Vermont Wood Works Council Workforce Project Report

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Traditional handtool cabinet, David Hurwitz Originals

CNC machine, New England Woodcraft

This project was designed to look at workforce issues in Vermont's secondary wood products manufacturing sector by conducting site visits and in person interviews of businesses around the state, focusing on member businesses of the Vermont Wood Works Council. The main tool was an interview template developed in collaboration with the VWWC board (included in appendix).

During the project I met with representatives from 28 businesses[1], ranging in size from single person shops to companies with close to 100 manufacturing workers, with product ranges that included furniture and furniture parts, timber frame components, packing material, décor, guitars, treenware, flooring, sculpture, cabinets, toys, countertops, windows, doors, molding and trim. The average age of businesses surveyed is 32 years (range 3-61; mean 32.08; median 32), which is high enough for many original owners to be nearing retirement. While some businesses have persisted through at least one change in senior leadership/ownership, many of the businesses surveyed are smaller and revolve around a single designer/woodworker which can make succession difficult when that lead retires. Some businesses contacted were in the process of winding down, and others were nearing retirement without a succession plan in place.

Businesses surveyed reported employing a total of 342 full time and 27 part time workers, with a 7% current vacancy rate. The largest number of job opportunities for production line woodworking positions are with large companies (88 out of 133), and for

[1] I am grateful for the time and assistance that representatives from these businesses contributed: Andrew Pearce Bowls, Appalachian Flooring, Barre Pinske, Bissell Woodworking, Built by Newport, Cedar Knoll Log Homes*, Circle Strings, ClearLake Furniture, David Hurwitz Originals, Gagnon Lumber*, Hauskaa, Hirschmann Windows and Doors, L.D. Steenek Woodworking, LSF Forest Products, Maple Corner Woodworks, Maple Landmark, New England Woodcraft, Rockledge Farm, Shackleton Thomas, Stauffer Woodworking, Sylvacurl, Treehouse Hardwoods, Treeline Terrains, Vermont Frames, Vermont Furniture Designs, Vermont Islands, and Vermont Plank Flooring. Those marked with an * were for additional context/background only and are not included in the final data.

artisan woodworking positions in medium-sized shops (woodshops with 5-15 woodworkers; 84 out of 106). About 1/3 report having to turn away business because of a shortage of workers in general or of workers with particular skill sets, and several others reported that staffing levels were responsible for very long lead times which likely cost them additional business. About 1/3 are in the process of expanding, and about 1/2 are either actively expanding or would like to. Only about 10% of businesses were contracting (with the majority of those being smaller shops with the owner retiring and gradually winding down the business).

Job Types:

In order to make comparisons across a broad range of companies, types of work, and job functions, this report groups job roles into six categories. These categories, while far from perfect, allow generalization across the wide variety of employers canvassed. A relatively small number of jobs do not fall within any of these categories because they are unique to particular companies, differ significantly from other more typical jobs, and differ from each other too much to form a single category. Though any attempted classification will have borderline cases at the edges, for the most part the categories used here succeed in putting jobs with similar pay, experience, and skill requirements together even when the company's own title for the position might not align with the titles used here. For just one such example, one medium-sized company has a single position that they call a finisher, who is paid nearly double what other finishers make, required significantly more experience at hire and whose responsibilities included researching and testing new finishes, ordering supplies and training directly with manufacturers to develop processes for their application. The pay, experience, and responsibilities in this case were more in line with what is typical for Team Leads, so in this case it made more sense to treat this job as Team Lead of a team of one than as a Finisher.

With the exception of Shop Manager (which seemed nearly universal in its application), no single label can adequately capture the range of work and skill involved in wood manufacturing jobs across such different companies. Particularly in the cases of Production Line Wood Workers and Artisan Wood Workers it was challenging to find labels that would simultaneously avoid gatekeeping who is and isn't a "woodworker", recognize that all manufacturing jobs are challenging and require significant skills, and also recognize that some types of woodworking jobs require more specialized skills or skills that encompass a significantly broader range of techniques. While this report landed on marking this distinction with Production Line vs Artisan – other titles could be easily substituted. The categories used here are:

Assistant: These workers are often part time, sometimes while still enrolled in school and are sometimes informally called gofers by companies who use them. Responsibilities include catching boards exiting machinery, moving materials, sweeping, and sanding. With experience, responsibilities can overlap with some core woodworker tasks. Assistants require no prior experience or specific technical skills (though forklift experience can be a plus) but do sometimes require the physical ability to lift heavy objects or stand for long periods of time; the preferred skills tend to relate more to general professionalism than anything wood or manufacturing specific (e.g. punctuality, reliability, ability to understand and follow directions).

