The cars next enter twin tunnel combination predryer/dryers. Each tunnel holds 8 cars in the predryer and 14 cars in the dryer. The predryer and the dryer are separated by an inner door. The predryer has two zones of control and maintains both temperature and humidity automatically. Most of the shrinkage water is removed in the predryer. Each dryer has five control zones, and heat is supplied by either the waste recovery system on the kiln or by a 5 million BTU burner. The maximum temperature is 300°F, and conditions are monitored by the kiln computer.

The Ceric kiln is 345' long and holds 27 1/3 cars. It is intermittent push. The maximum temperature is approximately 2060°F when flashing and 2020°F when not flashing (80% of the products are flashed at this time). The fuel is firm natural gas with no standby. The fuel guarantee for the kiln at the designed schedule is 850 BTU's/pound.

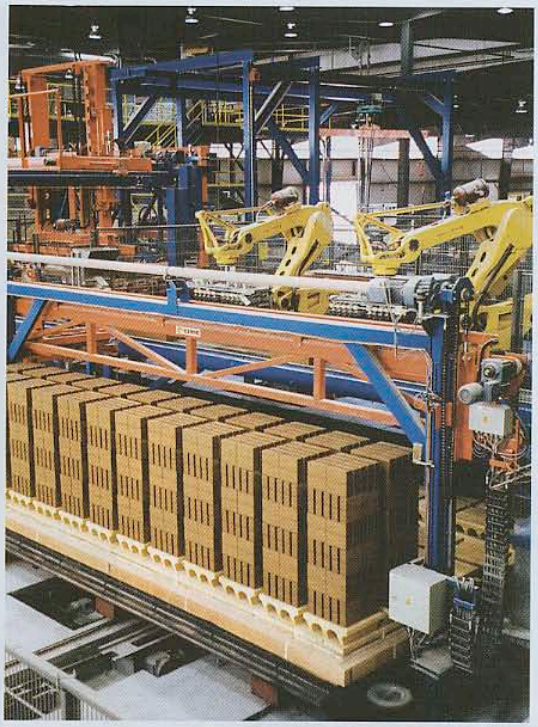
The kiln is equipped with a cold-air blast at the entrance end. The function of the blast is to break up the draft and to control the temperature flow to the scrubber. There are two levels of side burners in the preheat and eight zones (26 burners each) of crown burners in the firezone. The last crown zone is used for flashing. The crown burners can either be pulse fired or fired proportionally so that a firing strategy can be developed for each size/type of product. There are two quench zones that help maintain the proper cooling rate at the exit end of the kiln.

The design schedule is 20 cars/day, and the software allows kiln personnel to check the firing curve on each car. Brick & Tile's goal is to achieve 5-6% cold water absorption in their fired products at this schedule.

Exhaust from the kiln is pulled through a Hellmich scrubber by the 150 HP fan located outside adjacent to the scrubber. This scrubber is a Model MKD-R, dry injection hot baghouse unit, and it is the first of its kind to be used on a structural clay plant in the US. The unit recirculates material continuously in addition to the introduction of fresh reagent which gives greater flexibility in meeting the requirements of EPA. It can also operate up to 3 days in the "recirculation" mode without the addition of fresh material and can run approximately 2 days with no waste discharge. Both of these modes of operation could be very beneficial during times of electrical or mechanical failure. The addition rate for fresh reagent is 81.3 pounds/hour. The minimum operating temperature for the system is 300°F, and an auxiliary burner comes on if needed. The spent reagent is both being stored in super sacks and disposed of in a local landfill until a decision can be made in the future about possible uses.

Dehacking and Packaging

The Ceric dehacker unloads and blends brick from two cars at a time. The transport heads pick up 6 packs from each car and take them to one of two slat conveyors. The slat conveyors move the packs to two Fanuc M410iWW robots which unstack and blend the brick, two courses at a time. These robots are unique in that they are equipped with lasers to guide them in precisely locating the fired brick. They are the first of their type to be used in the brick industry. Brick from the top layers or the



Robots Complete the Setting Process

Alignment of Loads and Block is Automatically Checked as Cars Enter Holding Room