



From Cold, Hard Iron To an Inviting, Cozy Finish

What began as a small body shop in the late 1970s is now a 40,000 square-foot metal fabricating and powder coating business that caters to, among others, ironwork customers. Read about how this company brought a once-outsourced environmentally friendly finishing process in house and made powder coating for others a part of its business.

By Paul Mills

Photo courtesy Thermo-Rite

Francis “PJ” Bell has been a metal fabricator for 40 years. Although PJ says he’s “semi-retired,” you can still find him on the production floor at PJ’s Fabricating Inc. (PJ’s) almost every day, working with employees and managers—many of whom are family members and long-time colleagues. What began in 1977 as a small body shop in Canton, Ohio, is now a bustling 40,000 square foot metal fabricating and powder coating business that engineers, fabricates and finishes products from complicated electronics bracketry to decorative ironwork for fireplace doors. Until 2000, PJ’s outsourced the powder coating of their fabricated parts to a local custom coater. “We switched to in-house painting to reduce our own delivery times. Now powder coating is a big part of what we offer to others,” explains Bell. “Today we have both customers who use us to powder coat parts they make themselves as well as customers that we do fabrication and powder coating for.”

Nearby Thermo-Rite is a fireplace enclosure manufacturer that works with PJ’s for both its fabrication and powder coating expertise. “Powder coating provides a lot of benefits for their enclosures,” says Brandy Moore, PJ’s powder coat manager. She is also PJ’s daughter, so she has grown up in the business. “Powder provides the performance that lets Thermo-Rite make good on their claim of ‘uncompromising commitment to quality,’” says Moore, “but powder also provides them with a palette of 15 colors that provide the natural rustic look and patina of iron. And the metallic powder coatings we apply also have a tactile feel of naturally textured materials.”

“The colors and textures are



Photo courtesy Thermo-Rite

The metallic powder coatings that PJ’s applies to Thermo-Rite’s fireplace enclosures provide the natural rustic look and patina of iron, and they have a tactile feel of naturally textured materials.

amazing,” says Bruce Mencer, business development manager for industrial coatings at D&S Color Supply. D&S, a PPG platinum distributor works closely with Moore to develop the look and feel of high quality ironwork. “Fireplace customers can choose from colors like natural iron, old iron, moss iron or bronze iron. Powder has been a game changer for the decorative ironwork industry,” says Mencer. “The improvements in color, texture and performance in the past few years has caused a shift in finishing from liquid epoxy primers and urethane top coats to these kinds of durable, corrosion

resistant powder coatings” he says.

Moore has seen this shift to powder coating by other ironwork customers like Adjusta-Post, a nearby manufacturer of decorative outdoor lighting products. “Powder gives their posts, brackets, and finials a curb appeal and outdoor weatherability without all the permitting problems of spraying liquid paints in Ohio,” she explains.

The same benefits of have led to more business from manufacturers in other areas as well. For example, the Gasser Chair Company in nearby Youngstown, Ohio, which makes chairs for large hotels, cruise ships and casinos around



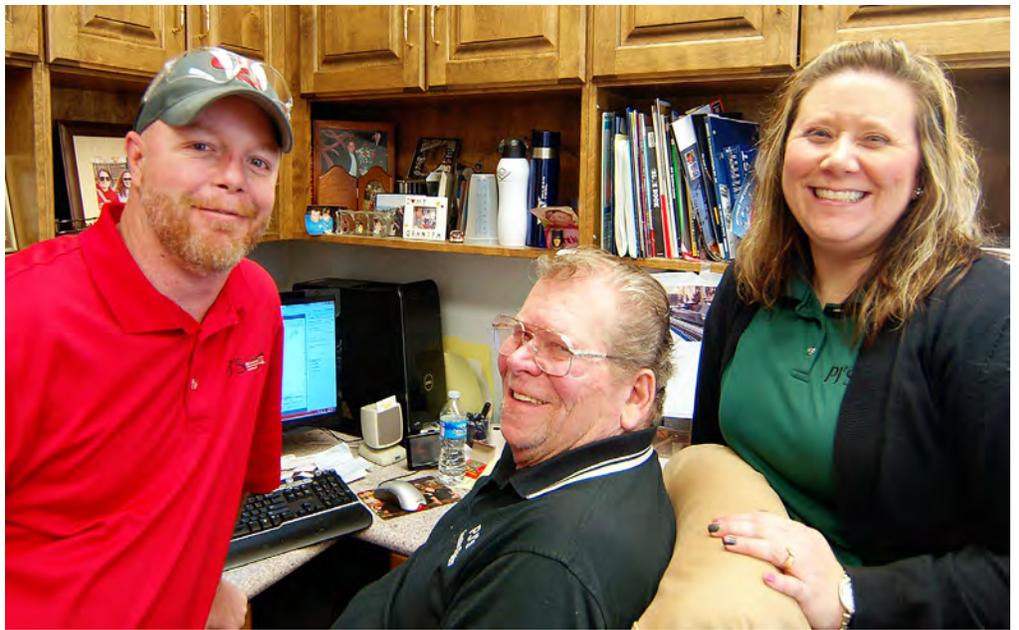
Photo courtesy Thermo-Rite

Powder has been a game changer for the decorative ironwork industry. D&S Color Supply, a PPG platinum distributor, works closely with PJ’s to develop the look and feel of high quality ironwork.

the world. “Gasser liked the look and performance of powder so much that they stopped anodizing a lot of their aluminum and switched to powder coating,” says Bell.

