

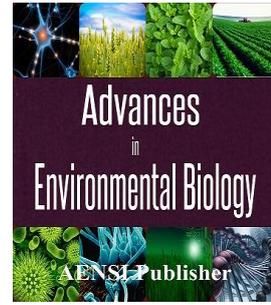


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A Case Study on Workmanship Issues and Public Hospital Building Defects

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ABSTRACT

In recent years, the workmanship issues in building construction sector had been debated by many scholars. Yet, this issue is seldom highlighted on the hospital building construction in Malaysia. Public hospital building is a building for people to seek medical treatment. The hospital building should be in good condition in turn to fulfill its function. This study identifies the hospital building defects that are related to the workmanship issue. Based on records obtained from Hospital Sultanah Bahiyah, Alor Setar, this study will deliberate the hospital building defects according to the three main building elements that are ceiling, wall, and roof. This paper concludes that poor workmanship leads to major public hospital building defects that affect the hospital building function and performance.

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INTRODUCTION

Buildings will experience aging process. Building defects act as an agent to rapid the aging process of building and reduce the building's life span. Building defect has been defined as "failure or shortcoming in the function, performance, statutory or user requirements of the structure, fabric, services or other facilities" [1]. Building defects are generally categorised as patent and latent defects [2]. The common building defects are leakage, cracking, corrosion, popping tiles, bad plumbing, tile spot and stains, water penetration and buckling [3]. There are a lot of causes of building defects such as weather, chemical reaction, soil impact, poor design, structural movement, workmanship, lack of maintenance, moisture and site working [4]. Besides that, the location of building, construction materials, building type and change in use can also be classified as causes of building defects [5]. However, most of building defects occurred due to poor workmanship [6].

The issue on poor workmanship is normally associated with contractor faulty. Contractor's skill will determine the building quality and types of building defect that will occur [1]. This study shows the number of building defects is lower when the ISO 1900 certified contractor was appointed by the client to construct the school building in Singapore. In Malaysia, the example of building defect caused by poor workmanship can be seen in the case of roof leakages at the Parliament building and a few cases on pipe leakage and ceiling collapse at some government buildings [5]. Ministry of Housing and Local Government has received the complaints mainly on wall cracks, roof leaks, poor plaster, painting, plumbing problems and ground settlement for the public buildings in Malaysia that mostly caused by poor workmanship [7].

For public hospital building in Malaysia, previous study had identified the building defects that occurred due to workmanship issue during the defect liability period (DLP) are peeling paint, discoloured paint, fungus, ceiling collapse and hair line cracks [8]. However, since there are limited studies done on hospital building in Malaysia, this study will focus specifically on the three building elements that experience the major building defects that are ceiling, wall and roof.

Research Objective and Methodology:

The objective of the paper is to identify the hospital building defects that relate to the workmanship issue. Therefore, researchers had reviewed the secondary data obtained from the Hospital Sultanah Bahiyah, Alor Setar through Faber Medi-Serve Sdn. Bhd as a consensus company appointed by the Ministry of Health to do maintenance work at the hospital. The reports are: Technical Advise, Reimbursable Work and Condition

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Appraisal. All the three documents reported building defects for the hospital. The analysis and identification of building defects occurred due to workmanship issue has been conducted for the period from Defect Liability Period (DLP) which was from September 2007 until January 2014. Before data collection can proceed, we have to get permission from Ministry of Health Malaysian and Director of Hospital Sultanah Bahiyah, Alor Setar to review all related documents. Based on result, this study will present the hospital building defect according to the three main building elements that are ceiling, wall and roof.

RESULTS AND DISCUSSION

(i) Background of Hospital Sultanah Bahiyah, Alor Setar:

Hospital Sultanah Bahiyah is located at KM6, Jalan Langgar, Alor Setar. On 19th September 2007, the hospital has started to serve its services to the public. The hospital possesses 660 beds strength which consists of single and multi-storey buildings. However, the number of beds has increased to 743. The hospital provided an important healthcare facility to the northern residents of Peninsular Malaysia. This hospital maintained by Faber Medi-Serve Sdn. Bhd. The ministry of Health Malaysia has been outsourcing the five services and all the hospitals in the northern region of Peninsular Malaysia and Sabah and Sarawak to the Faber Medi-Serve Sdn. Bhd.

The hospital building defects were occurring since handing over the Hospital Sultanah Bahiyah until now. The building elements that received the defects due to workmanship issue are ceiling, wall and roof

(ii) Ceiling:

The first incident of ceiling collapse had happened on 15th September 2009 at Physiotherapy Unit's waiting area which is after 2 years hospital started the operation. Then the incident of ceiling collapse happened again on 15th July 2010 at corridor area of the Pharmacy Store. These two incidents happened due to improper installation of hanger. The hanger was fixed with one no of fastener on metal stud at the soffit slab and some of the hangers were suspended at the sprinkler pipe and electrical trunking.



Fig. 1: Ceiling collapse at suspended ceiling and hair line cracks and sagging at plaster ceiling

(ii) Wall:

Figure 2 below shows the cracks on the external wall were found at a few locations of the hospital building, some of the cracks are due to improper plastering works. This condition had exposed the building to the weather resistance problems and will also cause leakages and water seepage that create other building defects. Besides that, it affects the building appearance.

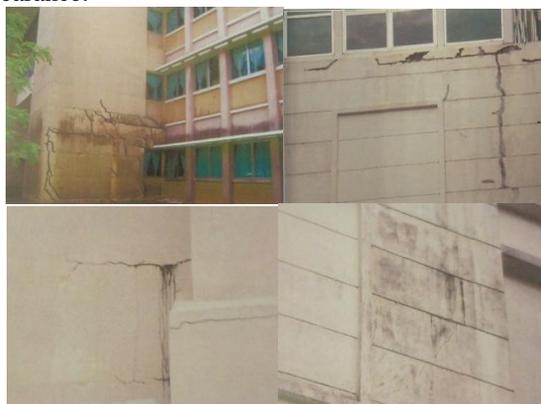


Fig. 2: Cracks on the external wall of hospital building

(iii) Roof:

The corrosion had happened at the roof gutter due to the improper installation as shown in figure 3 below. The roof gutter was installed not in a right gradient to flow the rain water into the rainwater downpipe. The stagnant water had caused the oxidation process to happen. Besides that, this situation has created the potential of mosquito breeding. In addition, the contractor did not paint the galvanised iron gutter as stated in the contract drawing. The failure of contractor to follow the standard requirement has cause millions of ringgit to rectify it and potentially create the health issues to the people at the hospital.



Fig. 3: Corrosion at the roof gutter

Summary:

This study had identify the major building defects that occur at the Hospital Sultanah Bahiyah which are ceiling collapse, hair line cracks and sagging at the ceiling, cracks on wall and corrosion at the roof gutter. Therefore from the result, we can conclude that the workmanship issue is one of the main contributors to building defects' occurrence. Hospital Sultanah Bahiyah has been operating less than ten (10) years. The building defects affect the hospital performance. Supposedly, the listed major building defects may not happen if the main contractor really did their job effectively as a selected contractor by the Ministry of Finance Malaysia. This study is a small part of a larger study on two hospitals in Northern part of Peninsular Malaysia.

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