



Maintenance of the School Building

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ABSTRACT

The research aims to highlight the importance of maintenance in general and the maintenance of school buildings, in particular, to identify the problems and constraints of maintenance of school buildings and the extent of follow-up schools and authorities competent departments in the perpetuation of educational facilities to ensure its functionality and maintain the integrity of the building and the level of comfort to the user through an elected sample intentional architectures school implemented by the Ministry of Education or on behalf of, where the research contained the first two parts of data collection and recording observations, as well as data obtained from the survey of school buildings and personal interviews of specialists from the teachers and the administration of Engineers personnel and gentlemen in school buildings department and the second part questionnaire that were distributed to the elected school principals, showed the results of the analysis of data from many weaknesses in practice maintenance system, including administrative and planning and organizational side and the lack of engineering staff with competence and experience and good performance and a lack of honesty in the use of high quality materials.

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Introduction

The educational buildings consider to be the most basic and important facilities, which have the first-rule in human development therefore it became necessary to maintain those buildings which cost the national economy huge amounts of money and time to create it and to maintain it and to keep its lasting beauty. Sustain and maintaining the functionality of the building means the success of the instruction and educational plans as it represents a component of the infrastructure on which is one of the component of the development plans for building. the responsibility for maintaining the educational facilities and ensuring that there is no damage is lies on the first place on the school principal and then the responsibility include teacher and student and parent and then comes the role of the technical facilities tasks of preventive and restorative maintenance, the diagnosis of the imbalance in the buildings early help the maintenance process and reduces costs

The school committee represented the Director and management of the school continued to work for facilities and equipment of school building and identify malfunctions and defects to secure the maintenance work without reference to higher authorities, and otherwise, the administration shall inform the Education Department, if the notice of defects may appear in structure or building facilities that is difficult to deal with by the school administration. Hence the importance of research is to find out the problems and obstacles maintenance of school buildings to ensure its functionality.

The aim of the research

The research aims to highlight the importance of maintenance in general and the maintenance of school buildings in particular, and to know the problems of school buildings maintenance through the study of a group of schools and the important facilities to ensure the performance of the effectiveness of building in a way that provides an environment appropriate and maintains the integrity of the building and the level of the user comfort and educational facilities.

Hypothesis of the research

The success of the maintenance operation depends on the continuous maintenance of the school building, the facilities and the equipment of the building on a regular basis and provide necessary financial coverage to carry out maintenance work, and also the awareness and diligence to maintain public property by the student and the administration, the existence of any weakness in some parts of administration maintenance of educational buildings or neglect in routine maintenance and continuous school buildings affect the functional efficiency of the yards and gardens and corridors and classrooms and other facilities

Find the problem

The problem for research is the lack of financial coverage for the maintenance work and the school administrative not having the and financial authorities and the loss of specialist staff, who has experience and honesty in the completion of maintenance work.

The methodology of the research

For the purpose of achieving the goal of research, there was direct research based on the questionnaire as a tool to collect information from a sample study of government schools part of the Ministry of Education Baghdad buildings / within the KURKH AL-AOWLA where there was the questionnaire to the school management as that questionnaire consisted of four parts, The first part contains general information about the school building and the second part included questions related to the school building and the third part about the school administration work and protective of the building and Part IV on the reform of maintenance and Part V regard to the problems and obstacles to the maintenance of the school building Part VI is identify the question suggestions and appropriate solutions to overcome this problem from the standpoint of the school administration which has been gathering information through

viewing during visits to schools and interviews and gather information from Karkh Directorate of Education and the Department of school buildings. After the distribution of the questionnaire and then replay, the researcher appoints some of the data using statistical methods.

Your Search

The study sample contain 10% of the AL Karkh AL_AUOLA schools, i.e 348 school buildings and /the Department of Educational Planning buildings table -1 has been selected sample intentionally because of the security situation and the inability of the researcher access to some areas. By table note that the number of school buildings is 348 school buildings while the number of schools is 466 school which shows that buildings with double shifts, defects and faults appear more often because of the pressure on the services and facilities of the building like furniture, health facilities and Yards and all other facilities for longer hours and therefore it needs maintenance work more continuously.

