



A Rockwell Automation Company

MB Pembroke MDF Plant

The Client:

MB Pembroke is a joint venture between MacMillan Bloedel and several local sawmills. MacMillan Bloedel, with its subsidiaries, is the largest forest products company in Canada. It manages operations in

Canada, the United States and Continental Europe. Products include lumber, panelboard, engineered wood products, newsprint, containerboard, corrugated containers and spacecraft.

The Requirement:

The Pembroke plant has a design capacity of 130 billion square feet (3/4 inch basis) of MDF. It uses a 10'6" wide continuous press provided by Kusters. MB Pembroke selected RBW, a consortium between Roche engineering and Bennet & Wright, to provide EPC services for the construction of the mill. Roche commissioned Hinz as the electrical/controls consultant based on our single discipline specialty and specific engineered wood and refiner experience. Hinz'

responsibilities included the design of the electrical and control system configuration. This design had to be flexible enough to accommodate multiple vendors, but also needed to keep the number of vendors (and therefore spare parts inventory) to a minimum. Communication was extremely important to the project's success since several of the large process equipment vendors were from Germany.

The Design Solution:

Hinz provided electrical engineering and project management services including selection of major electrical and controls hardware, electrical design, instrumentation design, specification and supervision of control systems provided by others, HMI configuration, programming of a number of the PLC systems, documentation and on-site commissioning.

The large I/O quantities created a need for PLCs dedicated to individual process areas based on process independence and vendor supply. Overall plant control was distributed between twelve process areas. Each process area implements control with one or more Allen-Bradley PLC 5/40E or PLC 5/80E processors. Communications between the PLCs and the HMIs is achieved using a TCP/IP Ethernet LAN. The Human Machine Interface (HMI) is InTouch 's Wonderware for Windows 3.11 operating on Pentium-based workstations. A total of fifteen stations exist. Fourteen stations are located in the control room and one is in the field for the finishing line. Each HMI station uses mouse input to access the main graphic screens and pop up windows as required to perform the control functions with minimal steps.

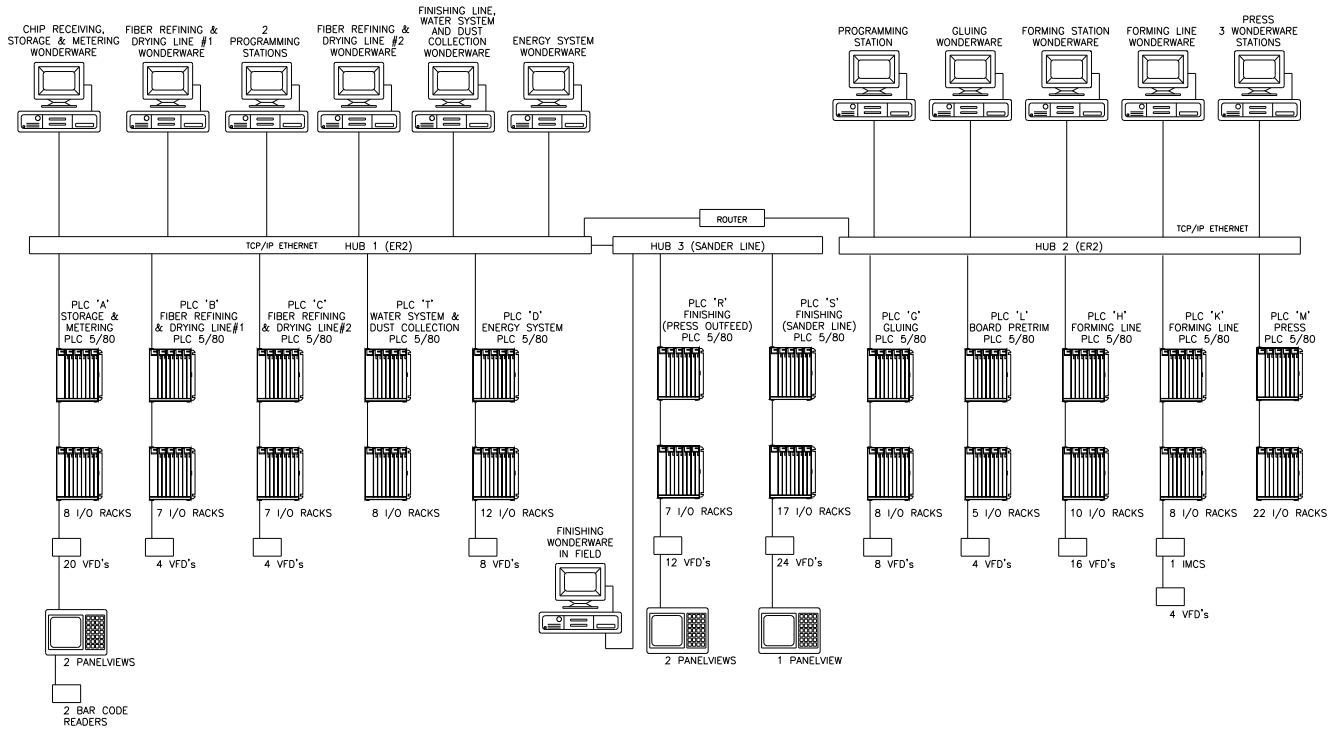
The majority of the PLCs and HMIs were programmed by the process vendors because of concern over performance guarantees. Hinz was responsible for the overall control system configuration, HMI screen formats, and PLC software design standards to be used by the vendors.

The Pembroke plant has over 850 motors with a connected horsepower of 36,000. Two (2) of these motors are 8,000 HP Kuster refiners. The main plant distribution is 44kV with 44kV/4160V and 4160V/600V unit substations distributed throughout the plant to provide feeders to motors as required. MCC Layouts were structured according to process areas allowing for fast start-up and check-out of all components as each process area was completed. This approach provided increased flexibility and minimal impact on construction occurring in other areas. All motor control I/O was installed and pre-wired within the MCCs by the MCC manufacturer to minimize errors and expedite the installation and commissioning process. Field I/O were enclosed in remote I/O cabinets and distributed throughout the plant as needed. All VFDs interface to the PLC system via remote I/O.



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System Specifications:

- 850 Motors, 36,000 HP connected
- 15 Wonderware Stations
- 12 Allen-Bradley PLCs
- Ethernet TCP/IP LAN

For further information or to contact a Hinz office near you, please check our website at:

www.hinz.com