



WOMEN-ONLY PRE-APPRENTICESHIP PROGRAMS: MEETING SKILLS NEEDS AND CREATING PATHWAYS TO GOOD JOBS FOR WOMEN

Apprenticeships provide an opportunity to earn while learning and acquiring industry recognized qualifications. Apprenticeships in construction and skilled trades can be a pathway to good jobs with family-sustaining wages and benefits yet women are significantly underrepresented in the trades.

The average salary for someone who completed an apprenticeship is \$60,000 per year.¹ The average salary of an electrician (the most common apprenticeship) on completion of an apprenticeship is \$23 per hour²; for a 40-hour week this translates to \$920, substantially higher than the median weekly earnings for a worker with an Associate degree (of \$836 in 2017).³ Registered apprentices in the trades receive an average hourly starting wage of close to \$17 per hour plus benefits, and can expect regular pay increases as they progress through their apprenticeship.⁴ The construction industry is reporting great difficulties in finding skilled workers.⁵ Such difficulties will likely grow further in the coming years as the industry has to recruit and train a new generation of workers to replace retiring workers.⁶ Greater gender and racial/ethnic diversity will be essential if the industry is to meet its skills needs.

This briefing paper profiles three women-only pre-apprenticeship programs⁷ – [Chicago Women in the Trades](#) (CWIT), New York's [Nontraditional Employment for Women](#) (NEW), and [Oregon Tradeswomen Inc.](#) (OT) that are achieving impressive results



Learning how to lift in a safe manner is part of all programs.

“You cannot be what you cannot see!
Women-only pre-apprenticeship
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the trades.”

LAUREN SUGERMAN

CWIT, Co-Founder and National Policy Director



in improving gender and racial diversity in apprenticeship programs.⁸ Where these programs operate, women’s share of registered apprenticeships is at least twice as high as the national average, and in the double digits in several key apprenticeship programs, showing that women-only pre-apprenticeship programs are an important component in creating greater diversity in the trades.

Why Women-Only Pre-Apprenticeship Training

Almost a quarter of a million women work in construction trades.⁹ Yet, because nationally women are only 3 percent of all construction workers, and 2.5 percent of apprentices, many women are not aware of the opportunities offered in the trades. As Lauren Sugerman, co-founder and National Policy Director of CWIT, explains, “You cannot be what you cannot see! By creating connections between aspiring and experienced tradeswomen, women-only pre-apprenticeship programs show women that they can have successful careers in the trades.” Women-only pre-apprenticeship programs are designed to reduce the obstacles that women face in entering and succeeding in the trades, including a reduced likelihood of working with tools while growing up, receiving encouragement to pursue math or relevant CTE classes in school, and being told about opportunities in the trades by career counsellors or at One-Stops. Added to these are on-going discriminatory recruitment practices-- it is much harder for women than men to gain hands-on work experience in construction or to find an employer to sponsor them as ap-

“I have an HVAC Associate degree but I simply could not get hired in my field. I was tired of temp jobs. I enrolled at NEW so no one can say “that girl does not know what she is doing.”

Student enrolled in NEW Blue Collar Prep

prentices, a prerequisite for entry to many apprenticeship programs. A NEW student explains her reasons for enrolling, "I have an HVAC Associate degree but I simply could not get hired in my field. I was tired of temp jobs. I enrolled at NEW so no one can say "that girl does not know what she is doing." Some women also find it intimidating and off-putting to be the only woman on a worksite with solely male co-workers.¹⁰

Women-only pre-apprenticeship programs help women overcome these barriers by getting the word out about careers in the trades and by helping women become competitive candidates for apprenticeship programs. "Women need an environment that is supportive of their needs- where they are able to ask questions about different industries without facing derision, and openly discuss what it is like to be a woman working in in a male dominated environment," says Kelly Kupcak, Executive Director of OT. An OT graduate and second-year IBEW tree trimming apprentice, says the program was life changing- not only helping her into a well-paid career- she earns around \$22 per hour- but by helping her change her mindset and becoming more positive.

A graduate of NEW, now a 3rd year plumbing apprentice, describes how her pre-apprenticeship program set her up for a career with hourly earnings almost 50 percent higher than in her previous job, enough to buy a house and to feel confident that she will be able to care for her mother in her old age.

"Economically, I am now able to buy a house. I can afford it. Prior to my apprenticeship, I was working in retail, earning \$19/hour with just medical benefits. I now earn \$28/hour, I have a complete benefits package and I am due for my next raise in March of 2019. I'm looking at my mother now and I know that soon, she will need my financial assistance. It doesn't make me nervous because financially, I will be able to do it. My mother told me that if she dies tomorrow, she will be content because I will be able to take care of myself. I know that's because of NEW and Local 1."

NEW graduate, 3rd year Apprentice with UA Local 1 Plumbers Union

"Oregon Tradeswomen gave me the necessary information and skills to succeed in the construction industry. It changed my mind set. No longer accepting the negative side of things. Being more mentally positive. As long as I have perseverance and can endure. I will be successful not only in construction but in life as well. OTI empowered me to do more and become more not just for myself, but for my family and my fellow trade sisters."

