



## THE IMPORTANCE OF AN ENERGY EFFICIENT FACILITIES MANAGEMENT IN BUILDING CONSTRUCTION - A QUALITATIVE STUDY

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### ABSTRACT

*Since structures mean portion of the essential fuel sources utilization just as half of all burned-through crude materials, produce many million tons of waste and 33% of the world's CO<sub>2</sub> creation, development and working of low energy structures has become a global pattern. More than transportation, mining industry, or some other kind of industry it is essentially the territory of building industry and building organization that lead to better administration of thin assets just as to the decrease of ozone depleting substances outflows. Around there office the board additionally assumes a significant part. The point of the article is by means of examination of building life cycle to introduce conceivable outcomes of the impact of an office director on the venture and running expenses of structures as for the natural administration guideline. the elements of offices the board (FM) in worth administration (VM) concentrates in Malaysia. Most past examination around there has talked about the set of experiences, advancement, information, difficulties, and commitments of FM in both the private and the public areas, yet it is additionally fundamental to investigate the advantages of FM inclusion and the disadvantages of FM noninvolvement in VM concentrates during the pre-development stage in Malaysia. This paper gives outline the FM chief's parts in a VM workshop dependent on an audit of writing gathered and assembled from different distributions. The determine adds to current information by tending to the five components of FM capacities and their effects on VM examines. The discoveries will improve venture, item, and administration esteem by outlining the significance of FM capacities in a VM study.*

**Keywords:** Facility management, life cycle assessment, competitiveness.

### INTRODUCTION

Office the executives is a term which is firmly connected with building the board. All the more comprehensively, office the executives ought not exclusively be perceived as broad structure the board associated with regular structure activity yet it ought to likewise remember long haul arranging and center for its clients. This should as of now be fundamental in the preliminary period of speculation measure zeroed in on development of building itself. Significant piece of activity expenses and viability of office the executives measures is characterized as of now at venture of building. A significant factor is likewise the biological part of building effect on the living climate because of materials utilized for its development just as energy utilization vital for its activity.

In the event that we need to survey energy execution of structures or its impact on climate, we need to dissect the entire structure life cycle (beginning with developing materials to the structure deconstruction and its reusing) and not just the time of the structure use. Such an determine is called life cycle evaluation. As per meaning of Life Cycle Assessment by US Environmental Protection Agency Life cycle evaluation is a method for surveying the item effect on living climate associated with all life cycle stages (for example from crude materials extraction, material preparing, fabricating, dissemination, use, fixes, support, up to deconstruction or reusing). Life cycle evaluation (LCA), is otherwise called life cycle determine , environmental equilibrium or from support to-grave examination). By the ISO 14040 (2006) LCA precedes the limited view on ecological insurance:

Making the rundown of comparing lively and material livelihoods and results (outflows, squander) into living climate, x evaluating potential impacts (results) associated with the distinguished salaries and results, x deciphering the outcomes which empower learned (qualified) choices. To clarify the extent of office the board we can utilize the meaning of IFMA (International Facility Management Association, a regarded agent of most of world office directors) which characterizes office the executives as "a strategy whose task in associations is to commonly fit representatives, work exercises and the workplace that incorporates standards of business organization, design and humanities and specialized sciences" (Vyskocil, 2019). Office the executives (FM) is a viable type of effort business the board which expects to give applicable, savvy administrations to help the principle business exercises (center business) and permit them to upgrade. As follow from a few examinations Potkany (2016), or Stacho, Urbancova, Stachova, (2015) as of now, set apart by the monetary emergency, is the utilization of office the executives most current since it gives reserve funds and advancement of working expenses advances expanded worker execution and accordingly adds to build the productivity of the endeavor. The most well-known types of utilization of office the executives in the endeavor is an incomplete or complete rethinking. As indicated by the definition office the executives is portrayed by the interconnection of the three after zones (Somorova, 2016): x zone identifying with representatives, for example HR and sociological viewpoints, x region of work exercises, for example territory of accomplishments and financing, x zone of workplace, for example design and designing.

