Soaring to New Heights
Airport Job Is Biggest Ever

It's not often a project comes along that is as large or complex a beast as the $400 million new Edward H. McNamara Terminal for Northwest Airlines at Detroit Metropolitan Airport. The job, which is part of a $1.3 billion revamping of the motor city's airport—Michigan's largest-ever public works development—has been of such magnitude and complexity that even some of the state's largest drywall contractors weren't willing

By Don Procter
to bid on the drywall and associated works contract alone.

The winning bid, in fact, proved to be a joint venture of three AWCI-member companies. Under the name AJP, the team consisted of Ann Arbor Ceiling and Partition, Pontiac Ceiling and Partition and J.L. Judge Construction. The three companies are affiliated National Construction Enterprises, which is made up of 18 companies forming the second largest drywall company in the United States. Its annual sales are more than $200 million.

George Stripp, president of Ann Arbor Ceiling and Partition, led the joint venture’s executive team that snared the $35 million drywall contract. It is the biggest job he’s worked on—even larger than several mammoth casino projects NCE completed in Las Vegas, Nev. During peak construction periods, AJP employed about 150 tradespeople, with an average of more than 100 through the course of the two-year airport contract.

None of the three companies would have had the capacity to handle the big project on its own—at least not without giving up other work. Consequently, the strategy behind the joint venture was to create a completely self-reliant entity—one that wouldn’t suck resources out of the daily operations of the three companies. To accomplish that, AJP organized its own project management and administration team and provided its own materials and employees. Business and accounting staffs were formed, and the job was subdivided among the three companies. Once the job was awarded, three project supervisors worked on-site for more than two years to manage the terminal project.

The approach worked. “It allowed the three companies to run normal operations seamlessly while this project was going on. It is one of the things that made this job so successful,” points out Phil Ruffin, executive with AJP and president of Michigan-based Pontiac Ceiling and Partition.

When the airport job came up for ten-
der four years ago, the executives at AJP knew it was a daunting challenge. It took six estimators more than two months to assemble the bid. Ann Arbor Ceiling estimated framing and drywall quantities, Pontiac Ceiling estimated the ceilings portion of the hefty contract while J.L. Judge handled costs of doors, frames, hardware and some specialty carpentry.

The whopping terminal project features a mile-long east concourse with about 100 gates and a west concourse primarily designed to handle small commuter craft. AJP’s contract included metal framing and drywall for spectacular vaulted acoustic and metal ceilings. Broken down, the contract included about 2 million square feet of drywall or shaftwall, 600,000 square feet of acoustic ceiling and 600,000 square feet of corrugated metal ceiling (60,000 square feet of specialty ceilings were manufactured by Ceilings Plus). All told, about 3.75 miles of a 5-foot-wide soffit (supplied by Hunter Douglas) overhanging the perimeter of the building was also required.

**Up in the Clouds**

Among the difficult tasks confronting AJP was the design and construction of the architect’s (The Smith Group of Detroit) cloud-like ceilings. The trades and suppliers worked as a team to modify and in many cases develop new products and methods to create the lofty design. “Everything was other than standard,” explains Keith Lam, AJP’s senior project manager and an employee with Ann Arbor Ceiling.

Devising a means of creating and forming a suspension grid for the 600,000 square feet of painted corrugated metal ceiling shapes was no small feat. In the form of diamonds, simple triangles and some squares, the ceiling shapes “all radiused to one degree or another,” Stripp says. “I’m not sure there has been anything quite like this ever done, although there are some variations of it (at airports in Washington and Las Vegas).”

Almost all cuts in ceiling panels were unique because of the constantly chang-
ing shapes required to get the architect’s desired effect. “Our cuts were continuously changing.” Ruffin explains, noting that after experimenting with many cutting tools, production crews settled on laser cutters to do the job. Mistakes in the cutting process were unthinkable as it would take 12 to 20 weeks to reproduce custom-made replacements—a delay that would severely affect the fast-track timeline. “We had to make sure we had enough ceiling material to begin with and we had to make sure that none of it was damaged or we’d have been in trouble,” Ruffin says.

