

Engineering as Sustainability Tool

By Juan Ramos, LEED AP BD+C

I ALWAYS HATED VALUE ENGINEERING (VE). As a young designer, I imagined how the interior glass bridge symbolized our journey through life, its transparency juxtaposed with the adjacent green wall's filtering of sightlines as you waited in line to pick up your coffee. I'd dream about it only to be told, "Juan, we appreciate your passion for user experience, but we're building a shoe store. Giving out coffee on a life-bridge is not in the budget." (OK, I made this example up, but anyone that knows me will tell you it's somewhat plausible.)

It seemed like VE meetings were where architecture projects went to lose their spirit and become generic. Yes, I realize that this is an immature and idealistic view of architecture, but the point is that ... well, I guess I was immature and idealistic.

After awhile, I started seeing another side of things. I heard stories of people who would purposely add to projects things they knew would be taken out in the VE process (like weird decoys in preparation for negotiations). Or I would hear about projects where things were over-engineered in a covering-bases mentality, and I mean waaaay over-engineered.

This is when I began to see the VE process in a different light. Not only is it absolutely necessary, as a project can't be built if it doesn't come in under budget (obvious, yes, I know), but it's a valuable tool for sustainability.

Greening

It's up to clients if they want to spend their money on the life-bridge (that idea is still available, by the way). If the beautiful stainless-steel railing specified for the life-bridge is overpriced compared with an equally suitable alternative, well then that's a needless, one-time waste of money. But if the cooling system is oversized and the type of glass is not adequate for the location, those mistakes will cost the client money year after year. And if you consider that buildings consume nearly half of the energy produced in the U.S. (and are responsible for half of the CO2 emissions), VE has implications that go beyond money.

Antoine de Saint-Exupéry once said, "Perfection is achieved

when there is nothing left to take away." This is especially true in engineering.

I now find myself at a different point in my career where I see VE as a crucial tool to optimize the building as a system and ensure we are giving our client the best building she or he can get. Efficiency doesn't mean getting rid of unique and exciting things in a project; it means eliminating waste. The difficult thing is correctly identifying what is waste! It's not just cutting cost; it's identifying value. We must be careful that our clients understand the long-term implications of VE—a high-performance material, for example. VE means looking out for your client's best interest, which should be our No. 1 priority. One of the best ways we can do that is making sure that our client doesn't end up with a building that will cost more to run than it should.

Right-sizing equipment, commissioning and retro-commissioning existing systems can save our clients money, reduce emissions, and provide a safe and healthy environment for building occupants. Let's hear it for VE! 

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