



# A STUDY ON THE MAINTENANCE MANAGEMENT SYSTEMS OF EASTERN SAMAR NATIONAL COMPREHENSIVE HIGH SCHOOL BUILDINGS: BASIS FOR THE DEVELOPMENT OF A HOLISTIC MAINTENANCE MANAGEMENT SYSTEM

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## ABSTRACT

*The purpose of this study are the following: to identify the present maintenance management systems of the school buildings of Eastern Samar National Comprehensive High School (ESNCHS), to describe the current conditions of the school buildings of ESNCHS and to design a holistic framework that will help improve the maintenance management systems.*

*This research employed the qualitative method that is rooted in the phenomenological paradigm. Also, this research employed the case study research design. This design is appropriate if a study intends to learn more specifically, contextually, in-depth information on a particular real-world topic, a case study is a suitable research design (McCombes, 2019)*

*Every institution must follow strict and legal guidelines in terms of spending or funding for its physical plant and facilities. In the case of ESNCHS, its budget and fund management is saddled in the revised guidelines for the Implementation of the Basic Educational Facilities Fund (BEEF) Manual of DepEd. contributed to the efficient management. Thus, the efficiency of the budget and fund management in the maintenance of its school building. Moreover, having extra source of fund, such as other income-generating funds of the school also help augment the expenses for the schools' school building maintenance*

**KEYWORDS:** *School Building, Eastern Samar National Comprehensive High School, Management Maintenance*

## 1. INTRODUCTION

Building maintenance investment is prevalent all over the world. Its value depends on the quality of the maintenance invested in the buildings. Maintenance management involves obtaining optimum benefit from the investment made on the maintenance activities. Building maintenance is necessary because it brings many benefits to its users or occupants. For example, constant building maintenance maintains the value of a property, it enhances the serviceable life of building materials, it improves the appearance of the property, it identifies and fixes minor problems before they become major, it potentially eliminates the need for repairing projects. Thus, economically efficient. Repairs and maintenance can be disruptive and costly in terms of fabric and finances, hence by carrying out maintenance places less of a burden on community resources can be extending the period between repair campaigns.

There are several types of maintenance that a management can have, such as planned maintenance, unplanned maintenance, preventive maintenance, corrective maintenance, emergency maintenance, condition-based maintenance, and scheduled maintenance (Garrido, n.d.). It is for the management to decide which maintenance type they will use.

For large school institutions, like Eastern Samar National Comprehensive High School, building maintenance can seem daunting, costly, or even unnecessary, particularly when building still functions smoothly. But the school administration must realize that proper and consistent building maintenance is imperative for safety reasons.

Eastern Samar National Comprehensive High School (ESNCHS) was established after the issuance of Republic Act 4221 (1966), 'Providing for the Division of Samar Island into Three Provinces: Samar, Eastern Samar, and Northern Samar. This school is considered as one of the largest high schools in the Province of Eastern Samar. It has many classrooms and facilities that could accommodate 6000 high school students.



For the past 50 years, the school buildings of ESNCHS have multiplied. Both Junior High and Senior High have sufficient buildings. However, due to the massive number of students, some of the buildings are already deteriorating. Many are dilapidated and a bit messy.

School Building maintenance is the secret, the key to make buildings more presentable and lasting. In fact, school building maintenance plays a major role in the performance of the students. At the same time, school building maintenance make the student feel safe.

It is therefore the purpose of this study to create a checklist/tool for school building maintenance. All persons who benefit from school buildings are required to cooperate in this endeavor.

## SIGNIFICANCE OF THE STUDY

Building structures are an integral part of every school institution. It is where the actual teaching of theories take place. It is therefore imperative that the school administration ensure its regular maintenance. A well-maintained school building does not only help in the learning of the students, but it also ensures the safety of people who use the building.

## RESEARCH QUESTION

What are the maintenance management systems of Eastern Samar National Comprehensive High School buildings?

### *Sub-Questions*

1. What are the present maintenance management systems of the school buildings of Eastern Samar National Comprehensive High School (ESNCHS)?
2. What are the current conditions of the school buildings of ESNCHS?
3. What holistic maintenance management system can be suggested to improve the condition of school buildings of ESNCHS?

## RESEARCH AIM AND OBJECTIVES

The purpose of this study is to know the maintenance management system and the school building conditions of Eastern Samar National Comprehensive High School buildings.

1. Identify the present maintenance management systems of the school buildings of Eastern Samar National Comprehensive High School (ESNCHS).
2. Describe the current conditions of the school buildings of ESNCHS.
3. Design a holistic framework that will help improve the maintenance management systems on the condition of the school buildings.

## METHODOLOGY

### **Research Design**

This research employed the qualitative method that is rooted in the phenomenological paradigm because the research discovered the existing and underlying facts about the management maintenance system and the present condition of the ESNCHS school buildings. The research approach employed the case study research design. This design is appropriate if a study intends to learn more specifically, contextually, in-depth information on a particular real-world topic, a case study is a suitable research design (McCombes, 2019). The case study approach was used because it allowed in-depth investigation of the ESNCHS school buildings. The approach allows in-depth investigations of varied issues in their real-life settings (Sarah Crowe, 2000). Moreover, this approach is consistent with the objective of this study which is to provide an understanding of the maintenance system of ESNCHS.

