PROPOSAL FOR SHORT-BLOCK OPTIMIZATION

OPTIMIZATION SYSTEM,
PHASES ONE & TWO

PHASE ONE: THE SHORT BLOCK SYSTEM - Capable of processing blocks from eighteen inches to six feet as described in the enclosed letter of understanding.
PHASE TWO: The LONG LUMBER SYSTEM – adds the capability of processing lumber from 6’ to 20’ and automatically sorting the waste, short blocks to be re-ripped, short blocks ready for the finger jointer, and cut-to-size items from 2’ to 16’.

PHASE TWO: THE LONG LUMBER SYSTEM
PHASE I

(1) Two feed systems capable of handling stock from 18 inches to 6 feet. Systems include chain deck to 8-foot wide unscrambler. Unscrambled material 6 feet and less.
drops into second 7-foot unscrambler located 1 foot below the belt. Material 8 feet longer passes over the second unscrambler onto a belt with a double pinch roll. This belt puts the 8-foot lumber, used to support the short blocks on pallets, into a bunk for later use. The two feed systems feed two separate belts (2) that feed two canted roll cases (3) that, in turn, feed the 31-inch gang rip saw (4). Two continuous lines of material pass through the gang rip saw running 175 feet per minute resulting in a total of 75 pieces of 24 inch blocks on each side or 150 pieces total (5). Short blocks from 18 inches to 6 feet exit the rip saw and the unsupported edges drop into a 5 foot belt that in turn feed an automatic slasher saw (6) that cuts the edgings into pieces 12 inches or less. Good pieces are supported over the waste belt and are dropped (7) onto a 5-foot belt (8) that carries the blocks to the end of the storage bins (9). These bins are 35 feet long, 8 feet wide and 4 feet deep. As the blocks fill up the end of the storage bin, the blocks are moved toward the front using chains and slats. The movement of the stock is accomplished automatically using electronic sensors. A (10) descrambler (8 feet wide) empties the bin of stock to be scanned. This unscrambler can be moved left or right to empty the appropriate bin. The stock is then transported to the scanner on a belt (11).

A speed up belt (12) pulls a small gap (greater than ½ inch) going into the Cell Scan Profiler (13). This unit contains 4 Cell Scan emitters (all sides) and 8 Cell Scan receivers. These scanners run at 1200 scans per second. After the Profiler, the blocks
are conveyed to the Biological Cell Scan unit (14) that contains 4 Cell Scan heads (scans four sides) that collect 18 signals, each scanning at 600 times per second. After scanning, the blocks are conveyed (15) and sorted onto one of three 6-foot wide belts (16) that in turn feed the three short block saws (17). These saws have a top speed of 1,000 and can stroke 5 times per second. Each saw is equipped with a sorter (18) that carries the blocks to storage bins.

The sorters (18) blow the waste into a conveyor (19) and “special cuts” into a conveyor (20). “Special cuts” can include any type part, including stock 3 inches wide. The short stock is then blown onto one of five conveyors 4 feet wide (21) that carries the blocks to the far end of each of 5 storage containers (22) 50 feet long, 8 feet wide and 4 feet tall. These storage containers are equipped with chains and slats that move the blocks automatically toward the front. Each bin is emptied using a moveable 8-foot descrambler that empties onto the conveyor system (24) that feeds the centrifugal singulator (25) that feeds the lug loader (26) at 150 pieces per minute of 24” or shorter pieces.
PHASE II
The tilt hoist and descrambler (27) feed long lumber directly to the scanner.
After scanning, the lumber is fed into a bi-directional saw feeder (28). This feeder keeps the boards singulated and load balances two Brute saws (29). The lumber is then sorted.
The sorters (30) blow off the waste into a conveyor (19) that has been lengthened. The sorters then sort using mechanical kickers on to a combination of chains and belts configured to accommodate a variety of sizes up to 16 feet in length (31). The sorters blow off short blocks that are suitable for finger jointing onto one of five conveyors (21) that have been lengthened to carry the stock to the back end of the holding bins (22).
Phase I
Phase II