

Gearing Up for the Next Generation



Mr. Hafeez is the Executive Director of Global Business Development and Corporate Strategies, Research & Development, at the Performance Review Institute (PRI). PRI is used by over 50 prime contractor and government agencies worldwide to manage over 2,000 accredited suppliers in the aerospace industry.

Understanding specifications and standards, such as AC7117 or AS9100, is not enough—organizations also need to have people with know-how and experience. A supplier legacy is defined by the quality of their products and the workers “trained” in making the product.

The most basic way of describing training is “an activity that changes people’s behavior.” Increased productivity is usually given as the most important reason for training, but there are many other benefits, such as staff motivation and inspiration. If product quality is not the motivation, it should be asked, “why not?”

The lack of emphasis on product quality becomes all the more important for highly-skilled technologists, where the business need for retention is higher because such qualified, experienced individuals are hard to replace. Today, mistakes are costly and “product quality escapes” cause millions of dollars in repairs or recalls, and are sometimes fatal.

This is timely because, according to the Aerospace Industries Association, the average aerospace engineer in the USA is nearly 60 years old, with approximately 27% already eligible for retirement. Meanwhile, the number of aerospace engineering degrees awarded in the USA fell 47% between 1991 and 2000, according to a report by the Commission on the Future of the United States Aerospace Industry. The trend is not limited to the aerospace industry; the entire field of engineering is in decline and continues to be on the top 10 list of most in-demand positions globally—for every industry, as shown by the results of a survey of 43,000 employers from 32 countries.

For all these reasons, Performance Review Institute (PRI) has worked with many quality-focused organizations such as Alcoa, SAE International, Goodrich Corporation and Honeywell Aerospace, to develop quality-related professional development courses and certification programs designed to consolidate and grow the knowledge base among engineers to ensure that a high level of quality is not lost because of an inexperienced work force.

Kevin Ward, Enterprise Quality Director for Special Processes at Goodrich Corporation explains, “Special process skills are being lost around the world due to an aging workforce. It doesn’t seem glamorous to young people

compared to something like software engineering. At the same time, the work is spreading around the world. We determined that there was a need to capture special process knowledge and share it for the benefit of the industry. Inadequate training in special manufacturing processes—or the lack of any training at all—is a common finding during Nadcap accreditation audits conducted around the globe to ensure the competency, capability and consistency of companies performing special processes. In recognition of this shortcoming, aerospace prime contractors and suppliers, including Goodrich, have pooled their resources to help PRI develop special manufacturing processes training. By gathering input from these sources, PRI has put together a cohesive, global training package.”

There are two key focus areas of PRI’s training: quality and technical ability. Through eQuaLearn, PRI offers courses in a range of quality-related topics, including *Introduction to Aerospace Quality*, *Root Cause Corrective Action* and *Internal Auditing*. The objective of these courses, which were developed and validated by industry experts, is to improve the quality of personnel in the industry and ensure that valuable foundation skills are transferred to the next generation and throughout the world.

On the technical side, eQualified provides an industry-recognized special process personnel qualification system developed and validated by subject matter experts. Via special processes exams and training courses, eQualified ensures consistency and excellence amongst special processors and provides competency validation for both Primes and Suppliers. This has been welcomed by aerospace industry representatives, like Chet Date, Director of



An eQuaLearn’s “Introduction to Pyrometry” course was held in Rome, Italy in February.



An eQualified pilot program hosted by Goodrich Corporation

Quality Systems & Regulatory Compliance at Honeywell Aerospace. He explains, "Through eQualified, we can reliably judge the suitability of a candidate to perform special process tasks because it indicates a certain level of individual proficiency, all over the world."

eQualified objectively characterizes the special processes skills and knowledge of aerospace personnel levels:

- Process Operator – Process Operators understand and perform the basic hands-on operations of the special process.
- Process Planner – Process Planners are capable of designing manufacturing processes and interpreting process procedures to conform to customer specifications and requirements. Process Planners are capable of problem solving and resolving day-to-day issues.
- Process Owner – Process Owners are capable of writing, reviewing and approving processes, procedures and qualifications of lower levels. Process Owners design new processes and resolve issues among all the other levels.

This means that employers the world over will be able to have staff hold a globally recognized, industry-designated status. It also gives organizations a way to recognize and employ technologists who have been acknowledged by the industry in a formalized global program.

The quality of personnel is as important as understanding the specifications and standards. All companies need to make sure they have the right people to do the job right. Otherwise, the risk of escapes, rework and simple human error goes up, which is bad for morale and finances. In the current climate, no one can afford that.

Perhaps Ward sums it up best: "The focus now must be to capture today's knowledge and pass it on to the next generation. Or we will find ourselves looking at a product in the future and not knowing what to do with it. Sharing our knowledge and harmonizing it throughout the industry is the best thing we can do now for the future."

For more information about the programs detailed in this article, visit www.pri-network.org. ●

Shot Peening Operator is Key to Success by Kathy Levy

Shot peening isn't to be taken lightly. Its distant cousin, blast cleaning, can easily flaunt its success—if it looks good, it is good. But shot peening's value is more than skin deep and, at this time, there isn't an economical non-destructive test to verify its merit.

To ensure that peening specifications are met, process controls in media, intensity, coverage and equipment must be followed. The customer specifies the intensity range and it's the operator's expertise with tools like media separation, saturation curves, coverage and machine maintenance that determines if the component meets the customer's specifications. And if the shot peening operator works for an aerospace supplier, the operator's work will be reviewed in an audit.

These responsibilities offer tremendous opportunities for a trained, certified shot peening operator. A trained, certified shot peening operator brings confidence and clarity to the shot peening process. With an operator's help, design requirements are met for each and every component that goes through the shop. When a process is accurate and repeatable, an auditor can quickly and easily verify the work. The cost savings from the elimination of reworks is notable and the freedom from liability is immeasurable.

Thanks to the advent of third-party training programs in the early 1990s, training and certification are easily achieved. Training companies, like Electronics Inc. Education Division, work with Nadcap and the FAA to design programs that benefit the aerospace industry. (Training programs address the needs of automotive, energy and medical implant suppliers, too.) A company is encouraged to train everyone associated with shot peening since teamwork is important to a well-run program.

Shot peening may have tougher validation requirements than other metal treatments, but meeting these requirements give shot peening operators and their employers the edge in a competitive economy where quality is becoming increasingly valuable. ●

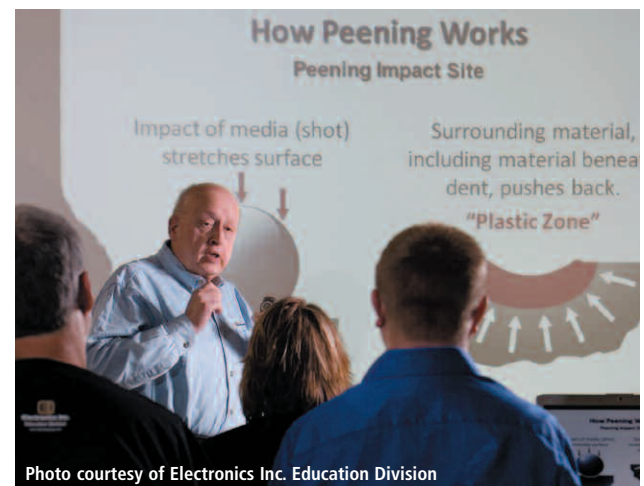


Photo courtesy of Electronics Inc. Education Division

Shot peening training is available through workshops and on-site programs. A good program covers all aspects of shot peening, from theory, to real-life applications, to audit prep. On-site programs can be customized to match the specific needs of the facility.