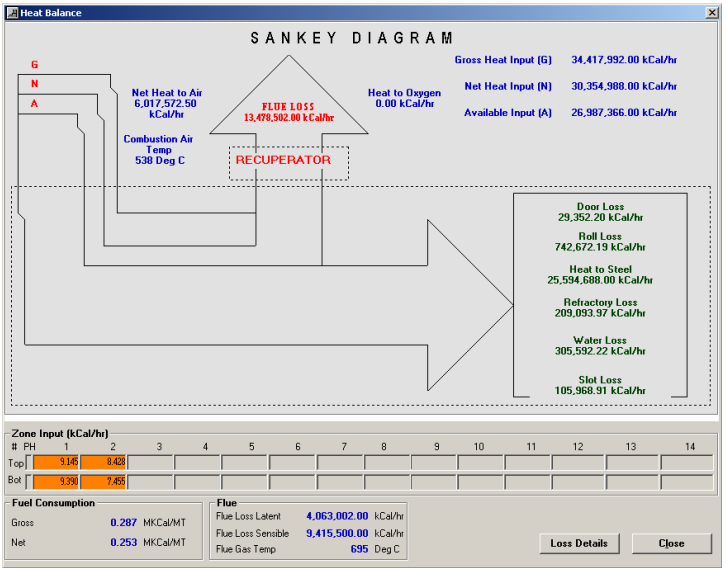
COMPARISON OF RECUPERATIVE AND REGENERATIVE BURNERS IN CONT REHEAT FURNACE

OBJECTIVE:

A renowned Industrial Furnace Company in US wanted to compare the effects of installing a Recuperative Burners Vs a Regenerative Burners in a Continuous Reheat Furnace. The objective was to reduce fuel consumption and increase furnace efficiency inside a Continuous Reheat Furnace.

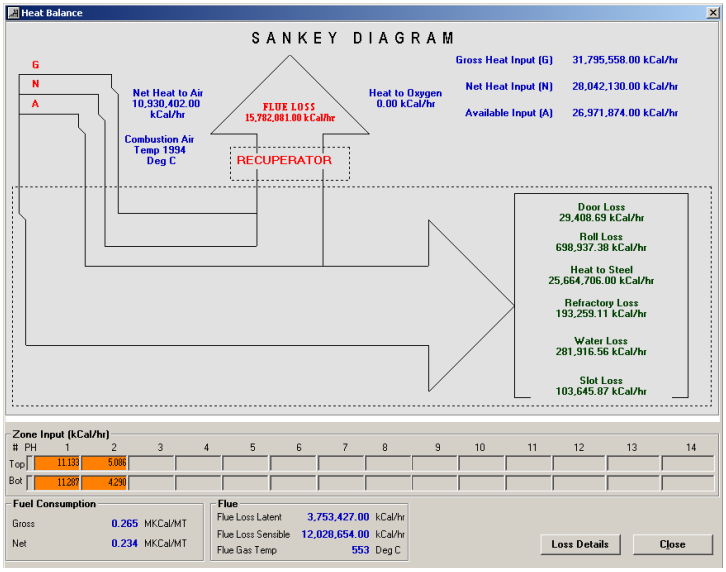


METHODOLOGY

Simulations were run using Continuous Reheat FurnXpert software. With the information provided by the client we custom configured two different Continuous Reheat Furnace, one with Recuperative and other with Regenerative burners.

CONCLUSION:

The results shown below reveal that Regenerative type burners provide lower flue gas temperature, lower fuel consumption, and higher furnace efficiency. One should note that combustion air temperature for recuperative burners was only 540 Deg C where as for Regenerative burners it was 200 Deg C below the zone temperatures. Also, 80% of the flue from each zone was extracted in each zone in the case of Regenerative burner furnaces for raising the combustion air temperature thereby reducing the overall flue mass in the unfired zone.



Parameter	Units	Recuperative	Regenerative
Heat to Steel	Mkcal/Hr	25.596	25.666
Heat Available	Mkcal/Hr	**26.989**	**26.974**
Flue Gas Loss	Mkcal/Hr	**13.479**	**15.783**
Total Heat Demand	Mkcal/Hr	**40.468**	**42.757**
Recuperated Heat	Mkcal/Hr	**6.018**	**10.931**
Heat From Fuel	Mkcal/Hr	**0.030**	**0.028**
Gross Heat Input	Mkcal/Hr	**34.420**	**31.798**
Total Heat Input	Mkcal/Hr	**40.468**	**42.757**
Fuel Consumption (Gross)	Mkcal/MT	**0.287**	**0.265**
Fuel Consumption (Net)	Mkcal/MT	**0.253**	**0.234**
Flue Gas Temp at charge end	°C	695	535