# Woodworker

## Snapshot

**Career Cluster(s):** Architecture & Construction; Business, Management & Administration; Manufacturing

**Interests:** Creativity; woodwork; working with one's hands

**Earnings (Yearly Average):** $32,690

**Employment & Outlook:** Decline Expected

## OVERVIEW

### Sphere of Work

Woodworkers manufacture a variety of products such as cabinets and furniture, using wood, veneers, and laminates. They often combine and incorporate different materials into wood. They may own their own business, often in very niche areas, or can transition their knowledge of woodwork into fields involving construction and/or repair.

### Work Environment

Working conditions vary with the specific job duties. At times, workers must handle heavy, bulky materials and may encounter noise and dust. As a result, they regularly wear hearing protection devices, safety glasses, and respirators or masks. Most woodworkers work full-time during regular business hours.

Carpenter working with an electric planer on a wooden plank. Photo via iStock.com/Monoliza21. [Used under license.]

### Occupation Interest

Woodworkers are skilled with their hands and have a strong grasp of math and design. Further, they are tech-savvy and know how to utilize the latest auto-

mated machinery to complete projects with increased accuracy. They are creative individuals with a desire to provide customers with artfully crafted wooden objects, often specializing in a particular niche, such as musical instruments.

### Profile

**Interests:** Things, Data, People
**Working Conditions:** Both Inside and Outside
**Physical Strength:** Medium Work, Heavy Work
**Education Needs:** On-The-Job Training, High School Diploma with Technical Education
**Licensure/Certification:** Optional
**Opportunities for Experience:** Internship, Apprenticeship, Part-Time Work
**Interest Score:** RC

## A Day in the Life—Duties and Responsibilities

Despite the abundance of plastics, metals, and other materials, wood products continue to be an important part of our daily lives. Woodworkers make wood products from lumber and synthetic wood materials. Many of these products, including most furniture, kitchen cabinets, and musical instruments, are mass produced. Other products are custom made from architectural designs and drawings.

Although the term "woodworker" may evoke the image of a craftsman who uses hand tools to build ornate furniture, the modern woodworking trade is highly technical and relies on advanced equipment and highly skilled operators. Workers use automated machinery, such as computerized numerical control (CNC) machines, to do much of the work with great accuracy.

### Duties and Responsibilities

- Understanding detailed architectural drawings, schematics, shop drawings, and blueprints
- Preparing and setting up machines and tooling for woodwork manufacturing
- Lifting wood pieces onto machines, either by hand or with hoists
- Operating woodworking machines, including saws and milling and sanding machines
- Listening for unusual sounds or detecting excessive vibration in machinery
- Ensuring that products meet industry standards and project specifications, making adjustments as necessary
- Selecting and adjusting the proper cutting, milling, boring, and sanding tools for completing a job
- Using hand tools to trim pieces or assemble products

Even specialized artisans generally use CNC machines and a variety of power tools in their work. Much of the work is done in a high-production assembly line facility, but there is also some work that is customized and does not lend itself to being performed on an assembly line.

Woodworkers set up, operate, and tend all types of woodworking machines, such as saws, milling machines, drill presses, lathes, shapers, routers, sanders, planers, and wood-fastening machines. Operators set up the equipment, cut and shape wooden parts, and verify dimensions, using a template, caliper, and rule. After the parts are machined, woodworkers add fasteners and adhesives and connect the parts

to form an assembled unit. They also install hardware, such as pulls and drawer slides, and fit specialty products for glass, metal trims, electrical components, and stone. Finally, workers sand, stain, and, if necessary, coat the wood product with a sealer or topcoats, such as a lacquer or varnish.

Many of these tasks are handled by different workers with specialized training.

## OCCUPATION SPECIALTIES

**Cabinetmaker/Bench Carpenter**
Cabinetmakers and bench carpenters cut, shape, assemble, and make parts for wood products. They often design and create sets of cabinets that are customized for specific spaces. In some cases, their duties begin with designing a set of cabinets to specifications and end with installing the cabinets.

**Furniture Finishers**
Furniture finishers shape, finish, and refinish damaged and worn furniture. They may work with antiques and must judge how to preserve and repair them. They also do the staining, sealing, and top coating at the end of the process of making wooden products.

**Wood Sawing Machine Setter/Operator/Tender**
Wood sawing machine setters, operators, and tenders specialize in operating specific pieces of woodworking machinery. They may operate CNC machines.

**Woodworking Machine Setter/Operator/Tender (Except Sawing)**
Woodworking machine setters, operators, and tenders (except sawing) operate woodworking machines, such as drill presses, lathes, routers, sanders, and planers. They may operate CNC machines.

## WORK ENVIRONMENT

### Immediate Physical Environment

Woodworkers may work in a high-production assembly line facility, but some (especially those creating customized pieces) work in a woodshop instead. They set up, operate, and tend all types of woodworking machines to complete their projects.

