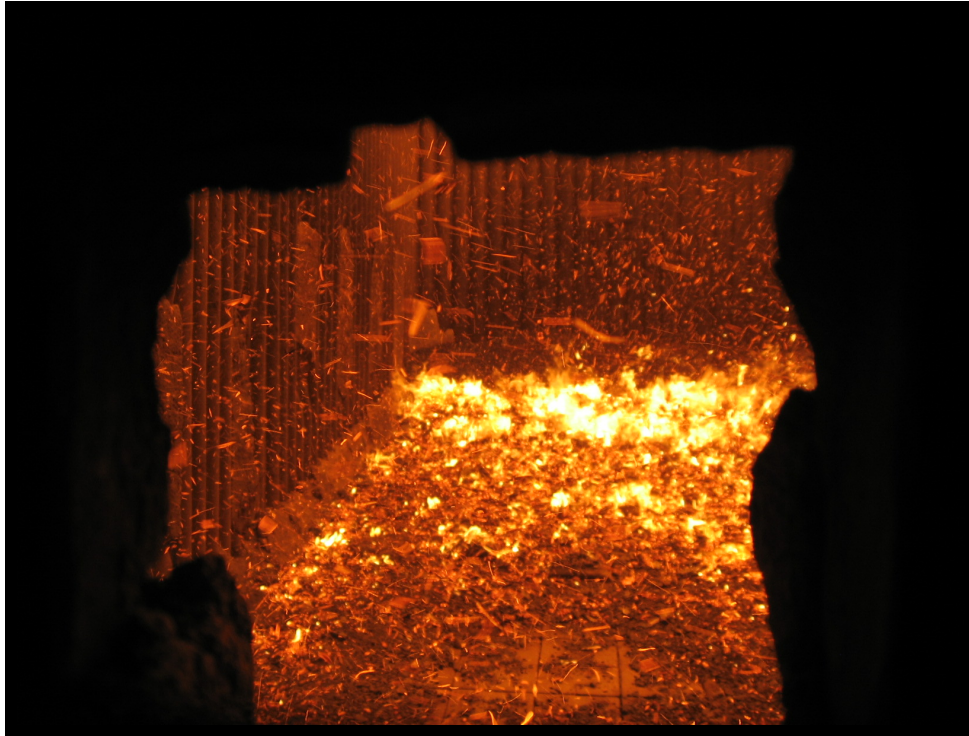


PROJECT CAPABILITIES



BOILER EVALUATIONS



Capacity, Operational Performance, Fuel Economy, and Emissions

Fuel economy, maximum availability, steam generating capacity, optimized emissions performance, and operating flexibility at the lowest cost are the key goals of power boiler operation. JANSEN has conducted engineering evaluations for more than 250 solid fuel-fired boilers. We have assisted numerous plants with implementing operational and hardware changes to improve the performance and thermal efficiency, optimize solid fuel-firing, reduce landfill costs, and reduce air pollution emissions from their boiler operations.

Scope of Services

- Solid fuels combustion problem solving (coal, waste wood, bagasse, agro-waste, TDF, NCG, sludge, etc.).
- Improved performance and steam generating capacity.
- Application of advanced combustion technology.
- Reduced CO, VOC, NO_x, SO₂, and particulate emissions.
- Computational Fluid Dynamics (CFD) modeling and analysis (in-house).
- Measurement and analysis of boiler circulation.
- Incineration of concentrated and dilute non-condensable gases (CNCG & DNCG), and sludges.
- Boiler MACT Compliance Review and Implementation.

Selected References (see next page)

