

Perspective of Construction Team Towards Causes of Defects in Public Housing Projects

Noor Anisah Abdullah, Nursyahidah Farzana Abdul Jalil,
Shafikah Saharuddin, Izatul Farrita Mohd Kamar

Department of Built Environment Studies and Technology, Faculty of Architecture, Planning
and Surveying, Universiti Teknologi MARA Perak Branch, 32610 Seri Iskandar, Perak,
Malaysia.

Email: anisahabdullah@uitm.edu.my, syahidahfarzana@gmail.com,
shafikahsaharuddin@uitm.edu.my, izatul739@uitm.edu.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v12-i9/14511> DOI:10.6007/IJARBSS/v12-i9/14511

Published Date: 05 September 2022

Abstract

Referring to the needs of the community and since the government had launched a public housing program, public housing has become the focus in the housing market because home is an asset that everyone needs. There are some issues arise related to housing quality in public housing and make public housing program almost non-success. The housing defects is the biggest problem that occurs in public housing but efforts to reduce defects in public housing are still idle and not addressed due to lack of acknowledgement towards defects problem in public housing. Therefore, this research aims to investigate the causes of defects in public housing projects. The study implied a quantitative method that involves questionnaire survey. The questionnaires are distributes to contractors and developers who have an experience in public housing project in Klang Valley area. There were 136 valid responses were obtained from the questionnaire distribution to be analysed. All data are analysed using Statistical Package for Social Science version 22 (SPSS) software. The result reveals that poor workmanship, lack of supervision by superior, poor quality of material, poor quality of contractor and limited time of construction are the causes of defects in public housing. Therefore, it is hope that this study will raise awareness among construction team and government in order to reduce housing defect problem in Malaysia.

Keywords: Defect, Public Housing, Construction Team

Introduction

Every human being in this world needs a place to live, so owning a house is a basic need for us. Therefore, the Malaysian Government has introduced public housing to make it easier for the community to own homes, especially for those who are staying illegal squatters, homeless and the low-income group (Rahman et al., 2012). Several public housing that had been introduced by the government is Perumahan Rakyat 1 Malaysia (PR1MA), Program

Perumahan Rakyat (PPR), Perumahan Penjawat Awam Malaysia (PPAM) and Projek Perumahan Awam Kos Rendah (PAKR). The provision of public housing is at a reasonable price, which is cheaper than the usual house (Wahi et al., 2018).

However, there are some issues reported that arise in public housing and make this public housing program almost non-success (Rahman et al., 2012). Among the issues are related to housing quality (Rahman et al., 2019). According to Valuation and Property Service Department (2009), almost 45% of public housing built is located in Klang Valley because the demand in this area is very high. Some construction-related parties make public housing by using poor quality in order to minimize construction costs (Muhammad & Norhaslenda, 2017). Therefore, the problem of defects should not occur in public housing because residents are in dire need of a comfortable life while reducing the use of money on home repairs (Mohammed, 2021). Due to the importance of public housing in this developed area, this study is necessary to identify the perspective among the construction team towards causes of defects in public housing projects in Klang Valley.

Literature Review

The construction team is a collection of individuals or bodies in the construction industry. This team is related to the design and construction works in every project (Azmy, 2012). According to Emmitt and Gorse (2007), when a project is planned, there are stakeholders that will be gathered and it is known as construction project teams. Usually, common project team members include owner, project manager, architect, and engineers, as well as contractors and subcontractors (Azmy, 2012). The involvement of members of the construction team is varied by following the size, type and complexity of the project (Loosemore, 2004).

For humans, a house is an integral necessity (Mansur et al., 2016). Therefore, everyone is obliged to own a house. Since prehistoric times, in addition to food and water, shelter or home has been an important feature for basic needs (Mansur et al., 2016). Home has become a necessity for everyone and everyone needs to own a home to get on with life. A house may become an indicator nowadays to measure the degree of wealth and life of an individual (Mansur et al., 2016). Public housing built by the Malaysian government is essentially intended to provide low-income groups with affordable housing and solve the problems of illegal squatters in cities and towns (Hashim et al., 2015). Public housing is one of the most important affordable homes, especially for low-income groups, for all citizens (Hashim et al., 2015). By guaranteeing the supply of minimum acceptable standards, amenities, and facilities both within and outside the housing units, public housing plans are seen by the government as a method for low-income people to own their homes and live in improved living circumstances. The quality of life for the locals will increase as a result (Djebarni & Al-Abed, 2000).

Construction defects are very prevalent and often occur in construction projects, especially in projects with poor workmanship and poor project management at the construction site (Bagdiya & Wadalkar, 2015). This kind of poor existed because of the lack of planning. In the building industry, construction defects may be identified as a major issue that could cause decreases in the value of construction (Bagdiya & Wadalkar, 2015). Low-cost housing has always been blamed for bad construction and poor performance (Abdellatif &

Othman, 2006). Other than that, Rinker (2008) mention that due to a combination of hasty construction, poor design, and inadequate maintenance, public housing developments have deteriorated badly. Clients and low-income end-users argue that their housing does not meet their needs and is not built to meet their demands (Abdellatif & Othman, 2006). Providing good quality housing units should promote more equal social, educational, and economic opportunities and help create more equitable environments for all (Abed et al., 2013). The most commonly occurring defects in affordable housing are dampness to concrete walls, leaking pipes, cracking in concrete walls, total failure of water supply systems, and faulty doorknobs (Hamzah et al., 2012).

