ATLANTA BUSINESS CHRONICLE

IN DEPTH: ENGINEERING

Low-noise facility readies Emprise for `big game'

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When General Electric Co. wanted a showroom where its customers could test drive a 40-ton industrial gas turbine, it turned to Emprise Corp.

The Marietta-based engineering firm specializes in designing test facilities for everything from locomotives to Harley-Davidson motorcycles.

About 20 Emprise engineers worked on the $20 million project in Greenville, S.C., for 14 months.

"There were 80-hour weeks, and we did it for months," said Ron DuBose, president of Emprise Corp. "It was truly an application for a dedicated, small team, where everybody knows what everybody else is doing."

Building the test facility involved 6 million pounds of concrete, 1 million pounds of structural steel and 500 miles of wiring.

The Emprise project was so impressive that it won the grand award in the 1999 Engineering Excellence Awards contest sponsored by the Consulting Engineers Council of Georgia Inc. The project will be reviewed for a possible national award given by the American Consulting Engineers Council in Seattle on May 11.

Tight schedule

The project had to be completed in a tight time frame. GE had a buyer for its 9H Turbine, but only if the company could demonstrate the multimillion-dollar turbine's effectiveness in a test facility.

The industrial gas turbine is a gargantuan machine that power companies can use to provide more efficient and less costly power to customers.

"There was tremendous pressure," DuBose said.

The customer's deadline was passed on to Emprise and Fluor Daniel Inc., which did the actual construction.

The Emprise team provided the plans and specifications and secured the bids on the heavy equipment needed for the project, said DuBose, a Georgia Tech grad.

Emprise also had to coordinate sub-contractors, so it turned to Atlanta-based companies it had worked with in the past. Those companies included Peter H. Hand & Associates, an architectural firm; the Kinne Corp. of Loganville, a mechanical engineering design firm; TJW Engineering of Roswell and Ballentine Walker Smith Inc. of Atlanta, an acoustical consulting firm.

"This was considered, at the time, the world's largest turbine, so any time you get involved with a project like this, it's significant," said Scott Smith, owner of Ballentine Walker Smith. "It was a very difficult project because one this size had not been built before. We had to go on sound-level predictions that a GE engineer provided us. It wasn't like we could go to a site and measure noise and design around that."

Emprise also designed a rail car to move GE's 40-ton turbine from production to the test facility in Greenville. The test facility is a two-story control building. The turbine controls are on the first floor, along with space for technicians and a conference room. The second floor houses the engineering lab and instruments needed for prototype testing.

Silence stands out

What stands out is the quiet, vibration-free environment inside the test facility. Normally when a large turbine is being used, the noise can be deafening. The test facility was made to handle the noise so that GE could not only demonstrate the effectiveness of its 9H turbine, but also be able to talk -- and sell the merits of the machine -- to prospective buyers on site.

DuBose said the test facility was in the city limits of Greenville, not in a remote area, so noise impact was measured in neighborhoods around the facility.

DuBose said he thinks his team's accomplishment makes it ready for "the big game."

"This is the absolute zenith of our engineering careers," DuBose said. "It's like a football team that has played in the Super Bowl for the first time. It helps to have that experience."