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A STUDY ON COMMON BUILDING DEFECTS OCCURRED IN STUDENTS COLLEGE DUE TO WEAR AND TEAR

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Abstract *:*
The purpose of this paper is to explore the common building defects due to wear and tear in student's college, to identify the common building defects due to wear and tear in student's college and the last one is to categorized the common building defects due to wear and tear in student's college. The methodology used in this study is quantitative, consists of scaled questionnaires in obtaining the background information on the commons building defect due wear and tear. The questionnaire which consists of the listed conditions checklist were carried out at two students' colleges in UiTM Perak; i.e. Kolej Pasir Salak and Kolej Indera Sakti. After the completion of data collection, analysis was performed using two different computer packages: Statistical Package for the Social Sciences and Microsoft Excel Windows. Mean distribution was used to calculate the average degree of defects in the buildings. The result has showed that the highest rank of defects is scuffed on wall, followed by loose doorknob and water stain on the ceiling. Other than that, there are 50 defects that were ranked as considerably occurred and mostly occurred, and ten defects were ranked as less occurred or slightly occurred.

Keywords : Building defects; Wear and tear; Student's College

1.0 INTRODUCTION

The university contains a building unique, complex and sophisticated that is used to implement a wide range of activities and functions. In the University building, the leaders of the future, captain of industry, entrepreneurs, professionals and scientists produced (Mat, et al., 2009). In most UiTM college buildings which are constructed by the government there are many complaints about defects in the building elements of the college. One of the causes of this condition is due to wear and tear and this problem occurs in most UITM branches in Malaysia. Refer to a case study in UiTM Perak, the hostel building that is over 10 years will usually exposed with too many defects such as damage on building element for example floor tiles, wall tiles, damage to doors, windows and roofs, this defects can be relate with nature wear and tear, that is because each of these elements has their own period of time so when it is too old, their performance rate will be reduced and will eventually result in defects.

Therefore, the aim of this research is to study the occurrence of wear and tear relating in student's college in UiTM Seri Iskandar Perak. The objectives of this study are to explore the common building defects due to wear and tear in student's college, to identify the common building defects due to wear and tear in student's college and the last one is to categorized the common building defects due to wear and tear in student's college. The campus is now located at Bandar Seri Iskandar , Perak Tengah District and occupies an area of approximately 392.36 acres. The campus has built new hostels for the students and able to accommodate a maximum of 8000 students. At present, there are 9665 full-time students in 30 programmes and 418 part time students in seven programmes, with 539 full time lecturers and 359 administrative and support staff. Not only that, there are five (5) colleges were built in UiTM Perak, namely Cempaka Sari College, Indera Mulia College, Indera Sakti College, Pasir Salak College, Seri Manjung College. The targeted population for this study was the staffs of facility management, the staffs of student college and students.

2.0 LITERATURE REVIEW

Based on the previous research, the word "defect" was used to describe imperfection in any building or constructed structure. A building defect can be consider as shortcoming or lost or falling in performance, function or user need and requirement of the building, and it's could be in the sub-structure, structure, finishes, services or other facilities which has affected to the buildings. Carillion (2001) mentioned that wear and tear as a reduction, depreciation or decline the functions or the performance of a building or a service, which rise as a result of an ordinary use or an equitable. It also defines that a combination of the three caused which is due to the age of the building or services or because the weather is natural. There are various interpretation about wear and tear, for instances wear and tear is a combination of two words which is wear means that wear down, wear in, wear off, wear on and wear out and tear which means tear apart, tear at, tear away, tear down, tear into and tear up.

According to Collins Cobouild Advanced Learner's English Dictionary (2006) wear and tear means that the damage or change that is caused to something when it is being used normally or nature. Based on The Webster's New Explorer Encyclopedic Dictionary (2006) highlighted that wear and tear as the loss, injury or stress to which something is subjected by or in the course of use especially nature depreciation. In addition, wear and tear is about a depreciation, reduction or fall in the functional performance or value of a building or engineering service, which arises as a result of normal or fair use. Based on previous research by Mydin (2014), there's a few causes of defects due to wear and tear which's because of climatic condition, building age, maintenance of building college, poor workmanship and insufficient awareness. This causes of defects will produce to the numerous of defects on building elements for examples, peel- off ceramic tiles, scuffed on walls, crack on wall, fading ceramic tiles, crack on the floor, flashing problems, crack on roof tiles, leaks in the joints of the roof, water stain, mould, missing handles, corrosion on window frames, faulty door lock, loose doorknob.