### **Sampling**

Purposive sampling, a nonrandom sampling method was used in choosing the respondents of the study. In the context of a study, survey, or experiment, this sampling technique used is extremely accurate and pertinent. Purposive samples make it simple to target demographics that are involved in projects. In this sampling method, there is little room for error. They are picked based on the right attributes; therefore, the selection procedure is precise and effective. On the survey of the present maintenance management systems of the school buildings of ESNCHS, the principal was purposively chosen. All issues and concerns were addressed to the school principal in cases where schools do not have management maintenance system department. Moreover, it is the duty of the school head/principal to enforce the rules on proper care of educational facilities (Llego, n.d.). The same sampling method was used for the collection of data from the teaching and non-teaching personnel and the learners' parents. Using purposive sampling method makes the collection of qualitative response data more robust since the participants are more knowledgeable in understanding the topic. The selection of the participants of the study was taken from the population of ESNCHS teaching and non-teaching staff, including parents of its learners, who are either knowledgeable or skilled at identifying the condition of school buildings' infrastructures. The selected participants were composed of the administrative staff of the school, teachers, and parents as suggested by Bastide (1998), except for the students who are less experienced as compared to the adult ones in terms of building conditions. The ones with more knowledge or skills about building conditions were selected,



including the employees assigned in the carpentry section of the school specifically the ones doing the repair and maintenance. The survey guidelines were translated to them orally to rate the buildings accurately.

The school buildings were selected purposively. Four old buildings, namely the administration building, building A, ESF building, and the Marcos type building, and 2 new buildings, namely the ABM and HUMSS buildings. Selected old buildings were more than the new buildings as there are more old than new buildings.

### **The Study Area**

The study area was the Eastern Samar National Comprehensive High School (ESNCHS). It is in Barangay Alang-Alang, Borongan City Eastern Samar. It is the largest school in terms of both the land area and population. This was the school chosen because of its most numerous buildings compared to other schools of the division. The study covered 6 school buildings both in the senior high school and junior high school.

### **Research Instrument**

Written interview (Appendix D) and rating sheet (Appendix E) were the main instruments used in this study. They were adapted from the study of Adamu (2015). A permit was granted by the author after a request was sent through e-mail (Appendix C). The written interview was modified because it was intended for hostels in some universities in Nigeria. Majority of the questions were retained since the building structures in their study area and in ESNCHS were both made of concrete materials and similar in structures. The maintenance management written interview and the condition rating were modified for contextualization purposes. The content of the questionnaire on the school buildings' maintenance management systems was intended for the school principal of the school since the school lacks a maintenance department. The issues and concerns about school buildings were directly addressed to the principal. The instrument used for the survey on the school buildings' present condition was a condition survey and checklist. It was also modified to fit the evaluation of the ESNCHS' school buildings that were being described or rated. The survey on buildings' present condition consisted of rating scales questions with the ratings of 1 to 5, one as the lowest, and 5 as the highest. The instrument was intended for the teaching and nonteaching personnel, and parents of the learners. A corresponding checklist (Appendix E) was given to each respondent.

### **Ethical Considerations**

A letter of request to participate in the study was sent to each respondent. The participants were assured that the conduct of this research abided by the principles of ethics, such as voluntary participation, confidentiality, informed consent, anonymity, potential for harm, and results communication. The participants will be allowed to withdraw if they decide to do so.

### **DATA GATHERING**

Primary data were collected through questionnaires and rating sheets that were answered by the school principal, teaching and non-teaching personnel, and the parents of learners.

**Data Collection on the School Buildings' Present Maintenance Management Systems.** After securing the permit to conduct research in ESNCHS, data collection immediately began. The written interview (Appendix C) were personally handed in to the school principal as she is the one in-charge of the school's maintenance management system.

**Data Collection on the Present Condition of the School Buildings.** The participants of the study did the ocular observations on the school buildings of ESNCHS to determine its present condition. In qualitative research, observations capture data in true-life context because the observer does not tamper with the natural setting of the environment; the exercise may require walk-through and inspections (Struwig & Stead, 2013, p. 104, cited in Adamu, 2015). Thus, the use of observation in evaluating the school buildings' current condition. The respondents' on-site observation of the ESNCHS school buildings was done by checking the ceiling, floor, wall, doors, windows, electricals, plumbing. Buildings were checked based on their appearance, such as from "no defects" to "unsafe due to severity of deterioration" (Table 1). The assessment of the respondents will be written in the rating sheet which has a scale of 1 as the poorest and 5 as the highest (Table 2).



