

CONSTRUCTING A DIVERSE WORKFORCE:

EXAMINING UNION AND NON-UNION CONSTRUCTION APPRENTICESHIP PROGRAMS AND THEIR OUTCOMES FOR WOMEN AND WORKERS OF COLOR



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EXECUTIVE SUMMARY

The construction industry serves as one of the most important sources of family-wage jobs in Oregon and across the country. Construction employment has been growing since 2010, and the Oregon Employment Department projects that the industry will add nearly 11,900 new jobs between 2019-2029, making construction the third fastest growing industry in the state.

Construction apprenticeships have long provided workers with valuable on-the-job and classroom training, high wages, and clear career pathways. Research suggests that apprenticeship programs also help reduce social inequalities. Because apprentices do not require the same financial investment as community or four-year colleges, they are more likely to attract low-income individuals and promote upward socio-economic mobility. Moreover, apprenticeship programs offer strong pathways to earning a steady income without attending college: workers without a college degree typically earn less than \$40,000 a year, while the mean wage for Oregon workers in construction and extraction occupations was \$59,010 in 2020. However, construction has historically been one of the most gender segregated industries in the United States, with particularly low representation of women of color. In 2020, women made up just 10.9 percent of the construction workforce.

The boom in construction jobs has created labor market gaps in some areas, as more construction workers reach retirement, and new jobs need to be filled. Given this opportune time to recruit apprentices, stakeholders in the greater Portland area, including public agencies, unions, and community-based organizations, have partnered with the Portland Metropolitan Service District (Metro) to form the Construction Career Pathways Project (C2P2) Public Owner Workgroup in order to improve recruitment and retention of women and Black, Indigenous, and people of color (BIPOC) in construction apprenticeships.

As more workers join construction apprenticeship programs, and as firms in the industry make targeted attempts to recruit and retain women and workers of color, we conducted this research in order to assess the state of construction apprenticeships in Oregon, including a comparison of apprenticeship outcomes for historically marginalized workers, in both union and non-union programs.

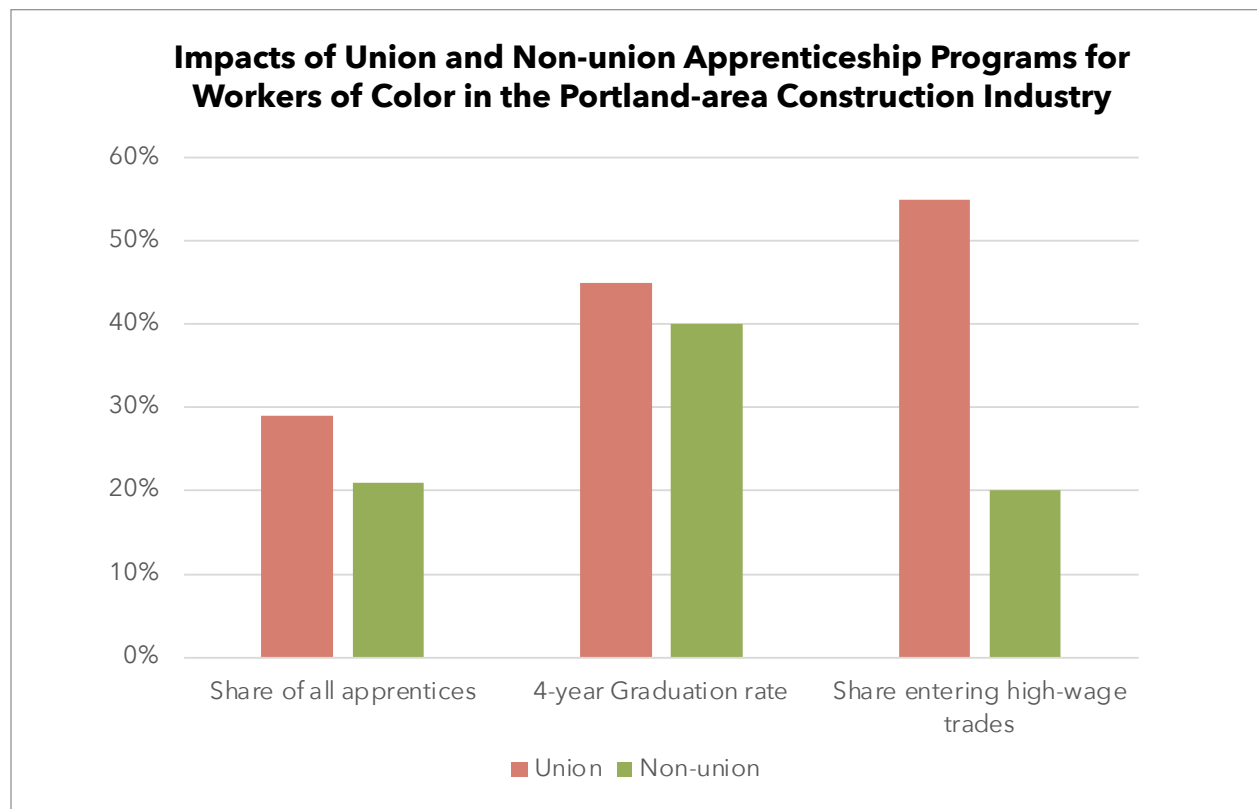
Drawing upon data from the Oregon Bureau of Labor and Industries (BOLI), this report analyzes outcomes for 17,964 people who were enrolled in apprenticeship programs in the greater Portland area between 2011-2020. This report includes aggregated and disaggregated data to examine enrollment, graduation, separation, and wage rates across various gender categories and racial/ethnic groups, including comparisons between union and non-union programs.

