



ADMINISTRATION BUILDING UPFIT PROJECT

POWER UTILITY – NORTH CAROLINA

TOTAL INSTALLED COST \$3,500,000

PENTA provided complete engineering and design services for a comprehensive upfit and expansion of the administration building and maintenance shop at a power station. We provided structural, HVAC, plumbing, and electrical design for this “fast-track” project, with all disciplines working simultaneously to issue drawings for permitting in just three weeks.

This building had several structural design challenges. First, the original construction did not allow for expansion of long, uninterrupted rows of bricks, which resulted in the veneer expanding and peeling away from the walls. PENTA specified brick removal locations and a specialized anchoring system to remedy the issue.



The building was also built on fill material, and the soil beneath the expansions had a low bearing capacity. PENTA worked with a geotechnical engineer to specify a system of auger-cast piles over 40 feet deep to support the new structure. PENTA also developed a grade beam design to bridge bad fill material. In addition, we performed steel design and shop drawing review.

The existing HVAC system was completely removed and PENTA designed a new system. This consisted of air handlers using hot water coils and chilled water, including ducting, zoning, piping, and controls.

The office area's electrical and communications systems were completely removed. PENTA designed power distribution, lighting and communications plans, and other electrical details.

PENTA also performed Construction Assistance, which involved the NC Building Code Chapter 17 inspections. PENTA specified the required inspections and replied to field and inspector questions as required.



One bay was added to the maintenance shop.