



# **F.H. Stoltze** **Land & Lumber**

## **Co-Generation**

### **System Details**

- **Boiler System:** Wellons, single cell, watertube modular construction. Delivers up to 40,000 lbs/ hour of superheated steam at 650 psig and 725<sup>0</sup>F. Provides steam to the kilns to dry lumber, heat for the sawmill, and spins the turbine generator.
- **Biomass Fuel:** Bark, sawdust, planer shavings of various species and woods direct hogfuel when needed. Consumes 8 tons/hour, 192 tons/day, 67,200 tons per year or 2,240 +/- truckloads.
- **Turbine:** Dresser Rand extraction turbine with a name plate rating of 2500 KW. Extraction steam of up to 30,000 lbs/hour at 50 psig and 310<sup>0</sup> F.
- **Generator:** Toyo Denki Power Systems, with maximum capability rating of 3750 KW. This can power up to 3000 homes in the Flathead Valley.
- **Air System:** Maximum combustion air flow is 92,125 lbs/hr. Induced and Forced draft fans control combustion in the boiler.
- **ESP System:** A series of plates (60,000 volts DC) remove particulate matter prior to the exhaust air leaving the stack.
- **Water System:** 46 Million gallons of water per year treated to supply the boiler and cooling towers. Water is mechanically filtered, softened and purified with a Reverse Osmosis System. A 5000 gallon makeup tank holds several hours of makeup water. About 85% of the water is recycled in the process.
- **Permitting:** Air Permit from DEQ. Discharge permit for industrial waste water from DEQ. Water rights obtained through DNRC for both a deep water well and creek.
- **Economics:** A 20 year Power Purchase Agreement was formed with Flathead Electric Co-op and Bonneville Power Administration to provide an annual average of 2.5 MW/hr for 8,400 hours (350 days/yr).
- **Personnel:** 11 full time employees run the Power Plant. In addition, 3 electricians, maintenance and equipment operators are shared part-time with the mill operations. More than 20 different contractors and more than 100 employees contributed to the construction effort which took more than 1.5 years to complete. Several years of research, planning and engineering were completed prior to construction.