In measuring progress towards more equitable employment practices, these findings show that union apprenticeship programs provide significantly better outcomes overall for women and BIPOC compared to non-union programs, suggesting that an investment in union apprenticeship programs would support the construction industry's stated goal of making positive strides towards greater equity and inclusion.

KEY FINDINGS

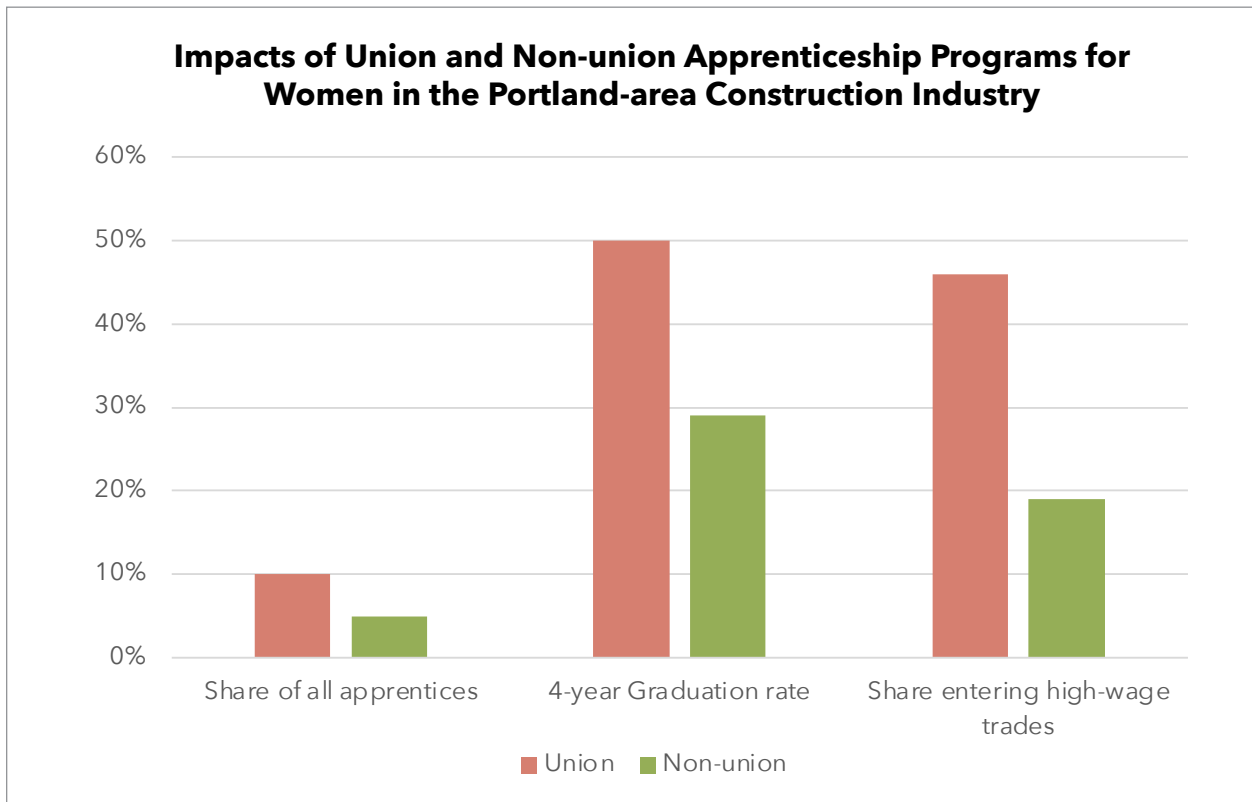
ENROLLMENT

- Construction apprenticeship enrollment in the greater Portland area more than doubled between 2011 and 2019, with 2,647 new enrollments in 2019, up from 1,206 new apprentices enrolling in 2011. Between 2011-2020, the majority of construction apprentices (72%) were enrolled in union programs.



- Union programs have greater apprenticeship diversity, in terms of gender and race, compared to non-union programs.
- In union programs, 64% of apprentices are white men, 26% are men of color, 7% are white women, 2.5% are women of color, and less than 1% are white non-binary people

- More women and BIPOC have enrolled in apprenticeship programs in the last decade. In 2020, 11% of all newly enrolled apprentices were women, a 57% increase from 2011. In 2020, 31% of newly enrolled apprentices were BIPOC, a 55% increase from to 2011.
- Union programs continued to recruit a higher proportion of women and BIPOC apprentices compared to non-union programs between 2011 and 2020.
 - In non-union programs, 75% of apprentices are white men, 20% are men of color, 4% are white women, 1.5% are women of color.



GRADUATION

- Fifty-three percent of apprentices who enrolled in programs between 2011-2015 graduated.
- In trades represented by both union and non-union programs, unions graduate a significantly higher proportion of apprentices. Unions had a graduation rate of 58% while non-union programs had a graduation rate of 36%.
- Men graduated at higher rates than women, and white apprentices at higher rates than BIPOC. Forty-five percent of women who registered between 2011 and 2015 completed their programs by 2020, compared with 53% of men in the same cohort. A smaller proportion of apprentices of color (44%) graduated compared to white apprentices (55%).

