



Utah Women and Skilled Trades

Setting the Stage

Currently more than 8 million people in the US work in the construction and skilled trades industries, which have historically been referred to as “blue-collar” jobs.¹ The numbers will likely increase as there is a growing demand for skilled labor across the US because of the retirements of experienced tradespeople and the fact that fewer young people are pursuing these fields. Estimates show that by 2030, more than 40.0% of the current skilled trades and construction workforce will retire, leaving these industries with a critical worker shortage.² Projections suggest that in the US by 2030, the skilled trades and construction industries could face a historic worker shortage of more than 2 million tradespeople.³ Jobs in these areas have been dominantly held by men. While the skilled trades and construction industries can offer high-paying and in-demand jobs, women currently make up a small percentage of the trades workforce.

Schools, non-profits, and government agencies are helping to address the anticipated worker gap in the skilled trades and construction industries by offering training and apprenticeship programs to encourage people to pursue these industries. However, to fill such a large worker shortage, all those involved in training the next generation of workers are increasingly challenging outdated assumptions that blue-collar jobs are just for men and are looking to traditionally underrepresented groups, specifically women, as a part of the solution.⁴

The result is that a growing number of women are entering blue-collar professions in construction and manufacturing. Careers in these areas can provide women the opportunity for financial independence and career growth. As more women join the ranks, they are helping to redefine and reshape the traditional image of a tradesperson. Unfortunately, women who pursue jobs in these industries often experience considerable bias. Addressing the bias and making an intentional effort to decrease occupational segregation could play a key role in solving the industry’s pending worker shortage while providing career opportunities for women.

This research brief will look at local and national projections on the demand for jobs in the skilled trades and highlight trends on the number of women in the skilled trades

and construction industries. We will offer a comparison of current employment and average wages by occupation nationally as well as in Utah. We provide information on the training and education programs available within the state, including a snapshot of the number of women participating in high school programs. Finally, we will offer possible ways to increase the workforce participation of Utah women in these industries. This information can then be used by Utah leaders and other stakeholders to educate and encourage Utah women to consider and pursue career possibilities in the skilled trades and construction industries.

Skilled Trades Employment Projections

According to the National Center for Construction Education and Research (NCCER), the construction industry currently employs 8.1 million people and estimates that the industry will need to add more than half a million new skilled workers each year.⁵ Currently there are not enough workers to keep up with the growing demand. Projection models for the US show that the construction industry currently faces a shortage of 650,000 workers, which is delaying the completion of residential homes, hospitals, schools, and other infrastructure projects.⁶ The following table shows the top 10 jobs projected to be most in demand.

Table 1: Skilled Trades and Construction Employment Projected Outlook

Occupation	Projected Demand Nationwide	Projected Demand for Utah
Craft laborer	2,449,419	26,594
Carpenter	1,547,824	46,294
Mason (brick and block)	868,324	22,012
Heavy equipment operator	661,439	7,902
Ironworker	655,402	10,152
Electrician	624,900	9,196
Boilermaker	544,095	48,238
Roofer	358,647	11,910
Pipefitter	328,855	5,716
Painter	323,336	8,104

Source: National Center for Construction Education and Research, Construction Employment Outlook, 2024.⁷

Nationally, while women comprised 50.0% of the overall workforce, as of December 2023, women working in the skilled trades and construction industries comprised 10.8% of employees.⁸ However, this percentage includes women who work in office capacities, such as legal, insurance, and administrative roles. The number of women who work specifically in the construction trades is much lower, at 4.3% (or 366,360). While low, the percentage has increased from the 2.6% (198,562) of women who worked in the construction trades 10 years ago.⁹

In 2024, US women comprised 3.5% (80,255) of all construction laborers, 4.2% (53,718) of all carpenters, 2.9% (28,768) of all electricians, and 3.2% (20,352) of all plumbers, pipefitters, and steamfitters.¹⁰ Table 2 offers a comparison of US women who worked in construction in 2014 to those in 2024, which shows a slow but steady increase of women in trades-related professions.