OT Graduate, 2nd IBEW Tree Trimmer Apprentice with NW Line JATC.

“For the past four years [...] through our partnership with Chicago Women in the Trades, we were able to increase women’s participation from three to more than 30 women, nearly all of whom continue to advance in the program due to the strong support and mentorship our apprentices receive. More than numbers, [CWIT] has referred well qualified candidates, three of whom are in the top seven of our twenty best 3rd year students, a fact that has not gone unnoticed by our members and leadership.”

Plumbers Local 130

apprentices in the construction industry are women.¹¹ In Illinois, women’s share of registered apprenticeships is twice the national average,¹² and in Chicago—home of CWIT—several apprenticeship programs stand out as examples of increasing women’s participation. These include the women’s percentage of laborers at 12%, Iron workers Local 63 at 10%, and the carpenters at 8% (nationally women are fewer than 2.5% of structural steel and ironworker apprentices).¹³ Chicago Plumbers Local 130 describes the impact of working with CWIT: “For the past four years [...] through our partnership with Chicago Women in the Trades, we were able to increase women’s participation from three to more than 30 women, nearly all of whom continue to advance in the program due to the strong support and mentorship our apprentices receive. More than numbers, [CWIT] has referred well qualified candidates, three of whom are in the top seven of our twenty best 3rd year students, a fact that has not gone unnoticed by our members and leadership.” In Oregon—home of OT—women’s share of registered construction apprentices in 6 percent,¹⁴ among apprentices of the NECA IBEW Electrical Joint Apprenticeship program—who work closely with OT- 12.3 percent- 101 of its 824 apprentices-were women in 2017.¹⁵

Women-only apprenticeship programs increase racial and ethnic diversity in the trades. Women and people of color are underrepresented in registered apprenticeship programs. Each of the programs ensures that it caters to a diverse group of women and the proportion of women of color among students and graduates of the programs is much higher than that in the general population in each of the program locations. Three in ten of OT students and three in four students of NEW and CWIT are women of color.¹⁶ Programs may also offer technical advice to apprenticeship programs seeking a more diverse apprentice population. OT, for example, designed a workshop for NECA IBEW Local 48 to reach potential recruits among African American women, leading to a significant increase in the number of African American women apprentices.¹⁷

Programs provide opportunities to practice with tools, refresh and build relevant math and technical skills, build up physical strength, introduce women to different jobs in the trades, explain the myriad of entrance procedures for apprenticeships, and help them develop the confidence and resilience needed to prosper in the male-dominated trades. At the same time programs offer technical advice to apprenticeship programs, unions, and contractors on how to improve women’s recruitment and retention in the trades, develop leadership and provide support for experienced tradeswomen, and advocate for changes in public policy to support tradeswomen.

Women-only pre-apprenticeship programs achieve results. In New York City—home of NEW—11 percent of

The History of Women Only Pre-Apprenticeship Programs

In 1976, women's groups successfully sued the U.S. Department of Labor for failing to set and enforce affirmative action goals for women in federal construction projects;¹⁸ two years later President Jimmy Carter issued new regulations to set affirmative action standards for women in these projects (43 Fed. Reg. 14888) and in 1980 set the 6.9 percent goal for of hours worked by women in the construction industry (43 Fed. Reg. 14899). In response to the potential opening of opportunities for women in the trades, NEW was founded in 1978, CWIT in 1981, and OT in 1989.¹⁹

All three organizations initially functioned primarily as networks for tradeswomen, supporting each other and advocating for greater access to opportunities for women in the trades. Yet, it became increasingly clear that it was not enough to just challenge discriminatory practices to help women enter careers in the trades. As Jayne Vellinga, Director of Chicago Women in the Trades, explains: "We realized that networking and advocacy alone was not enough. We needed to start training programs for women to ensure that a new generation of women could meet the high bars (and sometimes barriers) set by apprenticeship programs for women." In 1987 CWIT expanded its activities to offer a 'Pre-Apprenticeship Tutorial Workshop'.²⁰ NEW began offering training in the early 1980s by renting slots in a welding school; its current custom build workshop and training space opened in 2005. OT's pre-apprenticeship program- which is certified under the State Apprenticeship Training Council- began in 2004. All three organizations are long-standing recipients of the "Women in Apprenticeships and Non-traditional Occupations" (WANTO) grants from the U.S. Department of Labor' Women's Bureau.²¹

Recruiting Women to the Trades

The first step for training women for skilled trades positions is to increase awareness about opportunities. All three programs devote considerable time conducting