- Women and BIPOC are significantly more likely to finish their programs when enrolled in a union apprenticeship compared to a non-union apprenticeship. Of the 416 women enrolled in union programs between 2011 and 2015, 50% completed, compared to only 29% of the 108 women enrolled in non-union programs. People of color also had higher rates of completion in union program (45%) compared to non-union programs during the same period (40%).
- Black apprentices experienced the lowest graduation rates of all racial/ethnic groups (30%). However, a substantially higher proportion of Black apprentices in union programs graduated (33%) compared to non-union programs (23%).



Women and BIPOC are significantly more likely to finish their programs when enrolled in a union apprenticeship.

Photo: Dawn Jones Redstone, Oregon Tradeswomen, Inc.

SEPARATION

- Separated workers include both those who were involuntarily terminated and those who voluntarily ended their apprenticeship. Overall, there were comparable proportions of workers who separated (38%) from union and non-union programs.
- On average, workers of color separated at higher rates than white workers, 44% compared to 35%, and women separated at higher rates than men, 41% compared to 37%. White women have lower separation rate than both men of color and women of color, with women of color having the highest separation rates of any group.

- Forty-seven percent of people of color enrolled in non-union apprenticeship programs separated, versus 43% in union programs.¹
- A significantly higher proportion of women separated from non-union programs (51%) than from union programs (38%).

A greater proportion of BIPOC workers separated during their probationary period (a time in which an apprentice can be terminated without cause) than did white apprentices. Four percent of Indigenous workers, 2.5% of Asian-American workers, 4% of Black workers, and 4% of Latinx workers separated during their probationary period, compared with less than 2% of all white apprentices. As a group, workers of color made up 40% of all those separated during their probationary period, despite accounting for only 26% of all apprentices.

Women and workers of color are more than twice as likely to enter a high-wage trade if they go through a union- as opposed to non-union apprenticeship program.

WAGES

- White men still dominate the ranks of apprentices in the highest-paid trades. But apprenticeship programs are serving to improve both racial and gender wage inequalities - particularly union apprenticeship programs.²
- Forty-six percent of all women in union apprenticeship programs are entering trades with an average hourly wage of \$40 or higher, compared to 19% of all women in non-union programs.
- Similarly, 55% of BIPOC in union programs are enrolled in trades with an average hourly wage of \$40 or higher, versus just 20% of BIPOC in non-union programs.

INTRODUCTION

After being hit particularly hard by the 2008 housing crisis, the Oregon construction industry has been growing steadily since 2010. The Oregon Employment Department is projecting an addition of nearly 11,900 new jobs in construction over the next decade, making construction the third fastest growing industry.³ In 2018 there were 51,000 total jobs in construction in Oregon, with an expected increase of 18.6% by 2026.

Construction is the third fastest growing industry in Oregon.

The federal government is planning multi-billion-dollar investments in infrastructure such as bridges, public school buildings, and roads, along with public services. President Biden writes that “it has never been more important for us to invest in strengthening our infrastructure and competitiveness, and in creating the good-paying, union jobs of the future.”⁴

At the same time that infrastructure investment is booming, the construction industry is also experiencing a sharp rise in the demand for labor.⁵ Many construction workers, about 17% of the workforce, are nearing retirement age, creating an urgent need for replacement workers.⁶ Apprenticeship programs have long been a successful way to recruit and train skilled workers in the construction industry, and they provide a steady stream of workers destined to become highly-skilled experts in their trade. Construction apprenticeships typically last between two and five years, depending on trade requirements. Requirements in each trade are informed by minimum standards set by the Oregon Apprenticeship and Training Council (OSATC). Though standards differ by apprenticeship program, all apprentices are required to complete a specific number of on-the-job training hours as well as a specific number of hours of classroom training. State-registered apprenticeships provide workers with paid on-the-job training, mentorship by a journey-level worker and worksite experience, as well as classroom instruction.⁷

