

NEW BOILER PLANT MEETING LOW NOX EMISSIONS AND SEISMIC REQUIREMENTS

BOILER DIVISION CASE STUDY

Kaiser Permanente Hospital

Modesto, California

New Hospital Boiler Room

CUSTOMER APPLICATION AND KEY CHALLENGES

Kaiser Permanente is recognized as one of America's leading health care providers and not-for-profit health plans, currently serving over 8.6 million members in almost a dozen states. Modesto Medical Center is one of several new hospitals for Kaiser Permanente providing care to the San Joaquin Valley. The 670,000-square-foot hospital features energy-reducing materials and advanced green hospital furnishings and fixtures that use fewer toxic chemicals and earning national recognition as one of the "greenest" health care facilities in North America.

Once the initial project was developed, R.F. MacDonald Co. worked in conjunction with the specifying engineer to deliver boiler equipment that would meet the specifications and needs of the new facility, including both low NOx requirements and seismic requirements.



The new Kaiser Permanente Hospital located in Modesto

THE R.F. MACDONALD CO. ANALYSIS & SOLUTION

The hospital and engineering firm had previous experience with Cleaver-Brooks boilers and were especially interested in standardizing on that manufacturer for this project. After careful analysis of capacities and requirements, R.F. MacDonald Co. designed and developed a complete boiler plant that included 3 Cleaver-Brooks FLX Hot Water boilers and 2 Cleaver-Brooks FLX High Pressure Steam boilers. These were dual fuel boilers with gas and #2 oil for backup fuel.

The complete boiler plant also included the deaerator used for removal of air and gases from boiler feed water prior to its introduction to the boilers, blowdown separator used to continuously maintain concentration of solids in the boiler, and an economizer on one of the steam boilers used to transfer heat from flue gases to warm incoming feedwater.

The boilers were also installed with upgraded CB Hawk ICS controls, which is a totally integrated control system for precise boiler/burner management control and safety with logic based ancillary devices and functions. This coordinated system maximizes efficiency, reduces operating costs, and increases productivity; delivering critical real time and historic information with the touch of a screen. The plant master system allowed the monitoring and management of all five boilers from the central control office.

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PUMPS

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PARTS

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Final installation of the boiler plant

PROJECT RESULTS

The units were tested on natural gas and fuel oil meeting compliance requirements under 9ppm NO_x and 50ppm CO on natural gas to comply with the San Joaquin Air District regulations. After completion of the project, R.F. MacDonald Co. conducted several days of both classroom and hands-on education and training specifically designed for the new Kaiser Permanente boiler room team to operate the new equipment effectively and efficiently.

The boilers have been operating reliably with only minor issues that have all been resolved. R. F. MacDonald Co. provides full service and periodic maintenance on the equipment.

R.F. MacDonald Co. provided full service for this new hospital boiler control room from concept and initial specifications, through equipment testing and staff training.



The installation of the feedwater heater helps conserve energy