Table 2: Historical Comparison of US Women Working in Construction – 2014 and 2024

Occupation	2014	2024	Shift
All construction and extraction occupations	198,562 (2.6%)	366,360 (4.3%)	45.8%
Brick, block, and stone masons	994 (0.7%)	3,712 (2.9%)	73.2%
Carpenters	21,794 (1.7%)	53,718 (4.2%)	59.4%
Construction laborers	42,150 (2.5%)	80,255 (3.5%)	47.5%
Electricians	18,456 (2.4%)	28,768 (2.9%)	35.8%
Heating, air cond., and refrigeration mechanics	4,536 (1.2%)	14,850 (3.0%)	69.5%
Painters, construction and maintenance	33,600 (6.0%)	58,212 (10.8%)	42.3%
Plumbers, pipefitters, and steamfitters	9,024 (1.6%)	20,352 (3.2%)	55.5%
Welders, cutters, solderers, and brazers	29,520 (4.8%)	35,520 (6.0%)	16.9%

Source: US Bureau of Labor Statistics, Labor Force Statistics for 2014 and 2024.¹¹

According to the US Bureau of Labor Statistics, of the 790,000 total women employed in the state of Utah, approximately 3.0% (or 23,700) Utah women work in construction.¹² Table 3 shows the total number of individuals employed in Utah and in the nation by occupation.

The average salary for many trades can rival that of white-collar jobs. According to data from the payroll services provider ADP, the median pay for new construction hires rose 5.1% to \$48,089 last year, compared to new hires in professional services earning \$39,520, up 2.7% from 2022.¹³ In 2023, the average annual salary for plumbers was \$69,940, and for electricians it was \$69,630. The earning potential of the trades, combined with not needing to incur significant student loan debt, is contributing to women seeing trades as a smart, stable financial decision.¹⁴

Table 3: Total Employed by Occupation in Utah and the Nation

Occupation	Total Employed in Utah	Total Employed Nationally
All construction and extraction occupations	111,470	8,520,000
Brick and block masons	1,810	128,000
Carpenters	14,040	1,279,000
Construction laborers	22,230	2,293,000
Electricians	11,360	992,000
Heating, air conditioning, and refrigeration mechanics	5,370	495,000
Painters, construction, and maintenance	3,350	539,000
Plumbers, pipefitters, and steamfitters	6,770	636,000
Welders, cutters, solderers, and brazers	4,230	592,000

Source: US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, May 2024; and Labor Force Statistics from the Current Population Survey, Table 11, 2024.¹⁵

Table 4: 2023 Average Annual Wage by Occupation in Utah and the Nation

Occupation	Utah Annual Average Wage	National Annual Average Wage
All construction and extraction occupations	\$57,770	\$63,920
Brick and block masons	\$57,590	\$65,390
Carpenters	\$54,620	\$64,040
Construction laborers	\$47,750	\$51,260
Electricians	\$63,010	\$69,630
Heating, air cond., and refrigeration mechanics	\$59,030	\$62,690
Painters, construction and maintenance	\$46,270	\$53,710
Plumbers, pipefitters, and steamfitters	\$62,600	\$69,940
Welders, cutters, solderers, and brazers	\$57,200	\$55,100

Source: US Bureau of Labor Statistics, Occupational Employment and Wage Statistics, May 2024.¹⁶

The Skilled Trades in Utah

During the fall of 2023, UWLP researchers conducted a statewide study to establish a baseline of public perceptions related to the awareness, understanding, and attitudes around challenges and opportunities that Utah girls and women face. Overall, 3,505 participants completed the survey, and 2,196 of the participants offered their thoughts on the greatest opportunities available to Utah women and girls. The most common category cited related to work and employment opportunities, with 37.8% (N=892) identifying opportunities in specific fields, particularly in the skilled trades. Comments included:

“Many trades are really seeking out women and girls, when they did not before.”