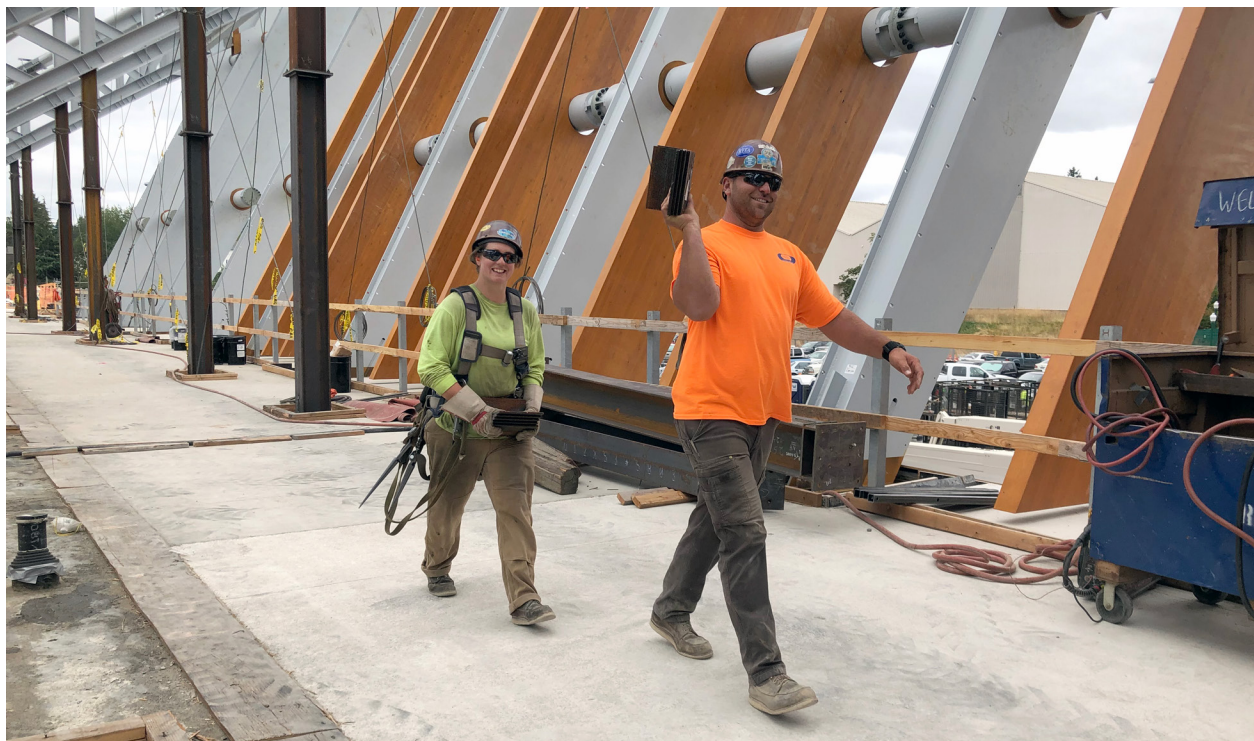
Workers often enter apprenticeship programs because they provide opportunities to earn relatively high wages and pursue a clear career pathway.⁸ Construction wages for public projects are determined by Oregon’s Prevailing Wage Rate law, ensuring “public expenditures maintain and reflect local market standards for wages in benefits.”⁹ Construction apprenticeships offer a critical pathway to well-paid jobs for workers without a college degree. For example, while workers without a college degree typically earn less than \$40,000 a year,¹⁰ the annual mean wage for Oregon workers in construction and extraction occupations in 2020 in Oregon was \$59,010.¹¹ Because apprentices do not require the same financial investment as community or four-year colleges, they are particularly valuable for low-income individuals seeking a path to upward mobility.¹²

Addressing Inequities in Construction Apprenticeships

The construction industry has historically been dominated by white male workers, with particularly low representation for women of color.¹³ While recent decades have seen an increase in the number of both women and workers of color in the industry, there is still much to be done to insure truly equal access. In 2020, for instance, women made up just 10.9 percent of the construction industry, the lowest of any major industry.¹⁴

Women may remain underrepresented in construction for several reasons: there is still a common perception that construction jobs are “men’s work,” women may not have had experience developing the technical skills needed for construction trades; and women tend to lack networks of workers in construction who could provide a pathway into the industry.¹⁵

Apprenticeship programs can provide an important entry point for women into construction jobs, with union-contractor joint programs being an especially effective pathway.¹⁶ Still, while construction apprenticeships may offer a pipeline to construction jobs for women and workers of color, recruitment and retention in apprenticeships remains an issue, especially as women and BIPOC in construction apprenticeships face workplace discrimination and harassment, often a result of formal recruitment and employment practices as well as more informal jobsite culture. For example, despite the requirement of on-the-job training, programs do not have an obligation to guarantee job placement, because the availability of hours depends on contractors having work for apprentices to take on. Most companies employing apprentices rely on an out-of-work list, where workers are called to work based on how long they have been out of work, providing little opportunities for employers to discriminate against women



or BIPOC. However, white men have often been able to avoid the out-of-work list altogether by developing strong relationships with employers, staying at the same company and moving from project to project, even during apprenticeship.¹⁷

Ultimately, developing strong relationships and networks is crucial to gaining the hours needed to progress through the program. Scholars have shown that the “good old boys’ club” culture in construction can be a barrier to succeeding in an apprenticeship program, as developing relationships with potential employers and experiences interacting with colleagues are shaped by gender and racial/ethnic identity.¹⁸ In other words, inequality in construction apprenticeships is reproduced by formal and informal policies and processes that reinforce racist and sexist practices, hindering the ability of women and BIPOC to succeed in these industries.¹⁹ In this context, union membership can help eliminate some of these barriers, and have a substantial positive impact on BIPOC and women’s likelihood of graduating from apprenticeship programs and receiving quality training.²⁰

To address gendered and racialized barriers to entry and success in construction apprenticeships, Metro convened the Construction Career Pathways Project (C2P2) Public Owner Workgroup (Workgroup) in 2018. The goal of C2P2 is “to develop a regional approach to construction workforce equity for the Greater Portland metropolitan area.”²¹ The Workgroup includes 16 agencies including the City of Beaverton, Multnomah County, Oregon Department of Transportation, TriMet, Portland State University, and more. Some of the strategies this group suggests include setting clear workforce diversity goals, project thresholds, workforce agreements, and worksite anti-harassment policies, for both journey-level workers and apprentices.

Construction employers, both union and non-union apprenticeship programs, and government agencies have all made significant investments in recruiting and training apprentices. This investment is lost when apprentices drop out prematurely. As more and more workers join apprenticeship programs, as funding for construction projects continues to increase, and as organizations like the Oregon Tradeswomen and C2P2 make targeted attempts to recruit and retain women and BIPOC, up-to-date research is needed to assess the state of construction apprenticeships in Oregon. Specifically, there is a pressing need to identify gaps present in retention strategies in order to retain a more diverse population of apprentices.