3.0 METHODOLOGY

The quantitative method was used in this research. questionnaire surveys had been used in the process of data collection. In order to get high response rate, the questionnaire surveys were designed in short and did not take much time for respondents to answer. Figure 1 shows the sample of questions asked in the questionnaire survey.

INSTRUCTION : Please complete the following questionnaire with specific regard to the above enquiry that you find most appropriate to your experiences by placing a tick in the appropriate circles.

1= Less Occurred 2= Slightly Occurred 3= Occurred 4= Consider Occurred 5= Mostly Occurred

Defects	1	2	3	4	5
Walls					
1A. Peel- Off Ceramic Tiles	○	○	○	○	○
1B. Scuffed on walls	○	○	○	○	○
1C. Crack on Wall	○	○	○	○	○
Floor					
2A. Fading Ceramic Tiles	○	○	○	○	○
2B. Crack	○	○	○	○	○

Figure 1: Sample Questions

The respondents in this survey were staff of facility management, staff of student's college and students who are stayed in Kolej Pasir salak and Kolej Indera sakti . A set of 75 questionnaires sent to the targeted. The researcher using sampling size to determine the total of respondent needed in this method. the sample size is thus calculated using Taro Yamene's formula. The taro Yamene method for sample size calculation was formulated by the statistician Tara Yamane in 1967 to determine the sample size from given population. Below is the examples of mathematical illustration for the Taro Yamane method, n =

N / (1 + N (e) 2), N : Significant the population under study, n : Significant sample size, e : Significant Error limit (10%). Below shows the examples of calculation by using Taro Yamane formula.

Table 1 : Detail's Calculation of Taro Yameda Method.

Staff of Facility Management	Staff of Student's College	Student's
$n = N / (1 + N (e)^2)$ $n = 10 / (1 + 10 (0.10)^2$ $n = 10 / (1 + 0.1)$ $n = 10 / 1.1$ $n = 9.09$ @ 9 person	$n = N / (1 + N (e)^2)$ $n = 5 / (1 + 5 (0.10)^2$ $n = 5 / (1 + 0.05)$ $n = 5 / 1.05$ $n = 4.76$ @ 4 person	$n = N / (1 + N (e)^2)$ $n = 756 / (1 + 756 (0.10)^2$ $n = 756 / (1 + 7.56)$ $n = 756 / 8.56$ $n = 88.31$ @ 88 person

After the collecting data stage was completed, Data analysis was performed using two different computer packages: Statistical Package for the Social Sciences and Microsoft Excel Windows. The mean technique was used to calculate the average degree of defects in the buildings. The mean is the sum of values in a data set divided by the frequency. It is used to calculate the average of observations (Muijs, 2004). The degree of occurred of each of the defects will be determined by the frequency of the respondents that agreed with each of the defects. For instance, where the mean score falls between 1.0 and 1.5 the defect will be considered as less occurred. This cut-off point is used because the lowest possible mean score is 1. However, it was understood that a natural scale should originate from 0, which in this case is not required. Missing data (that is where the respondent refused to tick where applicable or there are multiple entries), could impact negatively on the outcome of the findings; however, such an effect could be improved during data analysis by either replacing the missing data with the mode or mean of the data. However, in this article, the missing data will not be treated as such; instead, we would prefer to leave the data raw so that the outcomes will not in any way be influenced by the authors. This tends not to be a problem in the study as nearly all the questions were answered by the respondents.

Table 2 : Average index evaluation metric

Scale Evaluation	
1.00 – 1.50	Less Occurred
1.51 – 2.50	Slightly Occurred
2.51 – 3.50	Occurred
3.51 – 4.50	Considerably Occurred
4.51 – 5.00	Mostly Occurred

4.0 ANALYSIS AND FINDINGS

Based on demographic result, majority of the respondents (staffs) are male with 60% and the rest 40% female. This is because their scope of work was normally based on the site work, they had their certain experience and expertise in building defect's. However, the respondents of student's was fair between male and female with 50 percent. In term of working experiences The survey revealed that about 70 percent and 50 percent of facility management and staff college possessed 6-10 years of working experiences. The survey also revealed that most of the respondents from students came from students semester 1 with 50 percent and 35 percent are from student's semester 2. Therefore the reliability of the questionnaire response was accepted. Table 1,2 and 3 shows the details demographic data.

