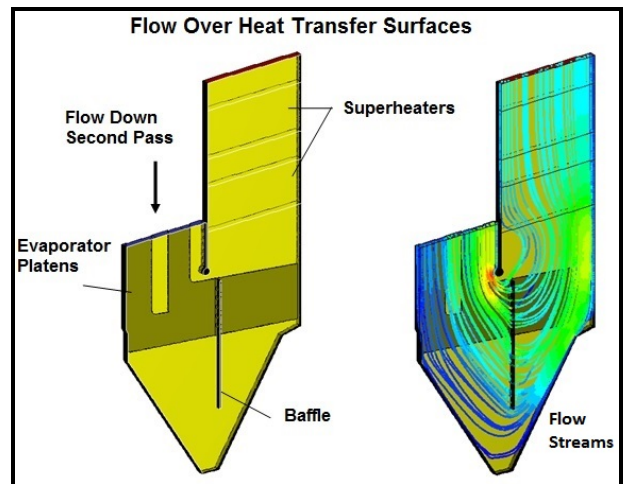
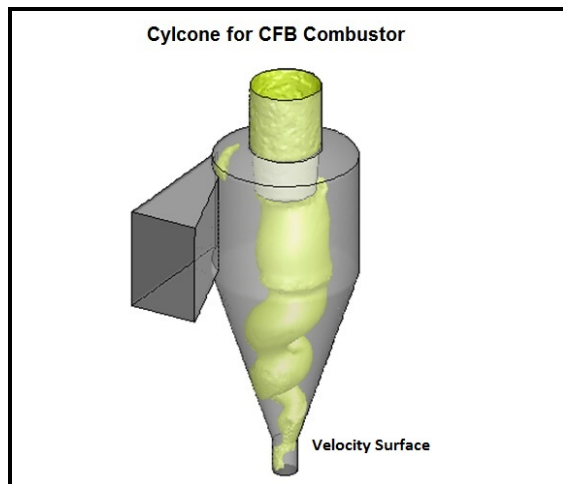
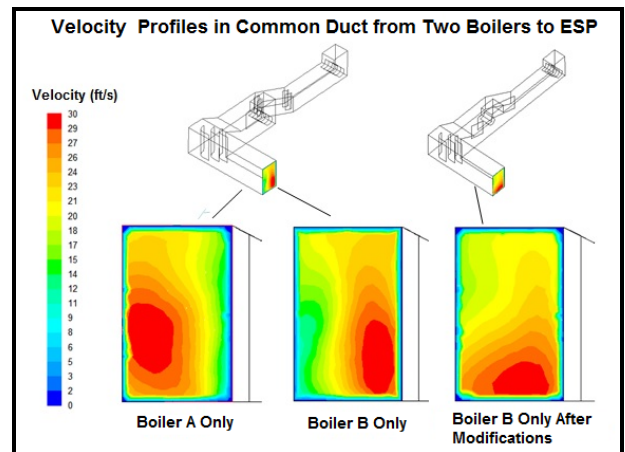
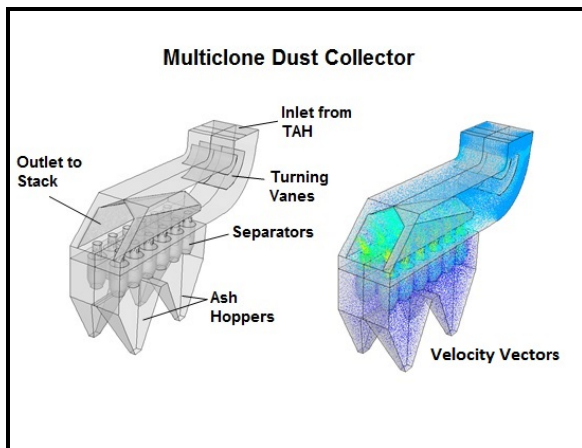


PROJECT CAPABILITIES

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

- Superheaters, Economizers, Air heaters
- Multiclone Dust Collectors
- Ducting and Precipitator Inlet
- Ducting and Stack 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.
- Analysis of pressure losses and flow uniformity in flue gas ducting.
- Poor flow distribution in wet or dry ESPs.
- Spray cooler, scrubber, and cascade/cyclone evaporator performance predictions.

Selected References

Alpac - Boyle, AB
Bracell Ltd. - Lençóis Paulista, Brazil
Brahma - Shady Point, UT
CenTrio Energy - Seattle, WA
Domtar Corporation - Plymouth, NC
Domtar Corporation - Hawesville, KY
DTE Energy - Cassville, WI
Enwave Steam Plant - Seattle, WA
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
WestRock - Phenix City, AL
Xcel Energy - Red Wing, MN