

Managing Buildings Preventive Maintenance

Maintenance is known as the process of keeping systems working at the utmost desired capacity and efficiency as per the design goals.

If we are to draw up an economical definition, it can be the strategic way or plan to increase the output without affecting the quality and performance.

From the practice of the building construction, the behavior of the building and the test results from field samples after completion, it was noted that the maintenance costs seems to be constant for nearly the first three to four years. It increases rapidly after that, it can reach a significant figures after several years.

Factors that increase the maintenance cost may be summarized hereunder:-

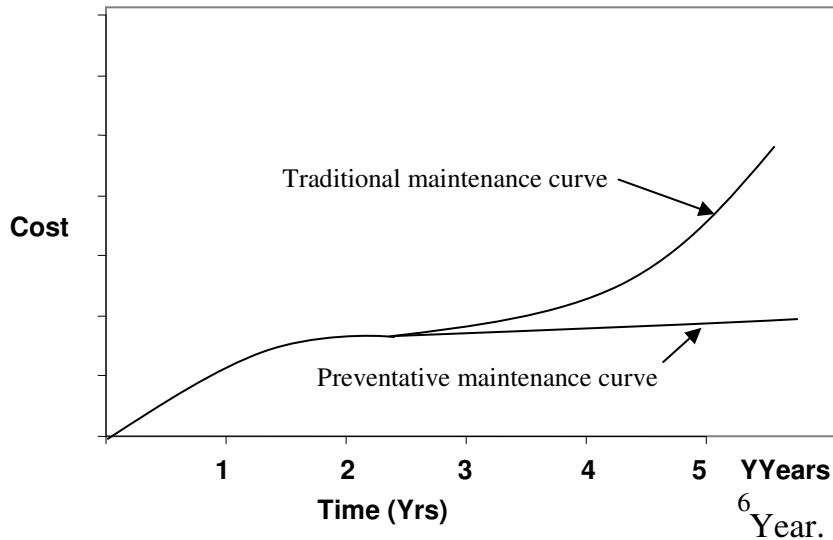
A. During Constructions:

- 1) Consulting, planning and design of the architectural features, electrical and mechanical systems of the building.
- 2) Selecting and approval of the materials and equipments in planning and designing of the project, a review should be focused on the availability of spare parts of electromechanical equipments and all consumable items of the building parts (i.e. pumps, chillers, heaters, filters, valves, sanitary wares and accessories, etc...)
- 3) Employing of value engineering principles in the design and specification phase of the project.

B. After Completion:

1. Training and educating the End User for proper use of building's systems.
2. Well maintaining of the building after completion.
3. Establishing maintenance schedule that gives priority on sensitive item which may cause huge loss in case of failure.

This means that a schedule can be drawn and applied to all maintenance activities including the periodical maintenance cycles for each and every individual part of the property or can be accommodated by the Building Management System (BMS). A sensible payback values can be earned without affecting any desired goal of the business established. As the saying goes "prevention is better than cure".



In the diagram, we can easily visualize how can a preventive maintenance program reduces the costs down to the optimum even after few years of building occupation.

Below is an actual record from one of the well known commercial and residential complex in Dubai. Note that in the three-year analysis, the year 1998 is an exception because of non regular decorations and revisions.

**(X) Center Expense Analysis
Completed On 7th July 1996**

S. No.	Particulars	1997	1998	1999
1	Security Charges	353,020	301,083	300,000
2	Cleaning Charges	247,185	248,172	208,350
3	Repair & Maintenance (Contract Basis)	180,300	706,500	541,800
4	Repair & Maintenance (Others)	49,074	474,307	217,696
5	Electricity Water & Sewerage	937,359	1,348,633	987,823
6	Advertisement & Sales Promotion	604,408	600,341	25,414
7	Telephone & Fax expenses	8,793	13,316	9,518

8	Entertainment Expenses	1,101	8,276	1,050
9	Conveyance & Transport	1,588	408	1,836
10	Sponsorship		75,000	
11	Legal Fees		49,771	9,243
12	Rates & Taxes	5,000	7,641	8,612
13	Rent (Management office)	51,087	30,652	33,000
14	Building Insurance	55,000	12,125	46,075
15	Misc. Insurance		5,515	
16	Misc. Expenses (Off-301,302 Shifting)	248,282		196
Administrative Expenses				
17	Staff Salaries	82,345	90,965	116,282
18	Staff Visa Expenses	1,380	2,469	4,315
19	Staff Leave Passage		3,270	3,800
20	Staff Group Insurance		1,459	2,992
21	Car Expenses			3,409
22	Computer Expenses	4,163		
23	Printing & Stationery	6,651	7,235	3,637
24	Depreciation	13,479		
Total		2,850,215	3,987,138	2,525,048

As a conclusion it is obviously important that the preventive maintenance program is a vital and necessary need for each building and has to be considered during the design and specification development phase as well as after handing over the building to the end users.

Eng. Hussam Matalgah – Resident Engineer.
Eng. ADNAN SAFFARINI CONSULTANT OFFICE.
Dubai – UAE
Email: HMATALGAH@YAHOO.COM
P.O. Box: 81144 – Dubai.