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Improving Workmanship in the Low-Cost Housing Sector by Reintroducing the Artisan/Skilled Workers Trade Test of Yesteryear

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ABSTRACT AND KEYWORDS

Purpose

This research study investigates the problems arising from poor workmanship in construction phases of low-cost housing projects, proposing solutions which can address and reduce these problems.

Design/Methodology/Approach

A literature study was done but, confined to factors influencing quality of workmanship including factors as time and cost in the low-cost housing sector. In addition to this a questionnaire survey was conducted on purposive Further Education Training (FET) Colleges, construction companies and a professional in the Built Environment based in the Western Cape regions. The respondents were chosen due to their continuous involvement in the low-cost housing sector.

Findings

It was revealed that there are limited skilled workers in the construction industry (low-cost housing) at present. Consequently time, cost and ultimately quality related goals are difficult to achieve. Findings suggest the necessity of trade test of yesteryear for skilled workers.

Research Limitation/Implications

The survey was completed on three FET Colleges and two construction/housing companies and a professional of the Built Environment. However, there were time and logistical constraints, for example meeting each role player at a certain time and certain place was not always possible. This played a huge role in completing two of the surveys.

Practical Implications

The research study brings fourth to the low-cost housing sector as well as the construction industry as a whole, that by increasing the percentage of skilled workers, goals such as time, cost and quality could be easily met.

Originality/ Value

The study illustrates that by implementing the trade test of yesteryear many problems experienced with poor workmanship in the low-cost housing sector, such as continued remedial works due to unskilled (makeshift) artisans will be eliminated thereby enhancing time, cost and quality goals.

Keywords

Cost, Low-cost housing, Time, Trade Test, Workmanship.

1. INTRODUCTION

Housing delivery and quality are two of the challenges faced in Southern Africa. Croome and Sherratt (1977) understood quality as a degree of excellence of a product. However, Barrie and Paulson (1984) viewed that quality assurance is considered generally to be a broader, more nearly all-encompassing term for the application of standards and procedures to ensure that a product or facility meets or exceeds the desired performance criteria. Powell (1976) further mentioned that quality in housing construction demands functional soundness and also demands subjective acceptability for it to be a marketable product.

According to Loots and Japie (2010) the construction trade testing of yesteryear brings fourth the word quality at its best. In addition it is mentioned that trade testing programmes such as Accelerated and Shared Growth Initiative for South Africa (Asgisa), Construction Education and Training Authority (Ceta) and Sector Education and Training Authority (Seta) were done in the 1970-1980s generating better skilled workmanship who in turn would produce a good end product. Presently, when focusing on low-cost housing within South Africa, it is evident that there are many threats to the workmanship and quality being produced. Arguably, factors affecting quality in low-cost housing are as follows:

- Housing backlog,
- Time constraints to house people adequately which give rise to overnight artisans and skilled labour being produced to accommodate the housing backlog and also community involvement, this intern gives rise to,
- Cost implications concerning the employment of skilled labours.

According to Griffith (1990) and Levey (2002) quality assurance within the construction industry was fraught with difficulty taking into consideration the skilled labour shortages. Arguably, the relatively unique aspect of each construction project and its temporary nature make the continuity and development of approach across projects far from easy. Griffith (1990) further postulated that quality assurance should try to address science and technology aspects of construction as well as manage the physical and psychological aspects of the human element. Therefore, quality assurance in construction represents a complex socio-technical managerial challenge (Griffith, 1990). In order to overcome these challenges, considerable efforts need to be made to achieve perfection at the very first attempt (Bennett, 1991). By focusing on the quality of the skilled workmanship and the conformance to low cost housing, quality to the constructed facility would be made possible (Barrie and Paulson, 1984). The purpose of this research study was to investigate whether a systematic focus on skilled workmanship in low cost housing projects can result in effective quality assurance hence an improved product.

2. REVIEW OF THE LITERATURE

2.1 Time

Time is a pivotal factor in everything that we do each and everyday of our lives. When considering the backlog in housing delivery in low cost housing in the Western Cape it is quite evident that time had aggravated the situation. South Africa's housing backlog has grown from 1.5 million in 1994 to around 2.1 million currently, meaning as many as 12 million South

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Africans, almost a quarter of the population are still in need of better shelter (Reuters, 2010).