Theoretical section

The definition of maintenance

Is the process which limit the damage that actually occurred, or the damage that likely to occurred, using appropriate means such as: Repair the cracks and paint the wood and minerals regularly and remove weeds and insulate the walls from moisture, and this means that maintenance is the key factor in the continuous of the building on the one hand and improves the best appearance on the other hand (al-Moussawi, p 2). Maintenance known as a business to maintain the building and protect it from damage in order to function fully as long as possible with the repair of defects in order to preserve the building and to reduce the costs that resulting from negligence (Abdel Gawad, p. 199) so the definition of maintenance is (all the maintenance business on the building and its elements and its ability to perform its functions fully in good efficiency and the longest time with the help of engineering and management, technical and marketing agencies to participate in the preparation, planning and implementation of maintenance work in addition to monitoring during and after implementation the work (Khalil, p. 3), provided that the building is designed accordance to the plane and having the facilities and equipment necessary for the implementation and success of the educational plans and tools

(Salloum, 1416). We can summarize the importance of maintenance in maintaining educational facilities as public property carried out by the state in their development plans that represent the construction unit of the educational system, which is part of the educational planning (Madbouly 2006, p. 16) and to maintain the appearance and essence as an educational environment in which a student regard second to his home and completed his education and guidance in his behavior.

Types of maintenance

Maintenance work is classified into many types and these types differ depending on the administrative decisions and agencies and individuals interested in it. The type can be divided into two main types, they are planned maintenance and unplanned maintenance of others.

Planned Maintenance

A maintenance that rely on surveillance and observation during the use of the building with the aim of maintenance work planning time in advance before the full damaged based on advance planning through surveillance and the use of recordings and a certain goal (Menon, p. 4) and its divided into two types, preventive maintenance and corrective maintenance.

Preventive maintenance

A periodic maintenance carried out according to the time plan that already took place in order to maintain the building and its components and materials before the occurrence of defects, which allow the building to continuous performance of its functions without exposure to sudden defect, (Smith, p. 4) and this type of maintenance called (conditional maintenance and maintenance time), the maintenance are conditional on prior to knowledge of the default age of materials and components involved in the creation of the building and continuously monitoring of the building during operation and it is one of the types of preventive maintenance based on pre-planning for the condition of the building. While the time maintenance is up to some elements of the building for a specified number of times during the life span of the building so as to restore its efficiency by repairing and a point any flaws in elements of the building such as changing the roof of the building floor or change electrical and plumbing supplies.

The reform of maintenance

It is occurring after a defect or flaw and it aimed at restoring element to the situation that it used to be to performance of its functions efficiently and its two types, planned and unplanned maintenance, according to the policy followed in maintenance of this element it is possible that the corrective maintenance can be within the maintenance plans prior or implemented directly without prior planning for implementation and that if repair damaged item is necessary and urgent and affect the efficiency of the building.

Un planning Maintenance

Defined as the maintenance work carried out without any prior planning it and include two types, corrective maintenance and emergency maintenance.

Corrective maintenance

It is made after the occurrence of defect or flaw and aimed at restoring the item to a situation in which it can perform its functions efficiently

An emergency maintenance

Defined as non-planned maintenance which is made in the event of serious damage to the building and to avoid bad outcomes as a result of this damage. This type of maintenance work is due to unexpected natural disasters and the explosion. (Smith, p. 5).

The importance of maintenance

Maintenance is of extreme importance in educational institutions and non-educational and the cost of buildings and equipment is high, Prices spent to set up schools cost the state huge amounts of money, which requires finding a maintenance costs programs to keep those buildings, sustainability and efficiency in order to maintain an appropriate learning environment (Diab 2004, p. 3)

Maintenance goals

Reducing the total costs of maintenance of the building, increasing the life span of the building, improve the internal environment of the building, cutting out the big reforms, increase the productivity of the building and its employees (AL-Attar, p. 6).