“Powder coating aluminum requires a more complicated pretreatment,” explains Steve Moore, Brandy’s husband and the powder coat production foreman. “So we run a five-stage chemical pretreatment system to handle a wide range of incoming metals including all kinds of steel and aluminum.” PJ’s has worked with their pretreatment chemistry supplier, Curtis Chemical, since they began powder coating. Parts are first cleaned with a heated alkaline wash followed by a second stage water rinse. Then, a heated iron phosphate wash is again followed by a fresh water rinse. Finally, a non-chrome sealer is applied to prevent flash rust. Automated pumps for make-up water and programmed dispensing of pretreatment chemicals assure that the pretreatment system is continuously operating within specification. Following pretreatment, clean parts are dried in a gas catalytic infrared oven prior to being powder coated.

Not surprisingly, the powder coating booth is a customized downdraft spray-to-waste design. “I guess our ability to design, engineer and fabricate stuff gives us an edge when it comes to tailoring equipment to best fit our needs” says Moore. Two manual spray stations featuring Gema Optiflex hand guns and programmable controllers are used to powder coat parts. “Since we apply a lot of metallic and textured powders that cannot easily be re-sprayed, we don’t reclaim them” explains Moore. “We find that with a comfortable line speed, good application equipment and experienced painters we can



Together, PJ’s team (from left to right) Steve Moore, Francis “PJ” Bell, and Brandy Moore, ensure that settings, parts, operators and powder all remain consistent, ensuring quality results for their customers.

maintain high first pass transfer efficiency without the hassle and risks of collecting and recycling powder.”

Another factor Moore attributes to their high quality and efficiency is that PJ’s designs and fabricates all of their own part racks, hooks and hangers in order to achieve optimal racking density and part

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presentation for powder coating. The fixtures are all designed and built in-house and are cleaned using high-temperature burn off.

Following powder coating, parts are cured in a second gas catalytic infrared oven supplied by CCI Thermal Technologies of Edmonton, AB. The parts typically reach a peak metal temperature of 400°F and dwell for about 10 minutes before they move through an ambient cool-down station.

The entire powder coat system is organized around a 310-foot monorail conveyor which typically operates between 1.0 and 3.0 feet per minute and can accommodate parts sizes up to 2 feet wide, 4 feet high and 12 feet long.

Attention to powder storage and handling is critical to PJ’s operation. “Several of our customers rely on specialty powders to achieve a specific metallic look or texture that can change if the powder isn’t handled consistently,” says Brandy Moore. “We have to make sure nothing changes—the settings, the parts, the operators, or the powder.” To do this, PJ’s uses a first-in-first-out system to manage their powder inventory, and uses vibratory box feeders on their powder dispensing systems. And to assure consistency, they condition their powder as though it is fine wine. The temperatures in Ohio go well above a hundred and well below zero, says Moore, so PJ’s installed a 500-square foot powder storage facility with humidity and temperature control designed and built by G&W Building. Although they control the process to assure consistency, PJ’s leaves nothing to chance, and monitors quality as



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1. Parts enter powder spray booth after pretreatment and dry-off. 2. After parts have been powder coated and cured, their decorative film thickness is tested. 3. Although they control the process to assure consistency, PJ's leaves nothing to chance and monitors quality as parts come off the powder line for adhesion, cure, color, gloss and film thickness through a series of quality control checks and tests before applying the "Powder Coated Tough" sticker to every box.

parts come off the powder line for adhesion, cure, color, gloss and film thickness through a series of quality control checks and tests before applying the "Powder Coated Tough" sticker to every box. This kind of sharp focus on quality has helped PJ's attain the ISO-9001, ISO-14001 and TS-16949 quality certifications needed to be a quality supplier to automotive.

Tough is also a good way to describe the fabrication side of PJ's business. As fabrication production manager, Kevin Hudson oversees fabrication operations. "We have two Mitsubishi CO₂ laser cutting systems that can cut material up to one inch thick. Our 230- and 130-ton Cincinnati forming machines can bend half inch thick metal up to 5 feet wide, and we can roll steel up to a quarter inch" explains Hudson. Along with a Trumpf CNC punch press, brakes, benders, shears, lathes and other forming and fabricating machinery the operation can make parts from hot and cold rolled steel, stainless, galvanized and aluminum. AWS D1.1 certified welders are skilled in nearly every kind of welding process from GMAW to Mig to Tig. "We can design, build and coat almost anything our customers ask us for," says Bell.

And to accommodate those customers, in 2005 PJ's added a warehouse and storage facility for customers who need just-in-time delivery for their parts. "Storage capacity allows us to keep our costs down, and our quality high for these customers by running a high volume in production and then releasing product to our customers as they need it," explains Bell.

Brandy Moore sees a bright and colorful future for powder coating at PJ's. "It seems like the more interesting work we do, the more our customers are open to looking at 'fun stuff' with powder," she explains. This has drawn Moore and the PJ's team closer to suppliers like D&S Color Supply. "You can buy paint anywhere," says Mencer, "but working together to come up with new looks and textures and to provide real customer service is what we find leads to loyal customers for everyone."

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For more information on the companies mentioned in this article, visit their websites:

PJ's Fabricating Inc.
www.pjsfab.com

Thermo-Rite
www.thermo-rite.com

D&S Color Supply
www.dscoloursupply.com

PPG Industries
www.ppg.com

Gasser Chair Co.
www.gasserchair.com

Curtis Chemical
330-656-2514

Gema
www.gemapowdercoating.us

CCI Thermal Technologies
www.ccithermal.com