Regarding on public housing issue such as defects in building that reported by Rinker (2008), the causes of the issues are due to a combination of hasty construction, poor design and insufficient maintenance. Since the contractor may be liable to the employer for delay damages if the project is not completed on time, the contractor will try to avoid losses by making a fast completion. As a result, construction projects were completed in a rushed manner (Hong, 2016). Other than that, the use of cheap low quality building materials also been identified as the main problems resulted to high maintenance cost for this type of houses (Hashim et al., 2015). Poor supervision refers to negligence of supervisor on labours and their activities (Mahajan, 2016). Example of defects in construction stage are lack of supervision and low quality of workmanship (Robin, 2013). In addition, there also stated that the common causes of these defects may be poor workmanship, poor supervision and monitoring routines and inferior materials (Hamzah et al., 2012). Therefore, poor workmanship is one of the most common causes of construction defects (Ahzahar et al., 2011).

There are ways to avoid these defects from happening in the construction building. Identifying the defect at the early stage of construction makes it easier to complete the project in stipulated timing as the defect effect on time and cost overrun (Bagdiya & Wadalkar, 2015). This helps to eliminate or mitigate errors in future work because we can make good for all the defects in the early stage.

Research Methodology

The method used for collecting the data information is by using a questionnaire survey. The population for this study is focusing on the contractors registered under Construction Industry Development Board (CIDB) in the Klang Valley region who has an experience in public housing construction. As for the sampling method, a simple random sampling method is used which G1 – G5 contractors have been chosen as the respondents. The primary data collections were conducted in this research which is a questionnaire survey that were distributed to the available contractors in Klang Valley. For the secondary data collection, the information was gained from literature reviews such as reference books, published journals, articles and research papers and the internet. This method is used to support the primary data collected.

The analysis method used for this research is descriptive statistics which is under the quantitative data analysis. In addition, this kind of method also measures central tendencies which is mean, median and mode. Hence, the result will be used for conclusion and recommendation through these methods and analysis. The five items Likert scale is used as a choice for the respondent to choose in the questionnaire. The Likert scale allows a respondent

to choose an answer from 1= strongly disagree to 5=strongly agree. The sampling list is obtained from the list of contractors and developers registered with CIDB Malaysia to get targeted respondents. According to Krejcie & Morgan (1970), the sample size for a population of 210 is 136 respondents.

Analysis and Discussion

Table 1.0

Relative Index (RI) for type of housing defect

Type of Defect	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Total	5 (N)	RI	Rank
Cracking of concrete wall	1	2	63	228	280	574	680	0.844	1
Pipe leaking	1	10	87	256	185	539	680	0.793	2
Dampness at concrete wall	1	8	108	216	205	538	680	0.791	3
Roof defect	2	16	105	220	180	523	680	0.769	4
Foundation failure	4	56	132	160	100	452	680	0.665	5

Based on Table 1, there was an analysis on type of housing defect commonly occurred in public housing project. The results obtained from the analysis showed cracking in concrete wall is the highest RI value is 0.844. Proceed with pipe leaking was in the second rank with RI value 0.793 followed by wall dampness in the third rank (RI value=0.791). Meanwhile, roof defect and foundation failure in the showed a slight difference RI value at 0.769 and 0.665 respectively.

Table 2.0

Relative Index (RI) for causes of housing defect

Causes of Defect	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Total	5 (N)	RI	Rank
Poor workmanship	1	10	57	196	310	574	680	0.844	1
Lack of supervision by superior	1	6	72	192	300	571	680	0.840	2
Poor quality of material	1	14	60	192	300	567	680	0.834	3
Poor quality of contractor	1	8	78	204	270	561	680	0.825	4
Limited construction time	5	32	96	188	180	501	680	0.737	5

As presented in Table 2, there are some causes of housing defect in public housing in Klang Valley area. The main cause of housing defect is poor workmanship with RI value 0.844. Next, lack of supervision by superior is in the second rank (RI value=0.840) and poor quality of material in the third rank (RI value=0.834). Poor quality of contractor and limited construction time were ranked in the fourth and fifth rank with RI value 0.825 and 0.737 respectively.

Poor workmanship is the main causes of housing defect in public housing in Klang Valley. These finding was supported by Ahzahar et al (2011); Rahman et al (2012) which stated that poor workmanship is one of the most common causes of construction defects. Proceeded with the second-ranked causes of housing defect is lack of supervision by the superior. From these finding, Vishal et al (2015) stated that about 54% of construction defects can be attributed to human factors, such as unskilled workers or inadequate construction work supervision. Next is poor quality of material. The use of cheap low quality building materials also been identified as the main problems resulted to high maintenance cost for this type of houses (Hashim et al., 2015).

