Manufacturing and Product Development

Date: 3/5/2025
Time: 9:00 - 11:00
Location: Dorothy Inghram Learning Center
Hosted by: SBCROP
Facilitator: Deidra Puentes
Advisory Documents: https://bit.ly/Manu_AdvDocs24-25

Advisors:

Dennis Galuszka, Senior Master Guitar Builder, Fender Musical Instruments Corporation
Erwin Dominguez, Plant Manager, Walker West
Jesse Abelar, Manufacturing Engineer II, Fender Musical Instruments Corp
Kimberly Clarke, Corporate Vice President / General Manager, Walker West LLC and Walker Manufacturing Group

K12 Educational Participants:

Antoinette Gutierrez, Program Manager, CRY-ROP
Chris Barta, Welding Teacher, CRY-ROP
Daniel Hearon, STEAM Shop Teacher, CRY-ROP
Daniel Padilla, Manufacturing Teacher, CRY-ROP
James Hattar, Curriculum Developer TOA, CRY-ROP
Kenneth Soldmann, Curriculum Program Specialist, Colton Joint USD
Laiken Reyes-Carrillo, Administrative Coordinator, Technical Employment Training
Rhonda Clement, Director of Strategic Initiatives, Cal Baptist University
Rubelio Mendoza, Manufacturing Teacher, Technical Employment Training
Tom Wurz, Graphic Communications Teacher, CRY-ROP

Introductions:

Dennis Galuszka: Dennis is one of only twelve Senior Master Guitar Builders worldwide at the Fender Custom Shop, a highly coveted role. He began his career in woodworking immediately after high school in 1985, working in a two-man cabinet shop specializing in ultra-custom homes for 13 years. In 1999, he secured an apprenticeship at the Fender Custom Shop, where his extensive woodworking experience led to a rapid promotion to Senior Master Builder within eight months. Throughout his career, Dennis has worked on various high-end custom guitar projects and led Guild Custom Shop operations.

Jesse Abelar: Jesse has extensive experience in guitar manufacturing and engineering. He has worked in the highly specialized Arch Top guitar division, managed the Guild Electric line, and developed innovative processes now used company-wide. As part of a global company, Jesse has

traveled internationally to support Fender's manufacturing operations. His expertise spans CNC manufacturing, metalworking, and process optimization.

Erwin Dominguez: Erwin has been with Walker Manufacturing for 27 years, having started immediately after high school through a program previously known as PMMA. Initially hired as a press operator, he advanced through various roles, including team leader and tool designer, before becoming a plant manager. Throughout his career, he pursued additional training in machining, engineering, and AutoCAD, which helped him develop expertise in tooling and manufacturing processes. Walker Manufacturing has provided him with numerous opportunities for internal growth, shaping his career in advanced manufacturing.

Kimberly Clarke: Kimberly is the General Manager of Walker Manufacturing's Ontario, CA facility and oversees operations across multiple North American locations. With 26 years at Walker, she initially had no intention of entering manufacturing but transitioned into the field while in college. Walker, originally a tool and die shop in Los Angeles, has expanded into metal stamping, assembly, and welding, serving major clients such as Toyota and Tesla. Under Kimberly's leadership, Walker Manufacturing is currently exploring reshoring operations to the U.S. in response to economic and political factors, with the goal of increasing domestic employment.

Minutes:

The Transportation panel was composed of five industry professionals with varying degrees of responsibilities in their respective career fields. The following is a summary of their responses to the questions posed at the advisory.

Question 1: What emerging trends and technologies do you believe will drive the most change in this industry over the next 3-5 years, and what should teachers and students focus on to stay ahead?

Dennis Galuszka: Technology dominates modern manufacturing, particularly with CNC technology and AutoCAD, but foundational woodworking skills remain essential. When a guitar neck comes off a CNC machine, it is far from finished—significant hand-finishing and craftsmanship are still required. Many wood components are not production-ready straight from the machine, and students must develop the ability to identify wood types, understand joinery, and properly use tools like routers without damaging the material.

One of the biggest challenges in the industry is the lack of basic woodworking skills. Many new workers only know what employers directly teach them, rather than arriving with a strong foundation. The industry faces a talent deficit, as traditional woodshop training has declined, making it difficult to find skilled workers.

Teachers should prioritize fundamental skills before introducing advanced technology. If students lack basic woodworking techniques, they will struggle even with the most advanced

CNC programming and automation. Educators should focus on developing adaptability, problem-solving, and manual skills to prepare students for both traditional craftsmanship and modern manufacturing processes.

Repetitive production benefits from automation, but for custom, one-off projects, traditional handcrafting techniques can often be more efficient than programming a machine. Students should learn to balance technology with manual skills and recognize when one method is preferable over the other.

In the shop, this problem-solving approach is called "farm thinking"—the ability to work with available materials, adapt, and create solutions independently. Mistakes are inevitable, but what matters is learning from them and continuously improving.

Jesse Abelar: Metal 3D printing is an emerging technology that is gaining traction in manufacturing. While it was previously used mainly for prototyping, it is now being taken seriously for full-scale production. For example, Fender is bringing manufacturing back to the U.S. by using metal 3D printing to produce components, such as Floyd Rose bridges and other precision guitar parts.