Wood sawing machine setters, operators, and tenders have one of the highest rates of injuries and illnesses of all occupations. These workers use tools and

equipment, such as saws and drill presses, which may be dangerous and can cause cuts or lacerations. Workers must wear proper safety equipment and be mindful of their surroundings to avoid injury.

Woodworkers are exposed to hazards such as harmful dust, chemicals, or fumes, and must often wear a respirator or mask. Others may be exposed to excessive noise and must wear hearing protection devices.

Most injuries involve sprains, back pain, carpal tunnel syndrome, and hernias. These injuries or illnesses come from excessive amounts of awkward bending, reaching, twisting, and overexertion or repetition.

### Human Environment

Woodworkers in manufacturing facilities interact with coworkers daily. They may or may not deal with customers directly. Woodworkers in smaller operations may not have as many support staff, but will likely interact directly with their customers, and may have multiple meetings with them to keep projects on track. Business owners are responsible for staffing and for settling disputes.

### Technological Environment

Woodworkers typically use CNC machines and a variety of power tools in their work. Machines include saws, milling machines, drill presses, lathes, shapers, routers, sanders, planers, and wood-fastening machines. Woodworkers must be well-acquainted with all available machinery in order to ensure high productivity and accuracy.

## EDUCATION, TRAINING, AND ADVANCEMENT

### High School/Secondary

A high school diploma or equivalent is typically required to become a woodworker. Although some entry-level jobs can be learned in less than 1 year, becoming fully proficient generally takes several years of on-the-job training. The ability to use computer-controlled machinery is becoming increasingly important, and people seeking woodworking jobs can enhance their employment prospects by getting training in computer applications and math.

**Suggested High School Subjects**

- Algebra
- Biology

- Chemistry
- Civics
- Earth or Life or Physical Science
- Economics
- English
- Entrepreneurship
- Geometry
- History
- Physics
- Pre-Calculus
- Psychology
- Statistics
- Trigonometry

**Related Career Pathways/Majors**

*Architecture & Construction Career Cluster*

- Design/Pre-Construction Pathway

*Business, Management & Administration Career Cluster*

- Manufacturing Production Process Development Pathway
- Production Pathway

*Manufacturing Career Cluster*

- General Management Pathway

### *Transferable Skills and Abilities*

**Detail-oriented**

- Meeting specifications and staying safe

**Dexterity**

- Precisely cutting with a variety of hand tools and power tools

**Math Skills**

- Understanding basic geometry in order to visualize how a three-dimensional wooden object, such as a cabinet or piece of furniture, will fit together

**Mechanical Skills**

- Using hand tools, such as screwdrivers and wrenches, to set up, adjust, and calibrate machines

**Physical Stamina**

- Enduring long periods of standing and repetitive movement

**Physical Strength**

- Lifting bulky and heavy pieces of wood

**Technical Skills**

- Understanding and interpreting design drawings and technical manuals for a range of products and machines

## Postsecondary

Some woodworkers obtain their skills by taking courses at technical schools or community colleges. Others attend universities that offer training in wood technology, furniture manufacturing, wood engineering, and production management. These programs prepare students for jobs in production, supervision, engineering, and management, and are becoming increasingly important as woodworking technology advances.

**Related College Majors**

- Furniture Manufacturing
- Production Management
- Wood Engineering
- Wood Technology

## Fast Fact

**Want to go into business building stringed instruments? Inside the USA, about 51 schools exist that can teach you how, according to the Guild of American Luthiers.**

Luthier. Photo by Christian Ericksen, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons.

### Adult Job Seekers

Adults seeking employment as woodworkers have the best chance of success if they have previous experience with woodworking, such as on a hobby basis, or have worked in related fields or facilities such as assembly line plants.

### Professional Certification and Licensure

Although not required, becoming certified can demonstrate competence and professionalism. It also may help a candidate advance in the profession. The Woodwork Career Alliance of North America (WCA) offers a national certificate program, with five progressive credentials, which adds a level of credibility to the work of woodworkers.

### Additional Requirements

Education is helpful, but woodworkers are trained primarily on the job, where they learn skills from experienced workers. Beginning workers are given basic tasks, such as placing a piece of wood through a machine and stacking the finished product at the end of the process.

As they gain experience, new woodworkers perform more complex tasks with less supervision. In about 1 month, they learn basic machine operations and job tasks. Becoming a skilled woodworker often takes several months or even years. Skilled workers can read blueprints, set up machines, and plan work sequences.

## EARNINGS AND ADVANCEMENT

Earnings depend on the type of woodwork and the experience of the woodworker. Median annual earnings of woodworkers were $32,690 in 2019. The lowest 10 percent earned less than $22,310, and the highest 10 percent earned more than $50,070.

