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The Risks and Rewards of Value Engineering

The following material is provided for informational purposes only. Before taking any action that could have legal or other important consequences, speak with a qualified professional who can provide guidance that considers your own unique circumstances.

Value engineering, or VE, is a process designed to identify ways to reduce costs and improve function and performance. This system for improving the ratio of function to cost was originally developed by General Electric during World War II as a method of re-engineering products. The success of that effort led many industries, including the design and construction field, to apply the same VE principles, sometimes under the name of value analysis or value management.

Today, cost-conscious project owners are turning to VE as a method to minimize waste and maximize functionality and profitability on their new construction projects. Performed correctly, VE can be advantageous for all parties involved and presents attractive income opportunities for design firms who become value engineers. Performed incorrectly, however, VE presents the potential for added costs, time and liabilities, particularly to the design firm of record.

How VE Works

Value engineering is a detailed set of procedures implemented to achieve optimum value. These procedures typically involve:

- Gathering information about the project
- Analyzing the required functions of the project
- Brainstorming creative alternatives to achieving the desired functions

- Evaluating and testing the most promising ideas to create value
- Developing the best method of increasing value
- Presenting the new method to the project stakeholders
- Implementing the approved method
- Tracking results and following up as necessary.

Applied to a new construction project, the goal of VE is to eliminate or re-engineer design and construction features that add cost but not corresponding value. "Value" is typically measured as improved quality, functionality, lifecycle, utility and/or appearance. Thus, the value engineer analyzes design concepts, specifications, construction techniques, materials, building systems, building types, and upfront versus lifecycle costs to arrive at a plan for achieving the best overall value for the owner. Often, the value engineer works closely with the designer of record. In fact, many value engineers prefer to include the lead designer on their VE teams.

This formal or "scheduled" VE is best planned at the onset of the project as an integral part of the original design process. Ideally, the VE team includes the value engineer, key representatives of the owner, the prime design professional, the contractor, the construction manager (if any) and the project's professional cost estimator (if any).

Through formal meetings, the group identifies potential savings and improvements in functionality, both large and small. The owner and the prime design professional evaluate these findings and discuss the impact of the group's recommendations on project design. Key to the cost-effectiveness of this approach is that the owner's decisions are implemented by the prime design professional during the initial design development phase, thereby eliminating the need to go back and

revise schematic design documents. Carried out in this manner, VE can be an enormous benefit to the owner, the design professionals and the contractor as a way of verifying the planning, design, construction and financial impact of their decisions.

Accept No Imitations

Unfortunately, as with many systematic procedures that require a high level of training and expertise, value engineering has spawned wannabe imitators. Throughout many industries, uncertified and poorly trained individuals have marketed themselves as value engineers while, in reality, performing scaled-down services that focus solely on cost-reduction while ignoring value-building. Indeed, within the design and construction industry, VE is often marketed to project owners strictly as a cost-cutting tool. This "informal" value engineering may be performed by design professionals, general contractors, construction managers, cost estimators or others who are neither trained nor certified as value engineers.

Typically, these cost consultants provide advice to the owner throughout all phases of the project. There is rarely a formal, pre-scheduled value engineering process in place at project inception. Recommendations to cut costs can occur late in the design process, often without considering compensation for the added work for the design firm of record. Worse, cost-cutting changes can be made to the original design during the construction phase, sometimes without the designer being notified.

This informal cost-cutting process frequently deteriorates into unscheduled second-guessing of the original designer by a consultant hired to cut costs. In fact, some of these so-called VE firms base their compensation on how much money they save the owner. This poor substitute for formal VE can undermine the designer of record and reduce the quality of the project.

This type of informal VE can severely disrupt the design and construction-drawing process. It may mean rethinking fundamental design decisions and call for subsequent redesign and reproduction of construction documents to reflect the changes. All this will require additional time that impacts schedules and budgets. The result can be reduced quality, increased lifecycle costs

and an unhappy client – all resulting in increased liabilities.

Certainly, if this informal VE results in adversarial relationships, there is a much greater likelihood of conflict and claims. There is also a greater potential for errors in revising construction documents after bids have been received because of the tight time and budget constraints under which such revisions typically need to be made. Changes made in haste may not allow for proper coordination and checking. There can be significant pressure to accept a lesser level of quality or inferior products or building systems – although these cheaper alternatives may significantly increase the costs of operation and maintenance over the life of the project.