To keep students ahead of the curve, they need proficiency in CAD, CAM, and G-code programming. However, exposure to industry-standard software is critical. Some students learn Fusion or SketchUp, which are not widely used in the industry. Instead, they should focus on AutoCAD, SolidWorks, and Mastercam, as these are the standard software used in professional environments like Fender and Haas.

Jesse emphasized that even basic 3D printing skills can impress management and provide students with an edge in the job market.

Erwin Dominguez: The metal stamping and fabrication industry requires a combination of traditional and technological skills. Students need exposure to AutoCAD, CATIA, and CNC programming to understand engineering processes. A major emerging trend in the industry is robotics, which companies are incorporating into production lines to assist workers and improve efficiency. Understanding robot programming, PLC (Programmable Logic Controller) programming, and preventive maintenance will be essential skills for future workers.

Additionally, laser welding is becoming more common, and companies are investing in training programs to introduce employees to this technology. However, basic skills remain just as important—students must learn to read blueprints and weld various metals, such as stainless steel and aluminum.

An audience member asked for clarification on materials, specifically sheet metal applications. Erwin explained that their company specializes in fabrication for enclosures, horse racing components, and sheet metal bending. This requires workers who can operate press brakes, turrets, and CNC-driven machines. Employers are looking for candidates with strong fundamental skills and a willingness to learn.

Kimberly Clarke: Emphasized that technology and automation are essential for global competitiveness, but smaller companies like Walker Manufacturing must prioritize low-cost solutions rather than large-scale robotics. Companies need workers who can support technology rather than be replaced by it, particularly those with programming and troubleshooting skills. Developing CAD, CNC programming, and robotics knowledge is key to career advancement, as Walker follows a pay-for-skill model where employees earn more based on their expertise rather than tenure.

One major industry challenge is the lack of problem-solving skills among younger workers. Many employees hesitate to take initiative or make decisions, often expecting direct training for every situation. To address this, Walker introduced hands-on learning opportunities such as 3D printers to encourage experimentation. An audience member noted that students are often conditioned to fear mistakes, which increases anxiety and discourages risk-taking. Kimberly agreed, stressing that companies expect mistakes but value workers who learn from them and improve.

Beyond technical roles, business operations are also evolving with technology. Workers must understand ERP and MRP systems, data management, and automation tools to meet customer expectations. Toyota, for example, prioritizes incremental, low-cost technological improvements rather than expensive automation. Companies typically aim for a two-year integration window for new technologies to remain financially viable. Educators can help prepare students by emphasizing critical thinking, adaptability, and industry-standard software training to align with evolving workforce needs.

Question 2: How should our Career Technical Education (CTE) pathways adapt to ensure students are well-equipped to meet future demands and changes in this industry?

Dennis Galuszka: Our facility is unique because we integrate multiple disciplines—metalworking, circuit design, painting, graphics, engineering, and robotics—all in-house. We have a full metal shop where we fabricate our own parts, an amp department handling global electrical standards, and a paint department with both robotic and manual painters. Maintaining legacy craftsmanship is also critical; for example, our metal stamping dies from the 1950s are still in use today, requiring an entire team to maintain them. Additionally, robotics programming and maintenance, particularly for paint robots and automated systems, are essential industry skills.

To ensure students are well-equipped for the evolving workforce, CTE pathways should emphasize hands-on, real-world applications. Encouraging field trips and facility tours can significantly impact student engagement and understanding. Seeing industry processes firsthand helps them connect classroom learning to real-world applications. For instance, engineering students who witness robotic programming and CNC machining in action gain a much clearer understanding of how their skills apply in a manufacturing environment.

Additionally, students need exposure to a variety of disciplines within manufacturing—metal stamping, engineering, electronics, maintenance, and finishing processes—as these industries increasingly overlap. Many roles require workers to troubleshoot, adapt, and integrate multiple skill sets rather than specialize in just one. CTE programs should prepare students to be cross-disciplinary thinkers who can navigate these evolving demands, ensuring they're ready for both traditional craftsmanship and modern automation in manufacturing**.**

Jesse Abelar: To ensure students are well-equipped for the industry, they should be pushed beyond the basics by working on projects that over-prepare them for real-world challenges. Competitions are an excellent way to do this, as they require students to apply their knowledge in high-pressure, hands-on environments. These experiences help them develop critical problem-solving skills and technical abilities that set them apart in the workforce.

Many students today grow up in environments where they aren't exposed to hands-on work, such as fixing a car or using power tools. Because of this, CTE programs might be their only opportunity to develop these foundational skills. Ensuring that students gain hands-on experience with a variety of tools and fasteners is essential. Familiarity with equipment like grinders, power drills, CNC machines, and welding tools helps them build confidence and adaptability—skills that are highly valued in manufacturing and engineering fields.

Providing students with challenging, hands-on projects that require them to go beyond basic requirements will better prepare them for real industry settings. Whether through class projects or competitions, these experiences teach students how to problem-solve, work with industry-standard tools, and gain practical experience that makes them job-ready upon graduation.

