



Our Capabilities

Reliable Capital Delivery

The difference between effective and ineffective launching of a new facility or installing a new asset is costly in terms of time, money, and customer satisfaction. People, processes, and technology—these are the essential elements of your industry. When it's time to bring your business to a higher level, all three (3) must be ready. GPAllied provides a suite of services designed to make your capital project launch successful. We categorize these services as follows:

Design/Build Services

- Design Verification/Optimization
- Life Cycle Cost Analysis
- Construction
- Construction Management
- Procurement
- Facility Layout for Lean Manufacturing
- Design for Condition Monitoring

Engineering Services

- Civil
- Mechanical
- Electrical
- Chemical
- Fire Protection
- Environmental
- Safety

Installation, Commissioning, and Operational Services

- Commissioning, Acceptance Testing and Operational Support
- QA/QC, Witnessing, Inspection and Test Plans
- Warranty Claim Management
- Spares Optimization
- Quality System Implementation
- Workflow Processes Development
- Procedure Development
- Project Management

Workforce Selection and Development Services

- Employee Screening and Selection
- Operator and Maintenance Training
- Leadership Development and Culture Establishment
- Custom Certification Programs
- Training Center Construction
- OEM Training and Documentation Coordination
- Knowledge Management Systems

Design/Build Services

Design Verification

Every new facility is justified based on specific requirements for business performance. GPAllied uses powerful Monte Carlo-based simulation software to verify that facilities will produce the required safety, environmental, and operational performance based on the impact of its proposed equipment's reliability and maintainability. Changes can be easily implemented if this process is initiated early enough in the design process.

Design Optimization

Minor changes in the design of a facility may yield high returns, but it is often hard to tell what that return will be in a complex system. GPAllied can model the complex relationships and help develop designs optimized to produce the highest business performance and the lowest cost of installed capital.

Life Cycle Cost Analysis

Deciding between business alternatives requires an understanding of the through-life cost of the alternatives being considered. GPAllied can show you the cradle to grave costs of ownership and through the use of Life Cycle Cost Analysis methods help ensure that your company picks the investment that best meets the business goals.

Construction

From fuel station and alternative fuels construction to aerospace and water treatment plants, GPAllied has the industry insight and experience needed to meet stringent quality and safety requirements. When you hire us to construct your small to mid-sized specialized systems facility, you can rest easy knowing we offer:

- In-house, turnkey services for responsiveness and reliability
- Proven, long-term experience to ensure deadlines and budgets are met
- Multi-disciplinary capabilities in design and engineering, procurement, quality assurance, compliance, construction management, and more for added peace of mind
- Unmatched service, backed by a company known for superior quality work

Construction Management

From individual task management and field office support to third-party oversight and comprehensive project management, you can count on GPAllied to get the job done. Our multi-disciplinary experience in design and engineering, procurement, construction, inspection, maintenance, and repair gives us unique insight into construction management to help build specialized facilities. Add to that our certifications, skills, standards, accountability, and proven track record for on-time and on-budget delivery, and you'll see why we deserve our reputation for superior performance and quality. GPAllied specializes in construction management for heavy industry, process and chemical, utility, university, and government facilities worldwide. Our **Owner's Representative and Guaranteed Maximum Price** services include:

- Project and contracts management
- Quality assurance support
- Inspections, examinations, and tests
- Certified welding consultation and procedure development
- Project and contracts control
- Procedure development
- Third-party oversight
- System validation

Procurement

Procurement is one of the key areas that can make or break your budgets, timelines, and construction quality. GPAllied's procurement and purchasing services are backed by our end-to-end knowledge of design and engineering, construction, and construction management. We understand the issues that keep you up at night, and we know how to procure building materials and supplies along proven strategies that maximize value and:

- Optimize materials and processes
- Utilize well-honed negotiation skills to minimize costs
- Maximize tax benefits
- Help maintain productivity and efficiency throughout the job site

Facility Layout for Lean Manufacturing

Layout of a facility—the location of equipment, work-in-process inventory, supplies and parts, tooling, support groups like maintenance and quality—all determine the ability to meet customer needs with minimum cost. GPAllied's 15-Step Plant Layout Process starts with agreeing to the manufacturing strategy, includes definition of performance metrics, designs equipment and support process locations to enable Lean processing, and develops an implementation plan.

Design for Condition Monitoring

GPAllied can help ensure that your new plant design is optimized to take full advantage of all condition monitoring technologies. Whether it's detailing the permanent installation of accelerometers for ease of routine vibration data collection or the use of infrared line scanners on rotating vessels, GPAllied can help.