In the low-cost housing sector this aggravation is vastly affected by the unskilled workforce and quality of housing delivery. Short courses currently being introduced for artisans and apprenticeships would be the measure to mitigate the pressures on time frame backlog for housing delivery (Loots and Japie, 2010). These courses however can be directly compared to those of yesteryear and comparisons based on quality of housing delivery can be distinctly made. The efficiency of these currently provide courses is not of a good standard. This is due to the syllabus of these courses being broad with very little time allocated for completion. Ultimately it gives rise to artisans and apprenticeships who are not as competent as those who spend more time covering and attaining the knowledge and practical experience which a full course provides. The time periods for short courses are 3 weeks whereas full-time courses cover a years' activities (Loots and Japie, 2010).

Chan and Chan (2004), postulated that time in the construction industry refers to the duration for completing the project. It is scheduled to allow the building to be in use by a date determined by the client's future plans. In addition time is related to effectiveness, which in construction refers to how well the project was implemented or the degree to which targets of time and cost were met from the start-up phase to full production. Ashworth and Hogg (2002), indicated that project duration or completion dates may be critical to the success of a project, and in some situations if these dates are not met due to time constraints and poor workmanship, it could lead to total failure in meeting the client's objectives and affecting the quality in the final product. Ashworth and Hogg (2002) further state that while most clients desire early building completion, it is important to distinguish between this and true need since attempting to meet the objectives of early completion is likely to have consequences such as poor workmanship which is detrimental to the success of a project. In conjunction with this, unrealistic deadlines and bonus work encourages workers to rush their jobs, which often leads to unnecessary mistakes or skimping on standards (Douglas and Ransom, 2007). In general, clients could have the highest standards specified for their projects but through time constraints which contribute to poor workmanship; this will bring about a low quality product (Sawczuk, 1996).

2.2 Cost

In all walks of life, money or finance is a necessity. Arguably, unskilled labour and poor workmanship are influenced by the finance provided for a project. Taking the low cost housing situation in the Western Cape into consideration it is evident that many government tenders are won by relatively well established construction companies, which in turn utilise

unskilled subcontractors (makeshift artisans), unskilled labour and community members to compile the finished product, at the same time exploiting them by means of underpaying them (Loots and Japie, 2010). Loots and Japie (2010) lamented that such a situation creates an environment that prevents skilled artisans who are able to deliver a better quality product to get access to work. Oakland and Marosszeky (2006) mentioned that when manufacturing a quality product, providing a quality service, or doing a quality job – a product with a high degree of customer satisfaction - is not enough. The cost of achieving these goals however must be carefully managed; so that the long-term effect on the business, be it construction, is a desirable one. These costs are a true measure of the quality effort.

Sawczuk (1996) argued that when reducing cost in any construction project, workmanship and ultimately quality is compromised. Ashworth and Hogg (2002) however postulated that if a limited capital budget is the prime consideration of the client, then the quality in the form of reduced specifications as well as workmanship is likely to be restricted. If the client's cost increases, a higher standard of workmanship will be specified (Ashworth and Hogg, 2002).

Regular cost reports should be produced throughout the construction stage of the project. From these, potential overspending can be identified before it occurs and corrective action taken. The client should however recognise that such corrective action is not always beneficial since it is likely that cost savings can be made only by a reduction in standard which includes a lower standard of workmanship (RICS Foundation, 2002).

2.3 Quality

The word quality has many meanings: a degree of excellence; conformance with requirements; fitness for use; delighting customers; freedom from defects; lack of imperfection or contamination (Hoyle, 2006). Chan and Chan (2004) defined quality as a totality of features required by a product or service to satisfy a given need ("fitness for purpose"). However the way in which quality is determined is by the extent to which a product or service successfully serves the purpose of the user during usage not just at the point of sale. Price and delivery are both transient features, whereas the impact of quality is sustained long after the attraction or the pain of price and delivery has subsided (Hoyle, 2006). Nowadays, quality is the guarantee or an assurance that convinces the customer or the end-user to purchase or use a product. The conformance with specifications matched with good workmanship is one way of measuring quality.