Maintenance obstacles

1. lack of specialized department for maintenance work in most institutions
2. The absence of a real field survey which shows the information about the real situation of the reality of maintenance in many countries.

Table 1. The number of school buildings within boycotted the first Karkh

No.	classification	Number of buildings	Number of schools
1	Elementary and middle	230	single - 69 double - 5 tri 156
2	(Secondary (average + Preparatory	118	single double - 5 29- 84 Tri

Source: Department of school buildings / educational planning department

Table 2. Shows the names of the schools that have been visited and by region within boycotted the first Karkh

Locality	Region	Names of the schools	No.	Locality	Region	Names of the schools	No.
217	Abu Ghraib	Junior Al-butolah for high girls	1	727	Neighborhood Gamaah	Alazzhar primary	20
217	Abu Ghraib	Medium-Arabism for Boys	2	633	Neighborhood Gamaah	Gammah medium for Boys	21
217	Abu Ghraib	Latakia primary	3	633	Neighborhood Gamaah	Farouk primary	22
217	Abu Ghraib	Junior high Zitouna	4	633	Neighborhood Gamaah	Junior high Akaddds for Boys	23
213	Harthiya	Secondary Alemtemizinn Harthiya	5	627	Green	Secondary Almtmizzan Kkhaddra	24
213	Harthiya	Secondary Andalus for Boys	6	641	Kkhaddra	Ajnadayn junior high girls	25
213	Harthiya	Harthiya primary	7	639	Kkhaddra	Junior high green Mtmizrat for Girls	26
211	Harthiya	Secondary Harthiya for Girls	8	641	Kkhaddra	Aerrfan medium for Girls	27
601	Mansour	Alrsalh junior high girls	9	651	Ghazaliya	Elementary Alanwaor	28
601	Mansour	Djlh primary mixed	10	651	Ghazaliya	Secondary Djlh for Girls	29
601	Mansour	Qadisiyah medium for Girls	11	651	Ghazaliya	Mustafa junior high boys	30
605	Mansour	Alahjrh Elementary School	12	610	Yarmouk	Maamoun medium for Boys	31
622	Hittin neighborhood	That Alsuaria primary	13	610	Yarmouk	Secondary Yarmouk Girls	32
620	Hittin neighborhood	Secondary Sayyab for Girls	14	616	Yarmouk	Khalid bin Walid primary	33
620	Hittin neighborhood	Maaz bin Jbbl basic	15	612	Yarmouk	Maamoun secondary for Girls	34
638	Amiriya	Junior high Alraza for Boys	16				
632	Amiriya	Saad bin Maaz for Boys	17				
632	Amiriya	Medium Osama bin Zaid	18				
632	Amiriya	Radwan for Girls	19				

Source: researcher

Table 3. Shows a year maintenance for schools

2014	2013	2012	2011	2010	2009	2008	2007	2005	2004	Year Maintenance
3	7	9	2	2	2	4	2	1	2	Number of schools

Source: researcher

Table 4. Illustrates the implementing agencies for maintenance

the occupation forces	a humanitarian organization	school buildings circle	The executing agency for maintenance work
2	6	26	Number of schools

Source: researcher

The second paragraph / the reality of the school building**Table 5. The reality of the elected school within the Karkh District**

	Notes	Need Maintenance	The reality of the	
Some need to switch ground		% 44	Flooring	1
Dye walls and humidity treatment		% 64	Walls	2
Mastic to address moisture and cracks that cause rain water leak		% 61	Ceilings	3
Switch and repair some parts, such as handles and locks		% 59	DOORS	4
Glass and handles and rust treatment and dye		% 41	Windows	5
Rehabilitation and construction of new pools because of the increased number of students		% 76	Health care facilities	6
Repair and rehabilitation and provide the school with the rules of the lighting and cooling devices		% 74	Electric establishing	7
Rehabilitation and the purchase of laboratory equipment		% 50	Labs	8
Repair and maintenance of flights and the damaged switch		% 62	Furniture	9
Need tiling		% 56	Play grounds	10
Re-paving and treatment of sewer blockages		% 67	Yards	11
Most neglected and in need of gardens to farmers for the purpose of agriculture and follow-up		% 71	Gardens	12
Buried into the ground water system causing difficulty when a break or leak or malfunction holidays Select area - building celebrations and meetings hall			Other	13