DATA AND METHODOLOGY

This study builds on Byrd’s (2004, 2009) statewide analyses of Oregon construction apprentices. That research demonstrated that union programs enrolled and graduated a larger number and greater proportion of women and workers of color compared to non-union programs, though these groups still faced barriers as compared to their white male counterparts. This report updates much of Byrd’s earlier research, as well as extending this work by analyzing new data on separation and industry-specific wage rates.

The data used in this report come from the Apprenticeship and Training Division of the Bureau of Labor and Industries (BOLI) spanning the period 2011-2020. These data include information on all apprentices enrolled in programs active in the Portland, Oregon tri-county area and therefore slightly differs from previous statewide studies.²² These data contain detailed demographic information on ap-

prentices, including their race, gender, and veteran status. While this report primarily compares the experiences of white workers and workers of color, the BOLI data include rich demographic information which we draw on where possible. Disaggregated data include the following racial/ethnic groups: American Indian (which we identify as Indigenous), Asian-American, Black/African American (which we identify as Black), Hispanic (which we identify as Latinx), Native Hawaiian, and Pacific Islander. Throughout the report, we've also grouped Black, Indigenous, and people of color using the acronym BIPOC. In cases where there is not disaggregated data included for specific racial/ethnic groups, this is largely due to the presence of a small number of observations in the relevant subgroup. Still, some disaggregated data on gender and race is provided in this report where statistically meaningful, in order to analyze and compare the experiences of women of color, men of color, white women, and white men.

While Oregon recognizes "mixed" union and non-union apprenticeship programs, all programs in the present study were exclusively union or non-union.²³

Much of the analysis conducted below is based on descriptive statistics, though there is also some regression analysis. Regressions are a statistical tool for identifying relationships between dependent and independent variables, while controlling for other independent variables. For example, a regression can show the impact race has on the likelihood of apprenticeship graduation, controlling for other factors such as gender or age. In using regression analysis, variables are able to be held constant, which means we were able to test what the relationship between two variables of interest is, largely independent of the influence of other variables. It is important to note the small numbers of women and BIPOC in specific apprenticeship programs, which limits the ability to conduct further robust regression analysis.

Data and Definitions

This report analyzes workers in the greater Portland metro area who completed an apprenticeship program, who were currently active at the time of this study, who have separated, and who had been suspended at some point in their tenure as an apprentice between 2011 and 2020.



Apprentices are categorized as terminated when a Joint Apprenticeship and Training Committee has determined a reason for termination, such as failure to submit records, failure to complete related classroom instruction, or failure to communicate with the committee. Apprentices who have voluntarily withdrawn their apprenticeship are also considered terminated. There are not disaggregated data available from BOLI on workers who voluntarily or involuntarily terminated their apprenticeship agreements. For this reason, we use the term separated to more accurately reflect the experience of workers who BOLI categorizes as terminated.

Workers who were categorized as suspended at the time of the data collection likely returned to work after the suspension period. Workers are typically categorized as suspended when they are on leave so it's important to note the non-punitive status of this categorization.

This report excluded deceased people (n=33) and apprentices who transferred to another apprenticeship program (n=1,045).

This study examines construction apprenticeship programs certified by BOLI. A list of these programs can be found in Appendix I. The list includes programs in existence between 2011 and 2020, some of which have since been dissolved or merged with other programs.

FINDINGS AND ANALYSIS

CURRENT ENROLLMENT

Enrollment in construction apprenticeships in Oregon has increased dramatically since the early 2000s. In 2007 there were 5,558 apprentices enrolled in construction trades in the state of Oregon, up from 4,497 in 2004.²⁴ As apprenticeship enrollment is correlated with the unemployment rate, apprenticeship enrollment dipped in the Great Recession, but has risen steadily since 2012,²⁵ with totals now exceeding 6,544 workers actively enrolled in apprenticeship programs in the greater Portland area alone in 2020.

The number of new registrants enrolling in construction apprenticeship programs each year is rising. New construction apprenticeship enrollment more than doubled between 2011 and 2019 in the greater Portland area, from 1,206 new apprentice enrollments to 2,647, respectively. This increase mirrors national trends, where the number of apprentices newly registered each year grew by 128% between 2009 and 2019.

This report focuses on apprentices in programs that serve the greater Portland area.²⁶ In total, we analyzed conditions for 17,964 workers enrolled in apprenticeship programs active in this geographic area between 2011 and 2020 (see Table 1).²⁷

Table 1: Apprenticeship Status between 2011-2020

Union	Currently Active	Completed	Suspended	Separated	Total
Non-union	1,827	1,279	29	1,899	5,034
Union	4,717	3,278	78	4,857	12,930
Total	6,544	4,557	107	6,756	17,964

Union programs in the greater Portland area make up the majority of all construction trades apprenticeships. In 2020, there were only 15 non-union apprenticeship programs compared to 36 union programs in the greater Portland area. In this data, 72% of apprentices were enrolled in union programs and 28% were enrolled in non-union programs. Thus, even though unions accounted for only 21.9% of all construction workers in Oregon as of 2019, they provided more than two-thirds of the state’s apprenticeships.