**Weighing in on the Third Dimension**

Even before AJP reached this stage, however, the team had its fair share of challenges. For starters, they had to conceptualize what the complicated ceiling would look like, relying on two-dimensional architectural drawings. “It took quite some time before we totally understood it because we lacked that third dimension,” Stripp says.

In the engineering and design of the suspension grid for the vaulted ceiling, one of AJP’s concerns was that the weight of a traditional metal stud system would be twice that of the metal ceiling itself. The builder looked at several options, including a conventional drywall grid system consisting of 1.5-inch and half channel, and a track and stud system that could be radius used as required to form the suspension.

But what the joint venture selected was a variation of a radius used drywall grid system developed by USG. With only eight standard “hills and valleys,” USG’s grid system had to
be modified to meet the job’s specifications for 11 concave and convex radiuses, explains Lanz. USG engineers worked with project managers and tradespeople on-site to develop a workable grid. Lanz explains: “They had to retool, redo their production process. You might say they had to re-invent the wheel to suit our needs.”

Interestingly, the drywall grid developed by USG was never regarded as anything but a “boutique product,” developed for 2,000 to 3,000 square foot ceiling high-lights, explains Stripp. “It kind of floored them when we told them we had 600,000 square feet to do.”

**Meet the Ceiling System**

The ceiling system consists of the corrugated metal panels attached with screws to the face of the drywall grid which is secured with conventional hanger wire. What AJP required from USG engineers was the correct spacing for the main runners to carry the weight and what screw attachments were required and where. “We had to walk through the whole process with them,” Stripp notes.

One plus was that
tees and 4- and 2-foot cross tees locked together, was a conventional design so production crews were familiar with installation methods. That ensured a cost and time-effective system, says Lanz. A rolling scaffold platform with towers for highest areas, scissor lifts and buckets were used to install the grid. Some sections involved reaching over the automated Express Tram, the terminal’s monorail public transit system.

To ensure good acoustics, 900,000 square feet of “polyblankets” supplied by Chicago-based CMA were installed above the network of ceilings. The acoustical material is made up of fiber insulation wrapped in black plastic.

Another key feature of the terminal is the ceiling of the underground passenger tunnel, which links the east and west concourses. The architect’s goal with the fabric-draped, arched ceiling was to create an “outdoor feeling” through the use of 30,000 square feet of translucent membranes that consist of 40 curved areas and two large free-floating rotundas. Michigan-based Division 9 supplied the stretch fabric ceiling, which was manufactured by Newmat.

Throughout the project AJP installers faced new learning curves because the joint venture used a spate of new products, including a number of different ceiling materials. Environmental Interiors, for instance, supplied corrugated metal sheets, while Gordon Inc. provided various trim, and Ceilings Plus provided the flat metal ceiling sheets. “All together I’d say we used 10 manufacturers’ products,” Lanz points out.

**Let’s Do It Again?**

Stripp says increasingly contractors are
being given more responsibility to devise solutions to design problems. AJP’s solution for the suspended ceiling is a good example. He sees the added responsibility as a wise move because it eliminates the possibility of being “locked into” a system that could be more expensive, unfamiliar or problematic during installation or upon completion. “Taking on the responsibility allowed us to come up with the most economical and prudent way to give the architects the appearance that they wanted,” he says.

The new terminal opened two months behind schedule last February, but the delay can’t be blamed on AJP, but rather on some of the precedent trades. Stripp says weekly meetings with general contractor, The Hunt Group, and particularly with Northwest Airlines, which took on the role as project manager of the job, ensured that problems were dealt with in a timely manner. “On a lot of projects you don’t get change orders resolved for a month or two; we were doing it once a week. Our questions were answered quickly, largely because Northwest was project manager. It alleviated a lot of the paperwork, bureaucracy,” Stripp explains.

Northwest gets plaudits as well for its speedy move into the new terminal. It shifted its entire operations from the old terminal into the new one in a mere 24 hours. “They had some problems with baggage and things here and there, but really it was an amazing feat,” Stripp says.

Following on the contract’s success, AJP is considering bidding on contracts at three proposed casino hotel project in Detroit, including one by MGM. Stripp says, “We’ll be looking at them as a similar tri-venture. They may not be quite as large as the airport job, but they’ll be close.”

**About the Author**

Don Procter is a free-lance writer in Ontario.