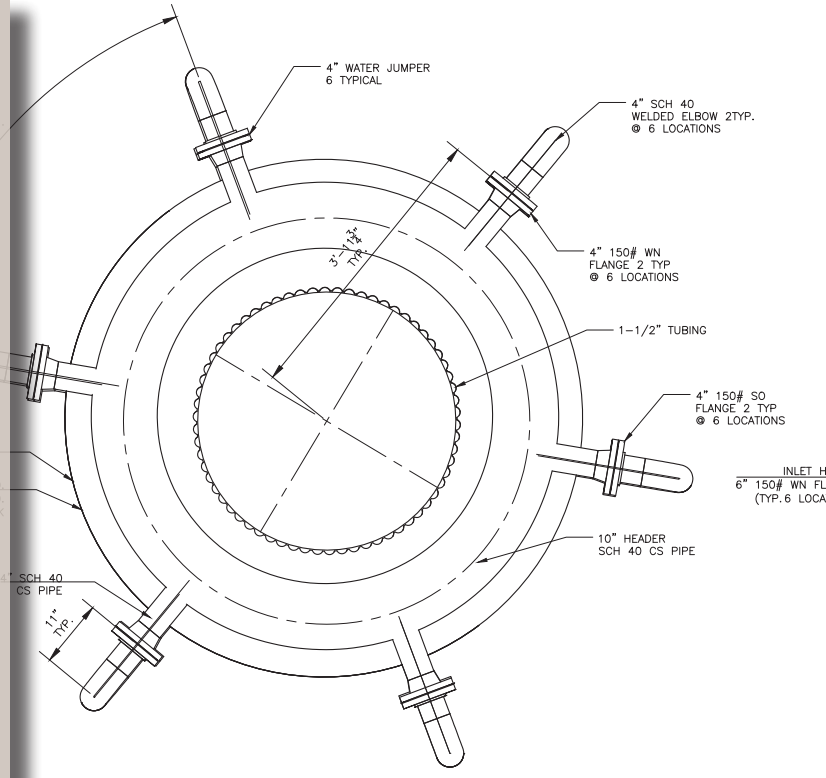
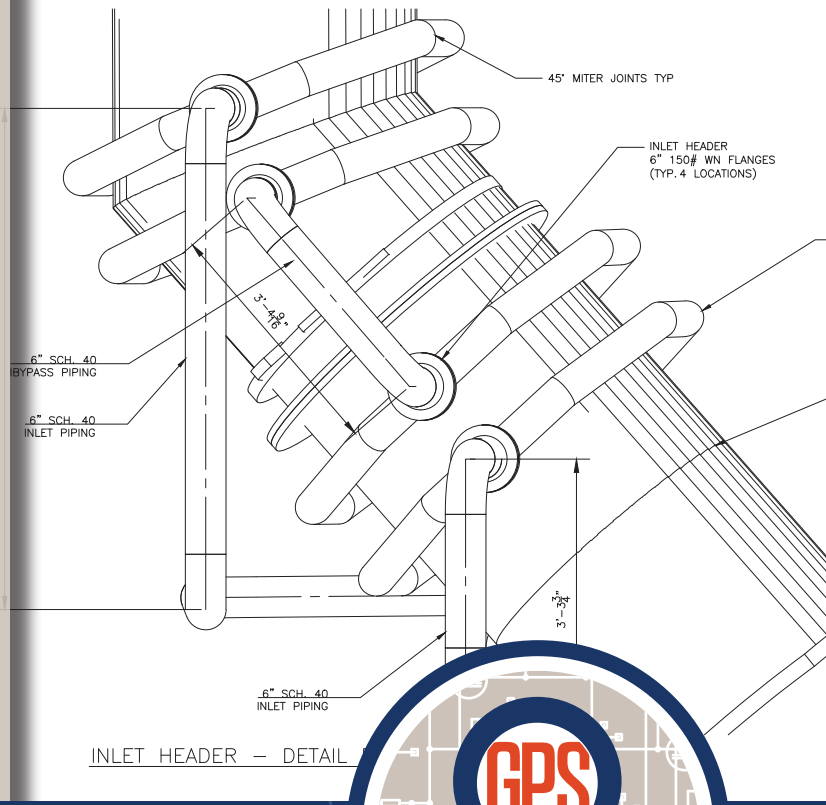
TRAP #3:

