



A Rockwell Automation Company

## Urban Forest Recyclers Ltd. Pulp Molding Facility

### The Client:

Urban Forest Recyclers Ltd. operates a pulp molding facility in Swift Current, SK. It includes the largest single line of any type of pulp molding machine in the world. Up to 50 metric tons of recycle material can be

processed per day (90% newspaper, 10% cardboard), and used to make 1 million egg trays and fruit packing trays per day.

### The Requirement:

Urban Forest Recyclers purchased the plant in 1994 after the previous owner had shut it down. The old plant was designed to make meat packing trays. The new process involved processing recycled newsprint and cardboard into pulp. Modifications and additions were required for the entire pulper system, molder control system, and an entirely new conveyor and diverter system was needed since new products in a variety of sizes were to be produced. A product monitoring system was also required to determine the destination of the products once they exit the molder.

Vacuum forming is used to collect pulp on the moulds. The molded product then makes eight passes through a 160 foot dryer before conveyors take them to stacking machines which prepare them for shipment to sites around the world.

Hinz became involved as a result of contacts with the previous plant owner and thus a familiarity with the existing electrical and control system.

### The Design Solution:

The previous operation utilized Toshiba PLCs for controlling equipment in both the pulping and molding process. These existing Toshiba PLCs along with the Toshiba TOS Line communication network were used in the new implementation. Three Emerald TouchScreens running Toshiba's PAL Screen software were also used as HMIs in the system. Seven Toshiba PLCs are used in total. Two of these, CP0-1 and CP0-2, are used mainly for communication and ventilation control. CP9 monitors and controls the receiving area conveyors and scale. CP10 controls the pulper operation and the handling of the pulpy stock as it is pumped into storage and cleaning tanks. CP12 controls the addition of chemicals which must be added to the stock before molding. CP1 is the PLC at the molder console which controls the mounding process including the tank and pump controls for transporting stock from the storage area to the molding vats, the automatic speed and timing vacuum and blow-off controls for the actual forming of the product, the

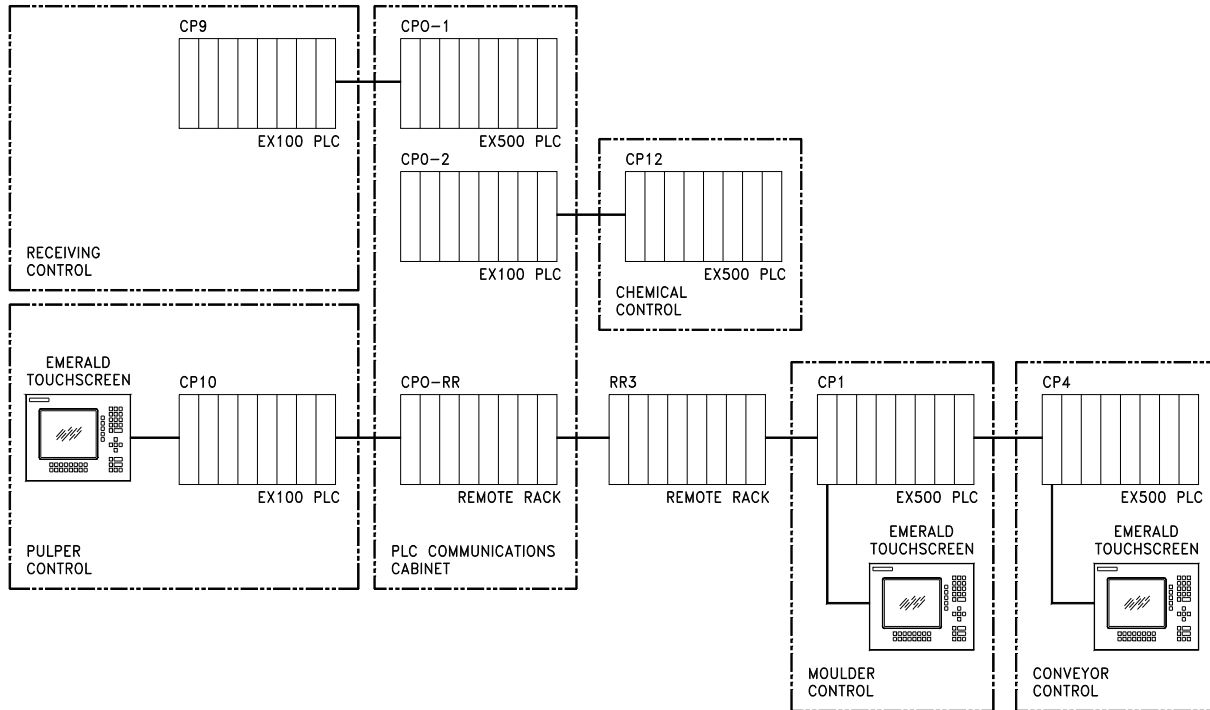
speed and temperature control of the huge drying oven, and the ventilation control for the 130,000 square foot processing area. CP4 is the final PLC which controls the speed and timing of the product handling system and consists of eight conveyors, five diverter units, and up to fourteen automated stacker machines. CP4 is also required to monitor the type and size of product exiting the dryer oven since some conveyors can have four different sized products on them simultaneously, all of which must go to specific stacking machines. Automated packaging tables are also controlled from CP4.

Hinz provided programming, engineering, and on-site commissioning services for all electrical, controls, and instrumentation requirements.



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### System Specifications:

- 4 Toshiba EX500 PLCs
- 3 Toshiba EX100 PLCs
- 1050 discrete I/O
- 50 analog I/O
- 3 Emerald TouchScreens
- Toshiba PAL MMI software

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

[www.hinz.com](http://www.hinz.com)