Production Line Woodworker (PLWW): This category has the largest number of workers among businesses surveyed. Responsibilities are more skilled than those performed by Assistants and typically include: operating large stationary woodworking machinery, operating CNC machines, assembling parts and sanding. Compared to Assistants, workers in this role are more likely to have past woodworking or general manufacturing experience. While strict requirements for these jobs are rare, when they are present they tend to relate more to general

professionalism (reliability, ambition, communication) or physical abilities needed for particular tasks than to extensive wood manufacturing experience. Candidates who had some prior experience related to woodworking, manufacturing, or power equipment use (carpentry, automotive repair, landscaping) were preferred, as were candidates who showed evidence of needed skills (attention to detail, ability to use measuring tools, familiarity with CNC equipment, the ability to work quickly). People in these jobs tend to stay longer than Assistants, some for long careers moving up to roles requiring more skill or more responsibility. Most businesses reported having at least some trouble filling these roles, with the most common issues identified being a lack of candidates with even minimal hands-on experience (read a tape measure, manipulating 3d solid objects) and a lack of reliability/punctuality/ enthusiasm/ professionalism. Shortage of affordable daycare was also listed as a challenge for these positions, as it keeps potential employees out of the workforce. When PLWWs leave a company, destinations reported include service industry jobs, construction, carpentry or other manufacturing jobs, or starting small businesses in another sector like landscaping.

Finisher: Responsibilities for this position include prepping work for finishing and applying finishes either by hand or spraying. This role often requires no other woodworking skills, though workers do sometimes move over to a Finisher role from other areas of a shop and may cross train on other woodworking tasks. Challenges identified that are particular to this role are finding people who don't mind the strong smells that many finishes have, and the extreme attention to detail and quality control that this role can require. Some employers have had good success recruiting Finishers from people with an art background as opposed to a technical or manufacturing one.

Artisan Woodworker (AWW): These jobs require significant woodworking skills using standard woodworking machinery and handtools. While some employers are willing to provide much, or even all, of this training to the right candidates, these jobs are more likely to require having graduated from a dedicated woodworking/professional program and/or significant experience in a woodworking specific role. Skills with power tools, machinery, measuring devices, reading shop drawings, and attention to detail/quality control were particularly in demand beyond soft skills like teamwork, communication, and motivation. Workers in this category do more custom work than PLWWs, but even when making production pieces to a set design the techniques, tools, and skills required are more in line with those needed for custom work than for pure production line work. About 20% of companies with employees in this role indicated that they are considering moving to more automation and/or outsourcing in order to increase overall production by best utilizing their most skilled workers.

Team Lead: In large enough companies, this role is often the first supervisory level. Position titles in use that have been aggregated here include (assistant foreman, master craftsman, assistant manager, senior craftsman). The qualifications include a mixture of expertise at (at least) the specific team being led and personnel management/communication/planning/ability to see the big picture. Almost always promoted from within from one of the woodworker or finisher roles, folks in these roles tend to stay with the company for most of their careers. As with the Shop Manager position below, challenges include finding the right professional/interpersonal skills alongside the requisite craftsmanship abilities.

Shop Manager: Overseeing all woodshop activity including ordering materials, scheduling jobs, and managing personnel, the shop manager is typically a master craftsman with exceptional ability in every area of the company's woodshop. Besides standard managerial tasks, shop managers take on significant mentoring/training (whether formal or informal) and are a resource for problem solving/trouble shooting throughout the shop. The chief challenge

identified in finding suitable candidates for this position is the rarity of someone who both excels as a craftsman and possesses the traits necessary for being a good manager.

Table 1 – Position Categories, Number of Jobs, Experience, Time to Train, Tenure					
Position	# FT	# PT	Mean experience at start (months)	Mean time to train (weeks)*	Mean tenure (years)*
Assistant	5	9	0	9	1.75
PLWW	131	2	6	8	4.5
Finisher	19	0	6	8	11
AWW	92	14	42	36	14
Team Lead	40	0	54	-	-
Shop Manager	10	0	120	-	-

Skills:

Overall, most of what the employers surveyed reported they are looking for in entry-level positions are the same traits that employers outside the sector are generally looking for: professionalism, reliability, ability to work well with team members, attention to detail, problem solving ability, flexibility, and the ability to work independently but collaborate well when necessary. While Artisan Woodworker roles can require professional training or significant woodworking experience, for the majority of jobs in the sector some prior exposure to woodworking or experience with power tools was enough, if other desiderata were met, for employers to be sufficiently confident they would be able to learn the needed skills on the job.

For the most part, respondents reported that the requirements for all of these positions have not changed significantly over time, though about 20% reported that they used to require more experience/skill for their AWW jobs and about 10% reported that they used to require some experience for PLWW jobs but don't any longer. In both cases, the change was driven by what they are able to find in the applicant pool rather than a change to their preferences or the work. Rather than hire significantly less-qualified candidates, most businesses report that it takes longer to find qualified candidates, though it was not possible to quantify this change in a systematic way as part of the current project.

Table 1 (above) shows the average experience for new hires by position category. For Team Leads and Shop Managers this experience was generally specific to wood manufacturing (most of these positions are promoted from within) but for Production Line Woodworkers, Finishers, and some Artisan Woodworkers the experience could be in a wood manufacturing adjacent field (e.g. other manufacturing, carpentry, construction, automotive repair, or other fields where large machinery is used).

For desired skills for position categories, key information is included in the initial position category description (above). Complete skill lists and word cloud visualizations are below in the Appendix 1.

Career Paths

Organizational structures in wood manufacturing companies tend to be very flat without a lot of potential for upwards movement. Most companies are relatively small and may have a single manager position (if any). Further, employees in team lead or manager positions are likely to stay with a company for a long time. While pay levels generally increase over time with experience, opportunities to jump to a new pay band are rare and can require switching companies. Figure 1 is a sketch of typical career arcs from entry level positions and their feeders through shop manager.

