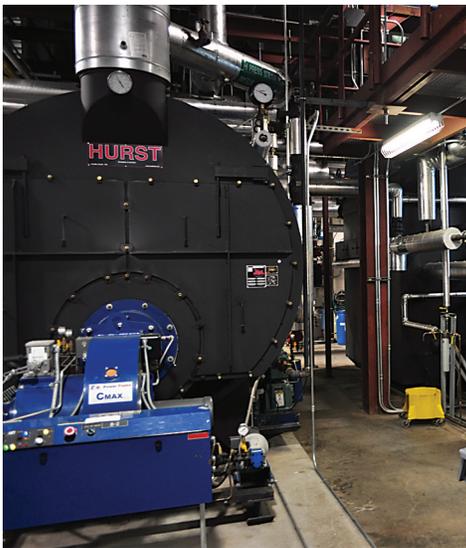


New Biomass Plant for ADOC Facility

When a fire destroyed the boiler plant at the Bullock County Correctional Facility, Alabama Department of Corrections (ADOC) officials were alarmed. Hot water, steam and heat are necessities. Noresco, an energy services contractor, chose McKenney's as the turnkey prime subcontractor assigned to rebuild the boiler plant.



McKenney's was responsible for the entire project from design to demolition to commissioning, and managed a host of contractors—including painters, electricians, landscapers and more—for several auxiliary tasks. McKenney's designed the mechanical systems in-house.

The new boiler plant included a 150 HP biomass-fueled boiler and 300 HP Scotch marine boiler to help match the amount of hot water and steam produced by three boilers prior to the fire. The team designed a sophisticated material handling system

to store, transport and meter wood chips to the biomass boiler. To ensure equipment and piping was installed safely and efficiently, the team modeled the entire building structure and mechanical systems in 3D.

One of the largest challenges was to ensure that the facility never lost hot water and steam. McKenney's installed, operated and maintained two temporary boilers, pumps, hot water generators and piping in such a way that turnover was seamless between the temporary and new system.

Since the biomass boiler system was designed and built specifically for this facility, McKenney's was tasked with providing operational capability after startup. As part of the commissioning process, for 15 days the McKenney's team operated the biomass boiler systems around-the-clock—logging data, tracking fuel and monitoring the amount of steam released. The first test run proved all systems were working properly but not attaining the expected efficiencies. McKenney's worked with the boiler manufacturers, controls team and in-house engineers to make improvements based on the data collected. After implementing changes to the exhaust flue and induced draft fan the second 15-day performance test passed.

The team also installed a 300 HP natural gas boiler, hot water generators, heat exchangers and pumps. McKenney's designed and installed the controls to ensure every piece of equipment was integrated seamlessly for more efficient management.

Project Team

- Engineer: McKenney's, Inc.
- Architects: McKenney's, Inc.
- Owner: Alabama Department of Corrections

The Challenge

- Provide a turnkey design-build renovation project
- Demolish mechanical systems after fire
- Design, build and install new biomass boiler system
- Replace underground piping

The Solution

- Biomass boiler using renewable resources
- Precision 3D modeling and fabrication
- Integrated, automated controls
- Temporary measures to keep facility online

The Results

- Project completed on time, on budget
- Zero accidents or injuries

Even though the boiler plant is located outside the prison walls, there is more than 1,700 feet of underground steam and condensate piping that leads from the boiler plant to the facility. As part of the project, McKenney's replaced all the piping with no service interruptions.

Despite the unique challenges the project was completed on schedule and with zero injuries. The facility received a custom-built boiler plant that has been proven to operate efficiently and safely.

For more information contact McKenney's at 404-622-5000.

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