

# MECHANICAL PRODUCTS INC.

## Fluid Handling & Steam Equipment

Alabama – Georgia – Tennessee

P: 678-513-7514

TOLL FREE: 1-855-MECHPRO / [www.mechanicalproducts.net](http://www.mechanicalproducts.net)

Fax: 678-513-7515

Boilers & Water Heaters - Boiler Plant Controllers - Boiler Room Equipment - Cooling Towers & Fluid Coolers - Coil Hook-up Piping Packages - Control Valves - Expansion Joints & Ball Joints - Filtration & Strainers - Flow Control & Balancing Valves - Flow Meters - Heat Exchangers - Hot Water & Steam Generators - Packaged Pumping Systems - Pumps & Hydronic Accessories - Pure Water Systems - Pressure Independent Temperature Control Valves - Storage Tanks - Temperature Control Units - Venting - Water Harvesting Systems

**Laughlin Memorial Hospital** in Greeneville, Tennessee **needed an energy efficient solution to replace their existing fire tube steam boilers.** In addition to handling sterilization loads, the existing steam boilers were responsible for generating both domestic and HVAC building heating hot water. **Working with Fulton and the Synex ModSync Group, Mechanical Products provided four (4) Fulton Vantage 4000 Mbh dual-fuel (NG/No. 2 fuel oil) condensing hot water boilers with a ModSync Plant Controller capable of controlling the entire boiler room.** A small steam boiler was installed to handle the remaining steam loads more efficiently.



An ***innovative design approach*** for space and domestic hot water heating needs incorporated two independent hot water loops piped to each boiler: one loop to generate domestic hot water and one loop to provide for HVAC hot water. Utilizing a pair of automated control valves at both the supply and return connections to each boiler for both the domestic and HVAC loop, the ModSync plant controller permits each of the four boilers to serve either loop at any time. An aggressive load reset strategy on the HVAC loop was permissible without concerns for sacrificing the performance of the domestic water system. As the need for domestic hot water arises, **the ModSync controller allocates the applicable number of boilers to serve the domestic load and resets the supply temperature accordingly.** More than just a lead lag sequencer, the ModSync monitors each boiler's firing rate, the deviation from set point and employs a control variable based PID algorithm to most efficiently run the required number of boilers at their lowest possible firing rate/ highest efficiency before releasing the boiler plant to a higher less efficient firing rate. This "Field Adjustable Parallel Modulation" feature ensures the boiler plant operates at the most efficient point to match the changing loads - **contributing up to 5 or more points in system efficiency.**



In addition to balancing the boiler loads, **the ModSync can provide a wide range of boiler system controls and system integration, including outdoor reset, load set, setback scheduling, multiple set point modes, trending reports, BTU calculations, variable flow pumping control as well as the ability to calculate and display various boiler operating efficiencies in real time - all via a simple user-friendly interface.** The optional inSite capability allows the option to add web access and manage the boiler room remotely.

(continued next page)

The **Fulton Vantage high mass, high water content boiler** can operate up to a 100 degree Delta T, has no minimum return water temperature and has no minimum or maximum flow rate. The Vantage features **eliminated concerns over minimum flow rates, maximum flow rates, minimum return water temperatures or maximum Delta T - obstacles typically associated with today's low mass, low water content condensing hot water boilers.** The ability of the boiler to handle primary variable flow, the 16,000,000 Btu/hr. boiler plant's 20:1 turndown and the ModSync's true best efficiency modulating control sequencer allow the BTU generated to efficiently match the respective system loop load requirements. The N+1 redundancy for the both domestic and heating hot water systems combined with the ability of the Vantage boilers to burn No. 2 fuel oil as well as natural gas gave the customer energy efficient, reliable and sustainable installed system.

**Condensing Boilers & Water Heaters** are the industry buzz-words because they are indeed, hi-efficient. However, simply purchasing one doesn't guarantee better heating system performance. We know condensing engineering, as well as conventional, and will assist in all phases to furnish a heating or steam system operating at peak efficiency. Ask Mechanical Products about Boiler Plant Control Strategies - go so far as to manage your next boiler plant on your smartphone with inSite from Synex Controls, manufacturer of the ModSync boiler management and control system.

Call us on your next process steam or hot water boiler project at 1-855-MechPro.



## ENGINEERED SYSTEMS & CONTROL MANAGEMENT SOLUTIONS FOR STEAM & HOT WATER BOILER PLANTS