Available continuous on-line monitoring systems available are:

- Vibration Analysis
- Torque and Torsion
- Infrared Thermography
- Ultrasound
- Motor Circuit Analysis
- Oil Analysis
- Process Parameters

Engineering Services

The more complex your plants and systems, the more you need an experienced and specialized design engineering company like GPAllied. With complete in-house capabilities and proven expertise, GPAllied is uniquely qualified to serve the engineering and design needs of small to medium-sized plants and systems. From design, to construction, to improving the efficiency and reliability of your existing facilities, we offer registered engineers in the following disciplines:

- Civil
- Mechanical
- Electrical
- Chemical
- Fire Protection
- Environmental Engineering
- Safety

Installation, Commissioning, and Operational Support Services

Commissioning, Acceptance Testing and Operational Support

GPAllied engineers can offer a number of services to assist with machine assembly and commissioning, as well as baseline condition monitoring services. Some of the services include:

- Alignment
- Balancing
- Thermal Growth Analysis
- Leak Detection Survey
- Resonance Testing
- General Machinery Acceptance Testing
- Failure Investigation
- NDT Inspections
- Installation and Commissioning Quality Assurance and Quality Control (QA/QC) and inspections
 - Personnel are available with extensive experience in QA/QC of process machinery assembly and overhaul
 - Assistance can be given with the development of commissioning procedures and collection and analysis of commissioning data
- Overhaul Quality Assurance and Quality Control (QA/QC)
 - GPAllied has personnel experience in QA/QC Control of Equipment Overhauls
 - This work would involve developing overhaul QA/QC specifications
 - Developing overhaul procedures
 - Developing inspection and test plans
 - Witnessing inspection and test plans
 - Shutdown project management and supervision
 - Commissioning
 - Overhaul report writing

GPAllied senior engineers have extensive QA/QC experience with boilers, fans, gearboxes, pumps, HV motors, standard AC motors and compressors.

QA/QC, Witnessing, Inspection and Test Plans

Plant equipment modifications often are performed with little or no QA/QC during the modification, installation and commissioning stages of implementing a solution. GPAllied can assist by providing experienced specialists in all areas of solution implementation to develop inspection and test plans, for which expert witnessing and sign-off can be achieved, ensuring the solution design and implementation is performed to specification.

Similarly, this service offering can be performed on plant equipment that is undergoing planned maintenance and overhaul to ensure the asset is returned to the original design specification, or if up rating, the plant equipment is modified to the modified specification.

Warranty Claim Management

This service is provided to manage RCA investigations and warrantee claims on behalf of the customer inclusive of provision of expert witness services. The purpose of this service is to ensure that all reported findings are presented by the expert witness as a representative for the customers to maximize on any loss claims.

Spares Optimization

The base load of spares for new capital equipment depends on the failure modes present, the lead time for spares, and the equipment maintenance plan developed to battle the failure modes. GPAllied can help you minimize the investment in capital spares required to operate the facility and achieve the best business results.

Procedure Development

Well-written procedures provide a consistent and safe method for performing job tasks and establishing a foundation on which to improve process and safety performance. GPAllied provides the specialists you need for timely development of process safety, operating, maintenance, mechanical integrity, inspection and test, quality assurance, start-up, and shut-down procedures. GPAllied prepares, in addition to documented standards, supporting materials such as system descriptions, alarm response guides, job aids, and on-the-job training guides.

Quality System Implementation

Quality systems assure that customers receive the right shipment at the right time with the right quality. GPAllied provides quality systems design including product requirements, design and process FMEAs, standardized work, control plans, audit plans, quality records, and supplier quality improvement and assurance plans.

Workflow Processes Development

Understanding how information flows around an organization is a key metric in determining its maturity. Non-value added steps, like unnecessary reviews, edits and approvals, drag down the efficiency of an organization to the point of being ineffective. Additionally, when people don't know their role in the group and how their role affects others, further inefficiencies are created.

GPAllied can help. Our engineers and consultants have the right experience to help you re-engineer your processes and eliminate the non-value added steps and clearly define everyone's responsibility with respect to different topics.

Project Management

GPAllied develops complete project plans that provide our clients the insight needed to ensure a smooth project progression. We have saved our customers millions of dollars through effective Outage planning and facilitation. GPAllied implements facility outages using our qualified staff, knowledgeable and certified in the work required, or by providing project management and facilitation to your staff. If training your people is your goal, we offer best-in-class *Project Management for Engineers* and *Project Bottom Line Success* courses.

Workforce Selection and Development Support Services

Employee Screening and Selection

Properly selecting and developing your employees is one of the most important considerations for ensuring reliable capital delivery. GPAllied specialists can employ a structured job and task analysis process based on your anticipated staffing requirements and your facility specific equipment to identify the skills and knowledge your employees will need to reliably operate and maintain your plant. Using this information, we create job descriptions and legally valid skill and knowledge assessments for use in screening qualified job applicants. Our specialists can conduct the screening or prepare your personnel to do so.