Poor quality of contractors also is the causes of housing defect in public housing. This is supported by Okuntade (2014), which stated that defects occur in the site due to the contractor unable to explain the drawing to the workers because of his poor technical background. Generally, the overall result of suggestions was received positive feedback from the respondents. The findings of this research also have been supported from the previous literature review.

Conclusion

Housing defects in public housing are problem that commonly faced by the occupants. This article has investigated and assessed the causes of housing defect in public housing from the perspective of construction team. The objective for this research paper had been achieved by

rank of relative index for each cause of defects listed. Thus, this can be concluded that causes of housing defects in public housing are poor workmanship, lack of supervision by superior, poor quality of material, poor quality of contractor and limited construction time. This research analysis revealed that poor workmanship is the main causes of defect in public housing in Klang Valley. The result was consistent with the previous study, as mentioned by Ahzahar et al (2011); Rahman et al (2012) which stated that poor workmanship is one of the most common causes of construction defects. The findings of this research paper are intended to help stakeholders and policymakers in the construction industry understand the causes of housing defect that commonly occur in public housing in Malaysia. In addition, the finding of this research also can help the construction team to identify the best solution in minimising the housing defect in public housing. This will help to improve plans for dealing with any unexpected circumstances in future.

References

- Abed, A. R., Awada, E., & Sen, L. (2013). The Impact of Affordable Sustainable Housing Neighborhoods on Housing Cost Efficiency. *Sustainable Development*, 6(9), pp.62–72.
- Abdellatif, M. A., & Othman, A. A. E. (2006). Improving the sustainability of low-income housing projects: The case of residential buildings in Musaffah Commercial City in Abu Dhabi. *Emirates Journal for Engineering Research*, Volume 11 (2), pp. 47-58.
- Ahzahar, N., Karim, N. A, Hassan, S. H., & Eman, J. (2011). A Study of Contribution Factors to Building Failures and Defects in Construction Industry. *The 2nd International Building Control Conference 2011 Procedia Engineering* 20 (2011) 249 – 255.
- Azmy, N. (2012). *The Role of Team Effectiveness in Construction Project Teams and Project Performance*. Graduate Theses and Dissertations.
- Bagdiya, M. N. V., & Wadalkar, S. (2015). Review Paper on Construction Defects. *Journal of Mechanical and Civil Engineering*, Volume 12 (2), pp. 88-91.
- Djebarni, R., & Al-Abed, A. (2000). Satisfaction level with neighbourhoods in low-income public housing in Yemen. *Property Management*, 18(4), pp.230–242.
- Emmitt, S., & Gorse, C. (2007). *Communication in Construction Team*. Taylor & Francis, p. 298.
- Hashim, A. E., Samikon, S. A., Ismail, F., & Ismail, Z. (2015). Managing Facilities on Malaysian Low-cost Public Residential for Sustainable Adaptation. *Procedia - Social and Behavioral Sciences*, pp. 56-60.
- Loosemore, U. (2004). *Essentials of Construction Management*. In: Sydney Australia: USNW Press, p. 408.
- Mahajan, G. S. (2016). Poor quality in Building projects. *International Journal of Engineering Science & Research Technology*, 5(7), 1147-1153.
- Mansur, S. A., Abdul, H. A. R., & Yusof, N. A. (2016). Rising Trend in Construction Cost and Housing Title. *Journal of Advanced Research in Business and Management Studies*, Volume 3 (1), pp. 94-104.
- Mohammed, S.A . (2021). Occupants Satisfaction Towards Building Maintenance of Low-Cost Building Apartment in Kajang: Pilot survey. *Turkish Journal of Computer and Mathematics Education*, 12(3), pp. 2252-2264.
- Muhammad, F. A., & Rohaslinda, R. (2017). Occupants' Satisfaction on Internal Layout of Low-Cost High Rise Housing in Kuala Lumpur. *Built Environment Journal*, 14(1), pp. 10-16.
- Okuntade. (2014). Effects Of Faulty Construction on Building Maintenance. *International Journal of Technology Enhancements and Emerging Engineering*.

- Rahman, H. A., Wang, C., Wood, L. C., Khoo, Y. M. (2012). Defects In Affordable Housing Projects in Klang Valley. Performance of Constructed Facilities, pp. 1-43.
- Rahman, M. A. A., Musa, M. K., Awang, M., Ahmad, F. H., & Hamidon, N. (2019). Exploring Issues and Problems Perceived by Occupants of Malaysian Affordable Housing. International Journal of Innovative Technology and Exploring Engineering (IJITEE), 8(8), pp. 398-401.
- Rinker, M. (2008). Affordable Housing Issues. Shimberg Centre for Affordable Housing, pp. 1-4.
- Vishal, V. W., & Vishal, P. (2015). Cost of poor Quality in Construction. IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE), pp. 16-22.
- Wahi, N., Rosli, M. Z., Vikneswaran, M., Ismail, M., & Syahrizan, J. (2018). Problems and Issues of High-Rise Low-Cost Housing in Malaysia. International Conference on Applied Electronic and Engineering 2017 (ICAEE2017), IOP Conf. Series: Materials Science and Engineering 341 (2018) 012027.