

## Lights, Camera, Powder.

### AFCO Profits by Improving Powder Coating Process

You might expect that when seemingly everybody connected with housing and new construction has hunkered down waiting for brighter days that AFCO Industries in Alexandria, Louisiana would be sharing this bunker mentality.



But having supplied architectural columns, posts and railings to the housing industry for over 60 years, AFCO Industries has learned what it takes to remain competitive. So they recently broke ranks and this March installed a new, highly automated powder coating line into their Alexandria, LA facility. While their neighbors might regard this strategy with a doubtful “that dog don’t hunt” shake of the head – AFCO management is smiling. Their investment is paying off nicely, thank you.

“We have to innovate to help us save money” says company president Jim Waters. “Saving money doesn’t mean not spending money. Our new paint line saves us money on paint, labor and rework every day. That savings allows us to hold the line on prices when some of our other costs are rising. It helps us continue to sell products to customers at a very difficult time and remain profitable.”

### The Grand Design – An Eye in The Sky

“One of the goals of our new line” explains Finishing Supervisor, Daren Burton “was to build flexibility into the line. We paint a wide range of part shapes and sizes. The challenge we gave to our suppliers was to supply a system optimized for each part, knowing that each rack might contain a different set of parts.”



Burton realized that flexibility of that kind would require some sophisticated controls. “Think of how the best painter in the world

would paint parts” says Loren Keene of Wagner Industrial Solutions. Loren was part of the team that helped AFCO realize their vision of fine-tuned flexibility. “The painter sees what part is coming next, he sets up his controls according to a wealth of experience at painting that part, and then he expertly paints the part with a motion that provides perfect coverage. That’s what our system does.”

Expert eyes are accomplished by a video camera located just ahead of the spray booth tied to a part recognition system. The vision system recognizes not only the part, but the racking arrangement – a step critical to obtaining high first pass transfer efficiency. This information is relayed to the systems brain, the PC Tech control software that pulls up pre-programmed recipes unique to that arrangement of parts.

Once recognized and then linked to a recipe for producing perfect parts, the Wagner system keeps close tabs on each part. PC Tech instructs each of the eight Wagner C4 automatic guns how to spray. This includes controlling the position of the gun, since automatic guns are mounted on a pair of programmable oscillators that can be moved nearer or farther from the part and which strokes up and down to paint each rack. Like the path of the expert painter, once the gun is in the right spot, PC Tech



controls the gun itself; such as the triggering of each gun, the electrostatic settings that give best coverage and powder flow that provides the right film build. Look – think – move –spray. Thousands of times a day.

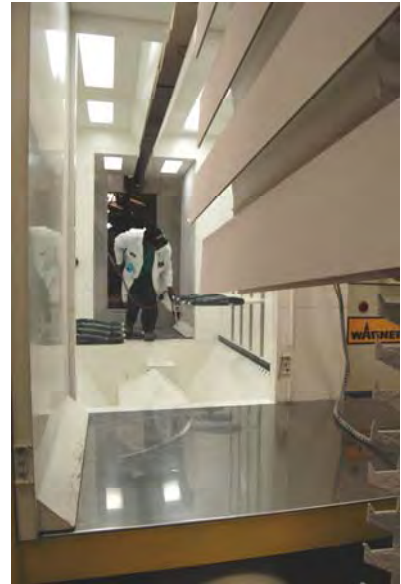
The AFCO system is more than just powerful, it’s also easy to use. “Wagner set up the system they way we wanted it.” Says Burton. “For example, the software uses recipes that are named for our parts not just some arbitrary number. The PC display is a simple visual tool that lets us actually see the picture of what part is being painted, and what kind of part is anywhere on the paint line.

We thought the automated powder coat design was the right approach says Keith Turner, Director of Engineering but a real breakthrough in the project was when Loren pointed out that customizing the powder portion was a wasted effort if we didn’t do something about our curing system as well. After all, if we set the oven to handle the slowest curing part then it would become a bottleneck as we painted faster. So Wagner proposed to tie the PC Tech system to the infrared oven as well. Now as the system is tuned for the best performance of one part in the spray booth, it’s also picking the right oven setting

for whichever part is there as well. The idea of multi-tasking of the powder controls was really the liberating moment for the line.”

### The Payoff

“We upgraded our paint system because we knew the new powder line would make us money” says Burton “and so far that has proven to be true”. In the first 140 days of operation AFCO saved \$79,240, a couple of months later the savings had totaled \$143,429. “Our savings in powder alone is about 45%, that was nearly \$65,000 in the first 140 days” says Burton. But there’s also a significant savings in labor cost with the automation since we have reduced the number of operators per shift. “Our savings per shift has been averaging \$1,728 with the new line” says Burton.



Turner also points to savings that AFCO has yet to total. “We have reduced paint related rework by over 50%” says Turner and that’s not included in Daren’s figure. Neither is the gain in productivity since the new line runs 25% faster than the old one. AFCO’s powder line now runs at 15 feet per minute compared to it’s previous 12 feet per minute pace.



“The new system allows us to operate with higher line density as well” says Burton “where we used to paint two parts per hanger we now paint four” and so AFCO’s paint capacity has outpaced other production processes in the plant. “Paint can outrun our extrusion press – so we are pretty comfortable with our powder coating situation” says Burton.

“Another advantage of the system is how much faster we can do a color change” says Greg Gibbs, AFCO’s lead paint operator. “We used to have two shifts because of the slow 30-minute plus color changes. Last month we did 60 scheduled color changes. With a savings of over twenty minutes per change that is over 25 hours of saved time in color changes alone.”

These rapid color changes are enabled by several features of the AFCO line. The spray booth is a customized version of the Wagner PrimaCube booth. “We requested some changes to the blow down system and requested a double wall design” says Burton. “We are tickled to death with the way the booth performs”. The system is also outfitted with an automated feed center which makes color changes easier by providing rapid purging and cleaning of the application lines and feed equipment while operators can tend to other tasks.

Fast color change is not just an operational advantage; it’s a marketing advantage. “Since we can do more color changes with less problems” says Burton. “If we need to fit in a special run for a customer we can do it with little interruption to our normal production.”

### Meeting Architectural Quality Requirements

Architectural parts like AFCO’s extruded columns often need to meet demanding performance specified by architects and engineers. “Some parts need to meet tough AAMA specs and achieve many thousands of hours of coating performance” says Burton. “With the automation and repeatability we can get through the PC Tech control and the performance of the Wagner C4 guns, we can hold a film build tolerance to 0.5 mils over a 10 foot long part” says Gibbs. The oscillating horizontal spray gun configuration helps AFCO keep such tight control over their process.



The 50% reduction in rejects that AFCO experienced after putting in the Wagner system is due in large part to the low cross-contamination that workers see following the 5 minute color changes. “The PrimaCube booth design combined with our automated feed center and cyclone system is a perfect combination for fast color change without contamination” says Burton. “We run 26 different colors including some that are extremely prone to contamination such as high gloss colors and very high reflectivity whites. These used to cause some real headaches, but now we can run virtually any color to color change without seeing those problems.”

“Perhaps one of the secret contributors to the quality improvement is the spike in worker satisfaction on the line” observes Gibbs. “The system is controlling things that used to take a lot of adjustment, monitoring and maintenance. The workers are freed up to look for problems at less frantic pace. The powder line went from a messy job to a clean, organized place. We see the effect in our employees attitudes toward quality and improvement. I think they recognize we have made a big investment rather than just putting band-aids on old problems and that has a really positive effect.” And for an employee owned company like AFCO keeping workers happy is the same as keeping the owner happy.