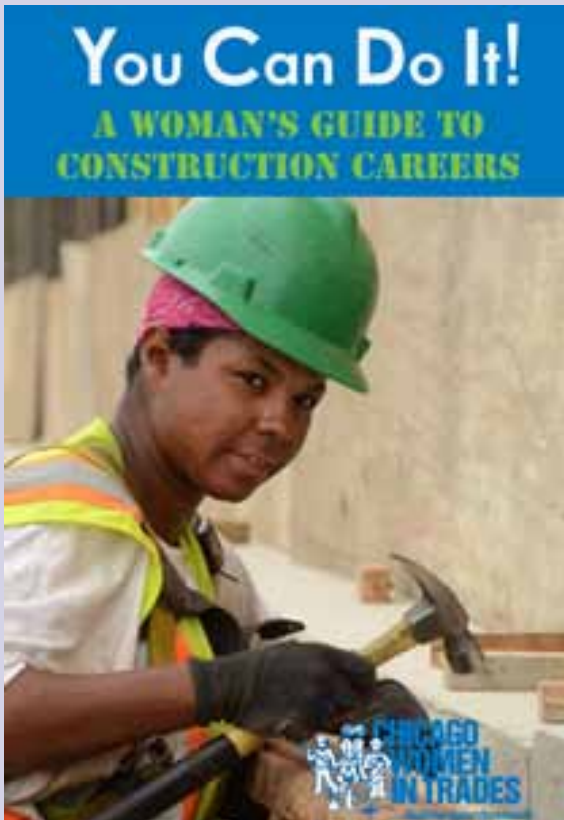
Women Share of Apprentices is:

- 14% at Sheet Metal Local 28, partnering with NEW
- 10% at Ironworkers Local 63, partnering with CWIT
- 12.3% of NECA-IBEW Electrical JATC, partnering with OT

Nationally, women are fewer than 3% of apprentices in each of these

outreach to individual women, One Stops and career counselors in community colleges and schools, and other community-based organizations that may work with women interested in entering these well-paid careers. Programs regularly host information sessions for women; attendance at an information session typically is mandatory for acceptance to the program. The sessions give women a realistic idea of what it is like to work in the trades, and ensure that they have the necessary qualifications- such as a GED- and are able to pass a drug test. About one in ten women decide to enter the training after attending an information session. Where women are truly interested in the program but held back because they do not have the educational qualifications, the programs may work with them, and encourage them to apply at a later date, once they can fulfil the program prerequisites. Another stumbling block may be the need to have a driver's license- particularly essential in Oregon without a well-developed public transportation infrastructure. OT helps interested women find a way of obtaining drivers' licenses.

To reach women beyond its immediate geographic reach, CWIT in 2015 produced [You Can Do It](#), a guide to



CWIT's 'You Can Do It' guide provides information about construction careers to women and girls who live in areas without a training program for women.

women's construction careers. The brochure includes examples of successful tradeswomen, provides a 'Do You Have What It Takes' check list that translates construction work into tasks and experiences from women's lives, and includes organizations in the Midwest that offer training for women.

OT annually hosts a two-day [Oregon Tradeswomen's Career Fair](#) with extensive workshops and opportunities for hands-on activities. The fair- now in its 26th year- includes one day reserved for middle-and high school girls, and one day of a more conventional career fair, an opportunity for contractors and apprenticeship programs to advertise themselves and meet with women interested in working in the trades. In 2018, approximately 1,200 middle and high school students attended the school portion of the fair; the adult part was attended by approximately 1,000 adults. All regional apprenticeship programs participated with booths and displays, as well as around 80 employers.

Pre-Apprenticeship Training for Women

In the last decade close to 5,500 women have completed women-only training programs at the three programs, and of these about 50 percent have been placed into registered apprenticeships; many of the others were placed in related jobs with earnings way above the minimum wage. CWIT, NEW, and OT each offer a core pro-



Learning how to solder and other hands-on opportunities: Oregon Tradeswomen's 2018 Career Fair reached 1200 schoolgirls, as well as 1000 adults.

gram for preparing women for careers in construction- offered several times a year- as well as more targeted one-off programs.

- NEW, the biggest of the three, annually trains approximately 400 women in its core courses of [Blue Collar Prep](#) and [NEW at Night](#), as well as approximately 150 more women in more advanced training programs, providing extra support for those pursuing careers as Electricians, Laborers, Sheet Metal Workers, with New York's Metropolitan Transit Authority, among other career paths. Two variations of the core training are available: Blue Collar Prep, a 7-week full-time program, and NEW at Night, an 8-week program held in the evenings and on Saturdays.
- CWIT trains approximately 100 women a year in its core Technical Opportunities Program ([TOPS](#)), a 12- week program taught Saturdays and 2 nights per week; it also offers a [welding](#) program to about 30 women a year.
- OT's core Pathways to Success Trades and Apprenticeship Career Class ([TACC](#)), a 8-week program taught on three days per week, is typically offered four times a year; annual capacity has recently increased to 180 women. Students can add a 1-3 week 'Industrial Fabrication' (advanced manufacturing) specialization, a 40- hour Environmental Worker Training, which allows them to qualify hazardous waste operations and emergency response (HAZWOPER) certificate program, or a First Aid/CPR-AED Certificate.