As indicated by the definition, office the board is described by the interconnection of the three after zones - pivot of office the executives (Somorova, 2017) or (Drury, 2019): the region identifying with workers, for example HR and sociological perspectives, the region of work exercises, for example territory of accomplishments and financing and the zone of workplace, for example design and designing.

## **OBJECTIVE OF THE STUDY**

1. To determine the energy proficient houses and their life cycle.
2. To determine the significance of energy proficient offices the executives in building development.

## **ENERGY EFFICIENT HOUSES AND THEIR LIFE CYCLE**

With the persistent increment of total populace energy utilization is developing consistently also and in equal there is an expansion in CO<sub>2</sub> discharges. Structures during their lifetime utilize around 40 % of energy, while its activity concerning warming and

cooling means 60-70% of this burned-through energy. The most reasonable arrangement implies building houses with low energy requests which don't hurt the climate (Suchomel et al, 2016). Constructors can this route add to saving overall energy, lower emanations and what is pivotal, they can impressively bring down warming and cooling costs inside the structure. There exist a few kinds of structures which effectively adapt to the prerequisites of limiting the energy utilization of their activities. Tywoniak (2017) declares that, worldwide these are perceived as purported energy powerful houses (EED), which incorporate low energy houses (NED), energy detached houses (EPD), energy independent houses (END), energy free - autarkic houses (EAD) just as in addition to energy houses. In this article we will intently zero in just on low energy and energy aloof houses. Division of these structures as per heat utilization is introduced.

## **COST OF BUILDING LIFE CYCLE**

Expenses of building life cycle address the all out expenses from all structure life cycle stages, for example costs for obtaining, use and deconstruction.

Clearly expenses of each building life cycle stage are affected by different factors like the reason, space, development and material arrangements of the structure plan. Monetary expenses of each period of the structure life cycle can't be commonly straightforwardly analyzed. This comes out from the difference in cash an incentive throughout the time which can't be analyzed during typically a dependable structure life cycle. Hence it is important to figure all monetary estimations of normal periods to its current incentive inside certain time span. This time span is typically the start of the structure procurement.

Strategy for building life cycle costs is a method of figuring of present expense an incentive for its obtaining, use and deconstruction and serves for those structure arrangement varieties which require the most reduced expense for its activity and running. The essential of the utilization of this technique is the way that for the financial backer are, aside from present expenses, significant likewise cost for future possession and utilization of the structure. Expenses of the existence cycle ought to incorporate at any rate 3 gatherings of expenses, relating with continuous "t" inside the by and large considered time spam (Miske, 2015):

1.  $C_{acq,t}$  = costs for securing of building, concerning the time frame t,
2.  $C_{use,t}$  = costs for utilization of building, concerning the time frame t,
3.  $C_{dec,t}$  = costs for deconstruction of building, concerning the time frame t,

At that point to set the expenses of building life cycle ( $C_t$ ), concerning the time frame t the accompanying example is legitimate:

$$C_t = C_{acq,t} + C_{use,t} + C_{dec,t}$$

## **FACILITY MANAGERS AND THEIR TASK IN INDIVIDUAL BUILDING LIFE CYCLE PHASES**

Office chiefs can be found in an organization while they are liable for overseeing of all help undertaking measures. They are answerable for satisfying such undertakings from the region of help measures which require overseeing different workers specifically endeavor

(Vyskocil, 2017). Such an administrator is by and by comprehended as supposed interior office supervisor. Inner office supervisors are above all else an administrative representative. Their fundamental mission is to discover such a type of office the executives (venture uphold) where is a chance with adequate expenses towards the most quality help of all workers inside an undertaking and to an ideal inventory administrations of records/documents and running of land and resources/values. In the event that that re-appropriating turns into the type of the FM, it implies that the administrations are given by outer staff, an inner office director will be liable for (Strup, 2018): office the board strategy, office the executives vital organization, setting of principles and strategic guidelines, definition and estimation of key execution pointers (KPI), choice of outside providers (in participation with outreach group), exchange of careful states of FM agreements and SLA (Service Level Agreement), monetary arranging (counting proposition draw-ups for reproduction and significant restoration speculation plans) and execution quality control of outer suppliers.

