

TARAVOSH JAM

Training Gas Firing for Existing Boiler



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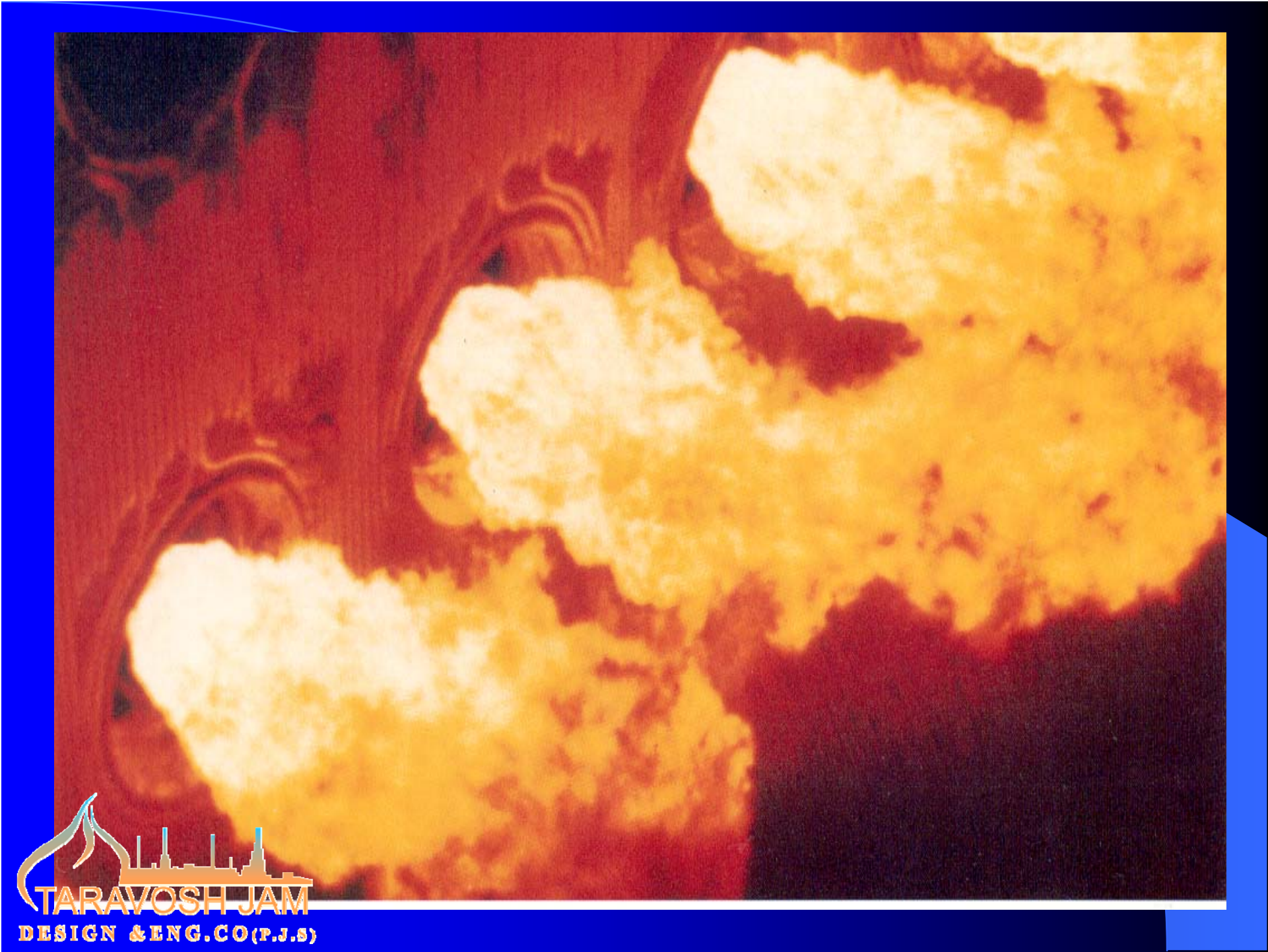
Changing Fuel Main Goals

- ❖ Decreasing of fuel consumption cost
- ❖ Decreasing of air pollution
- ❖ Change main burner to Gas Burner
- ❖ Increase of thermal efficiency
- ❖ Increase of steam production for gas firing of existing boiler
- ❖ Decrease of super-heater metal temp.
- ❖ New technical solutions with less equipment requirement

- Obtain a realistic Capex and Opex estimate that we all believe in.

