the respondents (66.7%) admitted that their organisations seldom carry out specification writing (Figure 3), with only 33.3% of the respondents agreeing that their organisations carry out such specifications. The persons that carried out specifications in the firms were mostly architects. Very few of the respondents (6.7%) admitted that specifications of their drawings were carried out by quantity surveyors. It would however appear that some of these professionals may have specialised in specification writing as Figure 2 further shows that almost half of the respondents (41.6%) indicated that they engaged specialists to write their specifications. It would be noted that specification writing is often taken as a course in the training of the architects and the quantity surveyors. Figure 3 further reveals that many of the respondents indicated that they use both the descriptive and performance approaches to specifications for architectural designs. More than half of the respondents (64.7%) revealed that their organisations do not use master specifications. It is however interesting to note that there are organisations in Nigeria that use the master specification. The most used is the CSI.

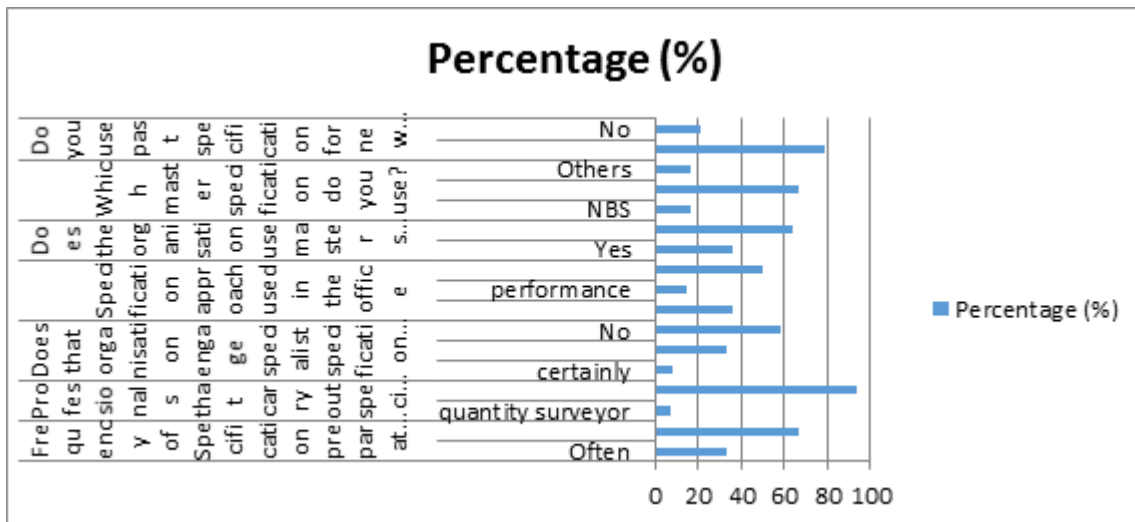


Figure 3 Specification writing profile of the firms

The respondents were asked to assess how their involvement or non-involvement in specification writing may impact their organisations. Figure 4 reveals that more than half of the respondents believe that impact of engagement in specification is positive, while the impact of the neglect of specification is negative. This suggests that some respondents may not consider specification writing as an important aspect of the architect's work.

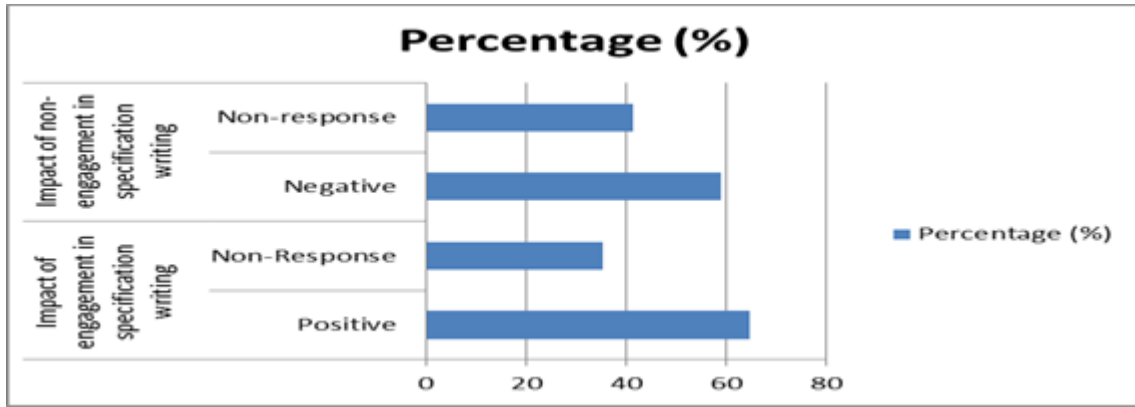


Figure 4 Impact of engagement/non-engagement in specification writing

The shortfalls of specification were investigated. This was done on dichotomous scale. The analysis as shown in Figure 5 revealed that the greatest challenges of the architects were lack of consistency amongst documents, matching the generic properties of proprietary products to the ones specified, and matching descriptive specifications to the actual performance of the products specified. It would therefore appear that the architecture firms may have been familiar with the building construction standards, contrary to what Bamisile (2004) [7] suggested. However, inconsistencies with the guides that are used are the main problems. Other major challenges were related to the ready availability of information, failure to enforce specifications by site supervisors and tendency to over-specify materials. It can however be inferred that specifications are mostly void of allegations of impossibility as well as unfitness for purpose. What this suggests is that the major challenges have nothing to do with the competency of the specification experts, but are mostly related to sources of information, compliance and skill of artisans as well as inconsistent product qualities.