Classes are small, with no more than 25-30 students (OT has recently expanded its capacity to up to 45 students per class). The [curriculum](#)- which draws on input from local unions and employers- includes technical instruction, information and preparation for applying to apprenticeship programs, and work readiness and life skills.²² Programs are free of charge, but students must

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CWIT graduate and sheet metal apprentice

have resources to fund their living costs (programs work hard with community partners to connect students with housing, transportation, and childcare vouchers to allay some of the costs). This is why programs are not full-time, allowing students to combine the training with work.

Technical instruction: All programs include hands on work with tools, construction math, and blueprint reading. Many students have been out of school for a number of years and need to brush up on their basic math skills, as well as develop their construction specific mechanical comprehension, spatial visualization and numerical reasoning skills. Training also includes basic health and safety procedures, such as how to lift and move materials, as well as a 10-hour OSHA certificate. All programs facilitate the building up of physical fitness, to increase health, well-being, and jobsite safety.

Visits to apprenticeship programs provide real-life experience of what it is like to work in different trades and sometimes can dramatically change the perceptions of students. A CWIT graduate describe the impact such a visit had on her: "My idea of the trades was electricians, plumber and carpenters. I did not know anything outside of that. [As part of the CWIT program] we did a tour of

the sheet metal school. It was so interesting. I thought I can do that, I want to do that- I fell in love with [that trade].” Programs are designed to build confidence, demystify the work, and provide enough exposure to different trades for women to make career decisions.

Instruction about the application process for apprenticeship programs: CWIT, NEW and OT teach students about the entry procedures for the apprenticeship programs of their choice. Navigating the when, where, and what of apprenticeship admission can be complex, and often relies on networking and inside knowledge- for example, through family members already working in a trade- something that women are less likely to have access to than men. Application and selection procedures can vary dramatically between different trades, and even between different apprenticeship programs in the same trades. Both NEW and OT work with some apprenticeship programs that offer direct entry to their graduates (as long as they pass the general entrance test). Some programs involve a written test and an interview, and students are ranked according to their results, with points awarded for work experience or for graduating from a pre-apprenticeship program. Some accept applications on a continuous basis, others may do so on an annual basis or even less frequently. Some programs find work for apprentices, other programs require apprentices to find an employer to sponsor them- also known as ‘intent to hire’ or ‘hunting license’ (in Oregon, however, this recruitment procedure is no longer admissible for registered apprenticeship programs because it is much harder for

women and people of color to achieve than white men).

Preparation for being a woman in a male-dominated field: working in the trades as the only or one of just a few women can be off-putting if not hazardous.²³ Women learn about their legal rights to be in a workplace free of harassment and discrimination, and about what to do should they experience harassment or discrimination. There is also honest discussion about the fact that most worksites have very male cultures, and that coping skills may be required to work in those environments. Students hear from experienced tradeswomen about their strategies and responses when they are confronted with difficult situations. In a culture bereft of images of tradeswomen, OT believes that having tradeswomen role models as instructors is key to “normalizing” the tradeswoman. “Surrounding students with strong, capable, accomplished tradeswomen allows the student to picture themselves in that role. It gives them time to know, in their bones, that women belong in this industry, so that when they leave our program and enter a male-dominated industry, they feel they too, belong,” highlights Amy James Neel, OT’s Training Director. The programs build cohorts of women who can support each other, and help to change the culture on male-dominated fields.

Work Readiness and Life Skills: CWIT, NEW, and OT also help students build up resumes and practice for job interviews. At NEW mock interviews are held in front of the whole class, followed by detailed feedback from everyone- a process that can be very intimidating, but

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AMY JAMES NEEL
OT, Training Director

“Over and over again employers tell us that our graduates are far and above the average. I am sure one factor is the detailed personal feedback every student gets after each practice day on their work behavior and performance.”

CONNIE ASHBROOK
OT, founder

hopefully will help feel women much less intimidated and more relaxed when facing a real interview panel for their apprenticeship slot.

In the trades, being at work on time, whenever there is work, and producing to a high standard, is essential, particularly for women who typically are under higher scrutiny in the male-dominated trades. The multi-week program acts like a test case: programs have strict attendance and punctuality rules, and discuss expected work behaviors. OT goes one step further and explicitly integrates employability with technical instruction: instructors are taught to provide detailed feedback on issues such as punctuality, focus, concentration, team work, communication, attitude, and dress- anything that may appear unprofessional on a building site. Programs address how to prepare for early starts, reaching work sites that may not be accessible by public transportation, and the need to develop back-up plans in case child care or transportation breaks down. Programs also highlight the need for financial planning to be ready for seasonal work and downturns.

An innovative approach offered by CWIT as part of its supports for students is a book club, hosted on its website to encourage women to write and share poetry.