“Trade work is a great opportunity for girls and women if they can find the confidence and support in these fields.”

“Respect for those who choose pathways that aren’t as prevalent to women, such as construction management, utility work, and other trades.”

“Why aren’t there more women in male-dominated roles such as welding, building, electricians, plumbing, etc.? While the cost of college keeps going up and up, the trades are where women can make money while they learn, and when they graduate, they don’t have a giant debt to pay back. But you don’t see a lot of women in these trades, so why would a young woman choose to go down that path?”

While Utah has historically been known for its conservative culture, these comments reflect a changing attitude towards girls and women pursuing careers in the skilled trades. In fact, in year three of the UWLP statewide study, the survey included this item: “Jobs in trade fields are good career choices for women to pursue.”¹⁷ In 2025, the statistical mean was 5.56 (SD = 1.21) on a scale where 1 = strongly disagree and 7 = strongly agree. Overall, 78.3% of respondents expressed some level of agreement, indicating broad support for women pursuing careers in trade fields.

Providing opportunities for training in the skilled trades is part of the mission for the Utah State Board of Education (USBE) section referred to as Career and Technical Education (CTE). Utah’s CTE programs are designed to introduce students to career options and provide occupation-specific skills that prepare students for further education and training. CTE courses are delivered through 177 public middle/junior high schools, 157 public high schools and charter schools, and seven CTE centers. In addition, most Utah colleges and universities offer post-secondary CTE programs.¹⁸ During the 2023–2024 school year, more than 187,580 students were enrolled in CTE courses.¹⁹

Utah’s CTE programs are divided into 14 career clusters, one of which is Construction and Structural Systems. Courses offered in this area can provide a foundation for the construction trades, including carpentry, electrical, and plumbing. Depending on a student’s career goals, coursework can result in a certificate, a 2-year associate degree, or a 4-year bachelor’s degree. Encouraging young women in high school to consider enrollment in the CTE’s Career Cluster of Construction & Structural System could be the first step to a potential career in the skilled trades. Of the 11,773 high school students currently enrolled in courses related to Construction & Structural Systems, 30.5% (3,592) are women. The highest percentage of female participation is 58.7% at the Northern Utah Academy for Math, Engineering, and Science, followed by Alpine District (49.6%), South Sanpete District (44.7%), Davis District (43.9%), and Garfield District (43.5%). Data on current enrollment

by gender on the courses at school districts and high schools in Utah is provided in the Appendix.

The Trades Pipeline

As the job market for the skilled trades has grown, so has the demand for trade apprenticeships, which combine studies with hands-on work experience and are often paid for by employers. According to the software company Jobber, a survey of Gen Z students found that 75.0% were interested in vocational schools that offer paid, on-the-job training.²⁰

Yet women who are considering entering the trades for a career may not know where to begin. Working in the trades has been referred to as familial, with many (42.3%) apprentices being introduced to the trades through family or friends.²¹ Often those outside of the “trades family” do not know where to start or how to get an apprenticeship. Part of the dearth of women in trades, then, may be that women simply are not informed about the skilled trades as a possible career path. In 2021, the Institute for Women’s Policy Research (IWPR) surveyed 2,600 tradeswomen and non-binary tradespeople and found that only 6.2% of respondents indicated that they had heard about trade opportunities from a high school guidance counselor.²² The survey also found that about one in five respondents (18.1%) had become aware of the trades through a women’s or tradeswomen’s organization, which underscores the importance of such organizations in helping women discover and enter apprenticeships in the trades.²³

Fortunately, within the state of Utah there are programs that offer apprenticeship and pre-apprenticeship opportunities to increase awareness of the wide variety of possible employment options within the trades. In 2024, the Utah Department of Workforce Services reported that there were 4,731 active apprentices across all industries, and 5.9% (278) of them were female.²⁴ Of that total, 63% (2,413) of apprentices were in the construction industry and received an average hourly wage of \$21.49.²⁵