**Table 1. Condition survey guide for the ESNCHS school buildings**

Component	Description of Condition	Rating	Value Assigned
<b>Ceiling</b>	Appearance is as new, no defects, routine maintenance is adequate to uphold quality and performance.	Excellent	5
	Slight soiling or discoloration, only appearance affected. Minor & routine maintenance is adequate.	Satisfactory	4
	Soiled surfaces, few cracks, or tears, due to aging or misuse, no signs of leakage from roof.	Fair	3
	Badly stained surfaces, broken and cracked surfaces, sagging panels & evident signs of leakage from roof.	Poor	2
	Unsafe & unhealthy for occupants due to severity of deterioration. Requires urgent major refurbishment to save the structure.	unsuitable	1
<b>Floor</b>	Appearance is as new, no defects, routine maintenance is adequate to preserve quality.	Excellent	5
	Slight or early signs of wearing due to use or aging. Minor & routine maintenance is required to improve appearance.	Satisfactory	4
	Worn-out finishing, minor cracks apparent, finishing due for renewal, no major defects.	Fair	3
	Early signs of structural defects such as major cracks, dampness, worn-out surfaces. Urgent and major repairs required to restore component.	Poor	2
	Severe deterioration such as major cracks and water seepage. Component is unsafe & unhealthy for occupants due to severity of damage. Requires urgent major refurbishment to save the structure.	unsuitable	1
<b>Wall</b>	Appearance is as new; no defect; routine maintenance is adequate to preserve quality.	Excellent	5
	Diminishing aesthetic appearance due to aging and use; no other signs of defect. Minor works such as re-decoration and routine maintenance is adequate to improve appearance.	Satisfactory	4
	Faded surface finishing; minor cracks that may not be connected to structural failure. Minor maintenance action and re-decoration is necessary to restore component.	Fair	3
	Early signs of structural defects such as major cracks, dampness, worn-out surfaces. Urgent and major repairs required to restore component.	Poor	2
	Severe deterioration such as major cracks; dampness and molds on element. Unsafe & unhealthy for occupants due to severity of damage. Requires urgent major works to save the structure.	unsuitable	1
<b>Doors /Windows</b>	All doors and windows satisfy all functional and aesthetic purposes and are in best operational state. Routine maintenance adequate to uphold elements	Excellent	5
	Some of the elements show signs of wearing of finishing due to age and use. Routine maintenance and re-decoration is adequate to restore the elements.	Satisfactory	4
	All or most elements are in conditions described in 'B'; in addition, slight problems are observed such as cracked or broken panes, and early operational issues with locks and hinges, that require minor repairs.	Fair	3
	Significant problems affecting the operation of most elements such as locking devices & difficulty of operating. Damaged door handles and broken or cracked panels.	Poor	2
	Completely dysfunctional and damaged elements. Unsafe for use by occupants; cannot be repaired; require complete replacement.	unsuitable	1
<b>Electricals</b>	All electrical fittings for power, lighting, fans/air conditioners are functional; their appearance is as new.	Excellent	5
	A few of the fittings show signs of wearing due to age and use. Facilities are not at their best operational state; space is adequately lighted; all power sockets, fans/air conditioners and control switches are operational and safe for users.	Satisfactory	4



Plumbing	Few fittings appear good but non-operational such as dead light bulbs or tubes; faulty control switches that require minor repairs. Rooms can be lighted partially; fans/air conditioners are not fully operational.	Fair	3
	Poor or non-operational fans/air conditioners, power, and light fittings. There are some damaged light and power fittings, with signs of overloading and misuse.	Poor	2
	Exposed wires from lighting and power points. Fittings appear inferior and not properly fixed. Room is dark especially at night. Unsafe conditions and connections for users/occupant.	unsuitable	1
	Pipes and sanitary fittings are as new; quality not inferior; users operate with ease. Routine maintenance is adequate for preservation of the current standard.	Excellent	5
	Pipes and fittings still in good operational states but showing early signs of wearing due to age and use. Minor repairs and routine maintenance works are adequate.	Satisfactory	4
	Pipes and fittings show minor cracks; no signs of leakage; few missing or broken seat or tank covers, shower or tap heads. Facilities can only be partially operated and used.	Fair	3
	Early signs of leakage of pipes and fittings due to ageing, use or poor previous maintenance work or deferred maintenance. Severe conditions of 'C' observed partial blocked sinks, basins, and shower drains. Major maintenance works can restore facilities.	Poor	2
	Severely damaged fittings, blocked sinks, basins, and shower drains. Unsafe & unhealthy. Facilities cannot be repaired. Replacement and new works required.	unsuitable	1

**Table 2. Rating sheet for the sheet for the ESNCHS school buildings' current condition**

<b>Name (Optional)</b>					
<b>Teaching</b>	○	<b>Non-teaching</b>	○	<b>Parent</b>	○
<b>Name of Building</b>					
<b>Component</b>	Rating				
	1	2	3	4	5
<b>Ceiling</b>					
<b>Wall</b>					
<b>Floor</b>					
<b>Doors</b>					
<b>Windows</b>					
<b>Electrical</b>					
<b>Plumbing</b>					
<b>Legend:</b>					
1 – Unsuitable	2 – Poor	3 – Satisfactory	4 Good	5 - Excellent	

**DATA ANALYSIS**

The data that were generated through the written review arranged according to cases and questions for more convenient textual analysis. Textual analysis of the school principal's responses to the survey questions on the school's maintenance management system was used. The term "textual analysis" is a catch-all for a variety of study techniques used to define, analyze, and comprehend texts (Caulfield, 2019). A text can provide a variety of information, including its literal meaning as well as its subtext, symbols, assumptions, and ideals. The chapter also presented and discussed condition survey results of the school buildings and textual analysis of the interviews that were conducted. The mean ratings for school buildings condition was presented through bar charts and were interpreted directly.