Erwin Dominguez: Cross-training is a critical component of our facility. We encourage employees to develop skills in multiple areas rather than specializing in just one role. For example, a welder might also learn how to operate other equipment, making them more adaptable and valuable to the company. Employees who are open-minded and willing to expand their skill sets have greater opportunities for growth.

My own experience reflects this approach—I started as an operator but sought out opportunities to learn spot welding, traditional welding, and other skills. We actively push employees to develop additional competencies because a worker who can perform multiple tasks is far more valuable than one who is limited to a single function.

We also support engineers and technicians who want to continue their education, whether by enhancing their expertise in PLC programming for robotics or acquiring new technical training. Students should adopt the same mindset—embracing learning beyond their initial focus to become more versatile and competitive in the workforce.

Kimberly Clarke: The more exposure students have to different tools, machines, and equipment, the more adaptable and valuable they will be in the workforce. Hands-on learning and direct industry engagement are essential for building these skills. In manufacturing, Toyota

follows the principle of Genchi Genbutsu—"go and see"—which emphasizes firsthand learning. Educators should prioritize field trips and facility tours so that both students and teachers understand real-world industry expectations. Schools are invited to visit our facility, and we even offer summer work opportunities for educators to experience operations firsthand.

Manufacturing is evolving, but the core technical skills remain essential. Industry events like FabTech and manufacturer showcases at companies like Amada in Buena Park provide valuable insights into the latest advancements in automation, robotics, and fabrication technology. Seeing these advancements in person allows educators to align instruction with industry needs. Additionally, we must recognize that not all students are suited for a traditional four-year college path. Alternative pathways such as apprenticeships, trade schools, and certifications in fields like welding and tool and die work should be emphasized as viable and rewarding career options.

California's manufacturing landscape is shrinking due to regulatory and economic challenges, while other states like Indiana, Michigan, and Ohio have stronger workforce development programs. Understanding what other states are doing to support manufacturing can inform strategies for strengthening CTE programs here. Ultimately, we must ensure students have access to modern industry practices, hands-on learning, and clear career pathways, whether through higher education or direct-to-workforce training. The key is for educators to stay connected to industry and "go and see" what is happening in real-world settings to better prepare students for these careers.

Question 3: What essential skills, educational qualifications, and certifications are currently required to gain employment in your industry, and how might these requirements change in the near future?

Dennis Galuszka: The most valuable employees in manufacturing are those with critical thinking skills, adaptability, and a strong work ethic. While formal qualifications like engineering degrees or certifications can be helpful, many successful employees at Fender started with minimal formal education but advanced quickly because of their problem-solving abilities and willingness to learn. The decline of shop classes in high schools has made it harder to find workers with foundational skills, and companies now rely on internal training programs to fill the gaps.

Attitude is a major factor in hiring and retention. Companies can train skills but not work ethic, so individuals who show up with a strong attitude and a willingness to learn tend to move up quickly. Conversely, employees with poor attitudes struggle regardless of skill level. The industry experiences high turnover, partly because some new hires misunderstand the nature of the work, expecting glamour rather than hands-on, technical labor.

Manufacturing careers offer long-term stability, benefits, and career growth beyond basic shop skills. At Fender, the planning and purchasing departments ensure production runs smoothly,

demonstrating that there are roles beyond hands-on manufacturing. Employees who develop specialized skills and certifications—especially in CNC programming, robotics, and quality control—remain valuable throughout their careers. Companies invest in training and upskilling employees, providing long-term opportunities for financial security, career advancement, and benefits like health care and retirement plans.

Jesse Abelar: In manufacturing, technical skills and certifications are important, but success ultimately depends on three key factors: understanding the process, being able to execute it, and having the desire to improve. Without the willingness to try and learn, even the most skilled worker will struggle to advance. Attitude plays a significant role, and those who take initiative, adapt to challenges, and embrace continuous learning will be the ones who succeed.

Problem-solving and troubleshooting are essential skills that students should develop early. A major part of my role is diagnosing and fixing issues, often on machines and processes that were set up years ago and may not have clear documentation. It's one thing to build something from start to finish, but it's another to step into an existing system, identify problems, and make improvements. Students should gain experience working through mock failures, troubleshooting exercises, and real-world problem-solving scenarios to help them develop critical thinking skills that will serve them in any manufacturing environment.

When it comes to certifications and educational qualifications, hands-on experience often outweighs formal credentials. While certifications like SolidWorks Professional, SolidWorks Surfacing, and electronics certifications can be valuable—especially in R&D—there are cases where engineers are hired without degrees because of their demonstrated skills. I encourage students to track and quantify their experience with specific software and equipment—for example, listing how many hours they have spent working with CNC machines, CAD programs, or automation tools. Employers value practical experience and the ability to step up quickly more than just a certificate. Educators should emphasize applied learning, encourage students to document their skills, and create exercises that push students to think critically and solve real-world challenges.

