



By Kim Kaiser

CASE STUDY

Illinois high school partners with industry

Machine and software suppliers bring high-tech world to Shiloh



Mark Smith, WoodLINKS and industrial technology teacher at Shiloh High School

“You can’t begin to create in their mind how big the wood industry is, how advanced it can be like the show can.”

- Mark Smith, WoodLINKS teacher



At a time when vocational programs are vanishing from high schools around the country, Mark Smith, an industrial technology and WoodLINKS teacher, with the help of design software packages and CNC machinery, is doing his best to work against the trend at Shiloh High School in Hume, Ill.

Smith first came to Shiloh — a school of only about 135 students in central Illinois — 10 years ago, and he has been continuously working to improve the industrial technology program every year. Smith knew right away what he needed to do to make the program a success.

Searching for success

“Well, when I first came to Shiloh High School I knew I needed to make

the program successful, not just in the minds of the students and myself but successful in the minds of other school officials like board members, administrators, principals, superintendents, as well as the community at large,” he says. “To make that happen I knew I had to get the industry involved.”

And get the industry involved he did. In 1999, Smith traveled to Milwaukee, Wis., with his wife, to the Industrial Strength Trade Show where he met Jerry Finch of Fox Valley College. Finch was manning the booth for WoodLINKS, which was just coming into the United States at the time, Smith says.

“I was very excited about that because they were doing at the national level what I was trying to do locally all

From left to right front to back: Paul Wilson, Mark Smith, Ryan Downey, Joseph Harbaugh, Matt Baxter and Jon Kincaid

by myself, which of course is very difficult, and so I took the information and was very excited about it,” Smith says.

Later in the school year Smith received a call from Larry Hilchie, who was overseeing the WoodLINKS organization at the time. Hilchie invited Smith to the IWF conference in Atlanta the following summer.

“I went and, of course, was blown away by the size of the show, the technology, the products, just everything you see at that show,” Smith says.

Steve Gilbert was able to make this table with the help of design software and a CNC machine.



After attending the IWF show, Smith knew the first piece of high-tech equipment the school needed to purchase to help the class move into a different arena of projects was a CNC router, which would allow them to cut anything they could draw, Smith says.

The class uses a Thermwood 1-Model 40 5' x 5' CNC router in the shop, which Smith was able to get for a discounted price.

Recently, Microvellum donated \$3 million worth of software to WoodLINKS schools, which Smith plans to integrate into his program at Shiloh. Smith has been able to acquire a variety of other tools and machines for the class as donations from a variety of companies as well. Companies that donated to the school include Mirka, National Detroit and Ferrari.

Traveling classroom

That first trip to Atlanta would be one of many, but in the future Smith would bring a handful of his students along. The class also travels to AWFS®.

"That (first IWF show) really began the process of taking students every year to the shows because at the shows they get to see things, get to talk to people," Smith says. "It does for the student things you cannot do in the classroom. You can't begin to create in their mind how big the wood industry is, how advanced it can be like the show can."

Smith brings 10 students to each show. The students must be 16 years old before the time of the show, although Smith says if the student is going to turn 16 during the show they usually let him or her come. The students also have to be involved in Smith's program as well as be in good standing with the school, both academically and behaviorally. Smith says the shows are a sort of reward for the students.

"One of the reasons

we go to these trade shows is to learn about what's going on in the industry, what are the new products, what are the new software programs, new machines, new materials," Smith says.

The trade shows have done more than introduce the students to what is out there; they have helped inspire

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“Now, post-high school, I’m starting to realize that might be something I eventually might want to do as a career.”

— Adam Carrington, 2004 Shiloh High School graduate

the students.

“IWF, that really got me going; it lit my fire seeing all the different designs and possibilities,” says Emory Luth, a 2004 graduate of Shiloh High School who now attends the University of Illinois at Champaign-Urbana and is studying mechanical engineering.

The trade shows opened Adam Carrington, another 2004 graduate of Shiloh and also a student at the University of Illinois at Champaign-Urbana, to possible careers in wood manufacturing.

“I went to one in Anaheim, Calif., two years ago, and then I went to the one in Las Vegas, this past year,” Carrington says. “Now, post-high school, I’m starting to realize that might be something I eventually might want to do as a career.”

“People don’t really realize what the woodworking industry is until you go to a show like that. It’s so automated there, it’s a huge market, and there are good paying jobs out there for people who are good at what they do. It was just a lot of fun, and I could see where I could make a lucrative career in woodworking.”

The contacts Carrington made at those shows are now coming in handy. “Right now I’m actually talking to a few different companies that I established contacts with through those shows



and through industry support for our program, and I’m hoping to obtain an internship with one of them this summer.”