Client Team Main Challenges

- Lost of load in gas firing
- Decrease thermal effecincy
- Over heating of superheater
- Old control system



1) Gas Burner

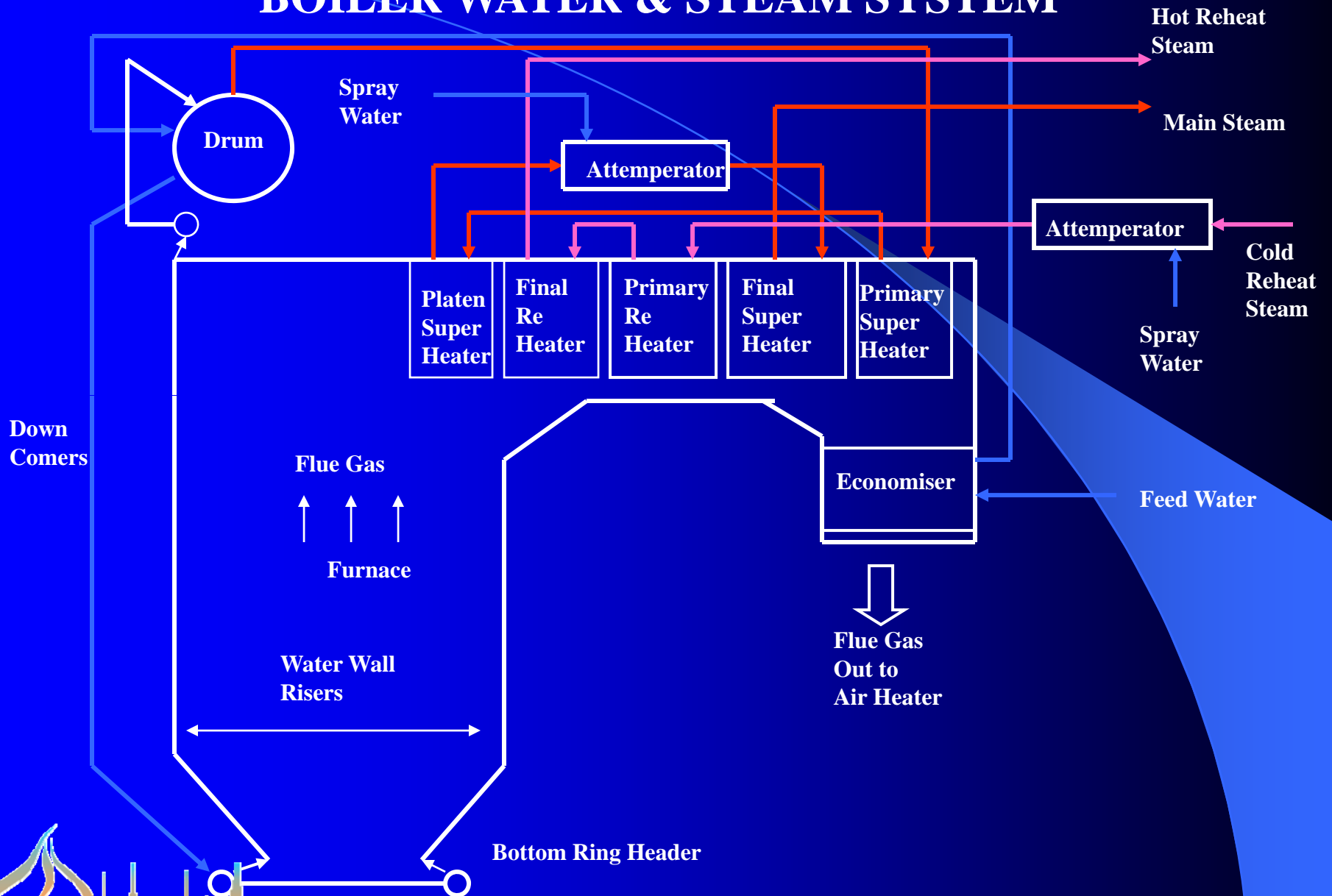
- Ensure the right quality of Excess Air
- Check Flame Pattern
- Check NOX value
- Check Burner Area
- Check Possibility of reducing Height of Burner Zone
- New Piping Arrangement of Burner Area

In many projects has done only this step

2)Furnace Modification

- Calculate new heat&mass balance
- Check of Possibility of increasing Height of Aperture Area
- Calculate new F.E.G.T.(FURNACE EXIT GAS TEMP.)
- Calculate Circulation of each Furnace panel

