

RETROFIT EXISTING BURNER TO MEET LOW NOX EMISSIONS REQUIREMENTS

BOILER DIVISION CASE STUDY

Mission Hospital

Mission Viejo, California

Burner Retrofit

CUSTOMER APPLICATION AND KEY CHALLENGES

In response to overcrowding and consistently operating at or above capacity levels, Mission Hospital recently approached R.F. MacDonald Co. after embarking on construction of a four-story, 94,730 square foot facility that would offer an additional 64 private patient beds, as well as become the new home for trauma services, the surgical intensive care unit, neuroscience center, diagnostic imaging and hospital chapel. At the time, the hospital was running off of two Kewanee 250HP H35-250-G Boilers which are responsible for heating, hot water, humidification, and sterilization in the current tower. One of the current units was operating at 30ppm NOx with an older and obsolete Vitatherm burner. With their inability to obtain parts for this outdated system as well as the burners inability to keep up with the demand of the second tower, Mission Hospital required a solution to allow an overall increase in efficiency as well as keep up with the additional demand that the extra tower would now be placing on the existing systems.



Mission Hospital located in Mission Viejo

THE R.F. MACDONALD CO. ANALYSIS & SOLUTION

The project required the supply and installation of a burner retrofit package (gas train, panel, and burner) designed to operate at 9ppm and increase overall combustion and operational efficiency. R.F. MacDonald Co. proposed replacing the Vitatherm burner with an Industrial Combustion Ultra Low NOx 9ppm burner.

The NTH series burner is a forced draft packaged burner system designed to fire natural gas and amber oil. Combustion efficiency is achieved by entering gas through ports ahead of the diffuser providing superior mixing of gas/air/FGR (flue gas recirculation). The burner utilizes parallel positioning Fuel-Air Ration Control (FARC), with excellent flame retention assured at all firing rates.



CB Pro-Fire Burner front view

BOILERS

PUMPS

SYSTEMS

SERVICE

PARTS

CORPORATE

25920 Eden Landing Road
Hayward, CA 94545
510.784.0110

FRESNO

88 N. Hughes Avenue
Fresno, CA 93706
559.498.6949

LAS VEGAS

3111 S. Valley View Blvd., Ste. E120
Las Vegas, NV 89102
702.220.6680

LOS ANGELES

10261 Matern Place
Santa Fe Springs, CA 90670
714.257.0900

MODESTO

1549 Cummins Drive
Modesto, CA 95358
209.576.0726

RENO

1430 Greg Street, Suite 503
Sparks, NV 89431
775.356.0300

ROHNERT PARK

642 Martin Avenue, Suite B
Rohnert Park, CA 94928
707.586.9234

SAN DIEGO

14781 Pomerado Road
PMB 184
Poway, CA 92064
858.538.5877

www.rfmacdonald.com



Kewanee Boiler with new burner

PROJECT RESULTS

The new burner system installation was completed in early 2009, before the opening of the hospital's second tower. After completion of the project, R.F. MacDonald Co. conducted training on the new equipment. The unit was tested on natural gas and fuel oil demonstrating compliance with each. Current measurements show the unit operating at 70psi steam around-the-clock with a 60% firing rate. Joe Ortiz, Assistant Director of Facilities, noted that since the installation he has seen an obvious overall increase in efficiency, which he estimated at 25-30%.

Ortiz reported being very happy with the service, stating, "R.F. MacDonald Co. is very professional, do good work, and their technicians are very knowledgeable." Mission Hospital is currently working with R.F. MacDonald Co. to determine possible rebates and incentives they may be eligible to submit for since completion of the project.



New burner control panel with Honeywell parallel positioning controls