One highly successful pre-apprenticeship program is offered through the Utah Women in Trades, The Karen Mayne Pre-Apprenticeship program. Founded in 2010, its mission has been to increase the number of women seeking and obtaining opportunities in non-traditional building and construction trades. According to Concetta Defa, the current President of Utah Women in Trades, collaboration with community partners that include training centers, organizations, and employers has allowed their organization to provide support and opportunities for Utah women interested in pursuing a career in the skilled trades. One example is the Utah Electrical Training Alliance, which represents union contractors and apprentices and is the largest electrical apprenticeship program in the state of Utah, where

recent enrollment data shows that women comprise 6.0% of their electrical apprentices.

Having the support of pre-apprenticeship and training programs plays an important role in encouraging more women to pursue careers in construction and other trades. For example, Carhartt has a grant program called For the Love of Labor that supports community-based non-profits such as Women Who Weld and Women in Skilled Trades (WIST) to help place women workers in skilled trade positions. Carhartt has also donated funds to the charity established by the heavy metal band Metallica, All Within My Hands, which funds scholarships for women and men in the trades through community colleges to encourage skill development and support technical education. The goal is to break down the barriers women typically experience in male-dominated industries.²⁶ Other organizations, such as the Home Depot Foundation, encourage the growth of women in the construction industry by creating programs and scholarships that are open to anyone entering or currently enrolled in a construction trade program.²⁷

Shifting Cultural Perceptions

While a possible reason for women making up such a small percentage of the skill trades workforce is social, a shift in attitude is occurring, and the notion that blue-collar jobs are “just for men” is being challenged as outdated.²⁸ There is a growing trend among younger generations, particularly those considered Gen Z (born between 1997 and 2012) to view a career in the trades as an opportunity for a job that is flexible, independent, and meaningful. The negative image of the trade professions being dirty or “low-end” work is changing, largely due to new technologies and rising pay in a number of skilled trade fields ranging from welding to machine tooling.²⁹

Another cultural shift is happening in attitudes towards secondary education. According to a 2025 Gallup poll, Americans are placing less importance on the value of a traditional college education.³⁰ While most Americans see some value in having a college education, it is become far less likely for it to be considered as vital, particularly among those who do not consider the value of an education beyond its economic benefits. The survey found that 54.0% of Gen Z-ers say a high school diploma is enough to get a well-paying, stable job.³¹ While there may be several reasons for the decline in the perceived value of college, one contributor could be the expense of a traditional four-year degree. Student loan debt can be onerous, and the educational expense of the skilled trades is much less. It is important to note that often career choice is not an “either/or” decision; individuals can complete certificates and continue in higher education if they so desire.

Data from the National Student Clearinghouse supports this shift towards the trades, reporting that the number of students who enrolled in vocational-focused community

colleges in 2023 increased by 16.0%, and the number of those studying construction trades rose approximately 23.0%.³² Students pursuing trades careers feel they will have a more secure job track and more opportunities for a steadily growing income.

Potential changes in the labor market due to AI is another element contributing to the growing appeal of a job in the skilled trades. Choosing a career that is resistant to automation is identified by 77.0% as a top priority for those of the Gen Z generation.³³ Many young people consider that a job in the trades will be more resilient and less likely to be replaced by AI than white-collar jobs, a trend that has led to pundits calling Gen Z “the toolbelt generation.”³⁴

Concerns on the potential impact of AI on the future labor market is also found in the survey results of US parents with children between the ages of 18 and 20 who were asked to identify careers they considered to be AI-resistant. Parents identified the top three AI-resistant careers to be plumbers (54.4%), HVAC technicians (51.3%), and electricians (51.1%).³⁵ While not all blue-collar trades are created equal and are far from future-proof, they have historically been underestimated for how secure and potentially lucrative they can be.

