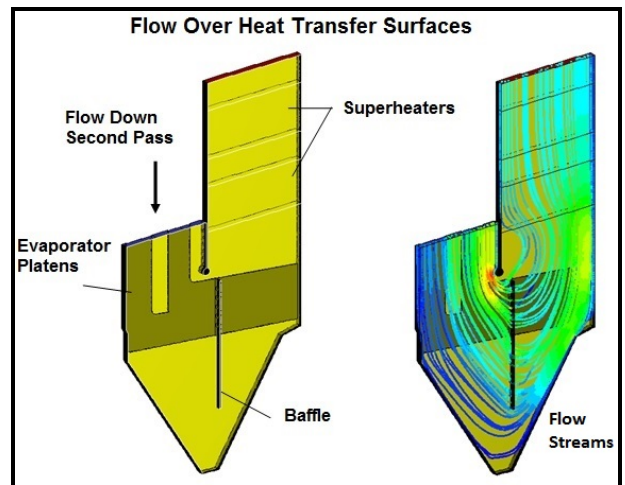
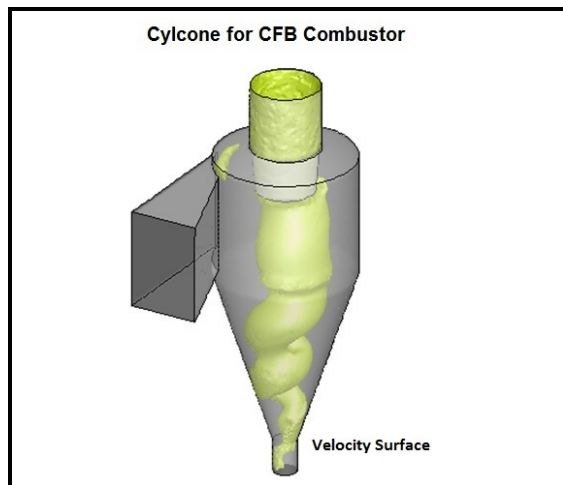
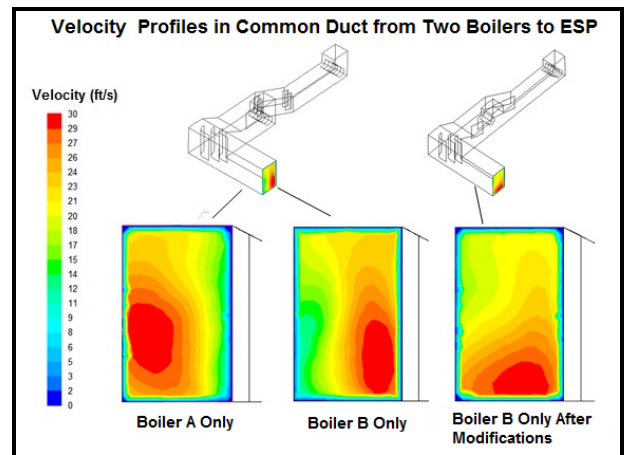
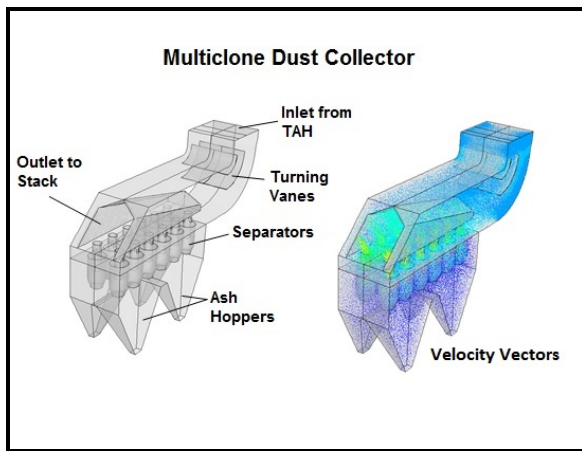


# PROJECT CAPABILITIES

## COMPUTATIONAL FLUID DYNAMICS (CFD) MODELING FLUE GAS FLOW COMPONENTS AND HEAT TRANSFER SURFACES

- Superheaters, Economizers, Air heaters
- Multiclone Dust Collectors
- Ducting and Precipitator Inlet
- Cyclones

JANSEN uses Computational Fluid Dynamics (CFD) modeling software to analyze fluid flow patterns, fuel combustion processes, fuel capacity, emissions performance, and heat transfer profiles in various boiler-related equipment. The scope of services typically includes field data collection, set-up of a model to evaluate current flow characteristics, and the use of this model to evaluate conceptual improvements. CFD modeling by JANSEN has been conducted in-house by JANSEN engineers for more than 20 years.



Applications and Selected References (see next page)

**PROJECT CAPABILITIES**  
**COMPUTATIONAL FLUID DYNAMICS (CFD) MODELING**  
**FLUE GAS FLOW COMPONENTS AND HEAT TRANSFER SURFACES**

**Applications**

Typical areas where JANSEN applies CFD modeling to investigate, predict, and/or optimize performance of boiler equipment include:

- Boiler furnace combustion modeling (see C-06).
- Heat transfer and erosion/corrosion factors.
- Poor collection efficiency or high pressure drop in cyclones.
- Heat transfer analysis in superheaters, generating banks, and economizers.
- Analysis of flow pattern and particulate distribution in inlet ducting to precipitators.
- Biasing of flow in ducting.
- Poor flow distribution in wet or dry ESPs.
- Spray cooler, scrubber, and cascade/cyclone evaporator performance predictions.

**Selected References**

Alpac - Boyle, AB  
Brahma - Shady Point, UT  
DTE Energy - Cassville, WI  
Hitachi Zosen Inova - Norcross, GA  
Hyne Timber - Australia  
Kimberly-Clark - Everett, WA  
Louisiana-Pacific - Roaring River, NC  
Minnesota Power - Duluth, MN (2 units)  
Packaging Corporation of America - Valdosta, GA (2 units)  
Process Equipment/Barron Industries - Pelham, AL  
Veolia - Pinellas, FL