THE DESIGN ASSUMPTION TRAP

HOW THE TRADITIONAL D/B/B CONSTRUCTION PROCESS INTRODUCES COST AND TIME TRAPS DURING YOUR PROJECT'S EARLY DESIGN STAGE





The earliest stages of a conventional design/bid/build (D/B/B) construction project can be risky for process manufacturers. Plant designs are finalized at an early stage by design engineers or specialty contractors who focus only on their aspects of the design (mechanical, electrical, etc.).

These siloed specialists are working without the benefit of an experienced, single point of contact who has the expertise to evaluate the entire scope of the project based on a thorough understanding of:

- the customer's process;
- the best, most economical building design approach for that process;
- the constructability of the project.

The result? Significant cost increases and time delays during construction.

PLANT DESIGN PROBLEMS DURING THE DESIGN STAGE IN D/B/B PROJECTS

In the earliest design stages of D/B/B, there is often insufficient focus on your plant's process, and insufficient collaboration between your plant's process engineering team and experienced construction professionals. This results in major assumptions that can result in higher costs and delays for your project.

D/B/B CONSTRUCTION ASSUMPTIONS CAN INCLUDE:

Larger-than-needed building specs

Leading to excessive cost estimates and a building that is larger and more expensive to build than necessary.

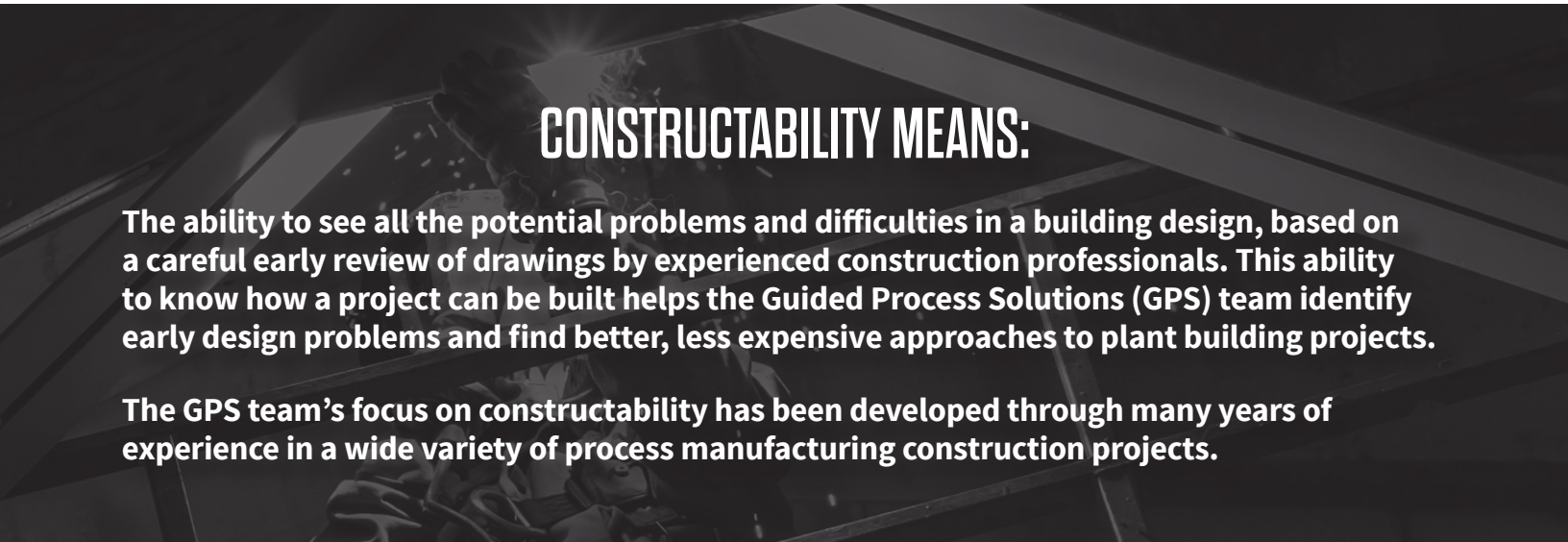
Unnecessary infrastructure requirements

Resulting in higher material costs for process infrastructure requirements identified without careful scrutiny of your actual process (including piping, cabling, heating, cooling, and utilities).

