VALUE ENGINEERING: AN OVERVIEW

Tips and tricks to help you save money on the job with cheaper alternatives, from **Sean Butler**

The concept of value engineering is one that came about during WWII, at the General Electric Company. With a shortage of raw materials and component parts, purchase engineer Lawrence Miles was asked to study several hundred product changes that the company had been forced to make due to the war. He was surprised to find that his substitutes provided substantial product improvement and cost reduction. 'Value engineering' allowed for a generation of alternatives to the existing solution and what started out as a necessity was turned into a systematic process.

WHAT DOES IT MEAN TODAY?

Value engineering techniques are applied during the design phase. They look for solutions to problems, identify and eliminate unwanted costs while improving quality, and promote the substitution of products for less expensive alternatives without sacrificing functionality.

So, what does this mean for our industry? When the scenario is: "We absolutely love the design, it's just too expensive," this applies to both the designer and the contractor. From a designer's point of view it's disappointing not having their design realised, and from the contractor's view it has taken a lot of unpaid time pricing the project.

So does the designer go back to the drawing board or does the contractor sharpen his pencil? It should be a collaboration between both. Value engineering methods are best introduced in the design process so as not to affect timescales, completion dates or incur additional costs that outweigh the savings on offer.

VALUE ENGINEERING METHODS

The systematic process of value engineering involves a 'job plan' which can be divided into four major phases:

1. Informative phase: identifying what functions and performance characteristics of the project are important
2. Speculative phase: identifying alternatives that provide the necessary functions at a lower cost
3. Analytical phase: applying cost comparisons and evaluating how well they meet the required functions
4. Proposal phase: presenting the results of the value engineering study to the client.

CONSIDERATIONS

Materials What do you do when, for example, a preferred paving material is unavailable or no longer cost effective? In this particular garden, due to availability issues a 1m x 1m paving was used instead of 600mm x 900mm. This saved on labour costs and was aesthetically pleasing, dividing the garden into 1m x 1m segments.

Construction methods When the costs of particular methods or tools are rising, we can look for alternatives. For example, using a concrete raft is cheaper to construct than strip foundations where a large expanse of support is required.

Logistics Logistical costs are often out of our control, and with Brexit and the US election, the fluctuating costs in our supply chains can be high. For example, sourcing plants from abroad may not always be cost effective. The same applies to the costs to move labour, plants and other materials to and around sites.

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Site limitations It's important to consider access restrictions, planning restrictions, mobile plant authorisation and noise control.

Planning Plan the build stage by stage using, for example, gantt sheets so that all functions are accounted for and alternatives considered from the outset.

Hidden costs These can include plant hire, additional labour, specialised knowledge, delivery charges, permits and levies on bespoke items. Ask for discounted costs, trade accounts or other reductions.

Profits You may have heard of the 'Pareto Principle' or the 80/20 rule, in which 20% of input (time, resources, effort) is said to account for 80% of the output (results, rewards). This rule can also apply to profits from 20% of products or profits from 20% of customers.

Introducing value engineering in the design stage has a number of advantages, including optimising the performance of a project and eliminating wasteful practices. Identifying alternative materials and processes that function at a lower cost, before any commitment to funds is made, will save money in the long run.

ABOUT SEAN BUTLER

Sean Butler is a landscape designer and director of Cube 1994. With a background in civil engineering, Sean has an in-depth understanding of the design, construction and maintenance of the physical and naturally built landscape.
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