Erwin Dominguez: In manufacturing, especially on the engineering side, real-world application often differs from theoretical design. Engineers might create a part in CATIA with precise tolerances, but when it's tested on the production floor, the reality can be very different. Engineers need to engage with production teams—not just rely on software—to understand how equipment, material properties, and tooling impact the actual manufacturing process. If something doesn't fit correctly, it's not just about fixing a drawing—it's about going to the floor, seeing the problem firsthand, and adapting accordingly.

Kimberly Clarke: The manufacturing industry requires a balance of technical expertise, adaptability, and hands-on experience. While certifications and educational qualifications can be beneficial, practical problem-solving skills and the ability to apply knowledge in real-world settings are equally critical. Many engineers and production workers learn best through experience rather than formal training alone. For example, companies like Toyota and Tesla initially faced production challenges when engineers lacked an understanding of how materials

behave in real manufacturing environments. It is crucial for future employees to develop both technical knowledge and the ability to work on the production floor, where they can test theories, troubleshoot problems, and refine their skills. CTE programs should focus on providing hands-on experience with real-world materials, tolerances, and equipment to help students transition successfully into the workforce.

The demand for robotics, automation, and programming skills is growing, but success in these areas requires more than just knowing how to program a machine. Engineers must be cross-trained in troubleshooting robotic systems, understanding multiple automation platforms, and adapting to evolving industry needs. Mistakes in automation implementation can be costly—selecting the wrong robot for a specific task or designing ineffective fixtures can result in delays, financial losses, and production inefficiencies. To prevent these costly errors, CTE programs should emphasize troubleshooting, real-world testing, and project-based learning that encourages students to think critically and problem-solve in dynamic environments. Exposure to robotic programming, PLC systems, fixture design, and automation troubleshooting will help students build the skills they need to work effectively in modern manufacturing.

Beyond technical expertise, employee retention and workplace culture play a major role in career success in manufacturing. Companies that invest in employees' skills, provide opportunities for career progression, and foster a collaborative and supportive work environment tend to retain talent long-term. Many manufacturing companies operate with a mentorship model, helping employees advance by learning multiple skills and taking on new challenges. However, flexibility and accountability must be balanced—while some industries allow remote work, manufacturing requires employees to be present and engaged in production processes. CTE programs should prepare students for the expectations of the industry, emphasizing reliability, teamwork, and adaptability. Encouraging students to develop a strong work ethic, problem-solving mindset, and willingness to learn new skills will help them thrive in a manufacturing career.

Question 4: What are a few occupations within the industry that do not require advanced degrees yet offer a living wage? Additionally, what advice would you give to a recent high school graduate that would help them gain employment in your industry?

Kimberly Clarke: Many students coming out of training programs or certificate programs expect to go straight into high-paying positions within their trained field, but the reality is different. Starting a career often means learning about the company first and taking on different roles before advancing into specialized positions. For example, I started in shipping before moving into my current role. Even though I had technical knowledge, I had to gain experience and understand the broader operations of the company before moving into higher-responsibility roles.

When it comes to earning a living wage, the definition can vary widely. Someone might make $100,000 a year but still struggle financially depending on their lifestyle and expenses. Many students assume they will immediately earn high salaries—for example, thinking they will make $80,000 as an engineer without ever having worked in the field. The reality is that new hires must gain hands-on experience and develop problem-solving skills before advancing. Take Rubelio, for instance—he works on second shift in the tool room, often troubleshooting machine issues on his own. If something breaks down, he has to figure it out, make the necessary repairs, and ensure production continues. Those skills—independence, adaptability, and troubleshooting—are what lead to long-term career success and better wages.

Young professionals must develop a broad skill set and embrace teamwork. In our engineering group, many young employees work together in teams to solve problems. However, they sometimes expect a level of autonomy that isn't always realistic in a workplace. For example, they once held a vote to remove a table and chairs from their office, assuming they had the authority to make that decision. While collaboration is valuable, students need to understand that professional growth involves balancing teamwork with company expectations and responsibilities. The key advice for recent graduates is to be flexible, take opportunities to learn multiple roles, and understand that career progression requires time and effort.

Dennis Galuszka: Many young workers today expect instant gratification, assuming they should immediately earn high wages without first gaining experience. They often view certifications or degrees as a guarantee of expertise, but in reality, these credentials are just a license to learn. True proficiency comes with years of hands-on experience. Employers value those who are curious, open to learning, and willing to be mentored, rather than those who assume they already know everything. Success in manufacturing requires understanding how your role fits into the bigger system. For example, when I worked on aircraft refueling systems, I made sure I understood how my part functioned within the entire system. Similarly, at Fender, employees are encouraged to connect with the broader impact of their work. The company fosters pride by occasionally inviting famous musicians—such as members of Def Leppard or Los Lobos—to perform for employees, reinforcing the significance of their contributions.

For those starting a career in manufacturing, many entry-level positions require no certifications. Jobs on the production floor, in shipping, planning, and quality control offer a path to a living wage without an advanced degree. However, it’s important to evaluate the full compensation package—not just take-home pay. Health insurance, retirement plans, and paid time off all contribute to long-term financial stability. Even workers with no prior experience have risen through the ranks at Fender. For example, a longtime lead painter once falsely claimed painting experience to get his first job, but over time, he became world-renowned for his work. The most successful employees are adaptable, hardworking, and willing to learn, rather than relying solely on credentials.