Contractual Protection

If you accept a project where the owner uses the services of a value engineer, work with your legal counsel to include protective language in your contract. Seek contract language stating:

- Value engineering services are provided at the owner's expense and such services will be performed in a timely manner by the value engineer.
- The owner will identify the value engineer and provide you, the lead design consultant, with a copy of its scope of services, responsibilities and authorities.
- All recommendations of the value engineer will be provided to you in a timely manner for review and you will be provided sufficient time to analyze and respond to those recommendations.
- You will be compensated for any additional services required to review and incorporate the value engineer's recommendations.
- Any of your objections to the value engineer's recommendations will be provided to the owner in writing.
- If the owner requires you to comply with any recommendations to which you object, the owner will, to the fullest extent permitted by law, waive any resulting claims from implementing such recommendations and hold you harmless from any resulting damages and costs.

- If you feel the value engineer's recommendations pose a threat to public health and safety, you retain the right to refuse to incorporate those recommendations and fulfill your duty to notify appropriate governmental agencies if such recommendations are applied.

The Real Deal

Properly executed, value engineering can lead to a better project for all parties involved, including the design firms. VE can identify better ways to build a project. You can learn of new techniques, new systems and new materials from a qualified value engineer. VE can result in projects that apply the latest in technology and result in high performance buildings with improved sustainability, greater energy efficiency and longer, more profitable lifecycles.

Clearly, any design firm that hears the words “value engineering” associated with one of its projects should take notice. Ascertain whether the project owner is indeed hiring a trained or certified value engineer. Determine whether a formal VE process is being instituted at the earliest design stage or whether it's really just a cost-cutting exercise in disguise.

Here are some important questions you should ask:

- Who is the value engineer? Is he/she certified? What is his/her training? What is his/her track record? Seek referrals from other design firms who have worked with the value engineer.
- Is the value engineer's compensation based solely or largely on the amount of cost savings generated?
- Does the VE process begin at the early design stage?
- As lead designer, what is my role in the VE team?
- If my design is evaluated and re-engineered, what is the extent of my responsibility to modify it?
- How will I be compensated for redesign work?
- What is my recourse if I disagree with the value engineer's recommendations?

- Do I have a responsibility to make changes that I believe are inappropriate?
- What happens if the changes affect the permits or licenses obtained for the original design?
- If a lawsuit results from the redesign changes, am I liable?

Providing VE Services

What if you want to provide value engineering services as a method to increase revenues? First ensure that you are adequately trained and preferably certified in delivering such services. Contact your professional associations or VE associations such as SAVE (www.value-eng.org) or the Canadian Society of Value Analysis (www.scav-csva.org) for information and advice.

When providing VE services, work with your attorney to secure protective contractual language that protects you from being liable for the actions of others. Your client agreement should state that:

- You can rely on the completeness and accuracy of all information provided to you regarding the project.
- You are not responsible for errors or omissions in any drawings or specifications provided by others.
- You are not responsible for any errors or omissions made by others when incorporating your recommendations into the project.
- You are indemnified and held harmless from all damages, liabilities or costs allegedly arising from services performed by others.

Communication is Key

During the design process, you engage in your own form of VE each and every day. You've made thousands of cost-benefit decisions based on your knowledge and experience. The quality of these decisions largely depends on your understanding of the owner's expectations, desires and requirements. Frequent, open and clear communication allows you to consider alternative solutions, propose choices for the owner, try different approaches and deliver creative and cost-effective design solutions.

If an owner proposes value engineering, point out that while VE can add value, it doesn't always translate into cost savings. The process typically adds additional design development fees with no guarantee of reduced construction or maintenance costs. The goal is long-term cost-effectiveness and value, not upfront cost reduction.

Can We Be of Assistance?

We may be able to help you by providing referrals to consultants, and by providing guidance relative to insurance issues, and even to certain preventives, from construction observation through the development and application of sound human resources management policies and procedures. Please call on us for assistance. We're a member of the Professional Liability Agents Network (PLAN). We're here to help.