Woodworkers may receive paid vacations, holidays, and sick days; life and health insurance; and retirement benefits. These are usually paid by an employer if the business is not self-owned.

## EMPLOYMENT AND OUTLOOK

Woodworkers held 263,500 jobs in 2019. Seven percent were self-employed. Employment is expected to decline 4 percent through the year 2029. Some demand for woodworkers is expected in residential and commercial property repairs and renovations. However, automation, especially the use of computerized numerical controlled machines in wood product manufacturing, should reduce the overall need for these workers over the decade.

Woodworkers who know how to create and implement custom designs on a computer should have the best job opportunities in manufacturing industries.

Those who can demonstrate leadership, problem solving, and advanced math skills should also have the best job prospects.

Some job openings will result from the need to replace those who retire or leave the occupation for another job.

### Related Occupations

- Carpenter
- Computer Programmer
- Craft/Fine Artist
- Ironworker
- Jeweler/Precious Stone & Metal Worker
- Machinist/Tool & Die Maker
- Sheet Metal Worker

## MORE INFORMATION

**American Association of Woodturners (AAW)**
75 W 5th Street, 222 Landmark Center
St. Paul, MN 55102
877.595.9094
memberservices@woodturner.org
www.woodturner.org

**American Wood Council (AWC)**
222 Catoctin Circle SE, Suite 201
Leesburg, VA 20175
202.463.2766
membership@awc.org
www.awc.org

**Architectural Woodwork Institute (AWI)**
46179 Westlake Drive
Sterling, VA 20165
571.323.3636
info@awinet.org
www.awinet.org

**Association for Manufacturing Technology (AMT)**
7901 Jones Branch Drive, Suite 900
McLean, VA 22102-4206
800.524.0475
AMT@AMTonline.org
www.amtonline.org

**Association of Woodworking & Furnishings Suppliers (AWFS)**
2400 E Katella Ave Suite 340
Anaheim, CA 92806
800.946.2937
www.awfs.org

**Fabricators & Manufacturers Association (FMA)**
2135 Point Boulevard
Elgin, IL 60123
888.394.4362
info@fmanet.org
www.fmamfg.org

**International Wood Products Association (IWPA)**
4214 King Street
Alexandria, VA 22302
703.820.6696
info@iwpawood.org
www.iwpawood.org

**National Tooling & Machining Association (NTMA)**
1357 Rockside Road
Cleveland OH 44134
800.248.6862
ntma.org

**Wood Component Manufacturers Association (WCMA)**
P.O. Box 662
Lindstrom, MN 55045
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**Wood Machinery Manufacturers of America (WMMA)**
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**Woodwork Career Alliance of North America (WCA)**
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**WoodWorkers Guild of America (WWGOA)**
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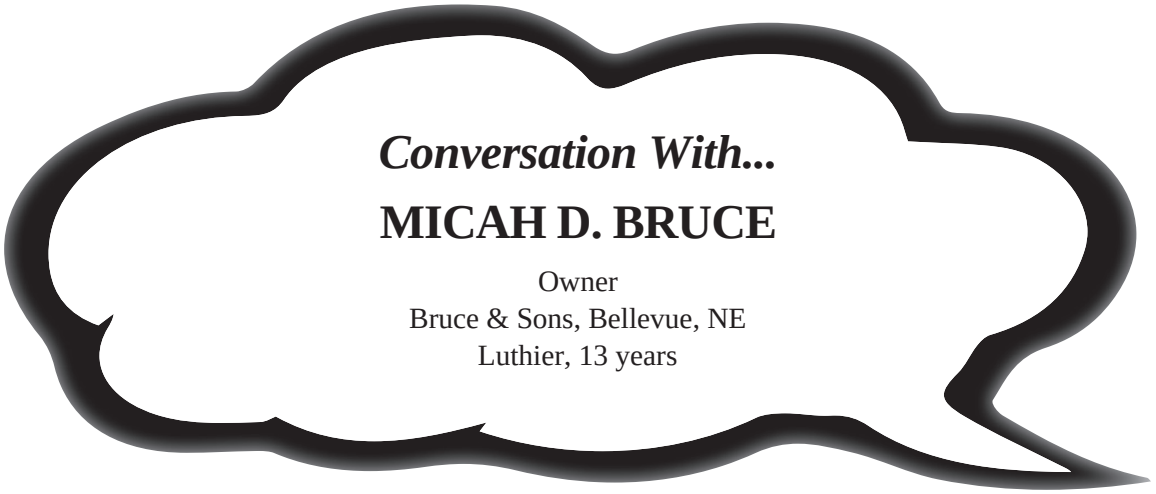

## *Conversation With...*

# MICAH D. BRUCE

Owner
Bruce & Sons, Bellevue, NE
Luthier, 13 years

**What was your individual career path in terms of education/training, entry-level job, or other significant opportunity?**

I was interested in building and in music when I was young. I started playing guitar when I was 11 or 12. In seventh grade, I wrote a career report on luthiery, which is the craft of making and repairing stringed instruments. I remember thinking that would be fun, but probably not realistic because it sounded like there wasn't much money in it, and I didn't know anyone who did that.