My own journey reflects this reality. My first entry-level job offered no benefits, no vacation, and was paid as 1099 income, something I knew nothing about at the time. However, over 25 years, I worked my way up by proving myself, developing new skills, and adapting to industry changes. Now, I make a comfortable living, and I never had to go to college. I always wanted to create

things, so I focused on that, and my career took shape in ways I never expected. The key is to be open to opportunities, stay committed, and put in the effort to grow within the industry. Those who stick with it and continuously improve their skills will move up over time.

Jesse Abelar: Defining a living wage is complex. Many young workers, even those earning $19.50 per hour, still live with family or share housing because wages alone don't always cover independent living expenses. To help students achieve financial stability, they need to be connected with industries that offer strong wages and benefits. For example, despite having an engineering degree and earning $92,000 per year, my brother, who became an ironworker and later a heavy equipment operator, now makes $120,000 annually—without a college degree. Union jobs in construction and skilled trades often pay more than traditional office jobs, and upcoming contract negotiations could raise heavy equipment operators' wages to $60–$80 per hour. If students are introduced to high-paying career paths early, they can make informed decisions about their futures.

Beyond wages, students should consider the full compensation package, including medical insurance, retirement benefits, and work-life balance. Some jobs pay higher hourly wages but lack essential benefits, while others may start with lower pay but offer long-term career growth and satisfaction. Passion for a job is important, but many young people don't yet know what they're passionate about. The key is exposure to different industries and encouraging them to take risks, explore careers, and ask themselves what excites them—not just financially, but in terms of long-term fulfillment and quality of life.

For younger workers, career growth often means moving between jobs rather than staying in one company long-term. While older generations may see this as a lack of loyalty, younger workers often switch jobs to gain new skills and negotiate better pay. Many companies prioritize hiring new employees at competitive salaries but don't allocate the budget to significantly raise the wages of existing employees. Instead of staying in one place for years with minimal raises, workers can move to new jobs every few years and see substantial salary increases. In high-cost states like California, this strategy has become necessary for many young professionals. Additionally, some workers leave high-stress industries, like aerospace, for careers they find more personally rewarding. Many employees at my company came from aerospace because they wanted better work-life balance and to be passionate about what they create. While high salaries are important, job satisfaction and overall well-being also play a crucial role in career decisions.

Erwin Dominguez: Finding the right job isn't just about salary or company size—it's about work environment, values, and personal fulfillment. Some students go to large corporations like Raytheon after graduation but later realize they prefer smaller companies where they feel more connected, inspired, and valued. In workplaces where employees celebrate milestones like birthdays and build strong relationships, the sense of belonging can make a big difference.

When helping students explore career options, it's important to look beyond job titles and paychecks. They should consider whether a company aligns with their values and offers an environment where they can grow. Employers don't just hire based on grades or technical skills—they look for drive, motivation, and resilience. Even students who may not have the

strongest academic background can stand out if they show initiative and a strong work ethic. Helping students recognize their unique strengths and how they contribute to a workplace is just as critical as technical training.

Audience Questions

Audience Question 1: How is AI impacting manufacturing? Has it been integrated into areas like automation or quality control? Do you see it becoming a significant factor in your industry, or is it not currently a major concern?

Response:
Kimberly Clarke shared that AI is a topic of discussion among major manufacturers like Toyota, Tesla, and Boeing, but the primary challenge is integrating it safely into business operations. Large companies are particularly concerned about intellectual property protection, fearing that AI use could make proprietary information vulnerable to theft, particularly from foreign entities. While AI tools like ChatGPT may be useful for non-sensitive tasks such as drafting emails, applying AI in product development, automation, or process optimization raises significant security concerns. As a result, many manufacturers remain cautious and hesitant to implement AI in core production functions.

One potential application of AI in manufacturing is remote programming, where engineers could design and troubleshoot systems from a distant location. While this capability exists, concerns about cybersecurity and data integrity limit widespread adoption. For example, Toyota is exploring AI's role in vehicle development and safety standards, but strict data protection measures must be in place. Additionally, companies that manufacture defense-related components cannot risk using AI in ways that could compromise national security.

Overall, AI is being explored but not fully embraced in manufacturing. While the technology has potential, uncertainty about how to use it effectively—without compromising security—has led many companies to proceed with caution. The industry recognizes AI's capabilities but is still figuring out the best ways to implement it without exposing critical information to external threats.

Audience statement: Rubelio Mendoza shared his journey from being a student to becoming both an educator and a professional in manufacturing. He highlighted a common challenge among students in technical education—many lack basic knowledge of tools and fundamental skills, including soft skills like communication and adaptability.

As a graduate of Technical Employment Training's first cohort in 2010, Mendoza earned his credential and certification before completing a three-year apprenticeship to further refine his skills. He credited Walker Manufacturing for providing opportunities to grow, recalling how he rotated through multiple departments early in his career, including shipping and punch press operations, before settling into his current role working with wire machines.

