

TRAP #5

THE PRODUCTION INEFFICIENCY TRAP

HOW CONVENTIONAL DESIGN/BID/BUILD CAUSES PRODUCTION CONSTRAINTS AND INCREASED DOWNTIME IN PLANT CONSTRUCTION

When undertaking a plant construction or expansion project, shortcomings in the traditional Design/Bid/Build (D/B/B) approach often conceal problems that lead to costly and difficult layout, process flow and maintenance issues, resulting in higher operation costs.

Identifying these threats to efficient plant operation, and understanding how a process-oriented approach removes barriers to optimal production, can substantially cut your ongoing operation costs on your next construction or expansion project.



Lack of focus on your specific process production requirements, found in the traditional Design/Bid/Build approach, adds unnecessary cost and production inefficiency in your new or renovated plant's operation.

COMMON CAUSES OF PRODUCTION PROBLEMS IN PLANT CONSTRUCTION PROJECTS

Here is how the conventional D/B/B process causes common—and expensive—production and maintenance problems in your plant:

CAUSE #1:

COMPROMISED PRODUCTION EFFICIENCY DUE TO LACK OF PROCESS AWARENESS EARLY IN THE DESIGN PHASE

- A project team with little or no experience in process plant construction leads to a lack of understanding of your manufacturing process, which is essential to creating a design optimized to your specific requirements.
- Lacking awareness of your process can cause production inefficiencies that may impact those requirements.
- This can result in a design and engineering mindset that is limited to building a structure only around your current process, instead of integrating your optimized process requirements into the best and most economical solution for your new facility.
- This approach can also add unnecessary costs to the project, and introduce the potential for production inefficiency in your long-term operations.
- This limitation results in a final plant facility where unexpected problems in layout, process workflow, equipment access, and building maintenance make achieving higher production efficiency a constant problem.

CAUSE #2:

UNNECESSARY PRODUCTION DOWNTIME IN CURRENT PLANT OPERATIONS

- Lack of process focus in D/B/B projects can also result in higher labor and construction costs.
- On-the-fly change orders may be needed to adapt to construction around the current production line.
- Whenever these changes are made, unexpected shutdowns can occur, resulting in compounded costs including sidelined personnel.

CAUSE #3:

INTEGRATING NEW AND EXISTING PROCESS WORKFLOWS TO MINIMIZE UNSCHEDULED DOWNTIME IN PLANT EXPANSION PROJECTS

- Without specific experience and knowledge of process-related construction, important process workflow issues can be overlooked in the design phase.
- Evaluation of the impact of new process workflows of raw and finished products in the expanded plant's footprint must be compared to the current plant's workflow.
- Special construction and scheduling plans must be made to keep not only current production going during the expansion project but also when the existing line is transitioned into the new line as the project is finalized.
- When complex process issues are not considered higher costs can result due to unexpected shutdowns as well as potential higher labor and overtime costs for construction crews during the project.

CAUSE #4:

HIGHER BUILDING MAINTENANCE COSTS DUE TO OVERLOOKED FUTURE NEEDS DURING THE PRE-CONSTRUCTION PHASE

- Contracts for electrical, HVAC, and other utilities typically go to the lowest bidder on D/B/B projects, which may lead to drawings that are missing specific detail and consideration for future maintenance access.
- Because of this, routing for wires, cables, pipes, and other utilities in the plant ends up being specified without anticipating future needs, meaning future routine maintenance (new connections, repairs, upgrades) becomes more time-consuming and expensive.
- Basic early layout changes—that could have been made in the design stage—can mean the difference between a simple one-day repair, or a multiple-day project requiring much more time and money.
- Overlooking future maintenance needs with poor space planning also impacts plant processing equipment, adding significant time and cost as machines must be moved to provide routine service.
- Here, lack of foresight at the design stage of the D/B/B process makes ongoing plant maintenance an unnecessarily high cost for the life of the facility.

CAUSE #5:

LOST OPPORTUNITY COST DUE TO DELAYS IN PROJECT COMPLETION

- Process manufacturers in many industries must complete new plant construction projects on time to meet demanding customer requirements or go-to-market opportunities.
- In conventional D/B/B projects, lack of experienced planning with regard to process manufacturing, combined with the challenge of coordinating on-site contractors and tradespeople, will often result in project delays that extend the completion date well beyond the original target.
- These delays are not only costly during the project, but they can cause financial losses to the company if the delay results in a cancelled contract or a lost market opportunity.

INTRODUCING AN ALTERNATIVE TO D/B/B FOR PROCESS CONSTRUCTION PROJECTS...

The Guided Process Solution (GPS) approach addresses your plant's process requirements for on-time, on-budget construction and optimized, economical long-term plant operations.



PUT THE GPS TEAM'S EXTENSIVE KNOW-HOW OF PROCESS-BASED CONSTRUCTION PROJECTS TO WORK FOR YOUR BUSINESS.

- **Optimizing process efficiency from the earliest design phase of your project:** From the earliest stages of your project's initial design phase, the GPS team applies its extensive process knowledge and expertise to your project, asking the important questions required to make the design decisions that streamline your production workflows, eliminating the risk of unforeseen building design issues that could result in expensive re-work or change orders during the project.
- **Starting your project earlier to compress your project completion date:** Unlike the traditional D/B/B process, which requires several months to complete the design and bid before construction begins, the GPS approach means construction can begin based on a *preliminary* design of your project. This not only gets your project started earlier, but can cut months from its final completion date.
 - › The value of early completion of a major process plant construction project translates to substantial additional revenue, as new production is brought online sooner, and as new market and business opportunities can be met earlier than expected.
 - › According to a Construction Industry Institute/ Penn State University study of 351 projects, schedule completion times under the GPS process-driven design/build approach were shown to be over **33% faster** compared to traditional D/B/B.
- **Precise, cost-effective scheduling to eliminate downtime on your current production line:** By gaining a deep understanding of your process requirements, and focusing on the construction project's impact on your plant's current production, the GPS team develops detailed work plans and schedules to keep your line operating throughout the building project. This saves both the immediate labor costs of unscheduled plant downtime, and the additional—and often much more expensive—market and opportunity costs of lost production.
- **Streamlining future maintenance by making critical early design decisions:** A plant facility designed without anticipating key maintenance requirements adds significant ongoing expense to plant overhead during every year of its service life. By working closely with your process engineering team to anticipate equipment access and maintenance issues in your new facility, the GPS team helps prevent the added maintenance expense of unforeseen extra time and labor costs.
- **Optimizing schedules and work teams to meet your plant construction deadline:** The extensive construction background of the GPS team enables us to expertly manage project building schedules to save critical days on building projects. For example, by putting a small number of tradespeople on overtime early in the project to speed key construction steps during the project's initial phase, additional time is saved, which can be used as a buffer to absorb possible delays later on. When compared to the traditional D/B/B approach, the GPS approach is more economical, minimizing ongoing production delays and increasing the chances for the project being completed on or ahead of schedule.

With the GPS design/build system, the architects, engineers and construction staff work directly with owners to optimize the design of the new facility around the specific manufacturing process.

Whether you're building a new plant, or expanding your current operation, your production capabilities are too important to be left to one-size-fits-all construction solutions such as conventional D/B/B process.



To learn more about Guided Process Solutions, visit: RLGbuilds.com or contact Brandon Gartee, Business Development Manager at Brandon.Gartee@RLGBuilds.com or 419.720.2677.