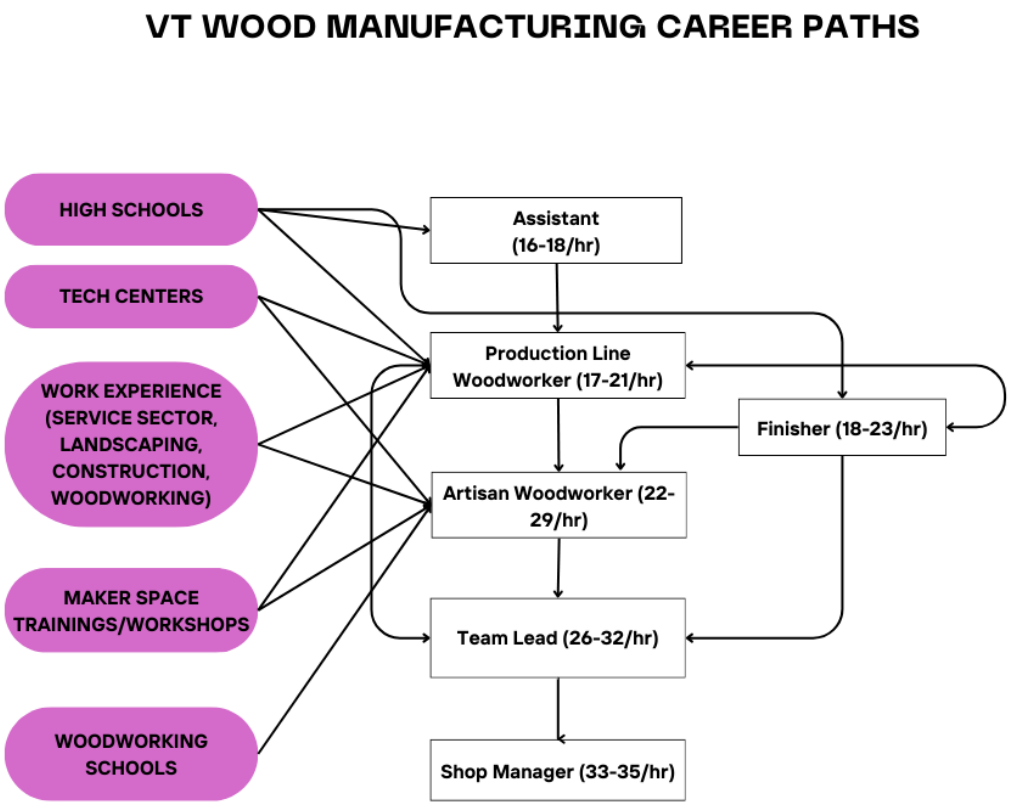


Figure 1

Entering the workforce:

For all starting positions, initial training/onboarding follows a fairly standard path. An initial orientation and safety training, ranging from half a day to a week, is followed by starting out on simpler tasks shadowing another employee. As they progress, depending on company needs and worker interest/aptitude, more complex tasks are introduced in much the same way. In some cases, companies have formalized this process to varying extents, creating clearly delimited onboarding schedules, detailed task training manuals, or, in one case, a four-year apprenticeship program.

After the initial onboarding period, ongoing training generally takes the form of continued mentoring (formal or informal). Over time, employees may cross-train on other stations/tasks beyond their main aptitude to create redundancy or enhance worker skillsets. Weekly 'cross-training days', regular technique discussions, workshops, weekly review meetings, and annual all-staff trainings are among the systems various businesses have used to continue their workforces' development. Several businesses have tried to enhance this ongoing training by offering training grants or paying for courses at the Community College of Vermont or other programs (sometimes even allowing employees to attend these programs on company time) but none deemed those efforts successful as employees were not interested in participating. Similarly, companies who have tried to train management/personnel skills in

order to develop better Team Leads or managers in house, or to reward promising employees with professional development have not had much success garnering interest.

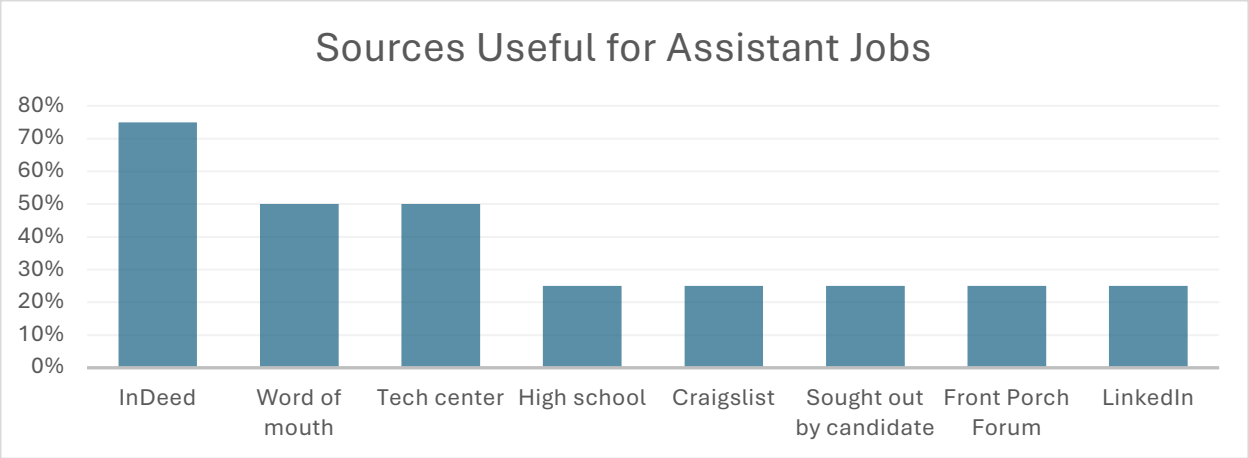
The time to train measure was determined by responses to the template question "roughly how long does it take before a new hire knows what they need to know to perform the work successfully." An average of responses is included in the above table but these numbers should be taken with a grain of salt. While the individual responses had some trends, there was enough variation in how the question was being interpreted to caution against relying too heavily on the numbers. Some interviewees distinguished between getting up to speed on basic tasks that can keep them busy (and productive) while they learn the rest of the business and getting up to speed on the full gamut of tasks which was usually quite a bit longer (sometimes measured in years rather than weeks) and gave a split answer covering both. Other interviewees gave a single answer without enough context to be sure how they were understanding the question.

