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Design-build to optimize a project

By Doug Post

Why design-build? Easy, because this project delivery method is focused on meeting the end user's project needs—which is good for the integrator and the end user.

While other methods focus on the best engineering, the best electrical construction, or superior automation, the integrated design-build approach ties these disciplines together and focuses on optimizing the end user's overall project.

The goal for control and information system integrators is to align in-house engineering, construction, instrumentation, and automation services with their customers' business success.

The design-build delivery method allows an end user the flexibility to get from the project visionary stage to production much sooner. With pricing in hand, design and construction personnel can work together to explore value engineering and alternative methods to get the most out of the project dollars. All of this enables end users to see a much quicker return on their investment. Additionally, by working together as a whole unit, you can address challenges and obstacles at the source, so you can avoid them later on. Scheduling, project controls, and risk management are the very heart and soul of a design-build relationship.

Armed with the proper information, you are able to work with end users to consider implementing the following design-build principles in the areas of highest impact.

Principle #1: Time and dollar impact of schedule.

A project should never start without knowing the value of a lost day of productivity. Knowing this, your design-build team can synchronize their services to appropriately shorten project schedules and minimize construction-

staffing peaks.

Principle #2: Constructible design

Having construction and engineering in-house means a broader experience base influences front-end project planning and design. Field construction professionals ensure the design considers ease of installation. Design-build also means you can develop the construction plan before crews are on-site and changes get expensive.

Principle #3: Wiring methods

Your team can quickly assess the cost, timing, performance, and flexibility associated with various wiring methods, such as conduit, cable tray, underground methods, and bus duct.

Principle #4: Electric room and transformers

During design, you would need to ensure that electric rooms are optimally located, sized, and arranged to provide space for expansion and installation speed. You should minimize motor lead lengths to control costs and ensure good starting performance.

Principle #5: Performance-based plant or company standards

Nothing stifles innovation in design-build more than entrenched, detailed standards. These standards may be in the form of multiple binders or may simply be a culture of "that's how we've always done things." You can help your customers develop standards and specifications that are performance-based, brief, and flexible.

Principle #6: Increased construction productivity

An integrated team can prefabricate portions of the installation in your shop before it goes on-site (major conduit racks, for example.) You can also work

Item (Labor and Material)	Percent of Cost
Wire, cable, and raceway	55%
Switchgear, transformers, and motor control centers	24%
Special systems	10%
Lighting and grounding	7%
Miscellaneous	4%
Note: Labor makes up 46% of the total costs; materials costs are 54%.	
Typical benefits of the design-build concept are shown in this example of how it can help control the plant's electrical construction costs. It starts by determining where the electrical costs are in an industrial installation.	

with project partners to identify opportunities to begin the electrical installation early (underground conduit, for example.)

Principle #7: Improved vendor coordination

Design-build means your team shares in the specification, procurement, installation and startup of equipment. This gives you more opportunity to work closely with equipment vendors and add value to the end user's project. The vendor becomes a project team member rather than a commodity supplier.

Principle #8: Plant startup

Design-build means a single firm is responsible for startup rather than multiple firms with unidentified gaps in their services. The single source of service speeds up the plant's start-up by minimizing coordination and start-up delays.

Viewed in this context, you will be able to implement important design-build principles and generate meaningful and measurable benefits for your firm—and the end user's plant.

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