These challenges were also similar to those identified by Lam, Kumaraswamy and Thomas (2001) [15]. It therefore suggests that legal issues, captured by verification of compliance, claims for time extension and additions cost as well as impossibility claims, were not seen by about half or fewer of the respondents as challenges. Most of the respondents however agreed that formatting (lack of consistency among documents) and technical issues, especially those that are related to the properties of materials were major challenges.

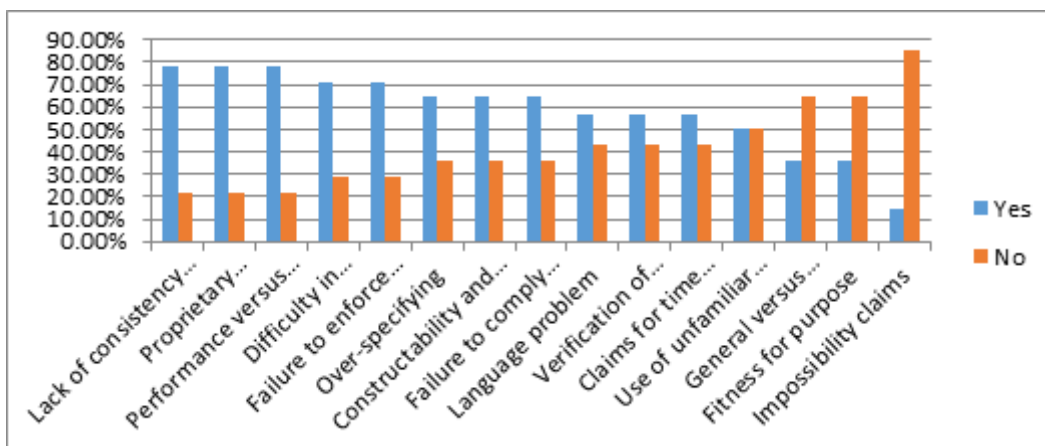


Figure 5 Shortfalls of specification

When asked to assess specification practice in Nigeria, many of the respondents indicated that all is not well as seen in Figure 6. They further suggest research as a way of improving specification writing practice in Nigeria. Other strategies suggested were consistency, strict

supervision and prayer. Many of the respondents also agreed that NIA should come up with a standard format. It is believed that this will enhance the specification practice in Nigeria and encourage more firms to engage in providing more detailed specifications for their architectural drawings.

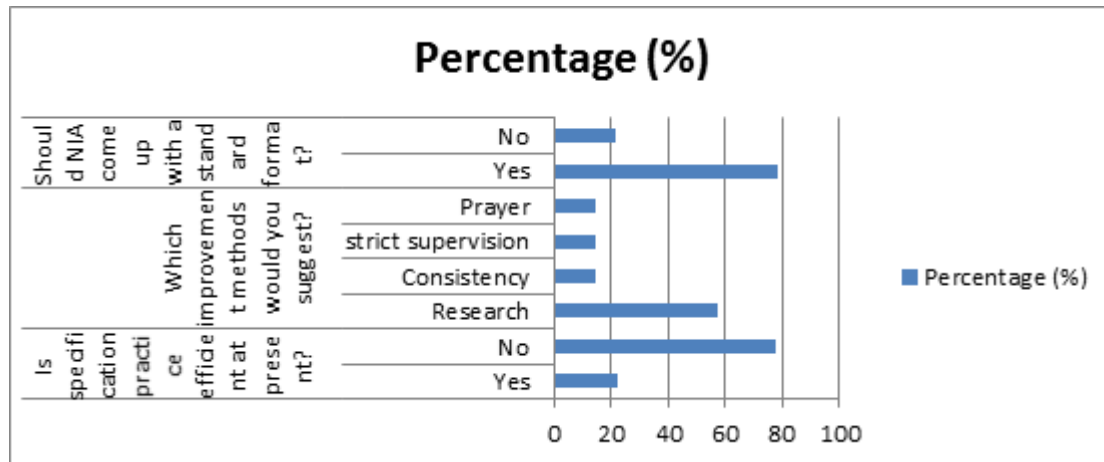


Figure 6 Assessment of Specification Practices in Nigeria

4. CONCLUSION

The research identifies the deficiencies of construction specifications in Nigeria. It implies specification is a neglected document in construction projects execution. Where it is engaged, the requirements and standards are hardly enforced, mainly due to the faulty method of writing. The method of writing probably is because architects do not take up the responsibility of specifying materials and workmanship for their designs. Rather, they engaged specialist specifiers who are not the originators of the design ideas. Consequently, faulty specifications result, manifesting majorly in lack of consistency amongst documents, matching the generic properties of proprietary products to the ones specified, and matching descriptive specifications to the actual performance of the products specified.

It therefore holds on professional architects to take up the responsibility of training in the act of specification writing, or alternatively, employ specialist specification writers, as part of the design team in their organisations. Further, the specifiers should be persons that had been trained as architects before choosing to specialise in specification writing.

On the issue of inconsistencies among documents, it is recommended that architects imbibe the practice of including specifications from the preliminary design stage, to avoid discrepancies among the contract/tender documents. Also, architects should imbibe the habit of doing market survey on regular bases to keep up-to-date record of building materials.

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