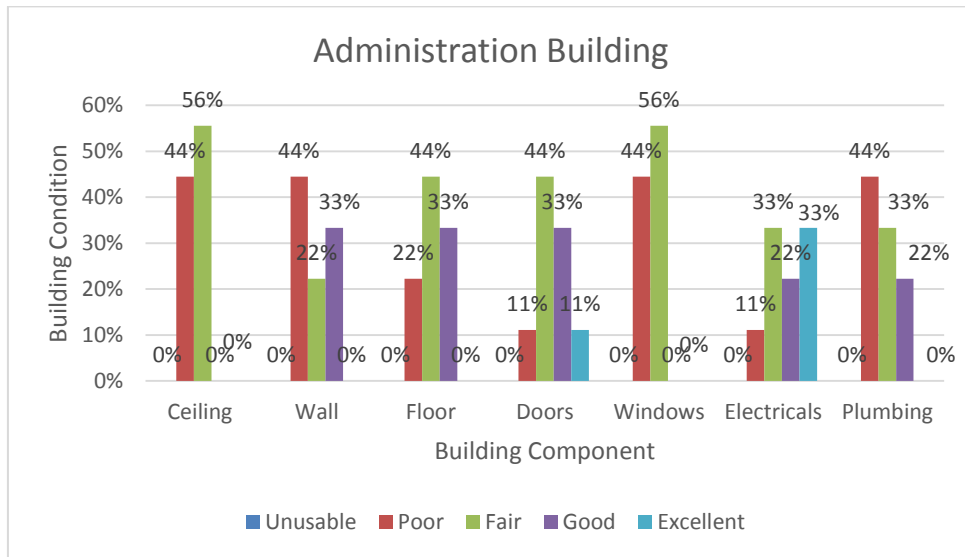
## RESULTS AND DISCUSSION

### School Buildings' Present Maintenance Management Systems

In general, the school buildings are in good condition as shown in the ratings, except for the administration and the Marcos type buildings. Detailed ratings for each building are shown in Figures 1 to 6.

#### Administration Building

Built in the 1980s and is a two-storey concrete building with four offices on the second floor and five offices on the ground floor, including the principal's office, and with three comfort rooms. The ratings for the condition of the building is shown in Figure 1.

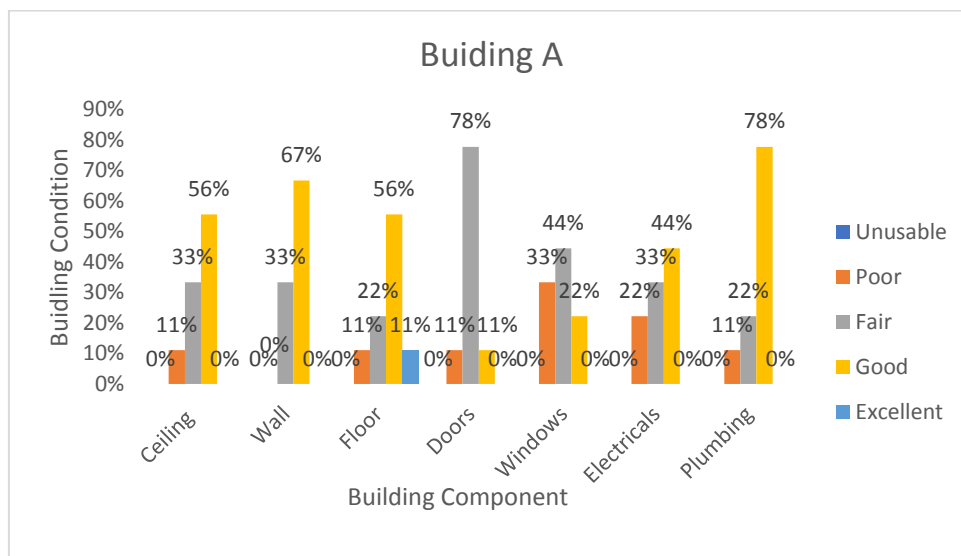


**Figure 1. Condition rating of the administration building**

The teaching and non-teaching building users were the ones who did the assessment of the building's condition. The results showed that majority of the ceiling and the windows are in fair (56 %) condition, while 44% are in poor condition. So far, two components as unusable and no portion is in excellent condition. The floor and the doors were also rated fair (44%) while 33% is in good condition but neither unusable nor excellent. Forty – four per cent (44%) of the plumbing is poor, but 22% is in fair condition. The electrical was voted as fair and unusable (33%).

