Puzzazzle, Inc.

Memo

To: Manufacturing Design Teams
Date: 2006-03-28
From: Ralph Stirling
Subject: Puzzle piece manufacturing system specifications

Summary

The 2006 model burr puzzle piece production system must meet specific criteria for entry and exit of blocks, part quality, dust collection, and safety.

Criteria

1. Raw material: hardwood blocks (species including walnut, maple, cherry, and possibly others) of nominal dimension 0.75 x 0.75 x 2.25 inch, +/- 0.003 (95%)

2. Machine must cut zero, one, two, three, or four notches 0.375 inches in width and depth on one face of each block, and zero, one, or two notches on the second face, according to a standard digital coding scheme to be specified by week 4. Notch position, width, and depth must be accurate enough that 95% of puzzles assembled with the blocks manufactured by the machine can be assembled with no more than 2 pounds of force on any block. Blocks should be interchangeable between different puzzles (of the same design). Pay special attention to eliminating the need for any secondary operations, such as shaving off "feathers" or sanding.

3. Blocks are to enter and exit the machine by belt conveyor, traveling in the long direction. The machine must be capable of either:
    a. accepting and operating on blocks that have already had two notches cut on one face OR
    b. cut notches on two faces by rotating the block on its long axis within the machine.

4. The machine is to be designed such that the overhead 4 inch dust collection port will efficiently extract the wood dust and shavings from the cutting operation.

5. The machine is to be designed such that jams are minimized and that clearing a jam is a safe and easy operation.

6. Design noise-reduction measures into your machine.

Please study these criteria in preparation for team meetings at lab time Tuesday April 4. Come with well-thought-out ideas on slot cutting machine architecture.