

# FIRED EQUIPMENT SERVICES



Rimmer Engineering has exceptional skills combined with a unique focus.

Our specialist focus means we understand the complexities of fired equipment design, safety, operations, and maintenance including how and why problems occur and, importantly, the commercial objectives.

Recent industry objectives are aimed at achieving not only a high level of safety, but also a high level of availability, energy efficiency and environmental performance have led to changes in fired equipment design and operation. Our team of expert consultants have the specialist process & safety skills, experience and knowledge to address these challenges.

Rimmer Engineering has capability in the following areas:

- Operations and emergency procedures
- Burner management systems
- Flame detection safeguarding / flame scanners
- Pilot ignition / flame rods
- Shutdown logic, cause & effects diagrams
- Process Safety reviews including:
  - Process Hazard Analysis (PHA)
  - SFAIRP demonstration
  - SIL classification
  - Hazardous Area classification
- Consequence modelling for loss of containment
- Operational troubleshooting
- Excess air efficiency / oxygen analysers
- NOx emissions and environmental requirements
- Flue-gas / stack calculations
- Energy balance and heat recovery studies
- Steam distribution system modelling
- Feasibility studies for preheaters/economisers
- Cogeneration plants concept select and specification
- Catalytic incineration
- Steam system relief valves
- Heat exchanger specification and modelling

## Project Illustrations

Our team of specialist consultants has extensive experience in process heaters, petrochemical furnaces, and boilers as demonstrated by the small selection of projects highlighted below:

### Vaughan Rimmer - Principal Consultant

- Furnace safeguarding upgrade for 1960's natural draft furnaces. Concept select and front-end design including process control, safeguarding logic, cause & effects diagrams, P&IDs and operating philosophies.
- Low NOx burner evaluation and specification for improved environmental performance.
- Furnace tube coking investigation.
- Troubleshooting corrosion of a DEKA economizer, specification for a replacement designed to avoid acid dewpoint corrosion and implementation of dewpoint control logic.
- Detailed engineering for retrofit of infra-red flame-eye detection.
- Basis of design and specification for a Submerged Combustion Vaporiser, Steam Reformer Heater and Waste Heat Boiler.
- Process operations engineering for refinery fired equipment including 3 x 23MW steam boilers and water treatment plant.

### Malcolm Beaumont - Specialist Engineer

- Strategic-Commercial role for a \$40 million cogeneration project. Definition for steam and power, negotiation with cogeneration JV Parties and integration of the facility into the plant. Facility consisted of 2 X Mars 100 gas turbines capable of generating 20 MW of electricity and heat recovery steam generators.
- Specification for steam turbine driven boiler feed water pumps and for fuel gas skid used for powering gas turbines and in supplementary firing to boost efficiency.

### Er. Premkumar - Principal Process Safety Engineer

- Chairperson for multiple PHA and SIL Classification studies for furnaces, boilers, and other combustion equipment, including hydrogen reformers, sulphur recovery unit main combustion chambers and incinerators.

For further information on our Process Engineering and Process Safety capabilities please contact:



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