

Revco Products Inc. Your EMS Partner

The Importance of a **CERTIFICATION AND TRAINING PROGRAM**

Feature Interview by the I-Connect007 Editorial Team



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Revco Products is a family-owned and run EMS provider established in 1977 as an OEM. By 1994, it had transformed into a contract manufacturer. From its Orange County, California, location, over the past 47 years, Revco Products has supported businesses locally, nationally, and internationally.



Ron Gonzales, Dave Gonzales, and Greg Gonzales

Barry Matties recently visited the Revco facility, where he learned about Revco's methods of operation. The I-Connect007 Editorial Team followed up for a roundtable- style conversation with Revco's leadership team: Greg Gonzales, vice president of business development, Ron Gonzales, vice president and operations/quality manager, Miguel Salinas, quality manager, and Carlos Salinas, production manager. Also joining the conversation was Mike Hoyt, workforce training advisor at IPC, who talked about the importance of a certification and training program.

Barry Matties: Where does Revco's training and certification program begin?

Greg Gonzales: Miguel and Carlos are good examples of what we've been doing here: hiring for entry-level positions, training them, and showing them the Revco way. They can get promoted to managerial positions. Our company founder, Dave Gonzales, decided in 1977 that after being laid off for the third time from a job, "I'd rather start my own business and control my own future." He then created Revco Products, Inc., which stands for Recreational Equipment Vehicle Company. Dave then went on to develop a propane and carbon monoxide detector, one for the home and one for the RV industry.

Over the years, Dave used his skill set in electro-mechanical design to help customers develop their own products. He would lay out the PC boards and/or design a chassis, and then that PCB/mechanical layout would turn into a prototype. Slowly but surely, those onesie-twosies turned into pre-production and production runs.

Dave taught Ron and me to build a customer's product just as we would our own. This entails grasping a complete understanding of the customer's goals and expectations and then implementing that into the assembly process. This process has now been coined DFM in our industry.

Over the years, we have received many compliments from customers who have appreciated our DFM input, which has resulted in a higher quality product. This approach was shared with Carlos and Miguel who have carried on this process for our new customers. Both have truly excelled in this area.

Matties: As I walked through the facility, I noticed all the certification awards on the wall. Where does it start when you first hire an employee?

Greg Gonzales: It starts with the application process when hiring. We do a phone interview, and if they pass that, Carlos conducts an onsite interview, followed by a practical test on the manufacturing line. We have the candidates follow some basic instructions on a dummy board so we can assess their skill level. Typically, they fall into two categories: brand new, having never done this before, and want to learn; or currently working at your competitor down the street with 16 certifications. It's amazing how the practical test quickly separates the two groups. We find out who is heavy-handed, who can't read a drawing, and who has difficulty understanding it. They're given a grade, and Carlos will work with Ron to determine whether they will be offered an opportunity at Revco.

Nolan Johnson: Do you have a baseline of certifications that you expect or that you develop in your employees before they're fully qualified?

Carlos Salinas: If they will be soldering, we want them certified to IPC-J-STD-001 and IPC-A-610 for soldering and inspection.

Johnson: How do you train to those standards?

Salinas: Miguel and I are certified IPC trainers. We used to have a third party certify all our solderers and inspectors every two years. But as we grew larger, it became costly. Six years ago, we became certified trainers. Now, we can train on our own schedule. It makes it easier and more cost-effective.



Carlos Salinas with Mycronic pick-and-place machine.

Ron Gonzales: Training only works if you comprehend it. We start with an elementary test to see if the person can comprehend what they're reading. They need to have a certain level of comprehension in English and/or of technical terms; otherwise, the training won't be effective.

We no longer do English as a Second Language (ESL) training here, but we need to know that if they have that type of comprehension. When Carlos eventually takes them onto the shop floor and hands them practice boards, both through-hole and SMT technologies are represented. We have them do both.

Barry is right that displaying the certifications is important because our customers see that and think, "I'm in good hands."

It takes three weeks for a new employee to become certified at Revco, which hurts the floor's throughput and production, but it's necessary. By doing that, we can back up our claim that all the employees know what they're doing on the floor. When we need third-party training, we use Ken Moore at Omni Training, who's helped IPC take photographs within the standards documents. We cycle through by departments, so we're not hurting production on the floor and can still produce the product. It takes a lot of time, but the benefits are huge. Just like with our ISO certification, many of our customers won't do business with us unless we have employees trained to the standards.

Johnson: Mike, is it typical to see companies moving from third-party to in-house training?

Mike Hoyt: Yes, especially when companies have large numbers of their employees getting certified. The dollars add up when you're sending them to a certification training center. If you can train in-house and control the overall process, it's more convenient for companies.

Matties: One of my takeaways from our meeting was the availability of online courses that companies can use for front-end training. Mike, what trends do you see?

Hoyt: A few years ago, the industry told IPC that certification provides value. Undoubtedly,



you need that credential that shows someone knows the standard. However, many new hires come in without any experience in soldering. The J-standard certification program, however, was never designed to teach soldering; the certification program was only preparing students for the certification exam. There was a real gap there.

Over the past few years, we've worked with the industry to build training preparatory courses to get people working. You don't throw a new employee into an A-610-certification program in the first week. They have orientation, on-thejob training (OJT), and shadowing. IPC has developed a way to onboard new staff without taking your best employees off the production line because they can give the new employees

the fundamentals they need before stepping on the floor. We have about a thousand different companies using workforce training, and they are reporting phenomenal results in terms of statistics and ROI factors. They've saved time, reduced scrap, and improved the overall quality of training.