Unfortunately, construction work is these days done at a quicker pace and at a tighter budget. These two factors exert tremendous pressures on the industry itself, more so the low cost housing sector in the Western Cape. It causes many loopholes in this area such as: unskilled workforce due to

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constant demands, payment exploitation and most of all quality deterioration. According to Loots and Japie (2010) these concerns can be solved by better time management of tenders being awarded by government, generating the availability of more time allocated to apprenticeship programs at the same time producing skilled artisans as it was a couple of years ago. Loots and Japie (2010) further warned that it might put strain on the housing backlog that the Western Cape and South Africa is currently faced with, but ultimately quality price and skills cannot be jeopardized. Quality trade testing should be done as it was yesteryear.

3. METHODOLOGY

The data for this research was collected using primary and secondary sources. A semi-structured interview was adopted. A semi-structured interview consists of setting central questions in which the conversation will be articulated and other questions are posed for clarification as the conversation goes on. A questionnaire was intended to collect facts and perceptions of respondents vis-à-vis the quality status of low cost houses. A non-random sampling method was used to select respondents, specifically a purposive sampling. A purposive sampling consists of handpicking supposedly interesting people a researcher thinks know most about the subject under investigation. Respondents were from Further Education Training (FET) colleges, employers from construction/ housing companies and professional in the Western Cape Province. Respondents to these interviews were the most appropriate candidates due the fact that they are currently involved with the development of low cost houses within the Western Cape Province. These respondents served as suitable candidates mainly because they are knowledgeable witnesses in this sector.

4. FINDINGS

Table 4.1 shows the research participation. All respondents concurred that the Western Cape low cost housing sector is threatened with by lack of quality workmanship. A common reasoning is that the Western Cape possesses many incompetent labour forces, and labour forces which are either semi-skilled or not skilled at all. The respondents also based their opinions on experience gained from short-courses offered to those learners (Labour) who wish to become skilled through their training. This however is done on a fast track basis not allowing the individuals to gain experience in their fields of expertise. This situation generally creates a problem when it comes to the quality of the end product produced (Low-Cost House).

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Table 4.1 Participants

Institution	Occupation/Position	Number of Respondents	Percentages
FET College 1	Lecturer	2	20.0
FET College 2	Lecturer	2	20.0
FET College 3	Lecturer	1	10.0
Construction company 1	Contracts Manager	2	20.0
Construction company 2	Site Agent	2	20.0
Professional in the Built Environment	Quantity Surveyor	1	10.0
Total		**10**	**100.0**

In Table 4.2 respondents were asked whether the systems put in place for trade testing are sufficient systems allowing for quality workmanship outcomes on a 5 point Like scale where 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Disagree. A mean of 2.9 represented the outcome of this question. The majority of respondents, who had a neutral response to the question, justified their answer by stating that the trade testing system at present has not really changed from that of yesteryear. However, it has not shown any signs of upgrading itself with modern day developments taking place in the low-cost housing sector within the Western Cape. Respondents felt the need for trade testing facilities and systems to be updated in accordance with the demand for low cost housing delivery. This is giving rise to better skilled labour, artisans in today's busy low cost housing sector.

Table 4.2 Efficiency of systems put in place for trade testing

	N	%
Strongly diagree	0	0.0
Disagree	1	10.0
Neutral	9	90.0
Agree	0	0.0
Strongly agree	0	0.0
Total	10	**100.0**
Mean		**2.9**

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In Table 4.3 respondents were asked whether the old trade testing programs, with updated data are to be reinstated on a 5 point Like scale. A mean of 3.9 represented the outcome of this question. A common reasoning for the respondents' choices were that with the old trade testing system/programs, learners spent most of their time at institutions for trade testing. These days learners are more site orientated, exposed to more practical work, but at the same time possess lacking theoretical background and also being misled how to accomplish short-cuts in the trade they need to master. It was also found that these days learners (labour) on site working towards their trade are more production orientated, due to the pressures exerted on them by main contractors which in turn are pressurised by government for service delivery. This generally causes a lack of quality in the workmanship towards the end product (low-cost housing developments).

Table 4.3 Reinstatement of old trade testing programmes

	N	%
Strongly diagree	0	0.0
Disagree	0	0.0
Neutral	2	20.0
Agree	5	50.0
Strongly agree	3	30.0
Total	10	**100.0**
Mean		**4.1**

In Table 4.4 respondents were asked whether time constraints impact negatively on the workmanship quality in the low-cost housing sector within the Western Cape on a 5 point Like scale. A mean of 4.3 represented the outcome of this question. A common reasoning for the respondents' choices were that currently low-cost housing within the Western Cape became more production orientated placing the quality of workmanship as second to best. This reasoning is also justified by the current housing backlog within the province and the time constraints put in place to alleviate the backlog which the province is currently facing. With this findings it is also noted that due to the time constraints controlled by government pressure has been placed on the housing/construction industry making situations much more hectic due to the shortages of skilled workers and the forceful implementation of community involvement in the low-cost housing areas.