#### Building A

Building A is two-storey building composed of 21 classrooms, Science and MAPEH Centra, and the school clinic. It was constructed in the early 1980s and is made of concrete materials.



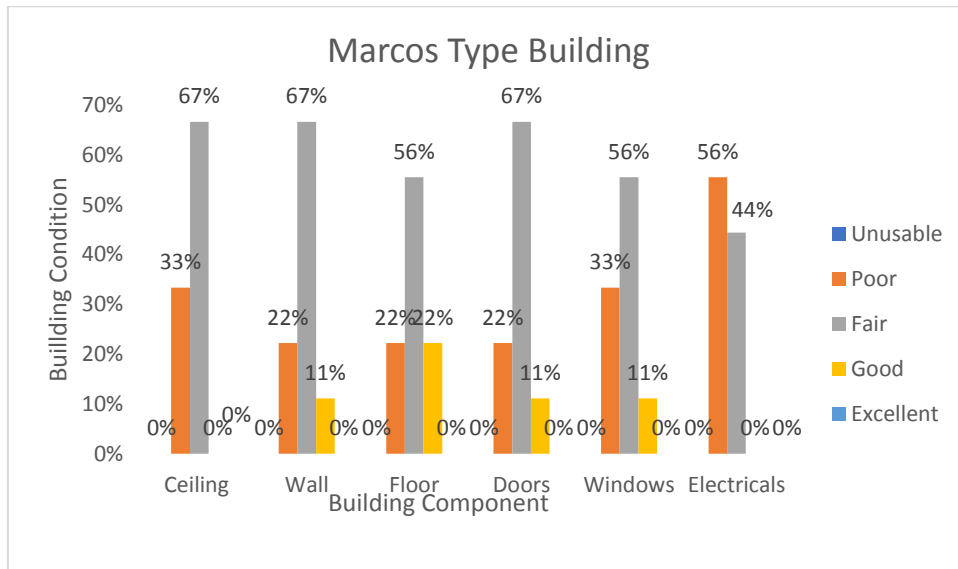
**Figure 2. Condition rating for the administration building A**



The plumbing was voted “Good” (78%) but other portions are fair (11%) and poor (22%) in condition. Other components that were voted as “Good” are the ceiling (56%), wall (67%), floor (56%), and electricals (44%). The doors are in fair condition 78%, but other doors are in poor and others are good (11%). The windows are fair (44%), but others are poor (33%). None of the building components are unusable nor in excellent condition.

**Marcos Type Building**

The Marcos type or C building is the oldest of the ESNCHS buildings. It has four (4) classrooms and made of concrete materials.

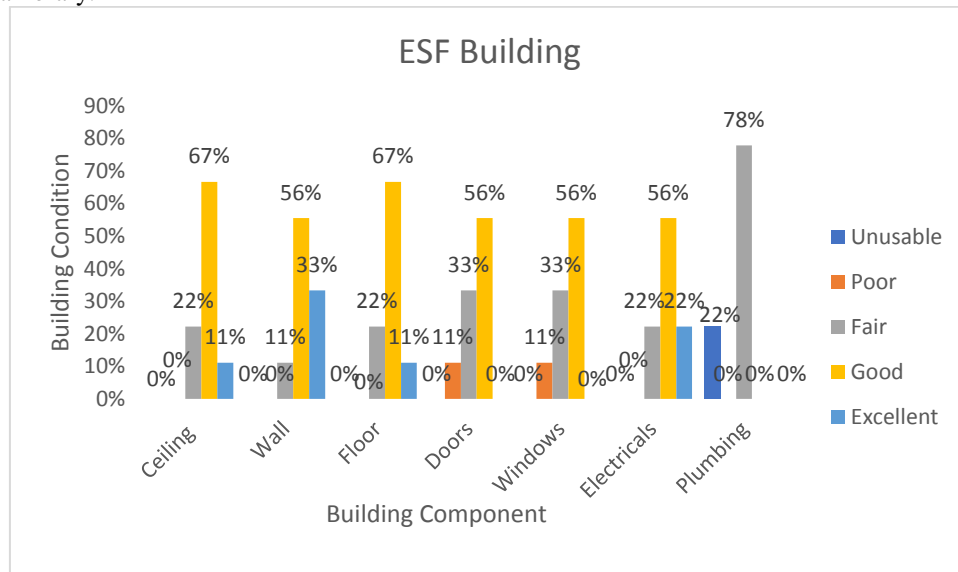


**Figure 3. Condition rating for the Marcos type building**

Majority of the building components were rated fair, such as the ceiling (67%), wall (67%), doors (67%), and windows (56%). The electricals were rated poor (56%). None of the components were unusable nor excellent.