Selected References Boiler Evaluations

Alabama River Pulp Company - Perdue Hill, AL
 Alliance Forest Products - Coosa Pines, AL
 Appleton Papers, Inc. - Roaring Spring, PA
 Atlantic Power Corporation - Williams Lake, BC
 Avista Corporation - Kettle Falls, WA
 Boise Building LLC - Medford, OR
 Boise Cascade Corporation - Elgin, OR
 Boise Cascade Corporation - DeRidder, LA (2 units)
 Boise Cascade Corporation - Rumford, ME
 Boise Cascade Corporation - Steilacoom, WA
 Boise Cascade Corporation - Int'l Falls, MN (2 units)
 Boise Cascade Corporation - Wallula, WA
 Burney Forest Products - Burney, CA
 CAIG, SA, Ing. Madre Tierra - Santa Lucia, COTZ, Guatemala
 Canfor Intercon - Prince George, BC
 Canfor Northwood - Prince George, BC
 Canfor PGP&P - Prince George, BC (2 units)
 Capital Power - Southport, VA
 Cariboo Pulp & Paper - Quesnel, BC
 Caracol Knits - San Pedro Sula, Honduras
 Cargill - Mairinque, Brazil
 Cargill - Minga Guazú, Paraguay
 Cargill - Ponta Grossa, Brazil
 Cargill - Primavera do Leste, Brazil
 Cargill - Três Lagoas, Brazil
 Cargill - Uberlândia, Brazil
 Carter Holt Harvey - Kawerau, New Zealand
 Carvajal - Cali, Colombia
 Catalyst-Hudson - Anderson, CA
 Catalyst Paper - Crofton, BC
 Catalyst Paper - Port Alberni, BC
 Catalyst Paper - Powell River, BC
 Clearwater Paper - Lewiston, ID
 Consolidated Papers, Inc. - Wisconsin Rapids, WI
 Com Products International - Winston-Salem, NC (2 units)
 Corner Brook Pulp & Paper - Corner Brook, NL
 Daishowa America - Port Angeles, WA
 Daishowa Marubeni - Peace River, AB
 Delta Natural Kraft - Pine Bluff, AR
 Dominion Virginia Power - Altavista, VA (2 units)
 Dominion Virginia Power - Hopewell, VA (2 units)
 Dominion Virginia Power - Hurt, VA (3 units)
 Dominion Virginia Power - Southampton, VA
 Domtar Inc. - Ashdown, AR (3 units)
 Domtar Inc. - Espanola, ON
 Domtar Inc. - Kingsport, TN
 Domtar Inc. - Nekoosa, WI
 DTE Energy - Cassville, WI
 DTE Energy - Stockton, CA
 Eurocan Pulp & Paper Company - Kitimat, BC
 Evergreen Packaging - Canton, NC
 Evergreen Packaging - Pine Bluff, AR
 FibroMinn - Benson, MN
 Finch Paper LLC - Glens Falls, NY
 Flambeau Paper - Park Falls, WI
 Fletcher Challenge - Crofton, BC
 FMC Corporation - Green River, WY
 Fortistar Biomass - Hillman, MI
 Fraser Papers, Inc. - Park Falls, WI
 Fraser Papers, Inc. - Plaster Rock, NB
 Georgia-Pacific Corporation - Cedar Springs, GA
 Georgia-Pacific Corporation - Crossett, AR
 Georgia-Pacific Corporation - Palatka, FL
 Georgia-Pacific Corporation - Perry, FL
 Georgia-Pacific Wood Products - Corrigan, TX
 Georgia-Pacific Wood Products - Diboll, TX
 Georgia-Pacific Wood Products - Gurdon, AR
 Georgia-Pacific Wood Products - Pineland, TX
 Georgia-Pacific Wood Products - Prosperity, SC
 Great River Energy - Spiritwood, ND
 Grupo Cassa - Izalco, El Salvador
 Hercules Pinova - Brunswick, GA
 Idaho Forest Group - Moyie Springs, ID
 Incauca S.A.S. - Cali, Colombia (2 units)
 Inland Paperboard and Packaging - Rome, GA
 International Paper Company - Augusta, GA (2 units)
 International Paper Company - Bastrop, LA
 International Paper Company - Bogalusa, LA (2 units)
 International Paper Company - Corrigan, TX
 International Paper Company - Courtland, AL
 International Paper Company - Eastover, SC
 International Paper Company - Franklin, VA
 International Paper Company - Georgetown, GA (2 units)
 International Paper Company - Luiz Antônio, SP, Brazil (2 units)
 International Paper Company - Mansfield, LA (2 units)
 International Paper Company - Mogi Guaçu, SP, Brazil
 International Paper Company - Orange, TX
 International Paper Company - Pensacola, FL
 International Paper Company - Pine Bluff, AR
 International Paper Company - Pine Hill, AL
 International Paper Company - Pineville, LA
 International Paper Company - Port Wentworth, GA
 International Paper Company - Prattville, AL