Mendoza emphasized the importance of being proactive in learning, noting that when he started, he had never operated certain machines before. However, he was able to succeed by

asking questions, taking notes, and continuously troubleshooting processes. He observed that many new workers fail to take notes or ask questions, which hinders their learning and development. Additionally, he pointed out that manufacturing involves working with complex three-dimensional parts, a concept he had to grasp through hands-on experience at Walker.

His perspective underscores the value of persistence, adaptability, and a willingness to learn in both education and industry.

Key Takeaways and Action Items by Panelist

These key takeaways and action item lists highlight each respondent's insights, concerns, and suggested actions to address industry trends and to prepare students for the evolving landscape within their respective industries.

Dennis Galuszka, Senior Master Guitar Builder, Fender Musical Instruments Corporation

Key Takeaways:

- Traditional woodworking and fundamental craftsmanship remain essential despite technological advancements.
- CNC machining and AutoCAD are critical, but manual skills such as wood identification and joinery are still required.
- Talent shortages in skilled trades, including cabinetry and precision woodworking, pose challenges for the industry.

Action Items:

- Emphasize hands-on training in basic woodworking and joinery skills before integrating advanced technology.
- Encourage student projects that balance traditional craftsmanship with CNC and AutoCAD training.
- Facilitate industry visits and job shadowing opportunities at facilities like Fender's Custom Shop.
- Provide students with real-world problem-solving scenarios to reinforce both traditional craftsmanship and automation processes.

Jesse Abelar, Manufacturing Engineer II, Fender Musical Instruments Corp

Key Takeaways:

- Metal 3D printing is becoming a viable manufacturing method beyond prototyping.
- Exposure to industry-standard CAD/CAM software is critical for students entering the field.
- Employers value practical machining experience and familiarity with CNC programming.

Action Items:

- Integrate industry-standard software (AutoCAD, SolidWorks, Mastercam) into CTE curricula.
- Increase exposure to metal 3D printing technologies.

- Provide hands-on experience in CNC machining, programming, and toolpath development.
- Incorporate G-code programming training as part of CNC machining coursework.

Erwin Dominguez, Plant Manager, Walker West

Key Takeaways:

- Robotics and automation are becoming key components in metal fabrication and stamping processes.
- Programmable Logic Controllers (PLCs) and preventive maintenance skills are in demand.
- Skilled welders, particularly in laser welding, are highly sought after.

Action Items:

- Expand robotics and PLC programming courses in CTE programs.
- Develop welding certifications specific to aluminum and stainless steel fabrication.
- Promote hands-on learning with CNC machines, laser welders, and press brakes.
- Encourage cross-training in multiple manufacturing processes, such as welding, CNC operation, and maintenance.

Kimberly Clarke, Corporate Vice President / General Manager, Walker West LLC and Walker Manufacturing Group

Key Takeaways:

- Cross-training employees in multiple skill areas increases workforce adaptability and employability.
- Problem-solving and critical thinking skills are lacking in younger generations entering the workforce.
- Technology, including ERP systems, is evolving rapidly, requiring digital literacy in manufacturing.

Action Items:

- Encourage cross-training opportunities for students to develop versatile skill sets.
- Integrate problem-solving exercises into technical education programs.
- Expand curriculum to include ERP software training and digital manufacturing tools.
- Expand opportunities for students to visit industry facilities and participate in hands-on internships to reinforce workforce expectations.

Labor Market Information

The following labor market information was sourced from https://www.onetonline.org/ on March 20, 2025.

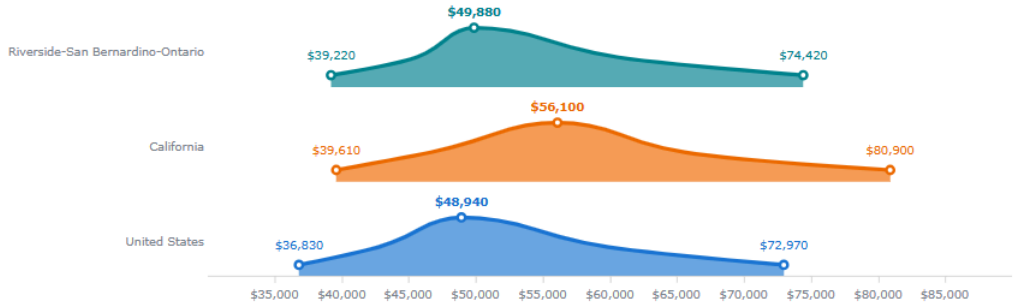
Local Wages

51-4121.00 - Welders, Cutters, Solderers, and Brazers

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$49,880**.
- 10% of workers earn **$39,220 or less**.
- 10% of workers earn **$74,420 or more**.

In California:

- Workers on average earn **$56,100**.
- 10% of workers earn **$39,610 or less**.
- 10% of workers earn **$80,900 or more**.

In the United States:

- Workers on average earn **$48,940**.
- 10% of workers earn **$36,830 or less**.
- 10% of workers earn **$72,970 or more**.