**ESF Building**

The ESF Building was constructed in the 1990s and is made up of concrete materials. It is a two-storey building with five (5) classrooms and a library.



**Figure 4. Condition rating for the ESF building.**



Majority of the building components are in good condition, such as the ceiling (67%), floor (67%), walls (56%), doors (56%), windows (56%), and electricals (56%). Fair (78%) is the condition of most of the plumbing of the building. Unlike the other buildings, the other components of this building were rated excellent by some participants, such as the ceiling (11%), wall (33%), floor (11%), and electricals (22%). However, 22% of the plumbing is unusable.

### ABM Building

The ABM building is a two-storey senior high school building which is composed eight classrooms and two (2) comfort rooms. This is a concrete building which was constructed in the 2010s for the K-12 program of Benigno C. Aquino's administration.

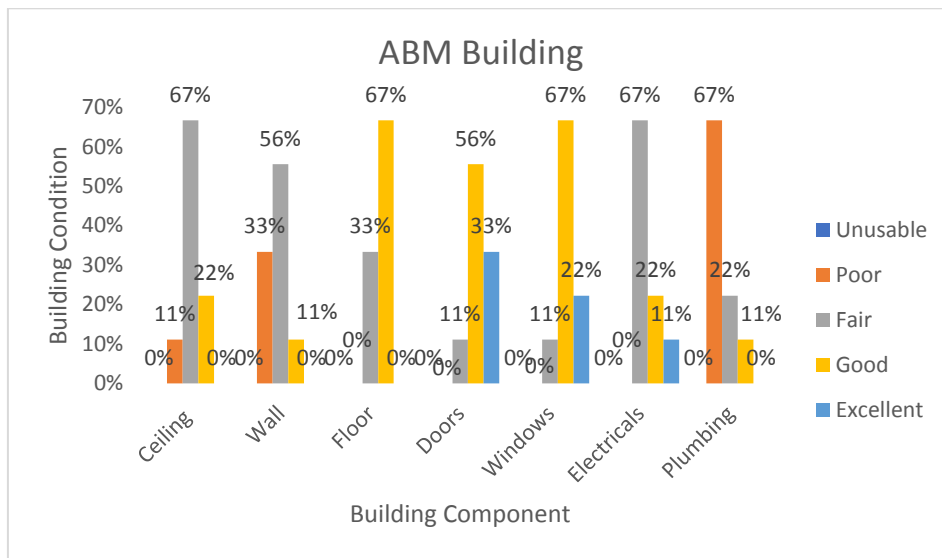


Figure 5. Condition rating for the ABM building

Majority of the floor, doors, and windows are in good condition (67%, 56%, and 67% respectively), while the ceiling, wall, and electricals were fair (67%, 56%, and 67% respectively). However, 67% of the plumbing is poor. Thirty-three per cent (33%), 22%, and 11% of the doors, windows, and electricals were excellent, while none of the components are unusable.

### HUMSS Building

The Humanities (HUMSS) building is a two-storey concrete building that was constructed in the 2010's for the K-12 program. It has also EIGHT (8) classrooms and two comfort rooms.

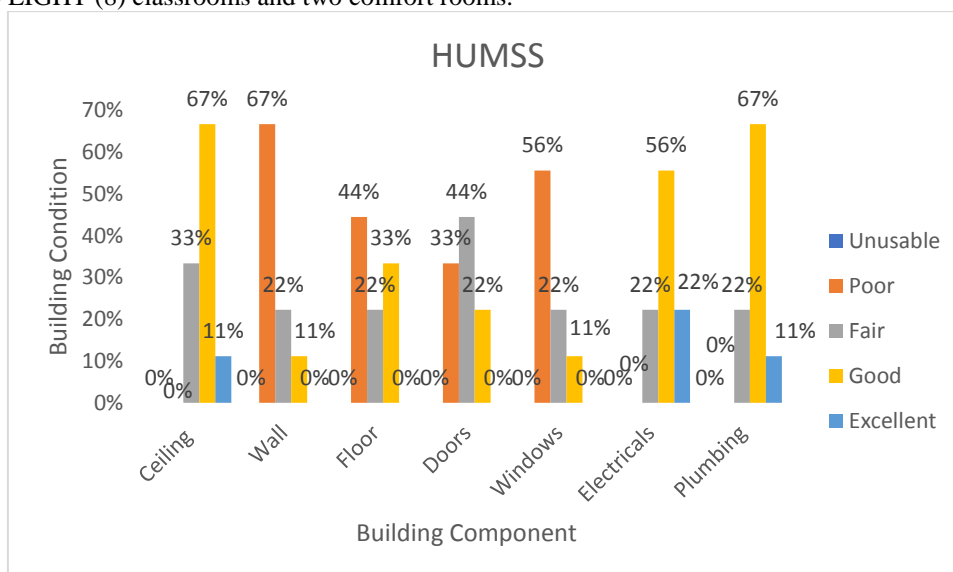


Figure 6. Condition rating for the HUMSS building.