 International Paper Company - Riegelwood, NC
 International Paper Company - Saillat, France
 International Paper Company - Selma, AL
 International Paper Company - Terre Haute, IN
 International Paper Company - Ticonderoga, NY
 International Paper Company - Vicksburg, MS
 KapStone Papers - Charleston, SC
 KapStone Papers - Roanoke Rapids, NC
 Ketchikan Pulp Company - Ketchikan, AK
 Kimberly-Clark Corporation - Everett, WA
 Kimberly-Clark Corporation - Loudon, TN
 Koch Cellulose - Brunswick, GA
 L'Anse Warden Electric - L'Anse, MI
 Longview Fibre - Longview, WA
 Louisiana-Pacific - Chetwynd, BC
 Louisiana-Pacific - Roaring River, NC (2 units)
 MacMillan Bloedel Ltd. - Port Alberni, BC
 MasTec Power Corporation - Franklin and Madison, GA
 Mead Paper - Chillicothe, OH
 Mead Paper - Escanaba, MI
 Mead Paper - Stevenson, AL
 MeadWestvaco Corporation - Covington, VA
 MeadWestvaco Corporation - Luke, MD
 MeadWestvaco Corporation - Phenix City, AL (2 units)
 Minn-Dak Farmers Cooperative - Wahpeton, ND
 Minnesota Power - Duluth, MN (2 units)
 Minnesota Power - Grand Rapids, MN (2 units)
 Mondi SCP - Ružomberok, Slovakia
 Neucel Specialty Cellulose - Port Alice, BC
 NewPage Corporation - Escanaba, MI (2 units)
 NewPage Corporation - Wickliffe, KY
 NewPage Corporation - Wisconsin Rapids, WI
 NewPage Corporation - Biron - Wisconsin Rapids, WI
 Orange County Container Group - Forney, TX
 Ohio Edison Company - Akron, OH
 Packaging Corporation of America - Counce, TN
 Packaging Corporation of America - Valdosta, GA (2 units)
 Packaging Corporation of America - Tomahawk, WI
 Plum Creek - Columbia Falls, MT (2 units)
 Port Townsend Paper - Port Townsend, WA
 Portucel - Cacia, Portugal
 Primary Power - Flint, MI
 PurEnergy - Rabun Gap, GA
 ReEnergy Holdings - Kenansville, NC
 ReEnergy Holdings - Lyonsdale, NY
 Riverwood International - Macon, GA
 Riverwood International - West Monroe, LA
 RockTenn Company - Demopolis, AL (2 units)
 RockTenn Company - Panama City, FL (2 units)
 RockTenn Company - Stevenson, AL
 Roseburg Forest Products - Dillard, OR
 Roseburg Forest Products - Weed, CA
 Sappi - Ngodwana, South Africa
 Sappi North America - Cloquet, MN
 Sappi North America - Skowhegan, ME (2 units)
 Sappi North America - Muskegon, MI
 Simpson Paper Company - Gilman, VT
 Simpson Tacoma Kraft - Tacoma, WA
 Smurfit-Stone Container Corporation - Fernandina Beach, FL
 Smurfit-Stone Container Corporation - Florence, SC
 Smurfit-Stone Container Corporation - Hodge, LA
 Smurfit-Stone Container Corporation - Missoula, MT
 Smurfit-Stone Container Corporation - Stevenson, AL
 Smurfit-Stone Container Corporation - West Point, VA
 SP Newsprint - Newberg, OR
 Spruce Falls, Inc. - Kapuskasing, ON
 Stone Container (Canada) Inc. - Portage du Fort, PQ
 Stora Enso North America - Biron, WI
 Suzano Papel e Celulose - Suzano, Brazil
 Tembec Inc. - Chetwynd, BC
 Temple-Inland - Bogalusa, LA (2 units)
 Thilmany Papers - Kaukauna, WI
 Tolko Manitoba - The Pas, MB
 Twin Rivers Paper - Edmundston, NB
 Verso Paper - Sartell, MN
 West Fraser / Weldwood - Hinton, AB
 Westvaco - Evadale, TX
 WestRock - Tacoma, WA
 Weyerhaeuser Company - Columbus, MS
 Weyerhaeuser Company - Cosmopolis, WA
 Weyerhaeuser Company - Emerson, AR
 Weyerhaeuser Company - Everett, WA
 Weyerhaeuser Company - Kamloops, BC
 Weyerhaeuser Company - Longview, WA
 Weyerhaeuser Company - New Bern, NC
 Weyerhaeuser Company - Oglethorpe, GA
 Weyerhaeuser Company - Plymouth, NC
 Weyerhaeuser Company - Port Wentworth, GA
 Weyerhaeuser Company - Rothschild, WI
 Weyerhaeuser Company - Springfield, OR
 Weyerhaeuser Company - Valliant, OK
 Wheelabrator - Auburndale, FL
 Wheelabrator-Spokane - Spokane, WA
 Willamette Industries - Bennettsville, SC
 Willamette Industries - Campti, LA
 Willamette Industries - Hawesville, KY
 Xcel Energy - Ashland, WI