

Pharmaceutical Spaces Designed, Built with Extreme Flexibility for Today, Tomorrow



BSA



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Like their clients, contractors building biopharmaceutical facilities face the demands of quick build times and design flexibility.

Pharmaceutical companies on a race to market with their latest drug demand contractors who can collaborate with them to map current and future research and manufacturing needs, building flexibility into labs and manufacturing lines to shift on a dime with the latest scientific advances. Design-build contractors with expertise in leveraging modular building systems and integrating single-use technology – such as disposable bioprocessing equipment – are the frontrunners delivering these projects for leading pharma companies.

McGrath & Associates is one of these contractors. Pharmaceutical Division Vice President Dan Gold says pharma is one the contractor's strongest sector. McGrath builds smaller R&D facilities and larger drug manufacturing hubs.

“We take the pharmaceutical company's expertise and convey that into a constructable facility design,” says Gold. “The pharma construction sector differs from others in terms of the equipment, the level of controls and automation and strict environmental controls.”

An isolator – a large box that protects the operator and keeps him from contaminating the sterile environment – is one example of a building component housed in these specialized facilities. Another is a glass line reactor,

essentially an industrial pressure cooker that contains chemical processes involving powders and other active pharmaceutical ingredients.

“We take what would be a traditional building system and expand on it with specialized process equipment with a higher level of instrumentation,” Gold says. “Project delivery in this sector becomes challenging because often the equipment lead time exceeds the duration of construction. Identification and procurement very early on are critical.” Speculative construction in the pharma sector is common for this reason and others. “It's an exceptionally fast-moving space,” Gold adds. “By the time you've got the facility built, commissioned and validated, the market for the technology may well have changed. It really is a race against time for the owners.”

BSA LifeStructures Director of Engineering Kevin McNutt agrees.

“A lot of the work we do in this market is research driven,” McNutt says. “By the time we're building the research space, the initial researcher is no longer there or has completely changed the scope of research, so design flexibility is a must.”

Pharmaceutical research operations typically entail moving researchers between departments and lab spaces within a building, according to McNutt, with the specific purpose of each space changing on a frequent basis. As such, design and engineering must be flexible to adapt to the company's needs. Preassembled mechanical, electrical and plumbing (MEP) modules built off-site and lifted into place are often utilized to retain flexibility and expedite schedule, he says.

"We're able to design MEP infrastructure distribution modules providing water, lab gases, electrical bus duct, telecom cables and exhaust ductwork repeating throughout the labs with spare taps to equip and support the latest needs in biopharmaceutical research and development labs today and into the future," says McNutt.

Clayco Senior Vice President/Science and Technology Business Unit Leader Koray Ozgenc says pharmaceutical construction projects are unique from other projects because these facilities are being built to save lives.

"These are mission-critical builds," says Ozgenc. "The faster you're able to build these, the faster the owner is able to get the drug to market and save lives."

Contractors who understand that speed-to-market necessity are the ones achieving success in this unique life sciences sector, he adds. "On one project, our combined in-house design-build expertise was able to save four months from the original schedule."

Innovative medical advances such as those achieved in cell gene therapy, Ozgenc says, are spurring an even greater need for design flexibility. "Creating personalized drug modalities to treat the molecular make-up of each individual patient requires building systems capable of adapting quickly and well to accommodate the research fueling these latest discoveries."



The article originally appeared in Engineering News Record's Life Sciences & Pharmaceutical Building Today Special Ad Section at https://digital.bnppmedia.com/publication/?i=760043&oly_enc_id=?oly_enc_id=



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