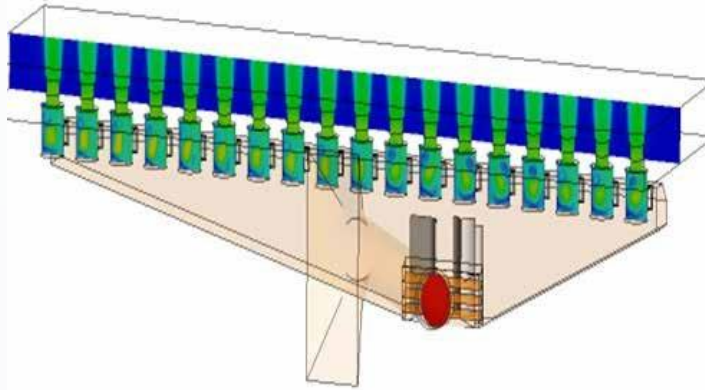


# Improving Fired Heater Performance using CFD

## Case Study 4 : Improving Air Flow distribution across all burners

CFD simulations help to understand the air flow pattern and evaluate the various design modifications to achieve uniform air flow distribution across all the burners. CFD results provide insight on placing the turning vanes, modifying the duct shape or the need of perforated plates.



Air flow distribution for an atmospheric charge heater: There are 18 burners firing vertically up having a single burner plenum, with combustion air duct in the bottom. For the existing case, centre burners were experiencing low air flow rate and the end burners were receiving very high air flow rate. Various designs of installing turning vanes, baffles were evaluated to minimize the mal-distribution of air flow rate across all the burners.

**Mass flow from mean comparison**