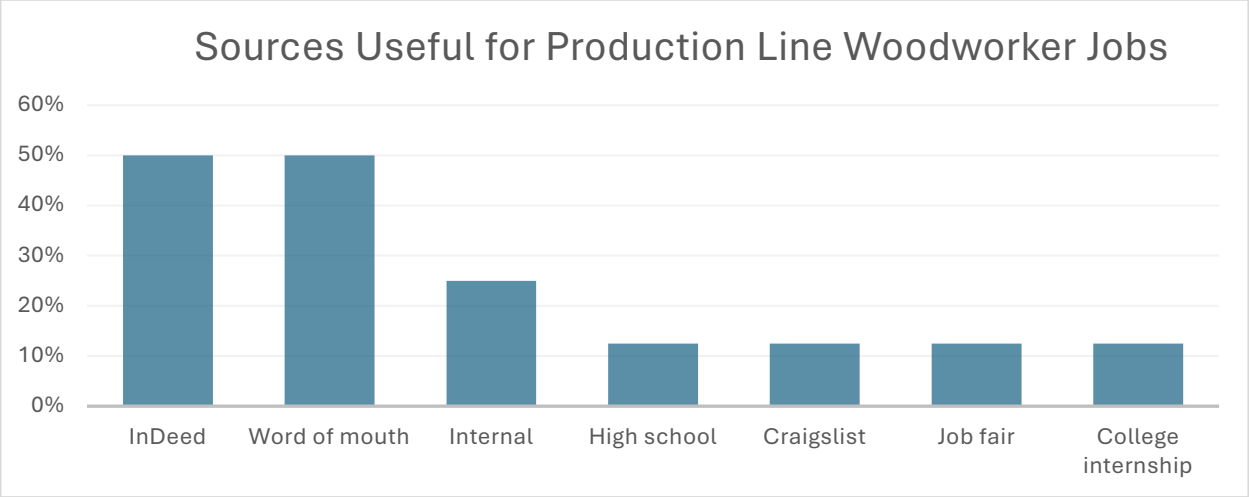
Leaving the Workforce:

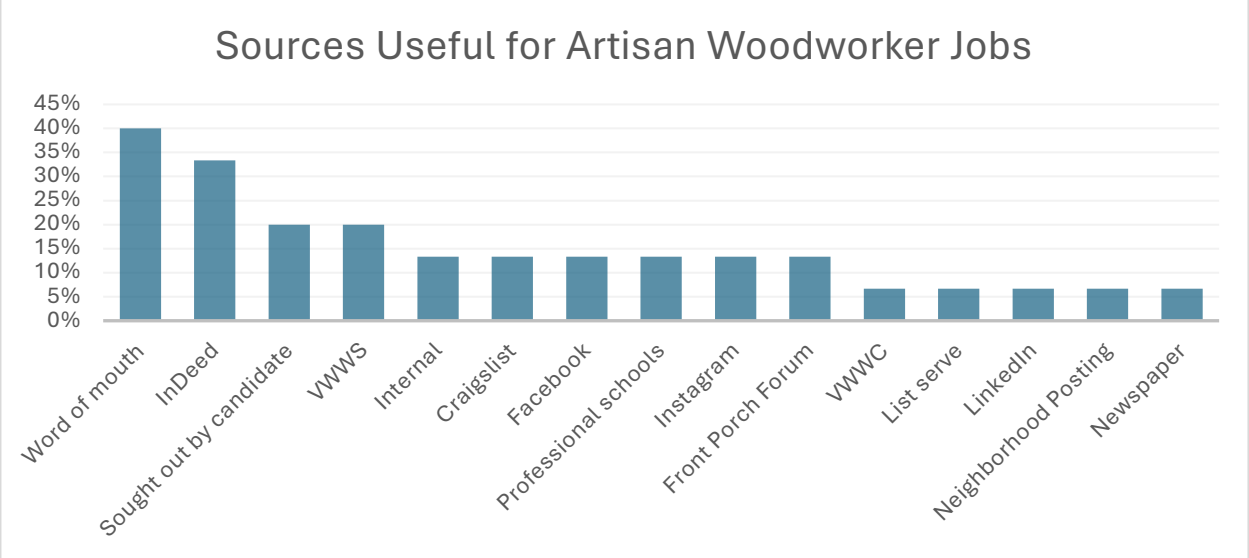
Especially in the case of AWW and Team Leads or above, workers tend to stay with their company for a long time (decades) either moving up or staying in the same role. Table 1 (above) includes information about the average time that workers stay before leaving. In many cases, the reported tenures were a split value – with workers either staying a short time (6 months to 2 years depending on role) or a very long time. The number reported is the mean of those values. Without information about how many workers fall into each category, the values given should not carry a lot of weight, though this trend of staying longer in higher skilled roles does seem robust. Many companies did not have information about where workers who left ended up, but among those who did, the most common destinations were: starting their own company in another sector (often small business e.g. lawncare), other trades like construction or carpentry, service industry jobs, or less frequently moving to another company in the same sector. In the latter case, this was sometimes driven by the small number of lead or manager positions and the desire to advance.