“Good” (67%) was the rating given by participants for most of the ceiling and plumbing conditions. Majority of the electricals are also in good (56%). However, the wall (67%), floor (44%), and windows (56%) are in poor condition. But 11%,





22%, and 11% of the ceiling, electricals, and plumbing respectively are also observed to be in excellent conditions. None of the building components were rated unusable.

## **DATA COLLECTION ON THE PRESENT CONDITION OF THE SCHOOL BUILDINGS**

### ***The Maintenance Management System***

The maintenance management system's information of the school buildings of ESNCHS was obtained through a written interview for the administrative officer of the school. Responses to the written interview showed that the school values the maintenance of the school buildings because it is where learning takes place. Poor condition of the school buildings may affect not only the academic performance of learners but their safety as well. The school is guided by the policy of the Department of Education in terms of its maintenance management system. The school adopts the Department of Education's Educational Facilities Manual which is a product of collaborative efforts of the DepEd Central and regional/division offices, personages from the United Architects of the Philippines (UAP), Philippine Institute of Civil Engineers (PICE), Commission on Audit (COA), Heritage Conservation Society, National Disaster Coordinating Council (NDCC), the Asian Disaster Preparedness Center (ADPC), and member agencies of the Education in Emergencies cluster (Llego, n.d.). The manual was created to provide DepEd central, regional, and field officials with a resource to help manage educational buildings effectively and efficiently.

The school maintains a record of previous maintenance and it also has an inventory of the school building facilities that is annually updated.

### ***Maintenance Budget & Funding***

The school's maintenance budget and funding follows the guidelines stated in the Revised guidelines for the Implementation of the Basic Educational Facilities Fund, where it states the manner of allocation and prioritization. Other source funding is the income-generating facility that the school has, the rentals of the school gymnasium by other private individuals and organizations.

### ***Maintenance Operation Strategies***

Having preventative maintenance plans avoid the deterioration of the school buildings of ESNCHS. The school's maintenance plans include constant monitoring of the school buildings and regular reporting of data of buildings' condition. But maintenance is based on its priority settings of maintenance works such as emergency, urgency, based resource availability, etc.

The school adopts the following maintenance operation strategies: corrective based on reported faults, preplanned operations whether a failure occurs or not, and operations carried out in anticipation of a failure. In cases where there is repair needed, the mode of work of execution is both in-house, outsourcing. The maintenance staff, in terms of number is sufficient, as well as its qualification, experience, and expertise. Thus, the staff is efficient in terms of maintenance management.

### ***Communication***

To maintain the school buildings' condition, its learners are oriented on the proper use of the building and its components during the first day of classes and as needed, through their advisers. They are reminded that the school building is necessary to carry out the teaching and learning process. In cases where there is fault or complaint from the users, they first inform their advisers, then the advisers requests the school head for the repair or faults, and the school head immediately instructs the administrative officer to oversee the issue and its repair. The school head ensures that the workers in the maintenance section has an open-door policy within the school.

### ***Performance Evaluation***

Performance evaluation is necessary to determine if the school is working efficiently in terms of managing the maintenance of school buildings. To evaluate the condition of school buildings, the administrative officer and the principal do constant monitoring of the structures. An annual inventory conducted on the school buildings' condition to determine if they require significant maintenance and repair activities. The data collected is immediately addressed by the administration, specifically the ones that need immediate action. No other method is employed by the school administration that will evaluate and improve the condition of the school buildings.

## **INTERRELATIONSHIPS BETWEEN MAINTENANCE MANAGEMENT AND OTHER MANAGEMENT ASPECTS**

### ***Relationship with Staff***

The school principal and the administrative officer are involved in evaluating the performance of maintenance management system. But they extract ideas from their staff on how the strategies will be improved. Involving the staff in such an activity helps them motivated to do their work. Aside from the staff involvement, the administration allows their staff to attend trainings for the maintenance staff/workers for new technology and skills.

In terms of the performance of the staff, the administration ensures that they are good at every task they are given, and this can be ensured by hiring competent and skilled workers. the administration gives emphasis on the individual task and

schedule of the staff so they can focus and do work effectively. Their performance, then is evaluated based on the outcome of their work.

### CONCLUSIONS

The school's strong belief that buildings affect not only the academic performance of learners, but their safety, and the knowledge of the school administration on how to manage the buildings' maintenance are the reasons for having a well-maintained building of the school. Moreover, the school's adoption of DepEd's policy of the Department of Education on maintenance stated in the Educational Facilities Manual management system guided them in coming up with efficient management system.

Every institution must follow strict and legal guidelines in terms of spending or funding for its physical plant and facilities. In the case of ESNCHS, its budget and fund management is saddled in the revised guidelines for the Implementation of the Basic Educational Facilities Fund (BEEF) Manual of DepEd. contributed to the efficient management. Thus, the efficiency of the budget and fund management in the maintenance of its school building. Moreover, having extra source of fund, such as other income-generating funds of the school also help augment the expenses for the schools' school building maintenance.