“You still have to be a pretty gutsy woman to work in construction,” says CWIT’s Jayne Vellinga. “Many women come with a lot of barriers and painful experiences- our book club is one small initiative to help them become strong and confident enough to succeed in the industry.”

Case Management: All programs provide comprehensive case management to their students and have case workers to provide guidance and support services, as well as refer students to other community based organizations that provide help with accessing housing, child care, and other critical supports. Starting an apprenticeship can carry considerable financial burdens, from finding money for tools and work clothes, supporting themselves during the period of pre-apprenticeship training, paying union initiation fees, to ensuring reliable transportation. All three programs provide graduates with support services, networking and leadership development for life (and graduates often come to the programs in times of personal need).

Graduation and Placement Rates

Construction work is not for everyone. CWIT, NEW, and OT aim to provide a realistic picture of what it will be like to work in the trades, and thus expect that some women may not complete the program. Added to that are life

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JAYNE VELLINGA
CWIT, Executive Director



Female instructors provide role models for women in the trades.

challenges as a result of having a low income- 80 percent of NEW students, for example, fall into that category, and a third are single mothers.²⁴ Graduation rates for CWIT and NEW average around 70 percent, and are comparable with community based programs serving similar populations.²⁵ OT's graduation rates are a little higher, over 85 percent, which may be due to the fact that OT's students on average are a little older than students in the other programs.

The majority of graduates are placed into registered apprenticeship programs. While acceptance to a registered apprenticeship program is the overall goal, competition for apprenticeship slots is tight, particularly in union programs which offer the highest quality of training, pay, and

benefits, and slots may not always be immediately available. Approximately a third of graduates from NEW enter registered apprenticeship programs; others are placed with public utilities or building and facility management; the average wage for those placed into apprenticeships or other longer-term positions is \$18.50, compared to average earnings of \$4 per hour prior to the program.²⁶ The large majority of OT graduates- around 85 percent- find trade-related jobs; the majority of those who enter registered apprenticeship programs gain a place in a union apprenticeship scheme. Of the last 4 cohorts that CWIT has trained 110 graduates have entered apprenticeships. Graduates who are not immediately able to find an apprenticeship slot are helped to find other jobs in construction, building their skills and work record.

"We help women build their networks- I am always amazed during meetings how many of them do not know each other. When work slows down, as it will in construction, it really matters is who knows you and can tell you about a job."

LARK JACKSON
NEW, Retention Coordinator

“There are really two reasons why [CWIT’s] Technical Opportunities Program is so important to the carpenters’ apprenticeship program. First, the women who come from CWIT are better prepared to succeed and the second, perhaps more important reason, is the sisterhood that sustains them when times are bad and encourages them to achieve their goals.”

KINA MCAFEE

Assistant Coordinator at the Chicago Regional Council of Carpenters Apprentice and Training Program

Post Completion Support

While completed apprenticeships offer high rewards, staying the course can be tough, and many apprentices drop out before they reach journey stage. This is true for both male and female apprentices, but dropout rates are higher for women than men.²⁷ Approximately a third of NEW graduates do not complete their first apprenticeship year; NEW recently secured the services of a full-time retention coordinator to work with women in registered apprenticeships. NEW also provides assistance to graduates who need to obtain a driver’s license. All three programs offer regular social events and op-

portunities for graduates to become part of a network of tradeswomen for support and mentorship. “We help women build their networks- I am always amazed during meetings how many of them do not know each other. When work slows down, as it will in construction, it really matters is who knows you and can tell you about a job,” says Lark Jackson. Opportunities to network and develop leadership skills are open to all tradeswomen, whether they graduated from one of the programs, are still apprentices, or are experienced journey-level tradeswomen. CWIT and OT likewise offer regular social gatherings and leadership development. OT holds an annual Tradeswomen Leadership Institute which is led by tradeswomen for tradeswomen.

“We get thousands of applicants for our apprenticeship program, but it is still difficult to get substantial numbers of women to apply. NEW provides us with a great recruiting pool for our apprenticeship program, and we are confident in the quality of their graduates.”

LEAH RAMBO

Training Director Sheet Metal Workers Local 28, NYC and Long Island

Working with Unions, Contractors, and Policymakers to Build a Diverse and Skilled Workforce

Just as important as preparing women for apprenticeships in the trades is to ensure that there are apprenticeship programs and employment opportunities that are open to women. Each of the three programs has close relationships with registered apprenticeship programs and contractors in their region and provides technical advice on best practices for increasing diversity in construction, including on topics such as recruitment and retention, mentorship, and preventing harassment in the workplace. They also assist them with their compliance with EEO regulations governing registered apprentice-

ship programs,²⁸ and with meeting employment targets set for construction projects funded with public monies.²⁹ Programs proactively advocate to increase access, opportunity, and equity for women and people of color on public projects.