Building life cycle starts with procurement stage (counting venture project, project arrangement, plan of operational tasks, building development and last structure endorsement). At that point it proceeds with a utilization stage, which in course of time requires remaking, amendment, support and reproduction. Last period of the structure life cycle is the deconstruction stage.

## **ENERGY EFFICIENCY**

The world is right now confronting a weakening of characteristic assets, expanding utility expenses, and an unnatural weather change. Consequently, partners in the constructed climate are liable for focusing on manageability endeavors by creating offices that require insignificant assets to fabricate, work, and look after (Tladi, 2016). By raising worries at the plan stage, FM directors can add to office proficiency, or cost-viability. In this manner, they can ably accomplish their targets and execute savvy plan arrangements that advantage as long as structures can remember cycles (Enoma, 2015). Accordingly, there is a requirement for FM directors to check the suitability of utility administrations during the structure plan.

Tladi (2018) indicated that FM administrators should give huge commitments to supportability systems that require not many assets. They can achieve this by aiding the plan of financially savvy offices. Cloete (2016) and Tladi (2017) have made a few endeavors to show that water administrations should be effectively open for ordinary assistance purposes and to maintain a strategic distance from erratic occurrences. Also, Lehrer (2016) proposed that the plan of any water frameworks should zeroing in on simplicity and expenses of activity and steady upkeep. For example, to preserve water, a FM may prescribe evolving high-constrain flush latrines to low-pressure flush latrines.

Hartungi and Jiang (2018) talk about lighting productivity, which can be considered to moderate energy and lessen costs. FM directors ought to likewise consider the energy proficiency of warm factors. As per Atkin and Björk (2017) and Wan-Hamdan et al. (2016), most of associations wish to give open to work spaces to upgrade the profitability of representatives and the executives, and warm effectiveness is one of the parts of productiveness influenced by ecological variables. At last, Mcauley et al. (2015) made a customer's concise that advances better warm proficiency, upgraded fake lighting, improved acoustics, and the expansion of a shop unit.

## Sustainability

It has been decisively shown that different jobs are expected to draw in and coordinate supportability into a VM study (Abidin and Pasquire, 2017; Nawawi et. al, 2015). Abidin and Pasquire (2017) expressed that FM administrators should give contribution on manageable advancement issues. In any case, focusing too vigorously on manageable improvement may eclipse issues at the large scale level during the operational stage, since any plan should have the ability to limit upkeep costs and guarantee wellbeing (Enoma, 2015). Remembering FM chiefs for the full extent of the plan cycle may limit costs in acquisition accounts and diminish work changes and pointless adjustments (Enoma, 2015).

Nawawi et al. (2015) detailed that the dynamic cooperation of FM supervisors during preconstruction stages could guarantee that maintainable techniques are not influenced following the conveyance of an offices and that plans and approaches for offices are stayed up with the latest. The FM administrator's part in tending to manageability incorporates checking for the suitability of different maintainability plan perspectives and offering input concerning garbage removal frameworks. Abidin and Pasquire (2015) found that respondents for the most part accept that supportability issues are significant and ought to be given consideration in VM contemplates.

The utilization of new materials and innovative progressions could help control energy wastage with regards to enhancing existing designs (Chan, 2014). New things can be relied upon to release low or no erratic natural mixtures and formaldehydes, the two of which can have negative biological effects and negative consequences for building inhabitants. Poly Vinyl Chloride (PVC) usage ought to be limited through updates in view of its negative impacts comparative with its future.