Sources and Challenges:

The most commonly reported useful sources for finding workers across all positions were InDeed and word of mouth. For Assistant positions, high schools and tech centers were especially useful. For AWW, the Vermont Woodworking School and other professional schools were often noted. For this role, companies were also likely to be sought ought by potential employees due to their reputation/status in the industry. Though not a source for job listings, companies looking to fill PLWW roles often had good success recruiting candidates who had a background in food service, where the high pace and quality control provided a useful track record.


Sources Useful for Assistant Jobs
80%
70%
60%
50%
40%
30%
20%
10%
0%
InDeed
Word of mouth
Tech center
High school
Craigslist
Sought out by candidate
Front Porch Forum
LinkedIn


Sources Useful for Production Line Woodworker Jobs
60%
50%
40%
30%
20%
10%
0%
InDeed
Word of mouth
Internal
High school
Craigslist
Job fair
College internship


Sources Useful for Artisan Woodworker Jobs
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Word of mouth
InDeed
Sought out by candidate
VWWS
Internal
Craigslist
Facebook
Professional schools
Instagram
Front Porch Forum
VWWC
List serve
LinkedIn
Neighborhood Posting
Newspaper

The factors contributing to challenges in finding qualified employees are varied and complex but include wage levels, the physical and sometimes tedious nature of the work, housing, childcare, sparse rural populations/geographical isolation, and less exposure to woodworking/machinery among younger workers.

One factor is wages (discussed in more detail below). Since the pandemic and the general labor shortage, wages in the wood manufacturing sector have not kept pace with wages in other sectors like the service industry or construction and other trades. The general average wage in Vermont is $28.52 ($32.03 in Chittenden County)[2]. Based on the results of this survey, only the very highest paid workers in Vermont's wood manufacturing sector make at least the average wage in the state.

Some challenges that were identified by several businesses are not unique to this sector but may be more significant for jobs where wages are lower. A shortage of affordable quality daycare keeps some people out of the workforce. Potential workers who can't find reliable daycare at a cost sufficiently offset by their salary are likely to stay home. Where possible, offering flexible schedules or second shifts can help with this issue and companies who have adopted this flexibility report that it seemed to help in hiring/retention. Another challenge identified by several businesses surveyed is that housing in much of Vermont is sparse and expensive. If wages are not high enough to make up for the high cost of housing near a workplace, then workers must either move to lower cost-of-living areas (which make commuting difficult) or switch to higher-wage sectors of the economy. Some businesses surveyed are pursuing ways to offer discounted housing to employees as a way to help recruit and retain workers.

Several businesses also mentioned the stigma around manufacturing or the trades in general as creating an additional barrier to bringing workers into the sector. One method for combatting this stigma is to raise awareness of what these careers are actually like (one of the goals of this very project). Efforts to raise awareness often feature average wages in the trades (especially for construction, carpentry, welders, electricians and other trades with relatively high average wages), and the shorter training/schooling needed for entry-level jobs. While wood manufacturing wages are not on par with some other trades, the training needed for many jobs in the sector is quite short.

Many woodworking businesses, especially smaller companies, are located away from population centers. For these companies, there tend to be fewer prospective employees in the immediate vicinity and long/expensive commutes can make an otherwise appealing job less attractive. To the extent that certain desirable traits/experience are less common now than they used to be, the change may not be uniformly distributed across the state so companies in remote areas may find themselves in a skillset desert that exacerbates the problem.

Even for companies who do not require extensive woodworking or general manufacturing experience, locating candidates who have had enough exposure to tools/machinery to be able to learn quickly on the job is a commonly sited challenge. While the ability to read a tape measure is not a high bar, several businesses reported that there seem to be fewer people in the candidate pool who can meet it than there were in the past.

Wood manufacturing work can be physically demanding, which can restrict the qualified applicant pool, or tedious, which can be a challenge for retention. Moving to increased automation can lessen the physical demands, though it can also increase the tedium. Workplace culture was also cited as a factor in recruiting/retaining employees. Relatedly, the physical space at businesses surveyed varies considerably from institutional to homey and from very highly organized/sterile to relaxed/chaotic - matching the staff to the culture and setting can present an additional challenge.

Interviewing employees during site visits was often not possible either because of time, willingness of owners, or employee comfort in discussing workplace issues in the presence of

[2] Based on Q3 2023 data from https://www.bls.gov/regions/northeast/news-release/countyemploymentandwages_vermont.htm).

their supervisor. When this was possible workers mentioned wages, lack of advancement opportunities and tedium as being the drawbacks; and listed a sense of authorship, pride, and tangible results as things they liked best about their work in the sector.