CWIT, NEW, and OT are also able to act as referral points for job openings to experienced tradeswomen and CWIT, NEW, and OT work with apprenticeship programs to create relationships with potential recruits. Forward looking contractors are aware that diversity is increasingly important for their commercial success – developers expect to see greater workforce diversity among the projects they fund, and so does the public. Vicki O’Leary, Ironworker International General Organizer, explained “We need to look like America if we want to build for America and stay competitive and credible as a union.”³⁰ Several of CWIT’s graduates- and OT’s- have entered Ironworker apprenticeships.

In New York, Sheet Metal Workers Local 28 works closely with NEW to meet the apprenticeship programs gender

diversity target, ambitiously set by its Training Director Leah Rambo at 20 percent women by 2020. She describes her collaboration with NEW: “We get thousands of applicants for our apprenticeship program, but it is still difficult to get substantial numbers of women to apply. NEW provides us with a great recruiting pool for our apprenticeship program, and we are confident in the quality of their graduates.”

NECA/IBEW Training center director Rod Belisle describes the importance of the work with OT. “[OT] have assisted us in creating an environment that is welcoming and open to all members of the community, regardless of their background or experience with the IBEW or trades in general. [...] We are far from done completing our goals, but we know that with OT and Construction Hope by our side, we are well on our way to making great things happen.”³¹ In recognition of the corrosive effects of harassment on the sector, OT is also working closely with Portland State University and Oregon’s Departments of Labor and Transportation to develop by-stander training for the construction industry.



Nora Vega, a NEW Graduate and 1st year apprentice with The New York City District Council of Carpenters Local 157 is speaking with NEW’s Young Women’s Boot Camp program.

Improving job opportunities for women in the trades typically also includes work on public policy. In 2009, New York City entered into a Memorandum of Understanding (MOU) with the Building and Construction Trades Council and the Building Trades Employers' Association to improve diversity in registered apprenticeship programs, including a committing to fill 10 percent of apprenticeships with women, and 45 percent with minorities.³² NEW is one of the community-based training organizations named in MOU whose graduates get direct entry to registered apprenticeship programs in the city, and has been essential in helping the City and the industry meeting its goals.³³ CWIT is working closely with city and state contracting agencies to support the development of policy and programs that address the demand and supply challenges of achieving diversity on publicly funded projects, including with the Department of Aviation, the Illinois Tollway, and the Obama Equity Fund. In Oregon, the State Department of Transportation and the Bureau of Labor and Industries are working closely with OT to implement efforts to improve diversity in the highway construction related trades, and OT was an important driving force behind the passage of 2010 legislation to provide a stable funding source for apprentice diversity and retention.³⁴ CWIT, NEW, and OT help amplify tradeswomen's collective voice, and help policymakers implement workforce development and diversity goals.

Continuing Challenges

Access to apprenticeship programs in high paying fields continues to be much harder for women than men.

Women face much higher barriers when looking for jobs

on construction sites, and women are less likely than men to be part of informal friends and family networks with information about apprenticeship opportunities. The large majority of apprenticeship programs does not have a single woman apprentice or woman journey worker. Working environments can often be unwelcoming, if not outright hostile to women. These factors can combine to keep women's numbers low in apprenticeships and in the skilled trade, perpetuating skill shortages and reducing performance in the industry.

Women-only pre-apprenticeship programs are a proven strategy for improving diversity in male dominated blue collar jobs. Graduates from these programs have risen into leadership positions within their unions and in the industry, and are able to influence the working environment for women following them into the skilled trades. A growing number of forward looking employers, owners and developers, and communities are recognizing the need to proactively promote greater diversity. By working collaboratively with industry and workforce development partners programs are advancing opportunities for women and people of color. The programs help industry meet its skills needs at the same time as reducing poverty by creating viable pathways to good jobs for women. By advocating for public policies and resources for women-centered pre-employment training and supportive services, by being a voice for women in construction, and by introducing new generations of women to the industry, the impact of these programs reaches far beyond the women who directly pass through CWIT, NEW, and OT's classrooms and training sites.