Source: Bureau of Labor Statistics 2023 wage data.

California Employment Trends

51-4121.00 - Welders, Cutters, Solderers, and Brazers

View trends for state: California Go

In California:

Employment (2020)	32,000 employees
Projected employment (2030)	35,500 employees
Projected growth (2020-2030)	11%
Projected annual job openings (2020-2030)	3,890

In the United States:

Employment (2023)	454,500 employees
Projected employment (2033)	463,800 employees
Projected growth (2023-2033)	2% Slower than average
Projected annual job openings (2023-2033)	45,800

California source: Projections Central 2020-2030 long-term projections. United States source: Bureau of Labor Statistics 2023-2033 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

Local Wages

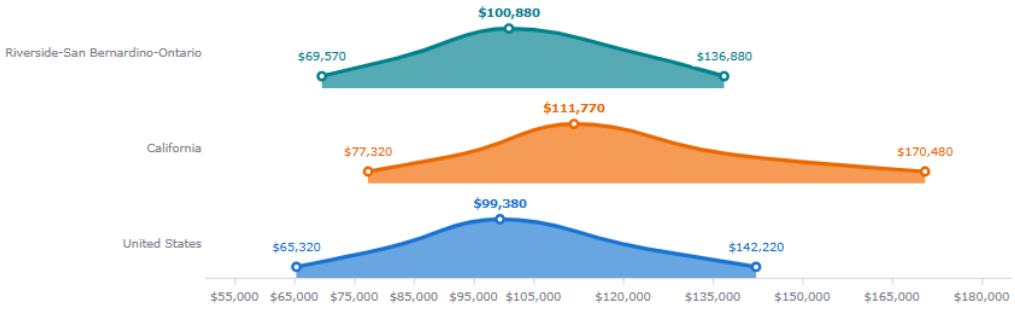
17-2112.03 - Manufacturing Engineers Bright Outlook

Wage data collected from **Industrial Engineers**.

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

Wage data for **Industrial Engineers**.

- Workers on average earn **$100,880**.
- 10% of workers earn **$69,570 or less**.
- 10% of workers earn **$136,880 or more**.

In California:

Wage data for **Industrial Engineers**.

- Workers on average earn **$111,770**.
- 10% of workers earn **$77,320 or less**.
- 10% of workers earn **$170,480 or more**.

In the United States:

Wage data for **Industrial Engineers**.

- Workers on average earn **$99,380**.
- 10% of workers earn **$65,320 or less**.
- 10% of workers earn **$142,220 or more**.

Source: Bureau of Labor Statistics 2023 wage data.

California Employment Trends

17-2112.03 - Manufacturing Engineers Bright Outlook

View trends for state: California Go

In California:

Employment data for **Industrial Engineers**.

Employment (2020)	21,300 employees
Projected employment (2030)	24,800 employees
Projected growth (2020-2030)	16%
Projected annual job openings (2020-2030)	1,780

In the United States:

Employment data for **Industrial Engineers**.

Employment (2023)	336,600 employees
Projected employment (2033)	377,500 employees
Projected growth (2023-2033)	■■■■ 12% Much faster than average
Projected annual job openings (2023-2033)	25,200

California source: Projections Central 2020-2030 long-term projections. United States source: Bureau of Labor Statistics 2023-2033 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

Local Wages

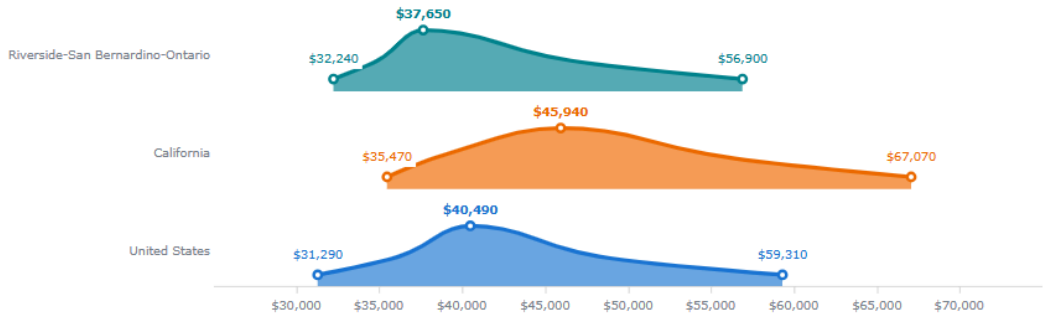
51-2022.00 - Electrical and Electronic Equipment Assemblers Bright Outlook

Wage data collected from **Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers**.

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

Wage data for **Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers**.

- Workers on average earn **$37,650**.
- 10% of workers earn **$32,240 or less**.
- 10% of workers earn **$56,900 or more**.

In California:

Wage data for **Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers**.

- Workers on average earn **$45,940**.
- 10% of workers earn **$35,470 or less**.
- 10% of workers earn **$67,070 or more**.

In the United States:

Wage data for **Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers**.

- Workers on average earn **$40,490**.
- 10% of workers earn **$31,290 or less**.
- 10% of workers earn **$59,310 or more**.

