

The CNC Shop With Tom Morin

Robotics diary: part 1

I have a unique and exciting contract to provide millwork for a new building that will be front-and-centre at the upcoming Vancouver Winter Olympics. It consists mainly of wall and ceiling panels that are designed to make the visitor feel like they are inside a giant stack of lumber.

Here's the challenge: how to turn more than a million end-grain blocks of varying sizes and thicknesses, into an interlocking panelized system. Each hemlock block must be glued to a plywood core, precisely 1 millimetre from the next block. All panel-to-panel joints must be hidden.

If that isn't enough, each panel's layout must appear to be random and unique. (The picture on the right should give you a rough idea of the complications.)



After all, the work is both repetitive and varied, much like the drilling of cabinet parts. Our dream became a mechanical arm that can pick up a part, pass it over a glue head and apply it precisely to the panel.

I had seen robotic arms at some woodworking shows,

loading and unloading CNC machines. But I always had the impression these robots were there just to attract attention, not a serious proposition for a small plant. I can easily envision salespeople rolling their eyes to the heavens and saying, "Oh yeah, big bucks."

However, when we looked into it, we discovered that a robotic arm is ideal for our application. The reality is a heavy-duty industrial robot is more affordable than a CNC machining centre.

Even though they are relatively rare in North American woodworking shops, these machines are commonplace in other industries. The type of robots used in woodworking are the very same machines used in the automotive industry. In fact, there is a thriving market for pre-owned and rebuilt robots.

European woodworking shops make much more use of robotics. They are used mainly for palletizing, spray finishing, sanding, material handling, machine load/unload, parts transfer, and assembly.

I think there is a world of potential in this technology that we woodworkers need to open our minds to. Who knows what the wood shops of tomorrow will look like?

In the meantime, my robot is on order, I'm heading off to robot school in Michigan, and we're slated to begin production first week of January. I'll keep you posted on how it's going. **ww**

Tom Morin runs Morinwood Contract Millwork in Victoria, B.C. Tell him what you'd like to know at info@morinwood.ca

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After much brainstorming and handmade mock-ups, a few difficulties emerged. For one, placing the blocks precisely and consistently is difficult and tedious. The variety of layouts requires dozens of different jigs, each one quite flexible. Furthermore, the logistics of getting the right-sized block to the layout person in the right order is a complicated job unto itself.

It didn't take long before we were thinking about adapting a CNC machining centre to perform the task.

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