Operator Training

Based on the information developed through the job and task analysis, GPAllied training specialists can develop and deliver customized operator training programs specific to your facility. Depending on your specific needs, GPAllied can deliver this training through instructor-led sessions, self-study guides, computer/web-based training, or structured on-the-job training (OJT). GPAllied can deliver the training or can provide train-the-trainer sessions to prepare your subject matter experts to deliver the training.

Maintenance Training

GPAllied can design, develop, and deliver complete maintenance training programs that cover everything from basic core competencies through high-level equipment specific training. Our maintenance training programs are described in more detail in the Reliable Maintenance Execution section of this document.

Leadership Development and Culture Establishment

Installation of new capital is also a time to ensure that the equipment is run right and maintained right. Whether the equipment is incrementally improved (like at Toyota), or deteriorates due to lack of maintenance depends on management culture and processes. GPAllied's solutions start by providing managers with the motivation to manage differently through education, benchmarking, and coaching. That is coupled with establishing an agreed-to Daily Management System that shows managers how to manage well.

Custom Certification Programs

If you are looking for a way to recognize and reward your employees' technical expertise and capabilities, but have not been able to find an industry standard certification program that meets your needs, GPAllied can help. Our training specialists have guided many customers through the process of creating legally-valid custom certification programs to support initiatives such as pay-for-skills or multi-skilling. We employ a structured process to identify the critical skills and knowledge your workforce requires to successfully perform their jobs. We then work with a team of your subject matter experts to rank these skills and knowledge requirements to create career progression paths for your defined job roles. Finally, we create legally valid skill and knowledge assessments that are used to verify your employees' mastery of the skills and knowledge required for each step of the career progression.

Training Center Construction

GPAllied firmly believes that for operations and maintenance training to be effective, it must be delivered in a hands-on training environment. In some cases, the most economical means to achieve this is through the construction and provisioning of an on-site training center. GPAllied is experienced in all phases of training center construction including design, construction management, outfitting of training labs, preparation of instructors and delivery and monitoring of training classes. Our turn-key solution begins with the identification of the skill and knowledge requirements of your workforce. We then use that information to design the training labs, prepare budget estimates, and identify and select building contractors/training equipment providers. GPAllied specialists then manage the construction of the training center, procurement of the training equipment, and outfitting of the training labs, providing you with a completely functional training center ready to support your personnel.

OEM Training and Documentation Coordination

Coordinating and ensuring the quality and consistency of the training and documentation provided by your equipment vendors can be a huge challenge during a capital project. Fortunately, GPAllied has developed a proven process to overcome this challenge. It begins with the development of a detailed training and documentation bid specification that is included with the equipment bid packages sent to the vendors. The training and documentation bid specification clearly outlines your expectations of the training and documentation to be provided. As the capital project progresses, GPAllied specialists will work with your vendors to ensure compliance with the bid specification and coordinate and monitor vendor training sessions and documentation submittals to ensure your employees gain the knowledge and skills they need to effectively operate your plant.

Knowledge Management Systems

GPAllied empowers your organization with the insight and knowledge you need to enhance or introduce enterprise e-learning initiatives. Our experience and knowledge helps you evaluate your unique opportunities effectively and identify the optimal solutions to meet those opportunities. Our recommendations take your e-learning requirements into consideration, as well as future growth, emerging possibilities, process refinement, implementation, support, and growth strategies. The result is the right solution for your people and processes—an infrastructure that delivers strong returns now and in the future.

GPAllied's areas of expertise include learning management systems (LMS), portal development, learning content management systems (LCMS), content management systems (CMS), performance management systems, reporting, and talent management. We provide end-to-end services, including selection consulting, installation, and configuration, paying special attention to system integration, content integration, web interface design development, and data migration.

Because GPAllied is not in the business of selling our own, proprietary software solutions, we approach your recommendations and implementations from the perspective of someone who uses these systems daily in our business—from the same perspective you would have. While we have significant knowledge of each system out there, we remain software agnostic, working diligently with all leading suppliers and product developers to identify the best-in-class solution for you.



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GP*Allied* is the most diverse reliability and operations consulting and services company in the world. Our technical expertise, product portfolio and global reach are unmatched. This diversity is our considerable strength. It enables us to develop significant value propositions for you by delivering solutions across different industries, different geographies and, even more importantly, across different aspects of your operation.

In our constant strive to deliver greater value to you, we have sourced recognized industry experts to join the GP*Allied* team. We have extensive experience across all industry sectors and in the specialty fields of Lean, Reliability Engineering, Six Sigma, Condition Monitoring, Change Management, Maintenance Planning and Scheduling, Workforce Development and Maintenance Craft Skills training.



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