Challenges Facing Women in the Trades

There are certainly hurdles to women entering and staying in skilled trades. While women cite the opportunity for high earnings as an important reason for entering the trades, dealing with the blatant sexism, including harassment and a lack of respect, leads many to reconsider their careers. When women find themselves isolated or feeling unwelcomed, health and safety concerns can occur, particularly in workplaces where a “macho culture” may prevail. A report by the IWPR showed that “more than four in 10 women and non-binary tradespeople who work in construction-related jobs have said they left or seriously considered leaving the trades industry, and nearly half indicated that it is because of harassment and a lack of respect.”³⁶ Only 13.0% indicated that the work itself was physically too hard.³⁷

Workplace bias can have considerable negative impact on a woman’s career in the trades because of direct gender discrimination and the lack of mentorship opportunities that can persist in some environments. When organizations lack supportive policies and culture, the ability to retain women in the trades long term is jeopardized.

Another significant issue for women working in the skilled trades relates to the lack of properly fitted Personal Protective Equipment (PPE), which is often designed for men. The lack of inclusive safety gear provides limited comfort and functionality for women, which not only results in discomfort but also creates a higher risk for workplace injuries as a result of hindered performance.³⁸ The “shrink and

pink” approach to making gear for women does not account for anatomical differences and can often create safety hazards, such as safety glasses or masks that do not fit snugly against the face or gloves that are too large and can get caught in machinery. As of 2025, the federal government now requires construction employers to provide PPE that properly fits all employees, explicitly addressing the need for gear tailored to women and smaller body types.

Access to sanitary facilities is also frequently a problem, particularly on new construction sites. Temporary facilities are usually unisex, which often lack privacy and are not well maintained. One survey of women in construction reported that about 80.0% of women in construction have encountered worksites with either dirty toilets or no toilets whatsoever.³⁹ Respondents indicated that facilities, when available, were often filthy or were some distance from the worksite. Safe and clean restroom conditions are frequently absent on worksites, which can exacerbate women feeling they are targeted when they need to step away to take time to address personal sanitary needs.

A final component that contributes to reevaluating the decision to work in the trades relates to childcare. Nearly 70.0% of those who work in the trades who are parents of children under 18 said that they have left or thought about leaving a career in the trades because of problems with finding childcare (stated as a “somewhat” or “very important” factor).⁴⁰ On author stated that “women have been underrepresented in the industry for too long, and because of persistent stereotypes that childcare is a ‘woman’s’ issue—affordable, accessible, and quality childcare has not been a priority.”⁴¹ Yet childcare is far from being only a woman’s issue; a growing number of men working in the trades are parents who are also affected by childcare needs.

Looking Ahead

While women still represent a small percentage of the overall skilled trades workforce, their numbers are growing, and, with continued support, mentorship, and training, they are reshaping the perception and future of these careers. To increase and retain the number of women in skilled trades, opportunities lie in three key areas: (1) raising awareness, (2) maintaining a safe workplace, and (3) focusing on retention.

First, raising awareness involves highlighting the benefits of a career in skilled trades as a viable option for women, which includes debunking current gender stereotypes by providing real-life examples of tradeswomen who are succeeding while doing hands-on, high-paid work. Raising awareness also involves promoting the earning potential of working in the trades and working with cutting-edge technologies, many of which will play a role in building Utah’s future energy infrastructure

A second area critical to retaining women in the skilled trades is maintaining a safe workplace. Nearly 40.0% of tradeswomen report experiencing frequent or constant sexual harassment while on the job.⁴² To address gender bias, the skilled trades and construction workplaces can have both policies and practices in place to show their support of women’s success. This includes having anti-harassment policies, being an employer and supervisor who is committed to diversity, and establishing workplace goals or incentives to hire women.⁴³ While changing the culture of an entire industry will not happen overnight, it is vital that each organization and each supervisor take responsibility for creating a safe environment for all employees by establishing and enforcing clear harassment policies and involving women in identifying possible solutions.⁴⁴

The third key area is increasing retention by creating an environment of support. For women who are new to the trades, a little extra support can go a long way. Ensuring that women have equal, on-the-job access to supportive mentors, particularly from senior tradeswomen, can help them thrive. Another option is connecting women with programs that offer resource support. Finally, providing flexibility around assignments and work hours, particularly for working parents, can play a key role in keeping top talent.