Apprentice Diversity

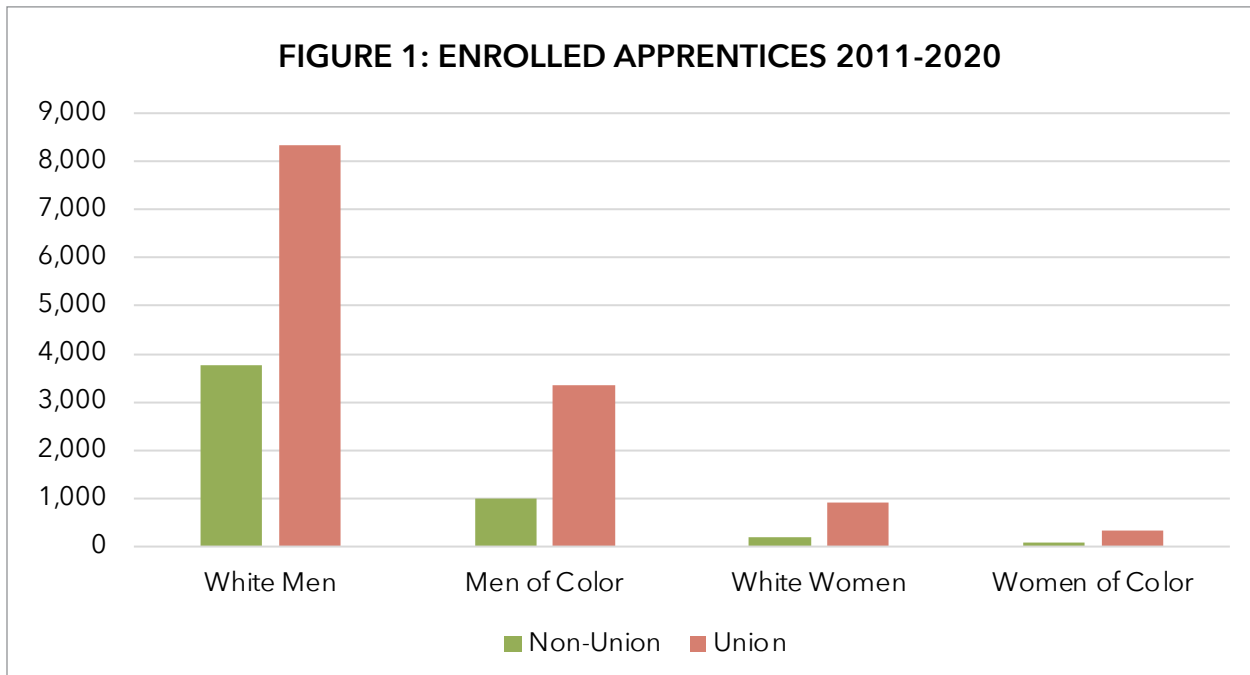
Appendix II provides data on the status of men and women, BIPOC, and white apprentices who enrolled in union and non-union programs in 2011-2020. Of 17,964 apprentices enrolled in programs between 2011-2020, 74% were white while 26% were Black, Indigenous, and people of color (BIPOC). Indigenous apprentices made up 3% of all apprentices, Asian-American apprentices 2%, Black and



Union apprenticeship programs enroll a significantly higher proportion of women and workers of color than do non-union programs.

Photo: Dawn Jones Redstone, Oregon Tradeswomen, Inc.

African American apprentices 6%, Latinx apprentices 15%, and Native Hawaiian and Pacific Islander apprentices made up less than 1%. The racial/ethnic makeup of construction apprentices in Portland is fairly comparable to the makeup of the racial/ethnic population in Portland, where Blacks/African Americans make up 5.8%, American Indians 0.8%, Asians 8.2%, Native Hawaiian and Pacific Islanders, 0.6%, Hispanic or Latino 9.7%, and white alone (not Hispanic or Latino) 70.6%. Ultimately, Latinx and white apprentices are particularly overrepresented, while Asians are quite underrepresented.



While there are significantly more women enrolled in union than non-union apprenticeship programs, women remain greatly underrepresented in the industry as a whole: despite making up 57.3% of people aged 16 and older in the labor force in Oregon, women made up only 8% of construction apprentices in the greater Portland area.²⁸

White men made up the largest proportion of apprentices in the data, at 67%, while white women made up 6% of all apprentices enrolled between 2011-2020. Men of color were the second most represented group, at 24%, while women of color were the least represented group, at 2% of the apprentices in the data.

The racial composition of apprentices by gender is equivalent, where 1,114 (74%) of the female apprentices are white and 12,093 (74%) of the male apprentices are white, while 398 (26%) of female apprentices are BIPOC and 4,357 (26%) of male apprentices are BIPOC. Figure 1 illustrates the race and gender composition of apprentices in the greater Portland area between 2011-2020.

Union programs are more diverse compared to non-union programs. As shown in Table 2, while white men made up 75% of apprentices in non-union programs, they made up 64% of union programs. Women were better represented across all racial categories in union programs, with white women

making up 4% of non-union programs compared to 7% of union programs, and women of color making up 1% of non-union programs compared to 3% of union programs.

Table 2: Apprentices in union and non-union programs between 2011-2020 by gender and race/ethnicity

Sex and Racial/Ethnic Group	Non-Union	% of Non-Union	Union	% of Union	Total	% of Grand Total
White Men	3,755	75%	8,338	64%	12,093	67%
Men of Color	1,006	20%	3,351	26%	4,357	24%
White Women	199	4%	915	7%	1,114	6%
Women of Color	74	1%	324	3%	398	2%
White Non-binary	0	0%	2	0%	2	0%
Non-binary People of Color	0	0%	0	0%	0	0%
Total	5,034	100%	12,930	100%	17,964	100%

Currently Enrolled Apprentices

Of the 17,964 apprentices in the data, there were 6,544 active apprentices, namely apprentices who were currently enrolled- but had not yet completed- an apprenticeship program. The demographic characteristics of actively enrolled apprentices mirrored those of all apprentices in the data.