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Table 4.4 The impact of time on workmanship quality within the low-cost housing sector in the Western Cape.

	N	%
Strongly diagree	0	0.0
Disagree	0	0.0
Neutral	2	20.0
Agree	3	30.0
Strongly agree	5	50.0
Total	**10**	**100.0**
Mean		**4.3**

In Table 4.5 respondents were asked whether cost implications affect the workmanship qualities in the low-cost housing sector within the Western Cape on a 5 point Like scale. A mean of 4.3 represented the outcome of this question. As for this figure a common reasoning from the respondents' choices were that, government does not provide descent subsidies to contractors for building and developing the low-cost housing sector within the Western Cape. This in turn causes contractors to underpay their subcontractors (artisans-skilled labour). Further more no interest according to the respondents would be generated by these subcontractors and other youth members to attend and complete proper trade testing programs if the compensation remains the same. Another common reason that is found from the responses received is that if government continues to produce such small subsidies, more and more inferior products/materials are likely to be used.

Table 4.5 Cost implications

	N	%
Strongly diagree	0	0.0
Disagree	0	0.0
Neutral	2	20.0
Agree	3	30.0
Strongly agree	5	50.0
Total	10	**100.0**
Mean		**4.3**

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5. CONCLUSION

The results indicated that the reason for poor workmanship qualities in the low-cost housing sector within the Western Cape, is due firstly to government which is under pressure by the housing backlog that the region is facing. In turn this places a lot of pressure on the housing/contracting companies which rely on labour force employed by them. This backlog is ultimately the cause of time constraints placed on the low-cost housing sector in general, generating semi to unskilled labour and poor quality works. This can is illustrated by the figure below.

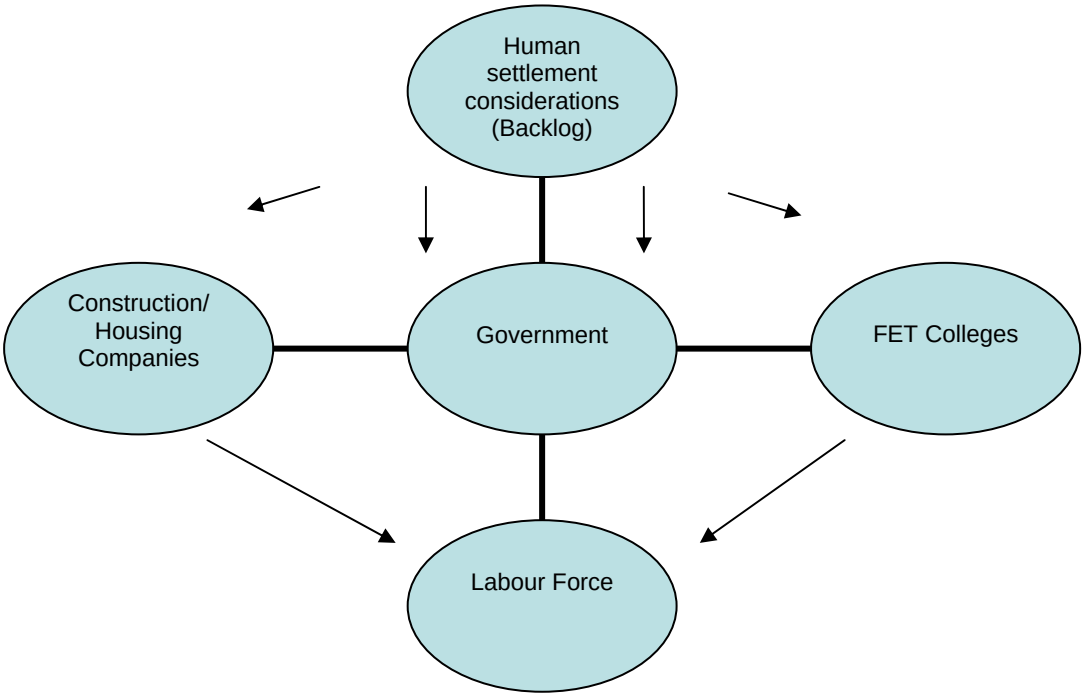

Figure 5.1 Pressures being exerted on the various parties

Figure 1 gives a representation of the pressures being exerted on government due to human settlement considerations and backlog in housing. In turn Government exerts pressure on the Construction/Housing Companies for quicker service delivery. The diagram also illustrates the pressures exerted on Further Education Training FET Colleges for shorter