## CONCLUSION

We are hopeful about FM, office administrators, and the expert affiliations that help them. We keep on being worried that office directors don't feel that they are regarded, and that choices influencing offices some of the time are made without FM input; office administrators are, time and again, in a responsive mode. We need to understand that we are not center business and that we are a significant asset shopper. That leaves us open to extraordinary examination. Thus, we should be creative, pioneering, acceptable financial specialists, and shape our usual methodology to the association's way of life. We need to verbalize our prosperity, be energetic and client situated, and hope to adjust our specialization to authoritative victories. These variables foreordain energy requests of a structure and its operational support. A cutting edge, natural and conservative arrangement implies developing energy productive structures, which besides of their environmental methodology satisfy prerequisites for limiting energy viability for their activity. Office directors can with their dynamic demeanor effectively in the period of building securing impact the future operational expenses. Office chiefs ought to accurately characterize prerequisites for undertakings of outsourcers of specific help administrations inside a structure, like cleaning, cleanliness, support, catering, regulatory and a lot more administrations for each object of explicit pieces of the activity. Office directors ought to characterize singular development components, for example track flood surface, surface divider completing, powerful appropriation of passage entryways, etc, in such a way, so the support costs are insignificant. Inside the development building planning an office director should give necessities for reasonable structure envelope with appropriate warmth opposition, which will forestall heat misfortunes thus will add to bringing down the

expenses for warming. Tolerating proposals of an office chief and their execution into project configuration can impact the viable administrations the executives of office the board in the period of building use and subsequently additionally to the existence season of a structure.

## REFERENCES

- [1]. Building Research Board, *Committing to the Cost of Ownership*, p. 2
- [2]. Dean Kashiwagi, *Best Value Procurement*, 2d ed., (Tempe, AZ; Performance Based Studies Research Group; 2018).
- [3]. Drury, C. (2016). *Management and Cost Accounting*, Fifth edition, Thomson Learning 2001.
- [4]. ISO 14040 (2016): *Environmental management – Life cycle assessment – Principles and framework*, International Organisation for Standardisation (ISO), Geneva.
- [5]. Miske, R. (2018). *Implementing Facility Management in the Preparatory phase of an investment process*. [online] [cit. 2015-03-18]. Available at: [http://www.stuba.sk/new/docs//stu/ustavy/ustav\\_manazmentu/NAB2010\\_1/paper9.pdf](http://www.stuba.sk/new/docs//stu/ustavy/ustav_manazmentu/NAB2010_1/paper9.pdf).
- [6]. Personal communications from Stormy Friday, President, The Friday Group; James Whitaker, President, and Chris Hodges, Principal, Facility Engineering Associates; and Facility Industry Study, (Houston, TX; Collaboration of professional organizations, FMLink and Building Operating Management magazine; 2017), items 16, 17, 18, and 20.
- [7]. Potkany, M. (2019). *Outsourcing in woodworking industry in Slovakia*, Zvolen: TU Zvolen, 79.
- [8]. Robert L. Taylor, “Standardized Design Process and Capital Planning for Salvation Army Corps Community Centers.” A thesis submitted to the faculty of Georgia Institute of Technology, 2017, p. 50.
- [9]. Sedliacikova, M., Satanova, A., Foltinova, A. (2018). *Financny kontroling v teorii a praxi malych a strednych podnikov*. In: *Journal of Economics*. Vol. 60, No. 9, pp. 949-966.
- [10]. Tywoniak, J. (2017). *Deklarativni vypocty pro pasivni a nulove domy, 2010*, [online] [cit. 2015-03-18]. Available at: <http://stavba.tzbinfo.cz/normy-a-pravni-predpisy-nizkoenergeticke-stavby/7456-deklarativni-vypocty-pro-pasivni-a-nulove-domy>
- [11]. Vetrakova, M., Hitka, M., Sedmak, R. (2017). *Analýza vyvoja motivacie robotnikov v Slovenskych elektrarňach a. s. Mochovce z casoveho a vecneho hľadiska*. In: *Ekonomie a management*, Vol. 10, No. 1, pp. 84-97.

- [12]. W8D. Projekty moderných usporných rodinných domov. Co je nízkoenergetický rodinný dom Rozdelenie stavieb podľa spotreby tepla. [online] [cit. 2015-03-18]. Available at: <http://www.modernerodinnedomy.sk/archives/684>