



## BUILDING AND EARTH SCIENCES COMES IN OUT OF THE COLD

Construction firms in Alabama don't usually venture too far out of the Southeast for jobs, but Building and Earth Sciences went beyond its "comfort" zone in work for a huge wind farm built in Iowa by Alliant Energy. Building and Earth Sciences, based in Birmingham, has seven branches and is one of the top three fastest growing geotechnical engineering firms in the nation according to a 2008 survey by Zweig-White. Its closest branch to Iowa? That's in Tulsa, Okla., some 600 miles away.

The firm got the job due to a relationship with a member of Alliant Energy's development team who had worked with Building and Earth Sciences in a prior position at a different firm. According to Building and Earth Sciences' Matt Adams, "There were some eyebrows raised when the



The first completed wind tower stands 262 feet. Each blade weighs 7.5 tons and is 131 feet long. Each massive foundation required 450 cubic yards of concrete weighing close to 1.5 million pounds.

project team heard a southern firm was selected for tough winter work. The guys from Minnesota and Wisconsin said, 'you won't be able to do it.'"

Building and Earth Sciences provided onsite materials testing and inspection services for the first phase of a planned three-part wind farm development near Iowa Falls. The initial part of the project—known as the Whispering Willows Wind Farm—has a value of \$240 million and consists of 121 giant wind turbines, scattered over 92,000 acres of farmland. When the wind farm is completed, it will provide electricity to some 150,000 homes.

**The project required 26 miles of access roads, a heavy crane pad for erection and maintenance and tower foundations requiring as much as 30 truckloads of concrete poured in temperatures as low as 10 degrees. The foundations are about 50 feet wide and seven feet deep. The completed wind turbines weigh 225 tons each.**

To make the job more challenging, the testing began in January of last year. Pouring concrete in such frigid conditions meant that rebar forms had to be heated prior to pours and that concrete samples had to be kept warm. Building and Earth Sciences devised curing boxes that kept their cylinder specimens within the correct temperature range even while exposed to sub-zero overnight temperatures. Eight thousand cylinders were tested during the 11-month project, about twice what a normal branch office would do in a similar time period.

Technicians routinely worked six-day, 12-hour shifts in order to keep the testing work to schedule. A two-trailer onsite laboratory was set up. Anywhere from four to 12 employees were on the job at any given time. Construction manager on the project was Telesis of Orangevale, Calif.

Building and Earth's wind farm team has mobilized to work on additional wind energy projects in North Dakota, Missouri and Utah.