For quite some time Smith had been looking for a program that would allow him to draw organic shapes that the class would then be able to cut on the CNC router.

“Of course this can be done on [another program and CNC router because] there are various other programs that could,” Smith says. “But it takes a degree of skill that, at the time, I was not able to find anyone with to teach me that level of expertise to draw organic surfaces like that in the existing programs I had. So, it was very frustrating.”

About two years ago he finally found

the solution. At the IWF show in Atlanta, Smith came across the ArtCAM booth and James Booth, the North American sales director for the company, and Brad Devereaux, an applications engineer for the company.

“I saw at their booth the kind of things I had wanted to do, you know being able to carve grape vine or things of that nature,” he says.

Technical support

Smith began corresponding with Booth to get a copy of ArtCAM for the school. “They were very helpful to us; they sold it to us at a reduced price, and then they also gave us a tremendous amount of technical support,” Smith says. “We probably spent hours on the phone with them.

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"Anytime the students or I are working on a project and have a problem we just call them up. They would sometimes have us send in the program that we were working on, and they would look at it at the same time we were looking at it and troubleshoot. The technical support they have given us has just been fabulous."

Carrington agrees with Smith on the quality of the technical support. "I know several classmates of mine would call up technical support in the middle of class in California or North Carolina or wherever the company was and sit on the phone with them. And a lot of the times, especially with ArtCAM being as new as it is, the techs would say 'hey, just e-mail that file to us.' So we'd e-mail our files and they'd fiddle with it and e-mail us back and say 'this is what you need to do.'

"There were a lot of times when it got really, really frustrating and really, really difficult. You'd think you had one thing ironed out, and then it would be something else. Without the technical support relationships we've got with the industries, it would have been a lot harder."

Shiloh High School's partnership with ArtCAM has proven to be very beneficial. "Well of course, it has had a tremendous impact on the projects we do build," Smith says.

The program has especially been useful to juniors and seniors who have gained a sufficient degree of knowledge running the typical tools in the shop and may even have some CNC experience — students who are ready for something a bit more challenging than building a traditional coffee table.

"It was a challenge (to learn the programs), but I was very happy to be learning that stuff," Luth says.



Joe Harbaugh, a student in Mark Smith's at Shiloh High School, displays the table he was able to create with the new software and a CNC machine.

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"[The software] took it from a nice coffee table to a fabulous coffee table."
— Mark Smith

Software in the classroom

"We will take an ordinary project that people are used to seeing that you could go out and buy, or you could pay somebody to make, and we will drastically alter its appearance by adding something that's carved with the program, something like a grapevine," Smith says.

In fact, the first project the class worked on using ArtCAM was to add grapevines to the aprons of an ordinary oval coffee table. "It was really nice; it really made it from a nice coffee table to a fabulous coffee table," Smith says.

The software has helped the students to produce much more detailed work. "I made a bar, and we used the

software to cut out all the trim; I had grapevine trim all around the edges of it. The software and the CNC machine did all of that," Carrington says.

Learning ArtCAM in high school has also put some of Smith's former students ahead of the pack in college. Steve Gilbert, a 2005 graduate of Shiloh was able to skip the first CAD/CAM class at Parkland Community College, in Champaign, Ill. "I'm actually in the second semester CAD/CAM class in college right now," he says. "I'm in advanced AutoCAD 3-D right now. So I didn't even need to take the first year of CAM because of his [Smith's] one year of high school. His classes were very informative and definitely past the college level."