As a kid I built tree forts and skateboard ramps. I built furniture in ninth grade woodshop, and in my senior year of high school I worked at a cabinet shop in a work-study program.

I always loved building things, working with my hands, seeing how things work. You get to see a direct cause and effect when working on something physical. I like the artistry of it, too, the creative element. Each piece of wood is unique. You can find joy in mundane, repetitive motion, too.

I started college at the University of Nebraska at Lincoln and studied construction management in my freshman year. It was not my favorite thing. The next semester I thought I would be a math major because it fit with building. But I left college because I wanted to build things. I started working at a music store repairing instruments. I was a good guitar player, knew how to use tools, and the store was willing to teach me from there. I was a pretty quick study.

I worked in trim and cabinetry work, and in guitar repair, before moving to Austin, Texas, and working for well-known custom guitar companies Bill Collings and John Allison, as a luthier and repair technician, and at Moniker Guitars as head of production.

I started Bruce & Sons eight years ago as a part-time job while working for another company because I enjoyed it, and it supplemented my income. As I became more capable and developed a reputation, more work started coming my way, and I could raise prices. Since my wife and I moved back to Nebraska to raise our family four years ago, I've operated Bruce & Sons full-time. I feel my skills exceeded the pay scale that I would make working for someone else.

I have customers from all over. I make instruments for people in Utah, Texas, New York. I built a guitar for someone in the United Kingdom. But primarily my customers are from places where I've lived—Texas and Nebraska, or nearby, like Iowa and South Dakota. I also work with a dealer in Hawaii who sells ukuleles that I build. You can sell your work through a wholesaler or a shop on consignment. You can also build an instrument customized for a particular user. You can charge more for the custom-built, so you make more on that arrangement than working through a wholesaler, but there are fewer orders for custom-builds. I try to do a blend of everything, and it all evens out in the end. I've hired a part-time employee to help mainly with repairs, but he also does some building.

**What are the most important skills and/or qualities for someone in your profession?**
You need to have an understanding of physical objects, geometry, and structure, but also troubleshooting. I do a lot of instrument repair work in addition to building instruments. You need tool competency. You need hand skills—dexterity and coordination. You can learn concepts from a book or a classroom, but can your hands do it?

**What do you wish you had known going into this profession?**
A lot of learning is just doing something. I'll always be a lifelong learner. I wish I'd been more aware of that: to try more things and not be intimidated or afraid of failing. You can't be a perfectionist. I've built some instruments looking back that aren't my proudest work, but I learned a lot. There are no secrets. It's just hard work and practice over time. You accumulate knowledge, skills, tools and reputation, and the sales aspects of the business. It's really just taking time to grow.

**Are there many job opportunities in your profession? In what specific areas?**
I wouldn't say it's a hot market. There's repair work, which in large part you'll either work at a music store or on contract to a music store. For building instruments, there are a lot of guitar factories you could work for. But it's not a huge growth industry.

**How do you see your profession changing in the next 5 years? How will technology impact that change, and what skills will be required?**
Selling instruments will continue to be more online, so you'll need better photos and video content. My customers in New York and the United Kingdom were found online through Instagram and my website. You never know who will come across your stuff and take interest!

For building instruments, I have computer-aided machinery, and that's getting more affordable every year, so it's lowering the bar for competition. That means I have to use it more advantageously, more efficiently than someone who has just bought it. For repairs, companies are always formulating new finishes, but it's not a landmark change. It's just a matter of keeping up with improvements.

In some ways we're doing the same thing we've been doing for centuries, maybe just with variations on the theme.

**What do you enjoy most about your job? What do you enjoy least about your job?**
I enjoy making a broken thing work again or restoring an old instrument. That's gratifying both in terms of the instrument itself and seeing a customer enjoy it. Building an instrument is a

whole other level. It's a work of art on its own but also will propagate art. That's a cool idea. Instruments are beautiful even when they are not being played but maybe partly because we intuit a potential.

What I like least is the business side. Usually, it's half a day a week for ordering parts and materials, answering e-mails, managing the financial side. I pay taxes monthly. Running a business that uses a lot of physical goods, there's a lot of upfront costs. I don't enjoy the business side; but as a sole entrepreneur, you have to wear different hats.

**Can you suggest a valuable "try this" for students considering a career in your profession?**

The interest in playing an instrument or in music, in general, is an essential starting point. Try playing an instrument. Or try building something for curves and form because there is an ergonomic aspect. Take woodworking courses at school or at a shop.