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Benefits of a Whole-Building Design Approach

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Working as a team earlier in the design process fosters creative problem-solving

Buildings are tremendously complex. Even the simplest facilities require a highly trained team of professionals for their design, construction, and, eventually, operation. Actually, it is amazing that many buildings are ever built, considering the necessary financing, land acquisition, code and jurisdictional requirements, extremely long time frames, budgets that seem like moving targets, design- and construction-team coordination, and numerous other roadblocks that occur along the way.

With all of this in mind, how do we create and operate buildings that reduce the impact on local, regional, and global ecosystems, as well as building occupants, while boosting the bottom line? This may seem like a daunting task, but the good news is a specific framework can help streamline the design and construction process.

Defining Whole-Building Design

Whole-building design refers to a design and construction technique that incorporates an "integrated design approach" and an "integrated team process."¹ Basically, all of the elements of a building's design need to be considered, and all team members/design stakeholders need to be involved in new ways earlier in the process.

Collaboration among stakeholders is key. It is important not only to fulfill traditional design and construction roles, but include others not normally involved in elements of the design process, such as building operators and managers or perhaps even future general occupants. The objective is to foster communication among all of the parties that have technical or other operational input as early as possible to convey programming objectives and goals clearly while reducing or eliminating much of the last-minute coordination or budget pressures that occur later in more traditional building-delivery processes.

Getting stakeholders to think outside of their traditional roles and communicate design benefits and issues earlier may sound easy, but it can be challenging. Although both of these aspects of whole-building design are closely related, a larger challenge lies in integrating the design process itself. So, what does an integrated-design process look like? Because most industry professionals are more familiar with a traditional approach to design and construction, let's start with what integrated design does not cover.

Be Proactive, Not Reactive

Think back to the last project on which your firm worked. If you are an engineer, you probably were contacted by an owner, owner's representative, and/or architect and asked to provide a fee estimate and scope for a project that had been programmed and designed to a certain point. Certain design decisions already had been made, and several might have affected design elements you had planned on incorporating. Some of these decisions might have caused problems, and some of the tasks that needed to be accomplished as part of sound engineering practice no longer were possible. From the beginning, your design was in a reactive mode, and although you may be LEED or green-conscious, there probably was little opportunity to include those types of design elements.

What if your engineering firm was involved in the very first project meeting? You and all of your colleagues from the other necessary disciplines, as well as some new players representing the facility's future operators, could have been present. The meeting would have begun with some general information about the new project, followed by questions asked of everyone around the table. Some of the things you heard may have given you ideas about how to approach design problems, and other participants may have come up with even more ideas based on your thoughts.

This is how a team approach fosters integrated design. Not only does this process tend to be more creative, this type of early collaboration allows most budget concerns to be avoided or incorporated into the project moving forward.

Conclusion

As most of us know, the later we try to incorporate LEED, underfloor air, on-site renewable-energy production, or any other green feature into a project, the more difficult and costly it can be. However, if we use a whole-building design approach and include these features at the beginning of a project, wins will come more easily, with others revealed along the way.

The continuing success of LEED, the emergence of green codes, and a general desire to shake up traditional building designs can exert tremendous pressure on those involved in delivering a new building. While a whole-building design approach is not necessary to deliver LEED certification or meet other green-program requirements, it can make things easier for everyone involved. Perhaps it even can bring a little additional excitement to a profession that prides itself on creativity and reaching further with every completed project.

Reference

1) Whole building design guide. (n.d.) Retrieved from <http://www.wbdg.org>

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James D. Qualk, LEED AP, BD+C, is vice president of SSRCx—a division of Smith Seckman Reid, an engineering design and facility consulting firm—and team leader of the company's Sustainable Solutions Group. He lectures on sustainability and construction in Vanderbilt University's civil-engineering department and on renewable energy in Lipscomb University's Institute for Sustainable Practice.