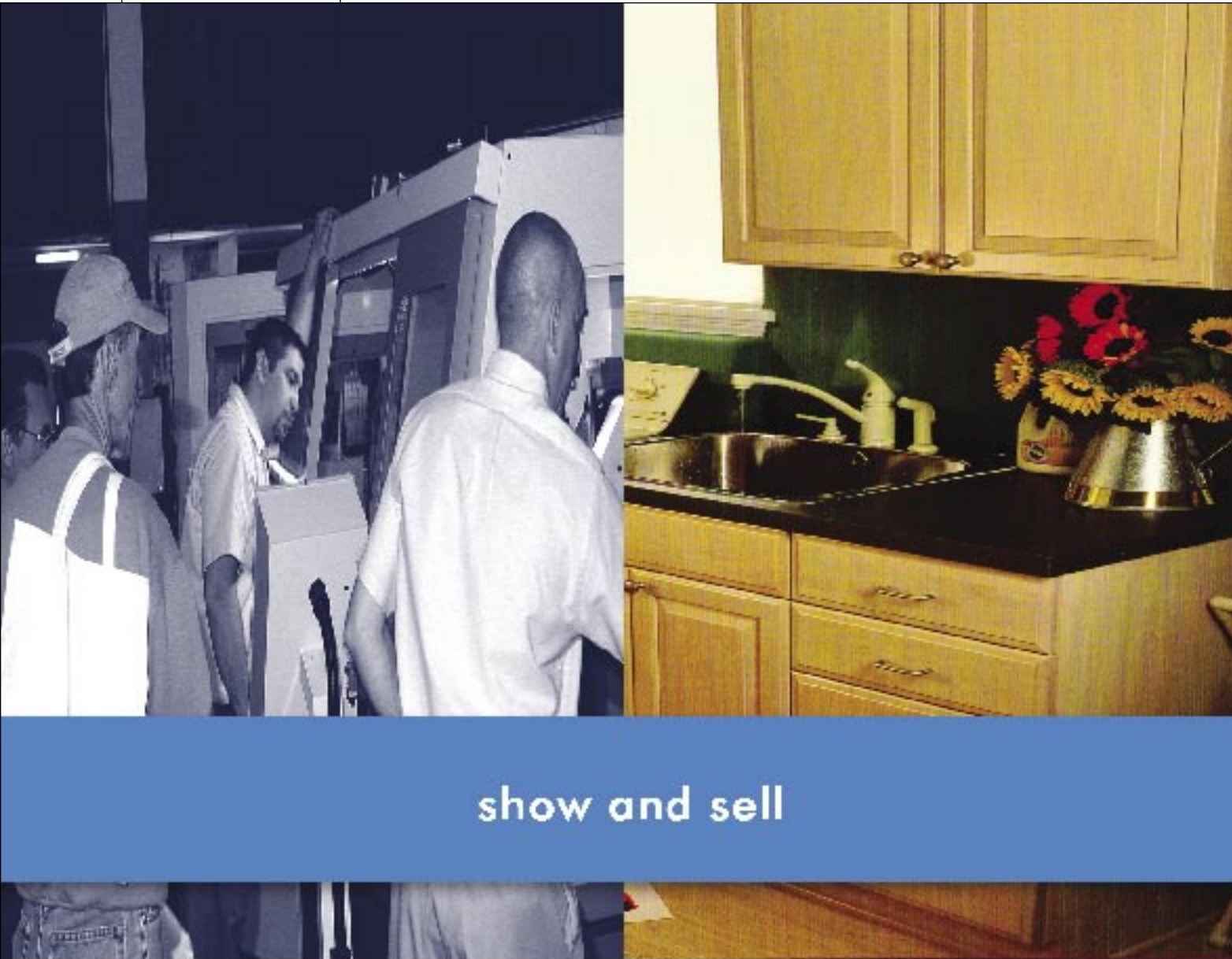
Plans for the future

Another area that Smith is hoping to add ArtCAM is the class' school-based enterprise. The class builds cabinets for people in the community, and now even in other parts of the state, for the cost of materials and a \$2,000 donation to the program, according to Smith.

"So, basically they get a Menards' or Lowes' price but a much higher quality," Smith says.

The enterprise has now grown and now jobs are being outsourced to the class. The class cuts parts for an outdoor furniture company and currently is working for a company that makes wooden sunglasses.

"It's grown quite a bit



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since it started, and that has gotten industry attention," Smith says. "They are appreciating what we are doing and how we are training students. Of course, their support has grown along with their appreciation and hopefully respect for what we are doing."

Smith wants to continue to improve the quality of the class's kitchen cabinets, and thinks the new software is one way to do that. "We are hoping to start using a program like ArtCAM to add value to our kitchen cabinet jobs," he says. "Our cabinet jobs have progressed to the place where we make cabinets of varying heights, varying depths. We can create a kitchen cabinet look that has that architectural look, and we can put varying heights of crown molding on them, dentil work on the crown molding or rope work on the molding. And we also stain and glaze and things like that."

But Smith wants the work to reach an even higher level of value.

"We want to be able to start offering the next level of value, where maybe the raised panel has a carving in it or there's carving around the rail and style of the door things like that, but that's not something we're going to start doing immediately. We have to get better at what we do. But that is something we are definitely looking at offering."

The students at Shiloh even have cabinetmakers

from the area coming to them for help. "They are always coming to us asking if 'you can supply us with carvings, can you do this, can you do that?' And of course we can, once we have mastered some of the tools we have at our hands, such as ArtCAM. So that's what we're looking at in the future." **WD**

SOURCES

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"We want to be able to start offering the next level of value."

— Mark Smith



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Adam Carrington designed the grapevine detail for his bar project using the new software.