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NECA Boston Chapter member Dagle Electrical Construction provides services for Mass. Clean Energy Center's \$1.2 million wind technology testing facility

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The Mass. Clean Energy Center (CEC) opened one of the nation's first large scale wind turbine blade testing facilities - the Wind Technology Testing Center (WTTC). NECA Boston Chapter contractor Dagle Electrical Construction Corp. provided the facility's electrical construction services, a project valued at just under \$1.2 million.

Dagle Electrical's project scope included installations for the facility's primary and emergency power, lighting and lighting control systems, fire alarm system and infrastructure for tel/data systems. The contractor also provided temporary power to the site.

BIM Platform

The project was constructed utilizing a BIM platform - all MEP contractors were required to draw their systems in AutoCAD 3D. The design process was reviewed prior to installations by electrical engineering firm Richard Kimball Company of Boston.

In a unique aspect of the project, Dagle installed several miles of conduit, neatly configured around the facility's interior, as the structure's cement foundation had been laid prior to electrical installations.

EE High Bay LED Lighting

A highlight of the electrical scope is the WTTC's energy efficient, intelligent lighting and lighting control system, manufactured by Boston based Digital Lumens. It is comprised of 100 Digital Lumens LED high bay lights, each of which is digitally controllable. The lighting system is engineered to consume 66% less energy than traditional lighting systems.

Coordination of specialty trade work was critical, as MEP installations in the 75-foot tall facility (base slab to underside of deck) required the use of several 125-foot boom lifts to access to the overhead work. The Dagle crew met the facility's lighting installation requirements despite harsh weather off Mass. Bay, as lighting installations were made at heights of 86-feet and the exterior sides of the building had not yet been constructed.

Dagle Electrical's project manager Rich Kaiser and foreman Doug Whelan supervised a field crew of 21 IBEW Local 103 electricians at peak construction, comprised of three foremen, 15 journeymen and three apprentice electricians.

The WTTC facility is equipped with three test stands, allowing for testing of three blades simultaneously. It provides capacity for 100 tons of overhead bridge crane and has a full suite of certification tests for turbine blades up to 90 meters in length, including static and fatigue testing, blade material testing, dual axis static or fatigue testing, and quality testing. In addition, as part of its effort to help the wind industry deploy the next generation of onshore and offshore wind turbine technologies, the WTTC will offer the latest wind turbine blade testing and prototype development

methodologies, research and development partnerships, blade repair capabilities and hands-on workforce training.

The Mass. CEC won the bid for the facility in 2007, and in May of 2009 received funding for the project from the American Recovery and Reinvestment Act. In partnership with with the U.S. Department of Energy and the National Wind Technology Center, Mass CEC began construction of the facility in October 2009 and the facility was opened as scheduled in May 2011. According to the Mass CEC website, approximately 300 construction and engineering jobs were created in transforming an empty parking lot into the world-class wind blade testing facility.

Governor Deval Patrick joined with state and federal officials and leaders in the wind energy field to celebrate the opening. "To win the clean energy future, our nation and state must enthusiastically embrace the use of large-scale wind turbines in onshore and offshore wind farms," said Patrick. "The Wind Technology Testing Center will help achieve that goal, by doing business with companies from around the world, and advancing the next generation of blade technology."

"The Wind Technology Testing Center will not only strengthen the status of Boston and the Commonwealth as a world leader in wind development, but as a leader in clean tech innovation," said mayor Thomas Menino.

MassCEC executive director Patrick Cloney commented, saying, "The Wind Technology Testing Center is more proof that Massachusetts is leading the clean energy innovation revolution. Our clean energy future will require large-scale wind turbines to support wind projects both on land and offshore, and the WTTC will be at the forefront of developing those turbines."

Dagle PM Kaiser discussed the project. "Dagle Electrical is proud to have been part of the MassCEC's design and construction team. Turner Construction managed the project very efficiently, enabling Dagle and other subcontractors to meet project schedules."

Fellow NECA contractor Spectrum IT provided Tel/Data Installations; The general contractor was Turner Construction; Richard Kimball Company provided engineering services, and design was provided by Architerria Inc.