Wages and Compensation

Though the sampling size is not sufficient to generalize, responses were suggestive of a link between pay rate and ability to find workers when needed. For Production Line Woodworkers, there was not much variation in difficulty finding workers, but for Artisan Woodworkers where there was more variation, average starting pay was about 6% higher ($1.22/hr) for companies who did not report that workers were hard to find. Pay also tended to be higher in companies most adjacent to construction/carpentry businesses such as timber framing or cabinet installation, where there is more direct competition from higher-wage industries competing for similarly skilled employees. Though anecdotal, one business owner provided a suggestive example over the course of our meeting. When discussing challenges in finding employees, they indicated that it used to be a challenge 2-3 years ago but wasn't now. A chief difference over the intervening time was that they had raised wages by 20-30%.

Companies typically gave salary information for positions as a range rather than the average salary across all employees. The low ends and high ends of these responses were then averaged so, for example, the Low End (Mean) is the mean of all companies' lowest salary for that position type. For the low end of each pay band, the median and the full range are also provided.

Table 2 – Pay Range by Position Category

Position	Low End (Mean)	High End (Mean)	Low End (Median)	Low End (Full Range)
Assistant	$16.60	$18.38	$16.00	$15-$20
Production Line Woodworker	$17.75	$21.00	$17.50	$15-$20
Finisher	$18.25	$23.33	$18.00	$17-$20
Artisan Woodworker	$21.94	$29.34	$20.00	$17-$32
Team Lead	$26.36	$32.27	$27.75	$17-$32
Shop Manager	$33.03	$35.22	$33.00	$25-$43

Benefits:

More than half of employers offer retirement and paid time off benefits, while fewer than half (38%) offer health insurance to employees. In addition, about 2/3 of employers allow employees with appropriate training to use company equipment/tools for personal projects in off hours. Some other less typical benefits offered by surveyed companies include: discounts on company products, a chance to custom make a high-value company product for themself, attendance bonuses, paid professional development opportunities, flexible shift schedules, 4-day work weeks, and the chance to participate in company profit (at least two companies are at least partially employee owned and another is exploring the possibility.)

Table 4 – Benefits and Percent of Companies Offering	
Benefit	**Percent Offering**
Health coverage	38%
Dental coverage	31%
Retirement (401k or similar)	54%
Paid vacation	62%
Shop use for personal projects	69%

Machinery:

While nearly all woodshops contain an array of standard powered woodworking machinery (planer, jointer, tables saw, bandsaw, drill press, belt sanders, etc.) and most also contain at least some cabinet shop equipment (sliding table saw, large capacity drum sander, vacuum press, molder, joinery machines, etc.) virtually every shop is unique in the particular array of machines used. In many cases, machines are designed or customized to suit a particular process unique to that shop. Photos (not attached to this report but available to the board on the sshared drive) show key pieces of machinery at those shops who agreed to allow photography, but there is not much to be gained by an exhaustive list documenting the particular machines in use by each. When hiring new employees, nobody expected familiarity with their exact machine types, brands or configurations. Instead, businesses tend to look for degrees of familiarity with broad categories of machinery depending on position, and expect to train new employees on the specific processes and machines in use.

Use of CNC machines was nearly universal - only a few businesses surveyed do not use any automation at all. There is, however, a wide variation in the extent to which different businesses rely on CNC to automate aspects of their work – some use a single machine or two for elements of builds that are particularly hard to accomplish with standard machines or handtools (e.g. chair seats) while others are almost entirely automated chaining together an assortment of machines that take in raw material at one end of the line and yield finished products at the other. With the exception of the few businesses that do not currently use any automation at all, most businesses (regardless of how much automation currently in use) indicated that they plan to continue to adopt additional automation where/when possible given space, economic, and labor constraints. While increased automation could be expected to shift which skills/experience are in demand, even those businesses with short-range plans to add CNC capacity did not expect significant decreases to how many workers of various categories they may need. Instead, the hope is to increase overall productivity with existing staff or by adding more PLWWs. Not all businesses who have been adding automation have seen expected production increases so far, though the reasons for this are unclear. While the need for CNC programming experience may increase, most businesses did not expect challenges there - several reported that needs could often be met through gig-based services like Fiver. The bigger need that business owners mentioned when discussing automation had more to do with real-world implementation - people skilled in those aspects of setting up CNC equipment like workholding techniques and creating efficient processes are especially in demand.

Among shops that use CAD, there is little consensus on software choice. Among the dozen or so software packages in use by companies surveyed, AutoCAD, Fusion 360, Autodesk Inventor and Sketchup (with additional plugins/extensions) each had three users and Corel, and Vcarve each had two.

Table 3 - Software	
CAD/CAM Software	**# Users**
Sketchup	3
AutoCAD	3
Fusion 360	3
Inventor	3
Corel	2
Vcarve	2
Microvellum	1
ArchiCAD	1
Rhino	1
Blue Elephant	1
FreeCAD	1
Aspire	1
Xcam	1
AlphaCam	1
Maestro	1

Conclusions:

When thinking about increasing the availability of training that will help people start work in the sector, the most pressing need is for breadth rather than depth. Creating exposure opportunities to power tools, machinery, measuring and the physical properties of wood as a material will likely be the most useful approach to raise awareness of woodworking careers and prepare potential workers for the jobs most in demand. Maker spaces, especially Hatch Space which is dedicated to woodworking, are a potentially useful ally in developing/offering this sort of training.