Johnson: Regarding Revco's dummy training boards, did you develop them yourselves?

Ron Gonzales: Yes. absolutely. We've used some of the PCBAS that Omni uses during their



training classes. We've also used some of our own scrap boards to introduce different technologies and packages. Omni often uses the TK-16 IPC J-STD-001 Certification Kit for training because it has different technologies and packages that students can solder and desolder. It's a consistent gauge of skill level.

Johnson: It sounds like the TK-16 IPC J-STD-001 Certification Kit is good for a baseline. Do you also test your trainees with other kinds of boards?

Ron Gonzales: Yes. We'll take prospective employees through this process prior to hiring.

Hoyt: How long does it take to make that hiring decision?

Ron Gonzales: It could be within a day or two. We'll briefly discuss candidates who demonstrate the skill set and who would be a better fit.

Hoyt: Do you find many people coming to you with experience, or do you find that most new hires have little experience?

Ron Gonzales: Well, people sometimes inflate their resumés. It's a balancing act; I want them to show me.

Salinas: Many people we hire for the post-solder or soldering position come with experience. However, the experiences of Company A and Company B can be very different.

Ron Gonzales: As we know, lead-free is more

difficult. The solder joints don't look the same. Just because we see that shiny solder joint doesn't mean it's a pristine joint.

We find that the people who come from OEMs are actually at a disadvantage because they've been building the same product over and over. When they get here, they might be doing many different jobs, so they need to be adaptable. Longevity has pros and cons; the people who have been here a long time can get complacent, and complacency can kill your business. When a new hire comes in, maybe without the experience, you can shape them into what you're doing within your facility.

Johnson: We've been talking mostly about the skill set for hand soldering. Is there a distinction between a line operator and a hand-soldering person? Is hand soldering your baseline?

Salinas: The surface mount line operators' training is ongoing. The line staff isn't trained to the J-standard, just to the A-610 standard. However, their training is different because, on the line, you have to know packages, polarities, programming, and programming dimensions. Line operators set the parameters for components that are electrically verified on the line, so they must understand the component electrical specs.



Ron Gonzales: Obviously, the SMT operators are paid at a higher rate, but they can get complacent. You must be on your game every day. Just because you think you saw this identical job last week, it could be different this week. The customer could

have made a revision change. The same product family could have gone from a dash-one to a dashtwo. It's critical to read the documents and be thorough before you begin every job.

Matties: You mentioned that you've watched candidates walk right past your door to a wire harness company down the street because the candidates don't know the difference between a circuit, a solder joint, or a resistor. I like your idea that IPC should start with the temp agencies to offer some of those core courses to broaden that labor pool.

Ron Gonzales: That's a good point, Barry. We've used the temp agencies; you're paying a lot more money, and you're not always getting that return. There was only one specifically that was having candidates hand solder. I want to see hands-on.

We have a customer nearby working on some military contracts. Make no mistake, though, that type of employee doing flying lead or wire harness is a very different type of employee than what we're looking for.



Matties: But if that core fundamental IPC course would introduce them to this technology, then when they walk into your facility, they'll take the course on solder, circuits, components, the definition glossaries, etc.

Hoyt: The courses we've put together at IPC are great for vetting new hires. Companies use this baseline course. It's a fundamentals course to



measure whether an individual is cut out for the job, as well as for the employer and the employee to see whether they even want to continue. So, there are other uses for these training courses for the employee and the employer.

There might be a module specifically on ESD, for example. You want to make sure you get them trained in ESD and safety. Maybe even component identification: This is what a resistor does, what polarity is, and why it matters. We use educational best practices when we deliver these courses. The courses are engaging, the activities are fun, and we also use some gamification. We're trying to move away from simply preparing for an exam and include the knowledge you need to get to that point of certification.

Students can start to feel capable, and the employer also feels comfortable knowing they can do the job. Onboarding courses can be completed in eight hours, depending on how many modules you take.



Ron Gonzales: So, it's more interactive? That keeps everybody on point, keeps the attention, and keeps the ball rolling. That's fantastic to hear.

Matties: The whole idea of onboarding today is to streamline the process, keep your best people on the floor, and let the systems and tools help you identify candidates who are strong in the areas you need.

Ron Gonzales: To your point, Barry, obviously, post-solder is different than pre-solder, and both are different than SMT programming skill sets. We'll pick and choose who needs to be trained in what area, but we like to maximize because, at around 49-56 employees, we need to cross-train. People take days off: They have kids, have a doctor's or other appointment, what have you. The cross- training means we can still have our production and throughput.

Whether you're working for us here or not, training helps you make more money. The more you can do for yourself, the more it helps you, our customers, and Revco as a whole.



Hoyt: How do you measure the ROI of training, whether training produces the results you're looking for or not? Is training just for new hires, or is there something for existing employees?

Salinas: We have ongoing training on the floor. Since technology and customer requirements are always evolving, our training must be ongoing. Our full-time staff is always learning, too. There may be new materials we're using- new solders or fluxes-so that's ongoing.

Ron Gonzales: Mike, regarding the ROI, we keep track of our external and internal defects with our ION Simpletrak quality system. We created internal rework cards and have them in different departments throughout the facility enabling employees to track and record non-conformances. This process complements IPC's latest revision of the standard regarding the defect codes per unique assembly.



If we start to see different trends occur with employees A and B, then you see the repeatability issues.

Johnson: Yes, that makes sense. Thank you all.



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