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courses in order to contribute to the quicker service delivery of these Construction/Housing Companies. Findings also indicates how cost implications play a role in the poor workmanship qualities that is experienced in the low cost housing sector within the Western Cape. This can be illustrated by Figure 2.

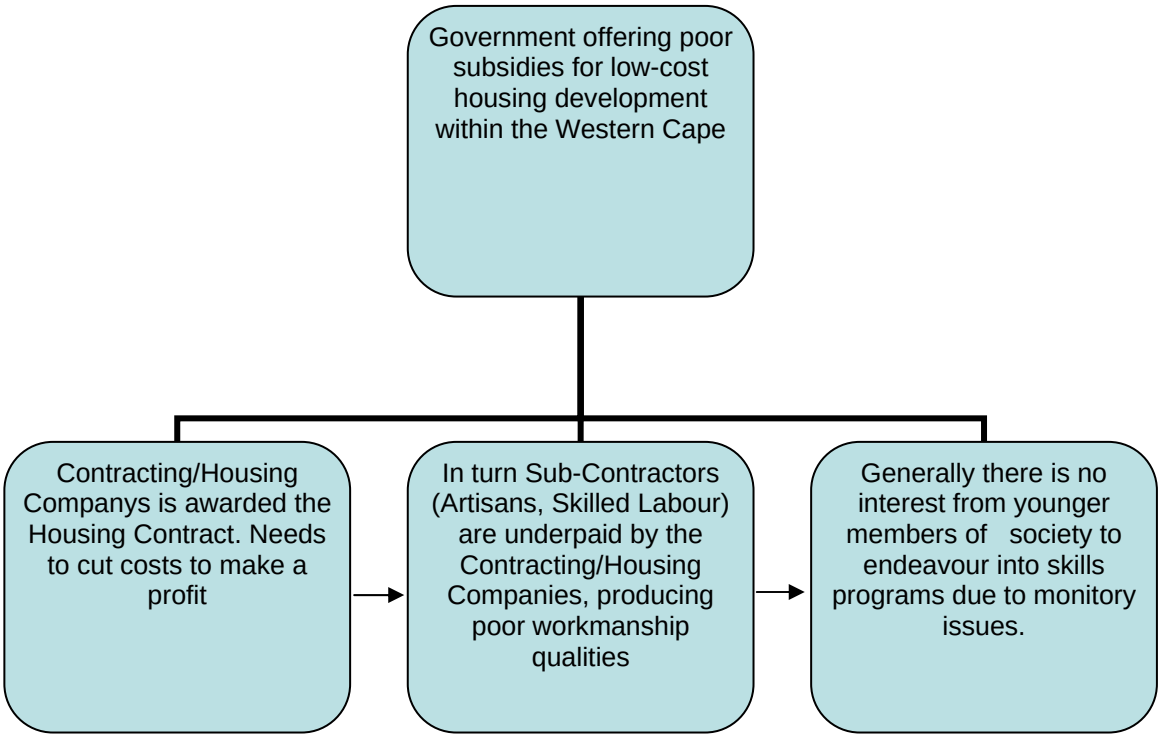

Figure 5.2 Low Government Housing subsidies producing cost cuts and poor workmanship quality.

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All in all it is quite evident that both time and cost factors affect the workmanship qualities in the low-cost housing sector within the Western Cape. It is also quite noticeable how these two factors influence the Further Education Training (FET) Colleges and their implementation of short courses giving rise to overnight skilled workers and artisans. While the government cannot ignore the need to house people adequately due to tight time frames, more time should be set aside to train labour in the low cost housing sector adequately so that they are competent enough to deliver a good enough product. In mentioning this, a general view would be to reintroduce the skills artisans/skills workers trade testing program of yesteryear. This should coincide with better subsidies set aside for the low cost developments within the Western Cape, generating more indulgence to housing contractors and sub-contractors (skilled labour, artisans) in order for them to make a living out of the service delivery they provide.

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