Inaccurate understanding of your process

Adding cost overruns and construction delays to the construction process, due to the D/B/B team's lack of a big-picture understanding of how to construct in conjunction with your process, (i.e., constructability).

When these assumptions or design flaws are "baked in" to your building design during its earliest stages, they can create significant cost overruns and project delays during the construction phase, or can even result in a final project estimate that is too expensive to build.



CONSTRUCTABILITY MEANS:

The ability to see all the potential problems and difficulties in a building design, based on a careful early review of drawings by experienced construction professionals. This ability to know how a project can be built helps the Guided Process Solutions (GPS) team identify early design problems and find better, less expensive approaches to plant building projects.

The GPS team's focus on constructability has been developed through many years of experience in a wide variety of process manufacturing construction projects.

The Guided Process Solutions Approach Identifies Problems Early in the Design Stage to Minimize Delays and Costs During Construction

The GPS team identifies major problems and issues in the drawings early in the design stage, so the owner gets a highly accurate cost estimate and a final building design that minimizes change orders during construction.

The GPS team starts by applying deep knowledge of, and experience with, process-related construction projects to identify issues that can lead to significant costs and time delays once construction begins. The GPS approach brings together everyone involved in the planning, design, and building of the project early in the process, to identify on paper critical design changes needed to correct potential problems.

Unlike the conventional D/B/B process where each building trade works in isolation from others during the design stage, the GPS team develops a solid overview of the building owner's process and the entire project at the beginning, to ask the critical "why?" questions about every aspect of the initial building design.

By challenging your project's design early in the process, the GPS team not only generates savings from optimizing your building project to fit your industrial process, but also identifies potential design issues that can prevent you from meeting your construction budget and schedule targets.

CHALLENGING ASSUMPTIONS AROUND SITE SELECTION, BUILDING SIZE, AND UTILITY PLANNING:

Once the GPS team has gained a thorough knowledge of your process and the requirements for your project, they can optimize the overall profile of your plant construction project by asking these key questions:

Does the building need to be as tall everywhere to accommodate the process?

Based on a thorough understanding of your process, and by involving all contractors early in the process, major cost saving changes can be made to the building's space profile and footprint. For example, building height can often be reduced in significant areas of the structure, which significantly reduces overall construction and materials costs.

Can utility and other infrastructure building costs be minimized in the new design?

Early decisions in the initial site design, based on the GPS team's real-world construction experience, can save thousands of dollars for utility hookup relocations and electrical switchgear footprint decisions.

Does the site plan work best from a constructability and cost standpoint, or are there better options?

The GPS team applies its extensive site planning and construction experience to question early assumptions made on the building site location, to develop alternative site plans that can save money on multiple types of work done during construction.

Can costs be cut on building materials for process operations?

The GPS team also closely evaluates the materials specifications for your new project's process infrastructure, such as pipelines, cooling towers, storage tank areas, cable runs, and HVAC systems, to find the best value alternatives. For example, PVC or other, less expensive materials can be used in non-critical process stages where stainless steel pipe was originally specified for use in the entire plant.

To optimize the building design to your specific process, the GPS team applies its extensive knowledge of process-driven construction to every aspect of your project, from the early design phase all the way through each stage of construction.

The Guided Process Solutions Approach: Identifying and Solving Early Design Problems To Make Your Building Project Affordable and Achievable

The GPS pre-construction system overcomes the inherent flaws in the D/B/B design stage that can lead to major cost and schedule overruns in your next plant construction project.

Bringing in the GPS team of skilled, experienced, process-driven design and construction professionals early in the design phase of your project can not only save substantial cost and time, but these savings can also mean the difference between completing your project on-budget and on-time, or being forced to abandon the project because it is too costly to build.

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**.

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