Source: Bureau of Labor Statistics 2023 wage data.

California Employment Trends

51-2022.00 - Electrical and Electronic Equipment Assemblers Bright Outlook

View trends for state: California Go

In California:

Employment data for **Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers**.

Employment (2020)	47,300 employees
Projected employment (2030)	49,100 employees
Projected growth (2020-2030)	4%
Projected annual job openings (2020-2030)	5,200

In the United States:

Employment data for **Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers**.

Employment (2023)	271,100 employees
Projected employment (2033)	290,600 employees
Projected growth (2023-2033)	7% Faster than average
Projected annual job openings (2023-2033)	31,500

California source: Projections Central 2020-2030 long-term projections. United States source: Bureau of Labor Statistics 2023-2033 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

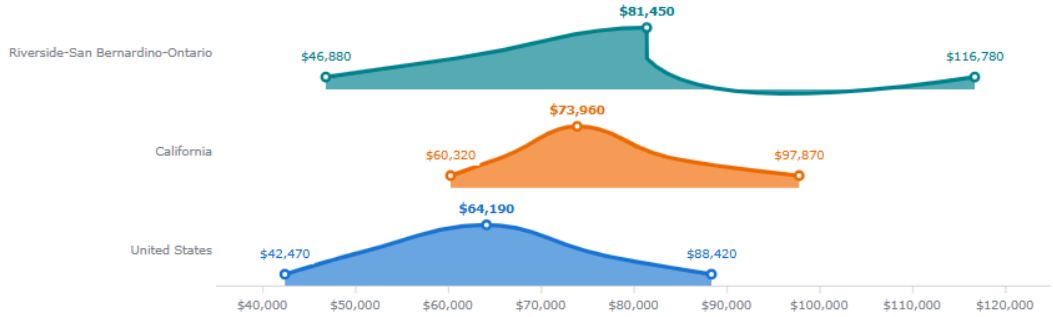
Local Wages

51-4061.00 - Model Makers, Metal and Plastic

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$81,450**.
- 10% of workers earn **$46,880 or less**.
- 10% of workers earn **$116,780 or more**.

In California:

- Workers on average earn **$73,960**.
- 10% of workers earn **$60,320 or less**.
- 10% of workers earn **$97,870 or more**.

In the United States:

- Workers on average earn **$64,190**.
- 10% of workers earn **$42,470 or less**.
- 10% of workers earn **$88,420 or more**.

Source: Bureau of Labor Statistics 2023 wage data.

California Employment Trends

51-4061.00 - Model Makers, Metal and Plastic

View trends for state: California Go

In California:

No data available.

In the United States:

Employment (2023)	2,900 employees
Projected employment (2033)	2,400 employees
Projected growth (2023-2033)	-18% Decline
Projected annual job openings (2023-2033)	200

United States source: Bureau of Labor Statistics 2023-2033 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

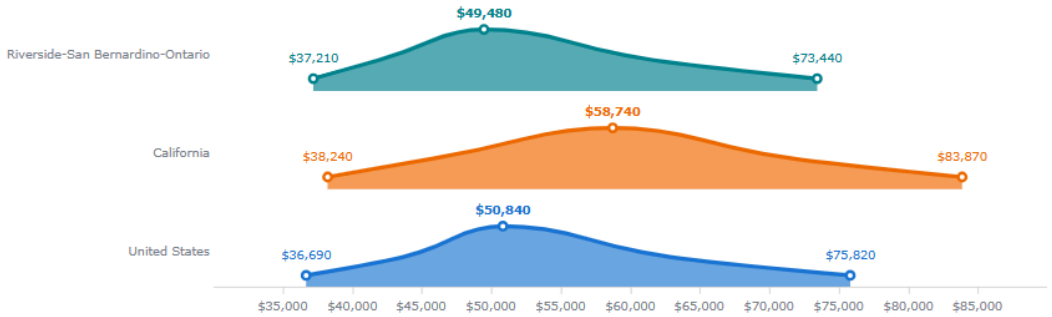
Local Wages

51-4041.00 - Machinists

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$49,480**.
- 10% of workers earn **$37,210 or less**.
- 10% of workers earn **$73,440 or more**.

In California:

- Workers on average earn **$58,740**.
- 10% of workers earn **$38,240 or less**.
- 10% of workers earn **$83,870 or more**.

In the United States:

- Workers on average earn **$50,840**.
- 10% of workers earn **$36,690 or less**.
- 10% of workers earn **$75,820 or more**.

Source: Bureau of Labor Statistics 2023 wage data.

California Employment Trends

51-4041.00 - Machinists

View trends for state: California Go

In California:

Employment (2020)	30,800 employees
Projected employment (2030)	33,600 employees
Projected growth (2020-2030)	9%
Projected annual job openings (2020-2030)	3,540

In the United States:

Employment (2023)	298,000 employees
Projected employment (2033)	303,000 employees
Projected growth (2023-2033)	2% Slower than average
Projected annual job openings (2023-2033)	30,200

California source: Projections Central 2020-2030 long-term projections. United States source: Bureau of Labor Statistics 2023-2033 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.