

SPECIALTY CONSTRUCTION ■ Submitted by Waldrop Mechanical Services

CUMMINS TECHNICAL CENTER - NEW CHILLED WATER PLANT & PIPING DISTRIBUTION SYSTEM

North Charleston, S.C.

BEST PROJECT**OWNER** Cummins Inc.**LEAD DESIGN FIRM** RMF Engineering**GENERAL CONTRACTOR** Waldrop Mechanical Services**CIVIL/STRUCTURAL ENGINEER** ADC Engineering Specialists**MEP ENGINEER** RMF Engineering**BUILDING/SITWORK CONTRACTOR** Southcon Building Group**ELECTRICAL CONTRACTOR** Metro Electric Co.

In planning for the future expansion and improvement of its North Charleston, S.C., campus, Cummins Inc. selected Waldrop Mechanical Services to provide turnkey design-build/procurement services for the development of the new chilled water plant and piping distribution system project. This first phase of the company's master plan for the facility called for providing adequate chilled water capacity to service an existing test lab facility as well as increased chilled water capacity to support future planned facilities on campus. Upon completion, the project enabled Cummins to retire the facility's existing chiller and reduce its carbon footprint.

The mechanical contractor's responsibilities for the project—which was constructed on a small parcel adjacent to Cummins' existing test lab facility—included construction of a reinforced concrete masonry unit (CMU) structure to house the mechanical, electrical, building controls, plumbing and fire protection equipment, with cooling towers placed on a structural steel frame support above the finished roof; all site utilities; installation of a new, elevated chilled-water piping system with connections to exist-

ing equipment in the adjacent building; and demolition of the existing chilled water plant and piping system.

Problems with property acquisition encountered by the owner had condensed the original construction schedule to just five months. Builders encountered more challenges early on, with the site contractor penetrating two unknown underground systems during excavation, a result of limited original as-built drawings provided during the design phase. Additionally, due to an abnormally large amount of rain from November to January, construction crews lost 14 workdays.

Constructing the chilled water piping system in the test lab facility within a fully operational building and in close proximity to high-voltage electrical and pressurized fire protection and mechanical systems—sometimes located 20 ft in the air—presented unique challenges, according to the project team. A series of safe work practices, such as drug/alcohol testing, safety orientations for all workers prior to working on the job, daily risk assessments and a focus on fall protection, helped the contracting team achieve 22,745 worker hours with no lost-time accidents.