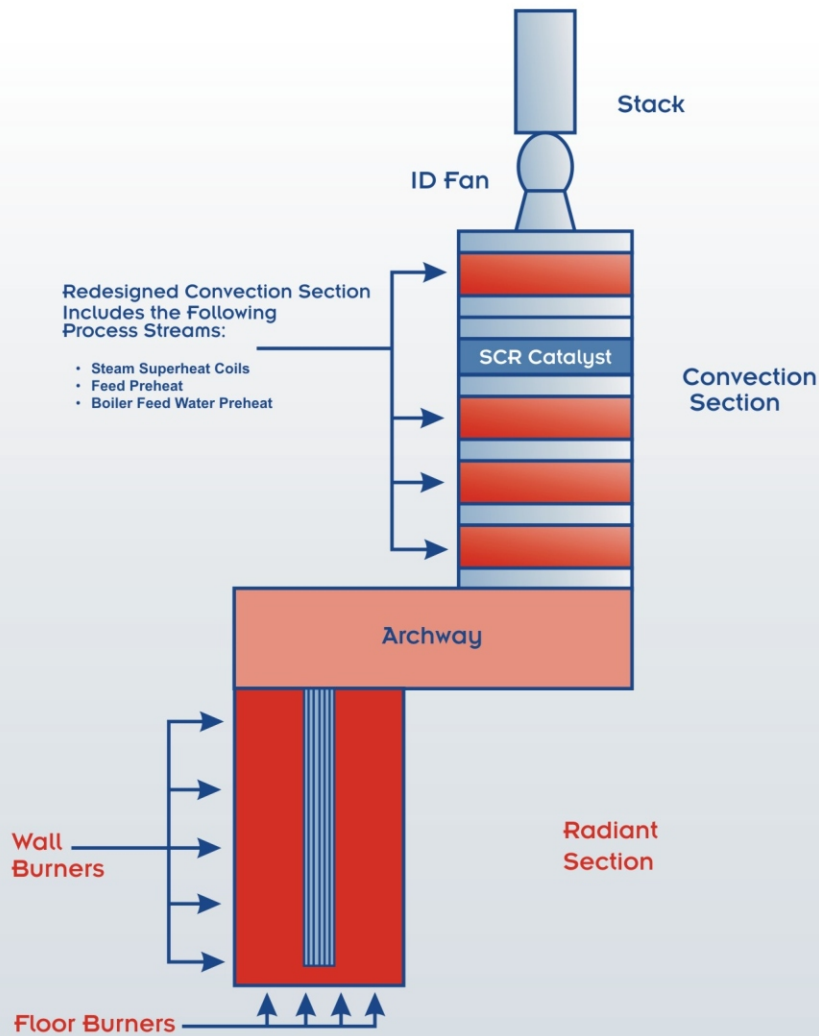


Ethylene Furnace NO_x Project



Redesigned convection sections improve heat recovery and environmental performance.

- ▶ To comply with requirements of the Texas Commission on Environmental Quality, the Cedar Bayou Plant evaluated many options for reducing NO_x emissions.
- ▶ Options included new furnace burners (pre-combustion technology) and selective catalytic reduction (SCR) technology (post-combustion).
- ▶ The plant decided to replace the burners on the newest furnace and, for its 13 older furnaces, install SCRs and new convection sections with improved designs.
- ▶ The new convection sections with SCRs and integrated superheating coils improve heat recovery and will allow the plant to take its external superheaters off-line.

Benefits

- ▶ Saves an estimated 100 MMBtu per hour.
- ▶ Reduces fuel use during ethylene production by 4%.
- ▶ Reduces NO_x emissions by an estimated 650 tons per year.
- ▶ Eliminates the need for three less-efficient 120 MMBtu-per-hour superheaters.



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