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ENDNOTES

1. U.S. Department of Labor Office of Apprenticeship.n.d. "Equal Opportunity in Apprenticeship for Apprentices and Job Seekers." https://www.doleta.gov/OA/eo/pdf/Apprentices_and_Job_Seekers_Fact_Sheet.pdf
2. Based on an analysis of the U.S. Department of Labor Office of Apprenticeship's Registered Apprenticeship Partners Information Management Data System (RAPIDS) database from 2008-2017 and adjusted to 2017 dollars; Angela Hanks, Annie McGrew, and Daniella Zessoules. 2018. "The Apprenticeship Wage and Participation Gap." Washington, DC: Center for American Progress <<https://cdn.americanprogress.org/content/uploads/2018/07/10122156/ApprenticeshipWageGap-brief1.pdf>>.
3. Based on U.S. Bureau of Labor Statistics. 2018. "Employment Projections: Unemployment Rates and Earnings by Educational Attainment, 2017." <https://www.bls.gov/emp/chart-unemployment-earnings-education.htm>.
4. In 2017/2018, the average starting wage in a registered apprenticeship program (RAP) in Oregon was \$16.73 per hour, and in unregistered programs \$15.94. Starting wages range ranged from \$10 (laborer) to \$29 (Stationary Operations Engineers). Among apprenticeship programs working with NEW in New York City, the average RAP starting wage in 2017 was \$18.67, and the lowest starting wage \$14 (likely to increase in 2019 in response to the increase in New York City's minimum wage).
5. See, for example, Karen Jacobs. 2018. "Some Industries are Encountering Worker Shortages." June 18. Federal Bank of Atlanta <<https://www.frbatlanta.org/economy-matters/community-and-economic-development/2018/06/14/some-industries-encountering-worker-shortages>>; for a regional analysis, see The Portland Workforce Development Board. 2018. Portland Metro Region Construction Workforce Market Study 2018. < <https://www.oregonmetro.gov/sites/default/files/2018/07/02/C2P2-regional-construction-workforce-market-study-07022018.pdf>>
6. According to IWPR's analysis of U.S. Bureau of Labor employment growth projections and the O*Net database, between 2016 and 2026 construction jobs where apprenticeships are required to reach full professional competency will grow by 6%, from 4.65 mil in 2016 to 4.93mil in 2026(IWPR *Women and the Future of Work* database and U.S. Bureau of Labor Statistics. 2018. Employment Projections 2016-26 <<https://www.bls.gov/emp/home.htm>>). Moreover, a fifth of the current workforce in construction is 55 years or older, and another 23% are between 45 and 54 years old, see Shalina Chatlani. 2016. "Filling the void: How construction executives can embrace diversity in an evolving workforce." *Construction Dive*, August 2. <<https://www.constructiondive.com/news/construction-industry-diversity-in-workforce/423550/>>.
7. Apart from CWIT, NEW, and OT, they are currently three other women-only pre-apprenticeship training programs: Moore Community House Women in Construction Program (WinC) in Biloxi, MS, West Virginia Women Work (WVWW), and Women in NonTraditional Employment Roles (WINTER) in Los Angeles (see also our briefing paper on WinC and WVWW programs to place women into nontraditional jobs in manufacturing and shipbuilding). Apprenticeship & NonTraditional Employment for Women (ANEW) in Seattle began as a women-only programs but recently began to also offer mixed courses. The Ironworkers are the only trade with a national women-only pre-apprenticeship program.
8. The three programs are part of National Center for Women's Equity in Apprenticeship and Employment's Gender Equity in Apprenticeship Initiative, directed by Chicago Women in the Trades (CWIT) under contract from the Department of Labor; other partners are ANEW, Policy Group on Tradeswomen's Issues (Massachusetts), Tradeswomen Inc (Northern California), Western Resource Center for Women in Apprenticeship, WinC, and WVWW.
9. In 2017, approximately 233,000 women worked in construction trades (excluding mining and extraction), 3% of the total construction workforce; IWPR calculations based on U.S. Bureau of Labor Statistics.

- Current Population Survey “Table 11. Employed persons by detailed occupation, sex, race, and Hispanic or Latino ethnicity, 2017” < <https://www.bls.gov/cps/tables.htm>>.
10. See for example Hegewisch and O’Farrell 2015, Moir 2011, Shaw and Hegewisch 2018, Sugerman 2018.
 11. Most recent data are available for 2012, when 11% of 5743 registered apprentices were women; Building and Construction Trades Council of Greater New York 2012 cited in Larry Mishel. 2017. Diversity in the New York City Union and Nonunion Construction Sectors. Washington, DC: Economic Policy Institute.
 12. In 2012, women’s share of apprenticeships registered in the federal system was 2.3%, compared with 4.1% among registered apprentices in Illinois (data provided by Jill Houser and Greg Wilson, DOL Office of Apprenticeship, to Advisory Committee on Apprenticeships meeting on September 17, 2013).
 13. As above, national data are for 2012; most recent data available; Chicago data are for 2016.
 14. Data are for Fall 2017; see Emma Brennan. “WANTO: Oregon Tradeswomen”; WANTO Presentation – Oregon Tradeswomen
 15. NECA-IBEW Electrical Training Center. 2018. “2017 Year in Review.” < <https://www.nietc.org/95-news/news/386-2017-year-in-review.html>>
 16. NEW program data for 2016; CWIT and OT program data for 2017.
 17. See Connie Ashbrook. 2017. “Wire a Light: A Workshop Designed to Increase Apprentice Diversity.” National Center for Women’s Equity in Apprenticeship and Employment at Chicago Women in the Trades. < http://womensequitycenter.org/wp-content/uploads/2017/10/Wire-a-Light-Best-Practice_revision2-002.pdf>; in parallel another community training program, Construction Hope, held an event targeted at African Americans (open to women, too, but only attended by men) which was also successful in raising recruitment of minority apprentices.
 18. The case was *Advocates for Women v. Marshall, C.A. No. 76-862* (D.D.C.)
 19. For a discussion of the early years of NEW, and a list of other organizations for tradeswomen in the 1980s (p.54 footnote 33), see Sylvia P. Law. 1989. “Girls Can’t be Plumbers-Affirmative Action for Women in Construction: Beyond Goals and Quotas.” *Harvard Civil Rights-Civil Liberties Law Review* (24).
 20. See Alison Fore (2016) “Chicago Women in Trades/ National Women Apprenticeship Day Observed,” <<https://www.linkedin.com/pulse/chicago-women-tradesnational-apprenticeship-day-observed-allisonfore/>>.
 21. See Westat (2003) for a review of the first 10 years of WANTO grants.
 22. NEW’s curriculum is fully aligned with the National Building Trades Association Union Construction Trades (NABTU)’s Multi Trade MC3 Curriculum. Graduates of an MC3 accredited program typically gain points when competing for entry to an apprenticeship program. See NABTU’s “The Building Trades Apprenticeship Readiness Program Q and A” for an overview of the MC3 curriculum <<https://nabtu.org/wp-content/uploads/2017/03/Building-Trades-MC3-Program-Q-and-A-April-1-2016.pdf>>. While CWIT and OT curriculums predate the MC3 curriculum and are not fully aligned, their graduates typically are also awarded extra points.
 23. See Lauren Sugerman (2018). “#MeToo in Traditionally Male-Dominated Occupations: Preventing and Addressing Sexual Harassment”. Chicago: Chicago Women in the Trades. < \http://womensequitycenter.org/wp-content/uploads/2017/10/CWIT-MeToo-in-Male-Dominated-Jobs-003.pdf>
 24. Based on 2016 program provided by NEW.
 25. See, for example, Allison Gerber and Maureen Conway. 2009. *Construction Pre-Apprenticeship Programs: Results from a National Survey*. Washington, DC: The Aspen Institute. <<https://assets.aspeninstitute.org/content/uploads/files/content/>