Examining only apprentices who were actively enrolled as of June 2020, white workers made up 74% of active apprentices, Latinx apprentices made up 16% of active apprentices, Black workers 4%, Asian-American and Indigenous workers each made up 3% of active apprentices, and Native Hawaiian and Pacific Islander apprentices made up less than 1% of all apprentices. Overall, Black, Indigenous, and people of color (BIPOC) made up approximately 26% of all actively enrolled apprentices.

As shown in Figures 2 and 3, for both union and non-union programs, white men were the most represented group. 4,424 (68%) white men were actively enrolled between 2011-2020 in both union and non-union programs. Among actively enrolled apprentices, men of color were the next most represented group (24%) followed by white women (6%) and women of color (2%).

White men made up a larger proportion of active enrollments overall in non-union programs (76%) compared to union programs (64%). In other words, women and BIPOC had higher enrollment rates in union programs compared to non-union programs.

Suspended Apprentices

Very few apprentices in the data were suspended (107 or <1%). Between 2011-2020, less than 1% of women of color, men of color, and white men were suspended, while 1.6% of white women were suspended. Overall, women made up 21% of all suspended apprentices, despite making up only 8%

FIGURE 2: APPRENTICE DIVERSITY IN NON-UNION PROGRAMS FOR ACTIVELY ENROLLED

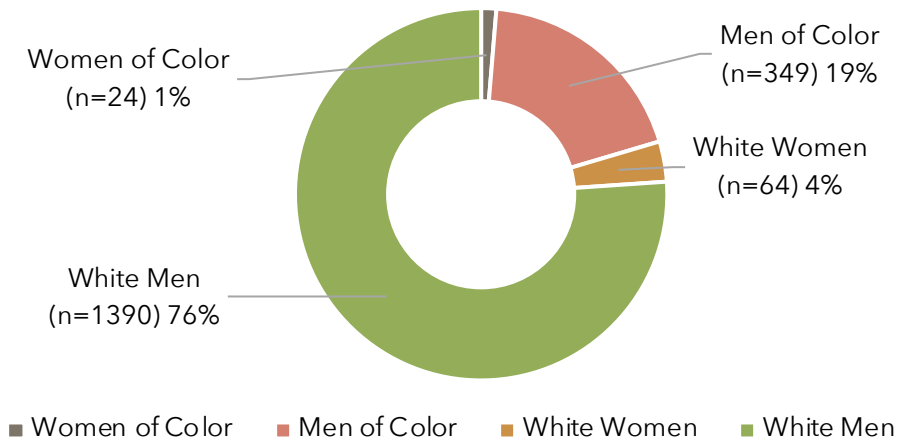
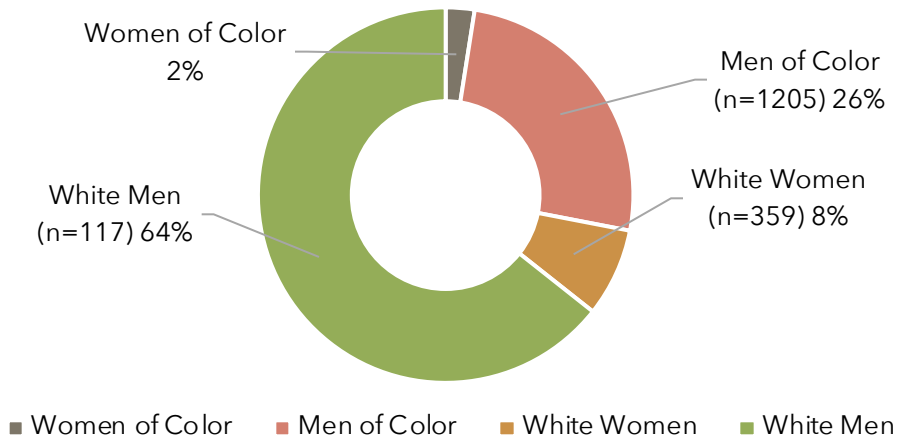


FIGURE 3: APPRENTICE DIVERSITY IN UNION PROGRAMS FOR ACTIVELY ENROLLED



of all apprentices. BIPOC also made up a high percentage of suspended apprentices (31%), despite making up 26% of all apprentices. Higher rates of suspension among women may be reflective of the barriers to success that are well-documented by researchers, such as issues with workplace harassment or finding childcare.²⁹

OCCUPATIONAL DISTRIBUTION

The number of apprentices in each of the 45 different trades in our data varied widely (see Appendix I for list of trades). Twenty-seven percent of the trades in our data trained 50 or less apprentices, 36%

trained between 51 and 200 apprentices, 14% trained between 201-500 apprentices, 11% trained between 501-1,000, and 11% trained over 1,000 apprentices.

For actively enrolled apprentices, inside electrician trades had the largest enrollment of both non-union and union programs, with enrollment at 731 (11%) in non-union programs and 841 (13%) in union programs. For non-union programs, inside electricians make up 40% of all apprentices, while inside electricians make up only 18% of all union programs, owing to the wider range of trades that have union apprenticeship programs. Looking at all apprentices during the period 2011-2020 (which includes active, completed, separated, and suspended apprentices) those in union programs were most commonly enrolled as carpenters (19%).

