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Controlling Construction Costs Through Innovative Approaches

By Tom Comeau



Biotech isn't the Wild West environment it once was. Early entrants into the biotechnology space now have become mature firms with multiple products in the pipeline. As the market pulls alongside other industries, management teams face the task of focusing on reducing operating expenses and streamlining business operations. When it comes to updating and expanding their facilities, biotech firms are seeking quality construction and the opportunity to save money as they grow. That combination of results requires controls that manage the cost and the process of design and construction. It also requires a team that can look beyond obvious solutions to identify risks and opportunities at the outset of a project.

The following is a list of six factors to keep in mind:

- *Do your digging up front.* Design and construction for the biotech industry is vastly different from other commercial projects. The process requires digging into existing systems, exploring space constraints, understanding all available services and logistical issues that will impact the approach to a design solution. But facilities and systems cannot be designed to meet program needs until those needs are clearly

defined. At that point, early in the design process, if the construction manager and engineer are working closely together, the responsibility for digging into existing building conditions can be shared. A comprehensive up-front effort by the team not only enhances the project, it also brings diverse perspectives and more brainpower to the process early on.

- *Consider alternative approaches rather than value engineering.* Assembling the right team to identify opportunities and alternative approaches up front should not be confused with the process of value engineering, which modifies aspects of a completed design after the fact. Value engineering should be regarded as something that adds value without changing the program. But more often than not, it's less about value and more about simply cutting scope. Value engineering can short-circuit the design process and can pose serious risk to the original design intent. Instead, if a comprehensive design is developed by the team up front, the same process can occur without the negative effects of after-the-fact value engineering. The unique and complex aspects of laboratory construction make this collaborative approach pay off. For example, Newton-based Commodore Builders' original design for a recent pharmaceutical manufacturing project called for the mechanical room to be located in a new addition behind the existing building. Upon investigation of the permitting, potential weather conditions and cost implications of the proposed design, an alternative solution was sought. Through the con-

struction of a mezzanine over the manufacturing space to house the mechanical equipment, the company was able to significantly reduce infrastructure and routing costs, and adhere to the construction schedule. Keep in mind that a strong team will always be on the lookout for effective approaches that meet all program requirements – not just when the budget dictates them.

- *Choose the right team.* It beats bidding as the best route to savings. The lowest bid isn't always the one that will save your company the most money. While some project owners perceive bidding as the best route to savings, engaging the right team at the project's inception is more likely to provide the real savings. The right team can help identify risks and opportunities up front that will bank far more than the potential savings from soliciting competitive bids. The right team will know what to look for – you can find them crawling around in the ceilings, looking behind the walls and investigating every detail of the space. The attention to detail always has a positive impact on schedule and costs. Commodore Builders put that philosophy into practice when they delivered a project on time and on budget in Cambridge – one of the world's most important biotech centers. While the company's bid was competitive, the firm was selected based on its biotech team's knowledge of the project and expertise in developing a preconstruction

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plan that outlined all the elements that could affect the outcome of the project.

- *Don't rely on general benchmarks to develop budgets.* Unlike typical tenant interior renovations, where average per-square-foot costs are accurate and good cost models are available for developing budgets, it's tough for a lab

client to say, "Get some money out of that budget." The elements of a lab project are difficult to generalize, because every project is unique and components can vary wildly from one technical environment to another. Benchmarks would be convenient, but even in a typical chemistry lab construction, for example, the quantity of fume hoods varies dramatically and significantly impacts the cost per square foot. A lab located in the basement is constructed very differently than a lab located on the third floor. Humidity controls are another set of components that differ radically depending on the type of research being conducted at the lab. Individual elements are endless and each has an impact on the cost per square foot. The key is to understand that unique elements exist and that research and planning are required for each.

- *Consider in-depth investigation vs. obvious solutions.* Commodore Builders recently was asked to renovate an existing research and development lab in Cambridge, where new make-up air

capacity was required. Make-up air for the building was served through a mechanical penthouse. The most obvious and apparently easiest solution was to expand the air units inside the penthouse. However, an in-depth investigation revealed adequate ceiling height for installation of an interior unit that provided access to the exterior via a window louver. The alternative approach reduced the need to install an air-handling unit in the already overcrowded and inaccessible penthouse. The company was able to eliminate the control wiring between the penthouse and the program space, which eliminated the extra charges for additional space inside the penthouse that the client would have incurred. The time spent running ductwork through existing shafts also was eliminated.

- *Resist easy solutions that end up costing more.* Often, the obvious solution is merely the easiest solution rather than the best or more cost-effective. It's true that a comprehensive approach takes more time at the outset. It's too easy for a construction manager to just go with the flow, instead of focusing on long-term client relationships. If that happens, they will opt for the easy way to make more money by just putting that air-handling unit up in the penthouse, for example, no questions asked. Costs vary dramatically in technical construction, leaving the door wide open for unwitting fat to creep into the budget. Don't hesitate to request references and feedback from other biotech clients to ensure that your construction team has lab expertise and a proven track record for providing clients with true value. Identifying risks, exploring opportunities and resisting conventional approaches, especially in the biotech arena, are the efforts that will consistently deliver excellence in construction, while controlling costs. ■

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