Table 3 : Demographic (Staffs of Facility Management)

Characteristic		Percentages
Gender	Male	60%
	Female	40%
Working Experiences	1-5	10%
	6-10	70%
	11-15	10%
	16-20	5%

	>20	5%

Table 4 : Demographic (Staffs of College)

Characteristic		Percentages
Gender	Male	55%
	Female	45%
Working Experiences	1-5	30%
	6-10	50%
	11-15	10%
	16-20	5%
	>20	5%

Table 5 : Demographic (Student's)

Characteristic		Percentages
Gender	Male	50%
	Female	50%
Colleges	Kolej Pasir Salak	50%
	Kolej Indra Sakti	50%
Semester	1	50%
	2	35%
	3	9%
	4	6%
	5	0%
	6	0%

In Section B, the outcome for the degree of occurred of the different defects are depicted in Table 6, Table and Table 8. The table shows an overview of the data obtained, the level of occurred identified, mean scores and rank. The mean score indicates the degree of occurred for each of the defects. In term of respondents from FM staff, scuffed on wall was the most extremely rated defect (1), followed by loose doorknob, whereas the least considered defect was crack on roof tiles (13) after flashing problems (14). In fact, nearly 56 per cent of the respondents considered scuffed on wall as mostly occurred, whereas 54 per cent of the respondents considered loose doorknob as mostly occurred. None of the respondents considered a scuffed on wall and loose doorknob as less occurred at all. On the other hand, many (60.1 per cent) of the respondents did not consider the flashing problems as occurred at all while most of the respondents also considered them as less occurred to maintain. Similarly, most of the respondents (54.5 per cent) did not consider the crack on the roof tiles as less occurred at all.

In term of the results from staff of students college, scuffed on wall was the most extremely rated defect (1), followed by water stain on ceiling, whereas the least considered defect was flashing problems on roof (14) after fading floor tiles (14). In fact, nearly 59 per cent of the respondents considered scuffed on wall as mostly occurred, whereas 63 per cent of the respondents considered water stain on ceiling as mostly occurred. None of the respondents considered a scuffed on wall and water stain as less occurred at all. On the other hand, many (51 per cent) of the respondents did not consider the flashing problems as occurred at all while most of the respondents also considered them as less occurred to maintain. Similarly, most of the respondents (32 per cent) did not consider the crack on the wall as less occurred at all.

Lastly, the results of students college show that, scuffed on wall was also the most extremely rated defect (1), followed by water stain, whereas the least considered defect was crack on roof tiles (13) after flashing problems (14). In fact, nearly 69 per cent of the respondents considered scuffed on wall as mostly occurred, whereas 67 per cent of the respondents considered water stain as mostly occurred. None of the respondents considered a scuffed on wall as less occurred and only 2 per cent of the water stain on ceiling and faulty door lock considered as less occurred at all. On the other hand, many (58 per cent) of the respondents did not consider the flashing problems as occurred at all while most of the respondents

also considered them as less occurred to maintain. Similarly, most of the respondents (23 per cent) did not consider the crack on the roof tiles as less occurred at all.

Table 6 : Frequency Percentage of Respondent on Degree of Occurred (Staff of Facility Management)

Defects	Mean	Average index evaluation metric	Rank
Walls			
1A. Peel- Off Ceramic Tiles	3.42	Occurred	5
1B. Scuffed on Walls	4.55	Mostly Occurred	1
1C. Crack on Wall	2.21	Slightly Occurred	11
Floor			
2A. Fading Ceramic Tiles	2.62	Occurred	10
2B. Crack on Ceramic Tiles	2.81	Occurred	9
Roof			
3A. Flashing Problems	1.49	Less Occurred	14
3B. Crack on Roof Tiles	1.61	Slightly Occurred	13
3C. Leaks on joints	3.11	Occurred	8
Ceiling			
4A. Water stain	4.03	Considerably Occurred	3
4B. Mould	1.90	Slightly Occurred	12
Window			
5A. Broken/ Missing Handles	3.39	Occurred	6
5B. Corrosion on Frames	3.51	Considerably Occurred	4
Door			
6A. Faulty Door Lock	3.29	Occurred	7
6B. Loose Doorknob	4.36	Considerably Occurred	2

