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## ife-cycle Costing

Life-cycle costing is a method for assessing the total cost of facility ownership. It takes into account all the costs of acquiring, owning, and disposing of a building or other asset. Life-cycle costing is especially useful when alternative design solutions that fulfil the same performance requirements, but differ with respect to initial costs and operating costs, have to be compared in order to select the one that maximizes net savings.

For example, life-cycle costing can be used to help determine whether the incorporation of a high-performance HVAC or glazing system, which may increase initial cost but result in dramatically reduced operating and maintenance costs, is cost-effective or not. The analysis should be performed early in the design process while there is still a chance to refine the design to ensure a reduction in life-cycle costs

There are numerous costs associated with acquiring, operating, maintaining, and disposing of a building or building asset. Only those costs that are relevant to the decision and significant in amount are needed to make a valid investment decision. Costs are relevant when they are different for one alternative compared with another; costs are significant when they are large enough to make a credible difference in the whole-life cost.

All costs are entered as base-year amounts at today's value. The analysis then extrapolates all amounts to their future year of occurrence and discounts them back to the base date to convert them to present values. After identifying all costs by year and amount and discounting them to present value, they are added to arrive at total life-cycle costs for each alternative

Decision-makers sometimes want to know the maximum cost that will allow the project to still break even, or conversely, what minimum benefit a project can produce and still cover the cost of the investment. To perform a break-even analysis, benefits and costs are set equal, all variables are specified, and the break-even variable is solved algebraically.

Life-cycle costing can be applied to any capital investment decision in which relatively higher initial costs are traded for reduced future cost obligations. It is particularly suitable for the evaluation of building design alternatives that satisfy a required level of building performance but may have different initial investment costs, different operating and maintenance and repair costs, and possibly different lives.

Life-cycle costing provides a significantly better assessment of the long-term cost-effectiveness of a project than alternative financial methods that focus only on first costs or on operating-related costs in the short run.

*Detailed guidance on the use of Life-cycle costing in procurement is available from the Office of Government Commerce (OGC) at*  
[http://www.ogc.gov.uk/implementing\\_plans\\_introduction\\_life\\_cycle\\_costing\\_.asp](http://www.ogc.gov.uk/implementing_plans_introduction_life_cycle_costing_.asp)