Across a variety of position types, companies interviewed often remarked that new hires were not used to the pace of work the company requires. This is as true of new placements from professional woodworking programs into Artisan Woodworking roles as it is of new hires into Production Line Woodworking roles who are entirely new to the sector. When thinking about how to create exposure experiences as a means of both informing potential wood manufacturing workers about what careers are like and as a way of beginning to train people for these careers, it may be beneficial to include/continue to expand on elements of 'working at pace' either through tours, trainings, or internships.

This disconnect between training and real-world needs was a common theme. It came up repeatedly in discussions about lean manufacturing (candidates who touted familiarity with best practices not being able to implement in practice) and automation (candidates knowing how to use CAD software but not having the detailed practical knowledge of material holding techniques for odd-sized work pieces or not being adept at creating efficient programs/workflows). The internship program, especially if it succeeds as an ongoing opportunity would seem particularly well-suited to addressing these issues by providing short exposures to real-world paces and challenges during other more systematic training from tech centers, woodworking programs, or workshops.

Many of the companies surveyed have been around long enough for their original owner to be nearing retirement. In addition, much of the workforce, especially in Artisan

Woodworking roles is nearing retirement. A suggestion from one business owner was to look beyond the internship model, which focusses resources on people looking to enter the sector, and devote some resources to a mentorship model, which focusses some resources on the mentors to incentivize their participation in training the next generation of workers before those decades of experience are lost.

Another challenge frequently remarked on, particularly in smaller businesses, is the rarity of finding the people with both the woodworking and the business skills necessary to make a go of a small operation. In some cases, small businesses with an owner/craftsman nearing retirement did not expect to be able to turn over the business to the employee(s) who were adept at making the full line of products because they didn't have the non-woodworking skills necessary to run a business.

Appendix 1 - Skills

Production Line Woodworker: Preferred Skills

Figure 2 - Production Line Woodworker: Preferred Skills

Artisan Woodworker: Required Skills

Figure 3 - Artisan Woodworker: Required Skills

Team Lead: Required & Preferred Skills

Figure 4- Team Lead: Required & Preferred Skills

Complete Skills Tables:

Assistant Required Skills	Count
Lift heavy objects	2
Basic math skills	1
Positive attitude	1
Teamwork	1
Work quickly	1
Motivated	1
Punctual	1
Reliable	1
HS diploma or currently enrolled	1
Sober	1

Assistant Preferred Skills	Count
Punctual	2
Reliable	2
Some experience with tools or machines	1
Driver's license	1
Planning	1
Thoroughness	1
Attention to detail	1
Farm background	1
Manufacturing experience	1
HS equivalent	1
Teamwork	1
Agile	1

PLWW Required Skills	Count
none	4
Ability to lift heavy objects	2
Physical ability	1
Reliability	1
Manufacturing or woodworking experience	1
Ambition	1
Interest	1

PLWW Preferred Skills	Count	PLWW Preferred Skills (cont)	Count
Attention To Detail	4	Desire To Learn	1
Related Experience (not necessarily woodworking)	4	Basic math skills	1
Reliable	2	Finishing experience	1
Communication	2	Power Tool experience	1
CNC experience	2	Landscaping experience	1
Quality Oriented	2	Mechanical Ability	1
Measuring ability	2	Self-starter	1
Machinery experience	2	Auto Repair experience	1
Timely	1	Bike Repair experience	1
Soft Skills	1	Independent	1
Building experience	1	Interested	1
Wood knowledge	1	Safety Conscious	1
Forklift experience	1	Quick	1
Company Fit	1	Trustworthy	1
Caring	1	Focused	1
Respectful	1	Desire To Learn	1
Willing To Ask Questions	1		
Motivation	1		

AWW Required Skills	Count
Related Experience	10
Teamwork	5
Woodworking experience	4
Shop Tool experience	4
Attention To Detail	3
Mechanical Aptitude	3
Math skills	2
Read Plans	2
Reliability	2
Read Tape Measure	2
Formal Training	2
Able to maintain production pace	1
High School Equivalent	1
Interpersonal Skills	1
Communication	1
Accuracy	1
Auto repair experience	1
Heavy Lifting	1
Positive Attitude	1
Quick	1
Motivated	1
Punctual	1
Safety Conscious	1
Enthusiasm	1
Character	1
Highly Skilled	1
Automation experience	1

AWW Preferred Skills	Count	AWW Preferred Skills (cont)	Count
Math Skills	2	Read plans	1
Very highly skilled	2	Spatial thinking	1
Communication	2	Woodworking experience	1
Power tool experience	1	Engineering experience	1
Automation experience	1	Passion	1
Hand tool skills	1	Problem solving skills	1
Experience or formal training	1	work independently	1
Lift heavy objects	1	Installer experience	1
Machinery experience	1	Professional appearance	1
Forklift certified	1	Formal training	1
Customer service skills	1	Positive attitude	1
Specific equipment skills as needed	1	Attention to detail	1
Enthusiasm	1	Sharp	1
Motivation	1	Observant	1
Good references	1	Comprehensive woodworking experience	1
Teachable	1	Collaborate with sales and design teams	1
Good listener	1		
Retain information	1		