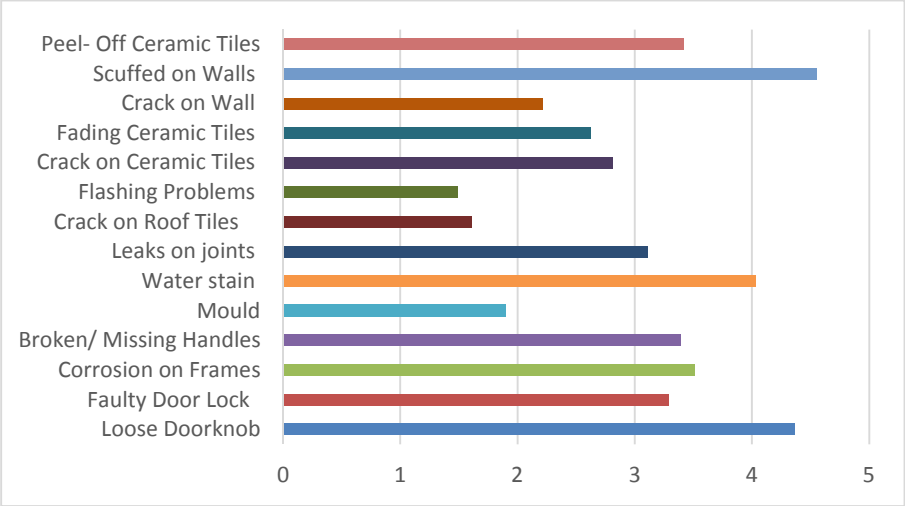

Figure 2 : Frequency Percentage of Staff of Facility Management

Table 7 : Frequency Percentage of Respondent on Degree of Occurred (Staff of College)

Defects	Mean	Average index evaluation metric	Rank
Walls			
1A. Peel- Off Ceramic Tiles	3.48	Occurred	7
1B. Scuffed on walls	4.76	Mostly Occurred	1
1C. Crack on Wall	2.37	Slightly Occurred	12
Floor			
2A. Fading Ceramic Tiles	2.16	Slightly Occurred	13
2B. Crack on Ceramic Tiles	3.64	Considerably Occurred	6
Roof			

3A. Flashing Problems	1.60	Slightly Occurred	14
3B. Crack on Roof Tiles	2.70	Occurred	11
3C. Leaks on Joints	2.61	Occurred	10
Ceiling			
4A. Water stain	4.43	Considerably Occurred	2
4B. Mould	4.13	Considerably Occurred	4
Window			
5A. Broken/ Missing Handles	3.76	Considerably Occurred	5
5B. Corrosion on Frames	3.47	Occurred	8
Door			
6A. Faulty Door Lock	3.30	Occurred	9
6B. Loose Doorknob	4.21	Considerably Occurred	3

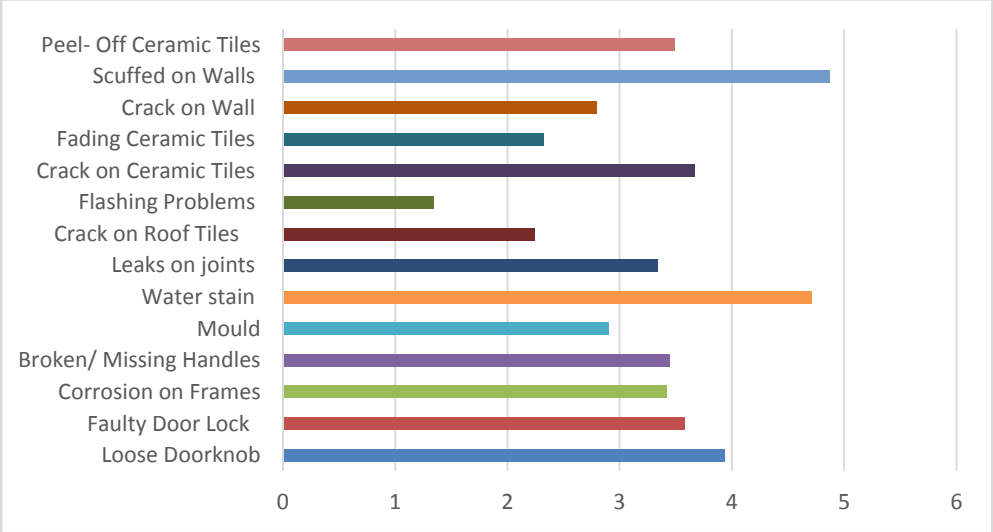

Figure 3 : Frequency Percentage of Staff of Student's College

Table 8 : Frequency Percentage of Respondent on Degree of Occurred (Students)