The school's maintenance operation strategies, such as constant monitoring of the school buildings, regular reporting of the of data of the buildings' condition, corrective based on reported faults, preplanned operations whether a failure occurs or not, and operations carried out in anticipation of a failure are a must in managing the maintenance of the school's buildings. But their setting up of priorities is another factor that make the management maintenance system effective in terms of keeping their structures well-maintained.

In the communication aspect, it is the school's organized and systematic ways of communicating to the users or learners that make the issues on buildings be resolved at an efficient and faster rate.

Evaluation is always needed to determine how much repair a building need. In ESNCHS, evaluation is done through monitoring. It is through evaluation that the administration gets informed of the actual condition of the school buildings. The school's regular evaluation and inventory of its buildings help maintain its good structure condition.

The administration's practice of involving staff on determining how the strategies that will help the maintenance management strategies will be improved motivate them to do their work, more so when they are sent to attend trainings for new technology and skills acquisition. The improvement of skills due to trainings make them become more competent and better at doing their work.

### RECOMMENDATIONS

To have well-maintained physical facilities, such as classroom buildings, an efficient and effective management system is necessary. A management maintenance department may also be created to directly investigate school buildings issues, such as maintenance and repair. There are several aspects that must be considered by the management to have a better-performing management maintenance system: a well-defined maintenance plan, maintenance budget and funding, maintenance operation strategies, communication, performance evaluation, interrelationships between maintenance management and other management aspects, relationship with strategic management. With these factors in the system, it will make the learners safe and their academic performance better. Further research must also be conducted to evaluate the impact of the condition of the school buildings on the performance of the learners. Thus, a holistic framework that will help improve the maintenance management systems on the condition of the school buildings is recommended (Figure 7).

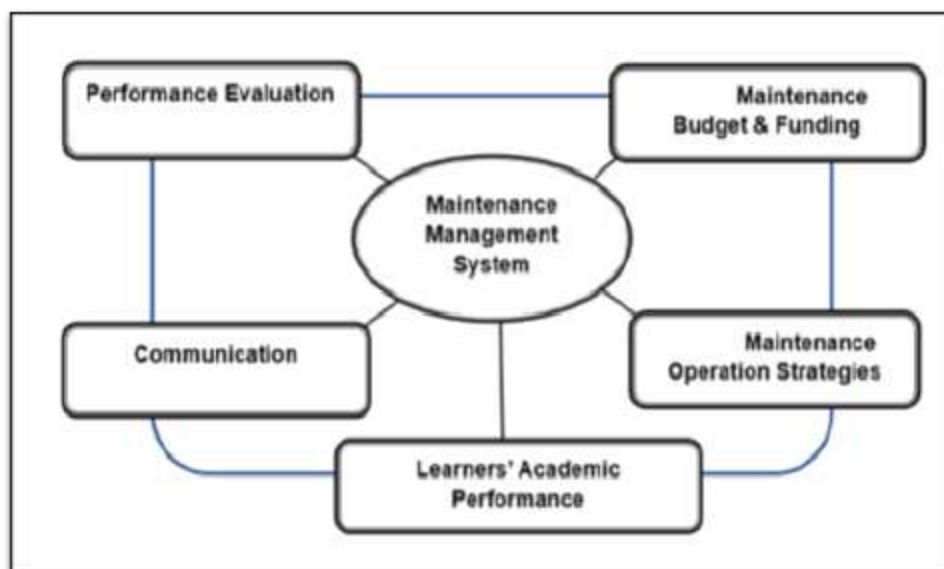


Figure 7. The holistic framework for the improvement of the maintenance management systems on the condition of the school buildings



After analysis of the data gathered in this study, a holistic maintenance management system (Figure 7) was suggested in maintaining the quality condition of school buildings.

modification for contextualization purposes. This study suggests that a maintenance management system should not only focus on the physical appearance outcome of the buildings, but it should also consider the learners who are its main users. Apart from ensuring budget and financial support, consistent and effective maintenance operation strategies, communication, and performance evaluation, the management system must also consider the impact of school buildings condition on the academic performance of the learners. The academic performance of learners that use the school buildings must also be evaluated alongside the evaluation of the school buildings' condition to determine if it impacts the learning. Thus, a maintenance management system must be holistic in its approach.

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## DECLARATION

### Funding/ Grants/ Financial Support

All authors did not receive funding/grants/financial support

### Conflicts of Interest/ Competing Interests

All authors have declared no competing interest exist.

### Ethical Approval and Consent to Participate

Not. Applicable. The article does not require ethical approval and consent to participate with evidence.

### Availability of Data and Material/ Data Access Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

## Authors Contributions

This research paper was carried out in collaboration with 3 authors. All authors designed the study. Author Fr. Alipio Antonio B. Añano Jr., SDB made the introduction and contacted Author Adamu for the use of questionnaire. Author Ma. Mercia G. Corado collated the survey, wrote the results and discussions, and edited the entire manuscript. Author Felinda T. Jamer wrote the conclusions and recommendations. All authors read and approved the final manuscript.

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