Source: researcher

Table 6. Questions concerning the preventive work of the school building Results

The executing agency /financial point of funding	no	Sometimes	yes	Preventive periodic maintenance of the components of the school building	
Capable assigned to the school through the guard and cooperation with parents sometimes take advantage of the profit school shop and donations teaching staff	%7	% 23	%70	Cleaning surfaces periodically to school	1
	% 3	% 32	%65	Remove weeds near the foundations of developing fences	2
	% 9	% 32	%59	Emptying water reservoirs and cleaned periodically	3
	% 9	% 32	%59	Cleaning windows and lubrication of joints and tight screws	4
	%35	% 26	%38	Spraying pesticides and anti-termite	5
	%21	% 32	%47	Action needed to paint the wooden boards of the basketball and change the damaged	6
	%15	% 26	%59	Repair of unemployed computer laboratory devices	7

Source: researcher

Table 7. Questions related to business reform school building Results

The executing agency /financial point of funding	no	Sometimes	yes	Preventive periodic maintenance of the components of the school building	
Capable assigned to the school through the guard and take advantage of the profits of the school shop and donations teaching staff and sometimes Humanitarian organizations	%6	% 18	76 %	Health screening installations, change unemployed from the water faucets mixers Siphons-of Basin Alhtafat	1
	% 9	% 21	70 %	Damaged change from rain gutters surfaces	2
	% 6	% 29	65 %	Treatment leaks phenomenon water supply lines	3
	-	% 15	85 %	Broken glass for windows and doors change	4
	24 %	% 24	52 %	Remove the rust of iron parts for doors and windows and painted tow stainless steel	5
	% 6	% 29	65 %	Change or repair of unemployed locks and door handles and windows	6
	% 3	% 21	76 %	Repair or replace the lighting units - light switches - the fans - the bells for students	7

Source: researcher

Table 8. Questions concerning the problems and obstacles Maintenance Results

No	Sometimes	yes	Questions relating to the problems of maintenance	
%18	% 18	% 64	Maintenance plan depends on the nature of the contagious priority within the school buildings circle table	1
%12	% 21	% 67	Lack of necessary maintenance work for the implementation of financial coverage	2
%15	% 15	% 70	Director of the school in exchange depends on the maintenance of self-financing (the shop and parents)	3
%70	% 18	% 12	Each school dedicated direct payments to spend on maintenance and continuous funding	4
-----	---	% 100	There is an internal committee of teachers and school administration conducts continuous monitoring of the facilities of the building and its facilities and determine the unemployed	5
%18	% 41	% 41	Insufficient time period of the summer vacation to end the maintenance work	6
% 9	% 9	% 82	The absence of encouragement and reward for the best schools and reward those in charge of maintenance style	7
% 4	% 29	% 67	Lack of diligence in maintaining public property by the student	8

Source: researcher

3. The lack of clear and consistent plan which committed by senior management and implementing a maintenance employees.

4. In the countries that have plan there is no priorities for maintenance work, which waste a lot of effort, time and money.

5. lack of funds to carry out maintenance work to the fullest.

6. lower wages and salaries and lower rates or a lack of bonus for those working in this area, leading to lack of working people for this task, except for the few non-qualified. (Diab , 2004, p. 14)

The role of school administrations

There are a lot of maintenance work that can be done for school administration through periodic and continuous inspection, which in turn keeps the integrity of the building and the comfort of the beneficiary and this requires a program for all building components in order to identify the damage before gutting big to achieve effective performance and reduce maintenance cost