Conclusion

Jobs in the skilled trades are critical to both the US and the Utah economy and should reflect the top talent of both men and women. While the vast majority of tradespeople have historically been male, by actively recruiting and retaining a diverse workforce that includes women, companies are not just making the right move—they are making a strategic one. Research has repeatedly shown that organizations that embrace diversity benefit by increased innovation and financial success.⁴⁵ An intentional shift towards embracing a more diverse workforce provides the skilled trades and construction industries a key to addressing the deepening industry shortages now and in the future. As one author stated, “Companies that empower women in the trades today will have the talent pipeline needed to install, maintain, and optimize efficient buildings for tomorrow.”⁴⁶

While Utah is known for its conservative culture, attitudes towards career opportunities for women in nontraditional areas are changing. As the skilled trades and construction industries experience an unprecedented worker shortage, recruiting and retaining women could play a key role in meeting future workforce demands. In the future, industry leaders and Utah policymakers will need to support women so they are empowered to make career choices that are right for them and their families. Supporting Utah women and families helps all Utahns thrive.

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APPENDIX
Construction & Structural Systems Courses
Percentage of Women Enrolled by School District or High School

School District or High School	# Women Enrolled	Total Enrolled	% Women Enrolled
Academy for Math, Engineering & Science	n<10	n<10	
Alpine District	403	812	49.6%
American Academy of Innovation	n<10	n<10	
American Leadership Academy	n<10	n<10	
Beaver District	24	90	26.7%
Box Elder District	115	408	28.2%
Cache District	41	263	15.6%
Canyons District	83	252	32.9%
Carbon District	45	110	40.9%
Davis District	599	1,363	43.9%
Duchesne District	47	255	18.4%
East Hollywood High	n<10	n<10	
Emery District	11	95	11.6%
Fast Forward High	n<10	n<10	
Freedom Preparatory Academy	n<10	n<10	
Garfield District	20	46	43.5%
Grand District	28	80	35.0%
Granite District	327	1,261	25.9%
InTech Collegiate Academy	22	61	36.1%
Iron District	14	118	11.9%
Itineris Early College High	n<10	n<10	
Jordan District	156	632	24.7%
Juab District	19	154	12.3%
Kane District	25	89	28.1%
Logan City District	n<10	n<10	
Millard District	43	191	22.5%
Morgan District	18	46	39.1%
Murray District	44	153	28.8%
Nebo District	262	882	29.7%
Northern Utah Academy for Math, Engineering & Science	105	179	58.7%
North Sanpete District	23	60	38.3%
North Summit District	n<10	n<10	
Ogden City District	33	188	17.6%
Paradigm High School	n<10	n<10	
Park City District	n<10	n<10	
Piute District	n<10	n<10	
Provo District	166	553	30.0%
Rich District	n<10	n<10	
Salt Lake District	49	186	26.3%
San Juan District	29	79	36.7%

Sevier District	63	208	30.3%
South Sanpete District	172	385	44.7%
South Summit District	12	72	16.7%
Spectrum Academy	n<10	n<10	
Summit Academy	n<10	n<10	
Tintic District	n<10	n<10	
Tooele District	201	639	31.5%
Uintah District	52	236	22.0%
Utah Virtual Academy	n<10	n<10	
Walden School of Liberal Arts	n<10	n<10	
Wasatch District	17	191	8.9%
Washington District	62	491	12.6%
Wayne District	23	58	39.7%
Weber District	177	619	28.6%
Total	3,592	11,773	30.5%

*Note: Data provided by the Utah State Board of Education, Career & Technical Education