- docs/pubs/09-007.pdf> or Appendix Table C3 in Cynthia Hess, Emma Williams-Baron, Barbara Gault, and Ariane Hegewisch. 2016. *Supportive Services in Workforce Development Programs: Administrator Perspectives on Availability and Unmet Needs*. Washington, DC: Institute for Women's Policy Research. <<https://iwpr.org/publications/supportive-services-in-workforce-development-programs-administrator-perspectives-on-availability-and-unmet-needs/>> (accessed June 16, 2018).
26. NEW program data for 2016; data include women with 0 earnings before entering the program.
 27. See for example Reed et al. 2012. p.47. "An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States." <https://wdr.doleta.gov/research/FullText_Documents/ETAOP_2012_10.pdf > (accessed June 16, 2018).
 28. Apprenticeship programs must comply with 29 CFR Part 30 Equal Employment Opportunities in Apprenticeship and prepare an affirmative action plan <<https://www.law.cornell.edu/cfr/text/29/part-30>> .
 29. Federally funded construction projects should meet utilization goals for women of 6.9 percent of hours worked; see U.S. Department of Labor Office of Federal Contract Compliance Programs (2014), p.114.
 30. Cited p.2 in Ariane Hegewisch (2017). "Bridging the Gender Gap: Creating a National Pre-Apprenticeship Program to Prepare Women for the Ironworking Industry." Chicago: National Center for Women's Equity in Apprenticeship and Employment's Gender Equity at CWIT <http://womensequitycenter.org/wp-content/uploads/2017/10/Ironworkers-Best-Practice_Revision1.pdf >
 31. Cited in Connie Ashbrook. 2017. p.1. "Wiring a Light: A Workshop Designed to Increase Apprenticeship Diversity." Chicago: National Center for Women's Equity in Apprenticeship and Employment's Gender Equity at CWIT. <http://womensequitycenter.org/wp-content/uploads/2017/10/Wire-a-Light-Best-Practice_revision2-002.pdf> (accessed June 16, 2018).
 32. See Ester Fuchs, Dorian Warren, and Kimberly Bayer. 2014. *Expanding Opportunity for Middle Class Jobs in New York City: Minority Youth Employment in the Building and Construction Trades*. New York, NY: Columbia University School of International and Public Affairs. <https://sipa.columbia.edu/system/files/Columbia%20SIPA%20Construction%20Skills%20Report%20Final%20-%20March%202014_0.pdf> (accessed March 1, 2018).
 33. Under the direct entry arrangement, applicants would still need to pass any general entry level tests, but once they pass, automatically gain a slot. Such direct entry arrangements are not available to CWIT or OT graduates, but being a graduate typically improves the ranking of the applicants.
 34. See Ariane Hegewisch et al 2014. "Untapped resources, Untapped Labor Pool: Using Federal Highway Funds to Prepare Women for Careers in Construction." Washington, DC: Institute for Women's Policy Research. <https://iwpr.org/wp-content/uploads/wpallexport/files/iwpr-export/publications/Untapped-Resources_FINAL.pdf>