And here comes the role of advance planning for the implementation of maintenance work and monitor the necessary budget and identify faults and problems that need to specialists opinion and these problems are :floors drooping appearance in classrooms and public squares , the emergence of Antvahat at the confluence of lines ceiling wall, leak in the ceilings of Bathrooms and surfaces, in which an immediate Message is reported to take the appropriate measures and procedures to complete the repair and maintenance process by the competent authorities. (Schools maintenance manual, p. 9) there are works that can be done to manage the school like remove leaf and accumulated dust from the surfaces to prevent the clogging of rain water exits and make sure the covers of these exits is usable , cleaning the sewer i.e. storm water channels , removing any garbage piled on the sides of the outer walls because they are bridges to move moisture inside the building in the rainy seasons , removing of the growing grass near the foundations of the wall and on the sides of the sidewalks and between the bricks ,

make sure the water tanks are working and tighten the lids in place to prevent water pollution and cleaned once every four months at least , cleaning windows with lubrication the joints and tight screws loose and paint against rust . (Schools maintenance manual , p. 11) .

The practical side / second topic

They selected 10% of the study sample i.e. 34 schools out of 348 schools within the zone of Educational Karkh AL-AOULA For the research, by relying on descriptive analytical method based on the questionnaire as a tool to collect information from the study sample where the questionnaire sent to the management of schools to collect information on the subject of research and one of the main problems and difficulties during field visits and having a hard time with some of the principals in replying to questions such as the lack of information about the school area - Year maintenance –Locality number, or the principal is busy with works , forcing the researcher to return to school in another time . the questionnaire included six parts , the first part contains general information about the school building and the second part regards reality of the school building and the third part concerned about the school administration preventive action for school building and Part IV insure safety and security of the school building through reform maintenance . Part V contains the problems of maintenance while Part VI is an open question to identify the appropriate suggestions and solutions to overcome this problem from the standpoint of the school administration ,they also been collecting information through viewing during visits to schools and interviews and collecting personal information from Karkh Directorate . And after the distribution of the questionnaire and then replay the researcher point some of the data using statistical methods . The table -2 shows schools that had been visited .

The questionnaire results

First paragraph

The first paragraph included general information about the school , including the name and location of the school and the number of floors , where the number of two-story school was 26 and 8 schools with one floor and all the schools that had been the age of more than 30 years , And most of the schools are doing some regular maintenance work such as cleaning water tank and there are periodically checked by the Ministry of Health for the safety of the water and if they are identical to health conditions , as the school's maintenance reformist task of facilities that do not bear the delay , forcing the administration to rely on the self-financing , such as bringing a worker to clean surfaces and parks or repair a malfunction in the health foundation or electrical foundation or the broken glass of windows and the results of the questionnaire on the latest maintenance of the school note is delayed periodic maintenance of the Department of school buildings and the lack of an organized plan on an annual basis and periodically Shows Table -3 the last maintenance of the schools that had been visited , we note that there are schools with last maintenance in 2004 and others in 2005 .

The start time of maintenance is always delayed because of routine and while waiting for approvals and the financial coverage the start of maintenance after the end of the holiday than the school well be forced to transfer to another school until the completion of the maintenance process , which confuses the educational process and sometimes the holiday is not sufficient to get the job done , the survey results were as shown in Table -4 and in table – 5 we notice that 44% of the schools that has had need of maintenance work for the flooring of classrooms and

