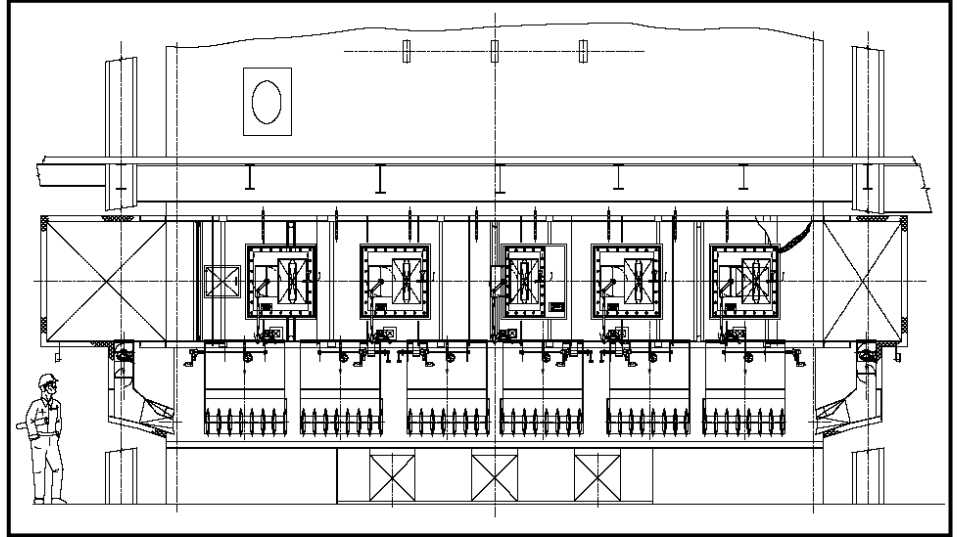


# Project Description

## *Three-Level Air System Upgrade on Two (2) Identical CE Recovery Boilers Containerboard Mill North America (US-South)*

### **Project Scope**

In the summer of 2006 Jansen was awarded the contract to provide engineering, and equipment supply for the combustion air system upgrade of two identical mid-sized recovery boilers in operation in a large containerboard mill in the US-South. The two V2R-type units were originally supplied by Combustion Engineering in the mid 1960s, each with a capacity to burn 2.4 million lb/day of virgin black liquor dry solids (BLDS).



The units were still operated with the original combustion air delivery systems consisting of primary air and tangential upper secondary air; cascade direct contact evaporators are also in use.

With these upgrades, the mill had the following goals:

- Increase the BLDS throughput of both units up to 3.5 million lb/day virgin BLDS at dry solids content initially near 65% and later to be raised in the 75% to 80% range.
- Reduce flue gas temperatures exiting the furnace in order to minimize potential superheater corrosion.
- Maintain emissions of air pollutants well within the regulatory limitations.
- Minimize water wash frequency.

CFD modeling conducted by Jansen early in the project demonstrated that all performance goals could be achieved with an upgrade consisting of the following elements:

- Primary air around the periphery of the furnace (the opening of the existing ports were reduced by 40%).
- Installation of new overbed secondary air on the side walls, utilizing Jansen High Energy Combustion Air Nozzles™ located approximately five feet above the primary ports.
- Retaining the existing upper tangential air in service unchanged and renaming it tertiary air.

No new fans or fan modifications were required and new secondary air supply ducting and windboxes were kept to a minimum.

### **Results**

Installation of the three-level air system upgrades for the No. 2 and No. 1 Recovery Boilers took place during annual outages in the Spring and Fall of 2007, respectively, and their performance expectations and guarantees are being met.