Team Lead Required or Preferred Skills	Count
Attention To Detail	5
Communication	4
See Big Picture	3
Planning	3
Highly Skilled	2
Knowledgeable	2
Interpersonal Skills	2
Respected	2
Leadership	2
Problem Solver	2
Mentor	1
Math	1
Drive	1
Team Player	1
Interpersonal Skills	1
Conflict Resolution	1
Quality Control	1
Reliability	1
Systems Thinker	1

Appendix 2: Woodworking businesses offering tours

The listed business have all indicated a willingness to give tours to schools and other organizations when appropriate and when arrangements are made in advance. These businesses are also pinned on a google map available here:

https://www.google.com/maps/d/viewer?mid=1udujF3aCIgnmShIC7bu7_kQD7JRT2G0&usp=sharing

Andrew Pearce Bowls	59 US Route 4 East	Woodstock	05091	VT
Birdseye Building Company	3104 Huntington Rd.	Richmond	05477	VT
Built by Newport	450 Main Street	Newport	05855	VT
Circle Strings	891 Williston Rd Ste 19	S. Burlington	05403	VT
Clear Lake Furniture	322 Route 100 North	Ludlow	05149	VT
David Hurwitz Originals	23 Randolph Ave.	Randolph	05060	VT
Hirschmann Windows	467 Sheldon Ave.	W. Rutland	05777	VT
LD Steeneck Woodworking	1233 Egypt Rd	East Fairfield	05448	VT
LSF Forest Products	1036 Pond Rd	Jeffersonville	05464	VT
Maple Corner Woodworks	9679 County Road	Calais	05648	VT
Maple Landmark	1297 Exchange St	Middlebury	05753	VT
New England Woodcraft	481 North Street	Forest Dale	05745	VT
Rockledge Farm Woodworks	58 Ascutney Basin Road	Reading	05062	VT
ShackletonThomas	102 Mill Road	Bridgewater	05034	VT
Sylvacurl	100 Porter Brook Road	East Hardwick	05836	VT
The Treehouse Hardwoods & Millshop	1891 Williston Road Ste 23	South Burlington	05403	VT
Treeline Terrains	1599 Monkton Rd	Bristol	05443	VT
Vermont Islands	22 Browne Court Unit 115	Brattleboro	05301	VT
Vermont Frames	22 Varney Hill Road	Starksboro	05487	VT
Vermont Furniture Designs	4 Tigan St	Winooski	05404	VT
Vermont Plank Flooring	112 Hardwood Way	Brattleboro	05302	VT

Appendix 3 – Interview Template

Company Information

Name:	
Location:	
How many years in business:	
How many current FT/PT employees does the company have, counting only folks directly involved in manufacturing (not marketing, shipping, etc.)	
Are there currently any vacant positions? If so, how many?	
Have you had to turn down orders because of a shortage of workers or because of a shortage of workers with the particular skills needed for those products?	
Do you have any plans to expand/contract in the next year or two? (No individual answers will be shared)	
What are your main products – is it mostly from a set product line, mostly custom builds, an even mix?	
If you have a signature product or a favorite example of your work you like to use for promotional materials, would you be willing to share an image?	
What does your build process look like – are pieces bench built or the result of a production line?	
How is design work allocated? (e.g. distinct roles for customer meetings, cad, programming)	
Would you be willing to be included on a list of studios/business that occasionally gives tours to schools or training centers?	
-Are there any group size/age restrictions?	
A later stage of this project will involve placing grant-subsidized interns with some VWWC member businesses. Would you be interested in bringing in an intern under this program?	
Is there anything that might be helpful for the Council to know about how interns might be useful here as that part of the project is built out?	

Job/Position Information

In order to get a sense of what opportunities there are, what needs the company has, and what the career path looks like in your organization, the next series of questions is focused on information about the different positions the company employs. Starting with entry level positions, what are the various job titles/positions? {emphasis on entry level and first line supervisor}

Question/prompt	
Job Title:	
Short description/responsibilities:	
# in this position	
Salary Range	
Benefits	
Which, if any, skills/degrees/certifications/soft skills are REQUIRED for this position?	
Have these requirements changed recently? Do you see them changing in the near future?	
Which, if any, skills/degrees/certifications/soft skills do you PREFER candidates for this position?	
How often are you able to find candidates with these preferred skills? Have these preferences changed recently? Do you see these preferred skills etc. changing in the near future?	
How many years experience in the sector do people typically have when starting in this role?	
When you need to fill a vacancy in this position, where have you succeeded in finding successful candidates {tech schools, want ads, internal referrals, etc.}	
Roughly how long do folks tend to stay in this position?	
Are there any challenges specific to this position in finding good candidates or getting good workers to stay once hired? If so, what are they?	
What does onboarding/training look like for this role?	
Roughly how long does it take before a new hire knows what they need to know to perform the work successfully? Has this changed over time?	
After the initial onboarding, is additional formal/informal training provided?	
Is this additional training linked to moving to roles with more responsibilities?	
When workers leave this role, where do they tend to go?	
Do you anticipate any changes in need for this position in the near term? (e.g. modernization/efficiency changes or new equipment shifting workloads)	