corridors and 64% need to dye walls and moisture treatment and 61% need Mastic to treats moisture and cracks that caused by rain water and 59% maintenance of the doors and 41% maintenance of windows , also the health facilities and electrical foundation ,parks and gardens recorded the highest ratio for needing maintenance work ,It was found from the results of the questionnaire in the first paragraph that all the schools that have been visited had the building age of 30 years and over and this shows on an old age of the building and thus the electrical foundation is old and need to sustain constantly as well as health facilities are exposed to a lot of pressure because of the large numbers of students, particularly for schools with double shift and through interviews with the school principals were most of the problems around the gardens and squares is the lack of farmer and the lack of financial resources for sustain the school garden and planted it and furnished it with places to sit for students during the brake time as well as cultivated plants which is possible to be a scientific garden to study biology and students can train on agriculture and human development A s well as providing soccer fields, basketball, volleyball for the development of students' abilities in physical and health field, to create a good educational environment and to have appropriate furniture and colors of the walls in the classrooms and laboratories contribute to the creation of suitable .educational environment for students and from the results of the questionnaire in table -6 we see that all the schools that has been visited has been doing the preventive action to sustain the important facilities in the school building and despite the lack of financial resources and the delaying role of school buildings department in maintenance because of routine , most schools conducts prevention and Reform depending on the profits of the shop and the donation of teaching staff to provide the necessary requirements to sustain educational facilities and to ensure the functioning of the educational process as the best ,and, as shown in Table 70 % of schools are periodically clean the surfaces either commissioned the guard of the school or hire a worker by a donation from the Director and 65 % of schools do business cleaning fences on a regular basis and 32% sometimes As for the water tanks 59% carries out maintenance of the tanks and 32% sometimes and 9% do not rely on the tank but used water directly duo to the lack of staircase connects to the roof of the school so she cancel the water tanks . we can also note in the table -7 the role of the school management to perpetuate school building based on the profits from the shop and donations from the administration .

By analysis the data , the results showed several weaknesses in the maintenance system that is followed in the administrative and organizational planning and in lack of engineering staff with competence and experience and good performance and in a lack of honesty in the use of high quality materials. As can be seen from Table 8. ,that 64% of the schools responded that the plan depends on the nature of priority within schedule from school buildings department but because of routine which takes months the delay is forcing the administration to lay on self-financing maintenance work and Reform and in most of the times it takes to long to detect and approve and to identify Education finance by the end of summer vacation and starts to work during the school duration which affects the functioning of the educational process and the school had to transferred to another building until the maintenance is complete.

Proposals and solutions for school administrations to overcome the problem of maintenance

1. Give the shop profit for the management of the school and make use of them for maintenance work and be sent receipts that approved by the administrative supervisor of the school.
2. Allotment sum of money for each school and it remains Rounded for the coming year and form a committee include the school principal and the patriarch Council and a number of teachers under the supervision of the people of the region to complete the maintenance work, which serves as the educational process
3. The use of media to spread cultural awareness among students to maintain public property.
4. allotment farmer and electrician and maintenance worker for each school (an experienced technician) workshop and can be added familiarize and practical workshop to train students to some simple business reformist to develop the community technical.
5. make an inspection teams by the Directorate of school buildings to visit schools and to identify the needs of the school from maintenance work during the half –year holiday and the schedule for the start of the maintenance at the beginning of the summer vacation
6. Provide technical engineering staff specialist with experience in maintenance of school buildings rather than dealing with people who do not have the experience and honesty.
7. Giving rewards for the best work and most beautiful school to develop the spirit of work and concern for the public property.

Conclusions

1. There is \$ five million per school every year from the school buildings department , can the school applied to that amount but because of the routine, the school give up the money and rely on self-financing and the profit of the shop.
2. the profits of the shop is not enough to cover the maintenance work for the Education share of the profits from the shop 10% and 60% is distributed to needy students and 10% Stationery for administration and 10% for maintenance work.
3. Most of the schools need to maintain because of the old age of the building but the most important problems facing the maintenance work is that the work assigned to people that lack experience, honesty and knowledge of maintenance work, causing funds put poor implementation
4. The school administration does not have the financial authorities to manage the maintenance work .
5. The absence of a plan in the med and long term for school maintenance .
6. there is a shortage of jobs in supervisory management for building maintenance .
7. delay in the implementation for urgent maintenance and weaknesses in coordination between the departments t of administration to accept or reject requests for maintenance .
8. weakness in follow the outstanding maintenance requests , and the lack of suitable means to receive reports of urgent maintenance .

Recommendations

1. the establishment of a database for every school building and identify facilities that need to maintenance ,estimate the costs and development of the control devices .
2. find qualified people and specialized companies in different areas of repair and maintenance
3. Develop a plan with time to provide maintenances requirements .
4. give financial and administrative powers to the schools to carry out maintenance .
5. employ a technical worker at each school with a simple workshop for the management and execution of the simple and urgent maintenance work without the need to return to education ministry .

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