BOILER WATER & STEAM SYSTEM

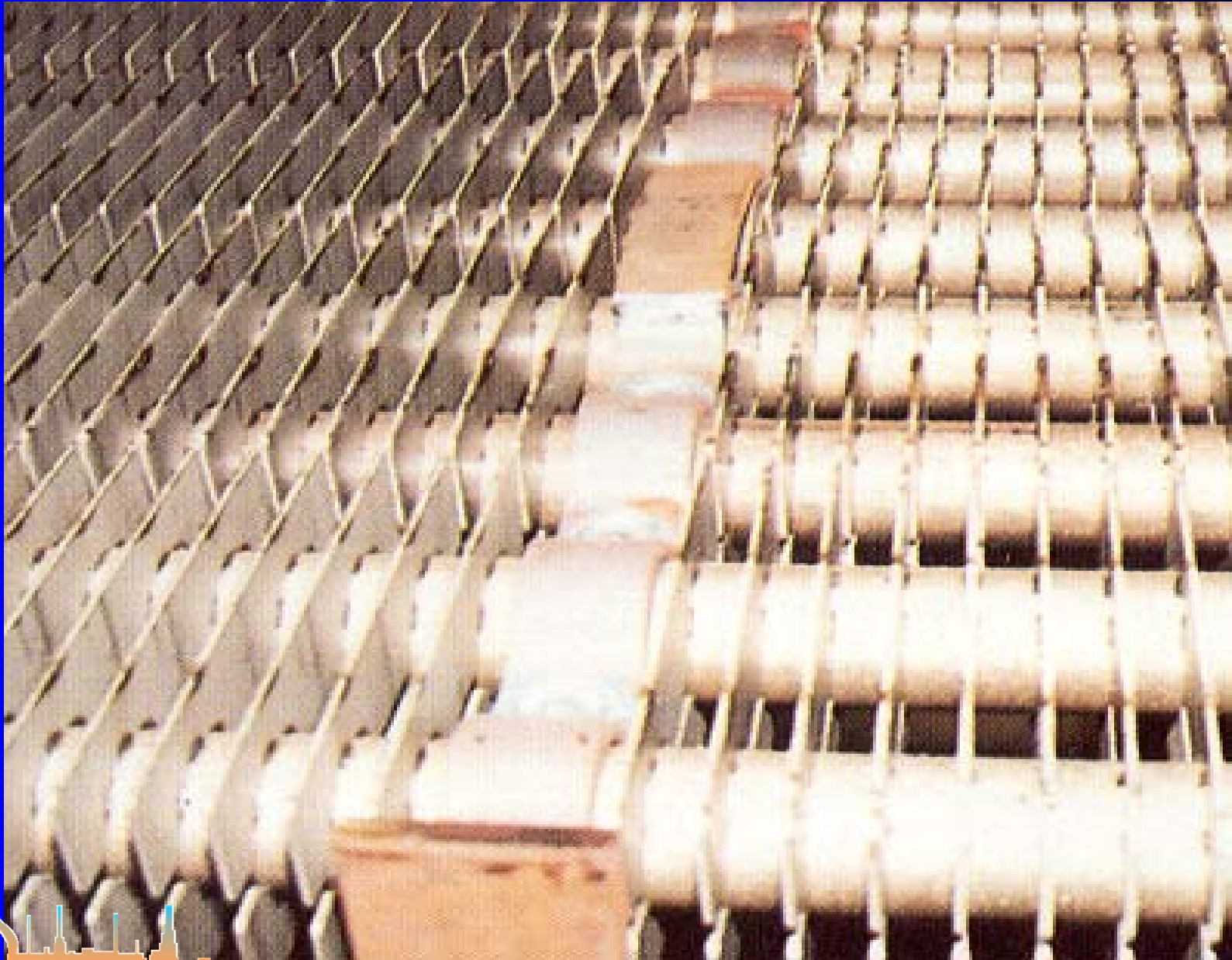


3)Final Super Heater Modification

- Calculate new heating surface
- Calculate new desuperheater load
- Calculate new SH Metal Temp.
- Calculate new SH life time
- Check selected material

4) Economizer Modification

- Calculate FLUE GAS TEMP for each heating surface(SH,RH,..)
- Calculate new ECO.Heating Surface
- Calculate new ECO Metal Temp.
- Calculate new dew point
- Check selected material



5)Boiler Load & Efficiency

- Calculate max. permissible Boiler load
- Calculate new Boiler Efficiency

6) Modify Control System

- Check new NFPA requirement
- Selected new MFT Condition
- Selected new required Instrument
- Selected new requirement of Fan Control
- Design new Logic Diagram
- Purchement new control system

7) Commsioning & Performance Test

- Check boiler section
- Check Gas Burner & Fan
- Check instrument
- Check control system
- Hydrostatic test
- Boier purging
- Pre-commsioning
- Commsining
- Perfoermance test