Defects	Mean	Average index evaluation metric	Rank
Walls			
1A. Peel- Off Ceramic Tiles	3.49	Occurred	6
1B. Scuffed on walls	4.87	Mostly Occurred	1
1C. Crack on Wall	2.79	Occurred	11
Floor			
2A. Fading Ceramic Tiles	2.32	Slightly Occurred	12
2B. Crack on Ceramic Tiles	3.67	Considerably Occurred	4
Roof			
3A. Flashing Problems	1.34	Less Occurred	14
3B. Crack on Roof Tiles	2.24	Slightly Occurred	13
3C. Leaks on Joints	3.34	Occurred	9
Ceiling			
4A. Water stain	4.71	Mostly Occurred	2
4B. Mould	2.90	Occurred	10
Window			
5A. Broken/ Missing Handles	3.44	Occurred	7
5B. Corrosion on Frames	3.42	Occurred	8
Door			
6A. Faulty Door Lock	3.58	Considerably Occurred	5
6B. Loose Doorknob	3.93	Considerably Occurred	3

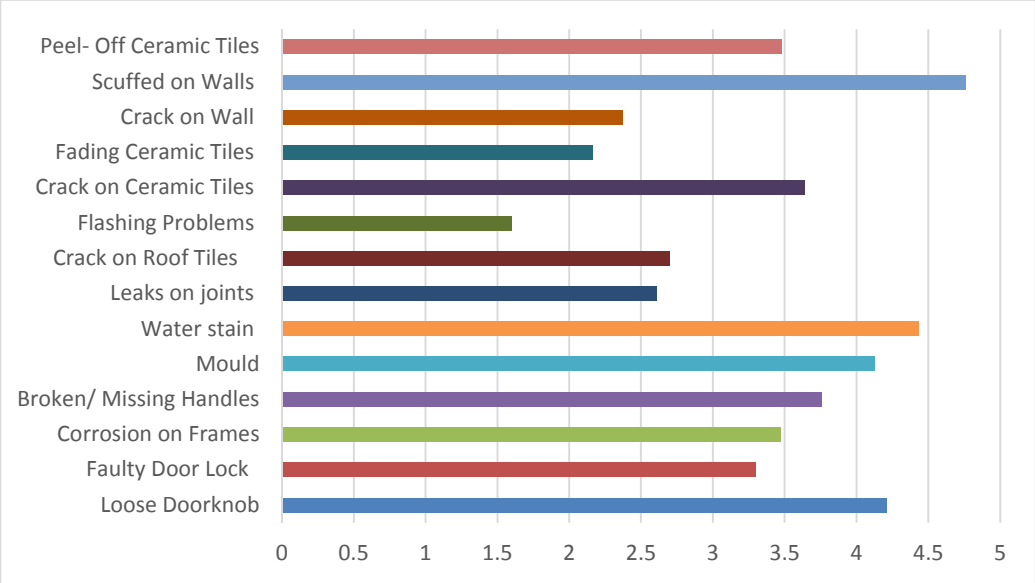

Figure 4 : Frequency Percentage of Student's College

5.0 CONCLUSION

In Malaysia, defects influence maintenance costs and user satisfaction. In order to ensure the performance of buildings, defects must be effectively and efficiently managed. The user value system needs to serve as a basis for maintenance initiation and execution. From the survey, it will be observed that, respondents ranked scuffed on wall as the top priority defect, closely followed by loose doorknob and water stain on the ceiling. This study has identified and evaluated defects in Kolej Pasir Salak and Indera Sakti. Fifty defects were ranked as considerably occurred and mostly occurred. Defect classification is a very strategic function of the maintenance managers. It is recommended that efforts are directed to the mostly occurred defects, then the considerably occurred and finally those that are occurred. It is only in this way that funds will be spent effectively and acceptable user satisfaction can be achieved and maximised. However, defect degree in term of occurred ought to be evaluated by the users themselves. Further work is ongoing to achieve this objective. Solutions to address wear and tear problems that involve drastic changing of the physical form and use are not regarded as a maintenance-related issue.

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