GRADUATION RATES

Graduation rates, or an apprentice's ability to complete a program, are a strong indicator of the training an apprentice has received and the participating employers' commitment to training workers.

In this report, graduation rates refer to the percentage of apprentices who started their training between 2011-2015 and completed their training sometime between 2011 and 2020. We chose the 2011-2015 cohort because many programs take about 4 years to complete, so we did not want to include cohorts of people that may not have graduated yet because they are still within the average period required to complete their program.³⁰

Overall, 3,594 of 6,830 (53%) apprentices who enrolled between 2011-2015 graduated. Graduation rates in 2015 were lower than in 2011, at 49% and 57%, respectively.



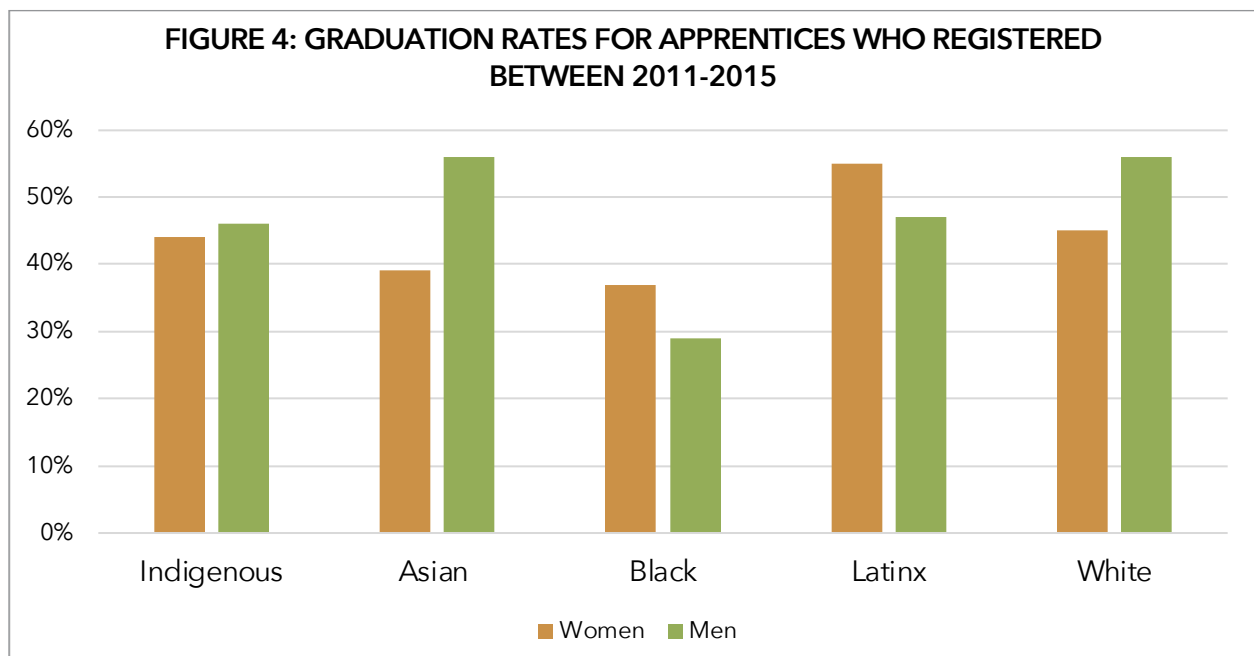
Photo: Dawn Jones Redstone, Oregon Tradeswomen, Inc.

Men graduated at higher rates than women across union and non-union programs. Two-hundred thirty-eight (45%) of the women who registered between 2011 and 2015 completed their programs, compared to 3,356 (53%) of men in the 2011-2015 cohort who graduated at some point between 2011 and 2020. A greater proportion of white apprentices (55%) graduated compared to BIPOC (44%). Of women who graduated, an equal proportion were white and BIPOC. A substantially higher proportion of white men in the same cohort graduated compared to men of color, at 56% and 44% respectively. Black men and Black women experienced the lowest graduation rates of any group, at 29% and 37%, respectively (see Figure 6).

It is also important to be cautious when interpreting some of these results because of the small numbers of observations in particular subgroups. While there were more than 100 men in every racial/ethnic group in the cohort of registrants between 2011-2015, and nearly 400 white women in the cohort, there were less than 50 women of color across every racial/ethnic group (25 Indigenous women compared to 196 men, 18 American Asian women compared to 134 men, 38 Black women compared to 320 men, and 47 Latinx women compared to 770 men). While Black apprentices experienced the lowest graduation rates of all racial/ethnic groups (30%), a substantially higher proportion of Black apprentices in union programs graduated (33%) compared to non-union programs (23%).

Of the 416 women enrolled in union programs 50% completed, compared to only 29% of the 108 women enrolled in non-union programs. People of color also had higher rates of completion in union program (45%) compared to non-union programs (40%).

Importantly, graduation rates may vary from trade to trade, with licensed trades in particular taking longer to complete.³¹ For example, apprentices may take longer to graduate if they have not been able to receive the number of hours necessary to complete the program. With this in mind, it's particularly useful to compare graduation rates between men and women, and white workers and workers of color



Women and people of color enrolled in union programs had higher graduation rates compared to those enrolled in non-union programs.

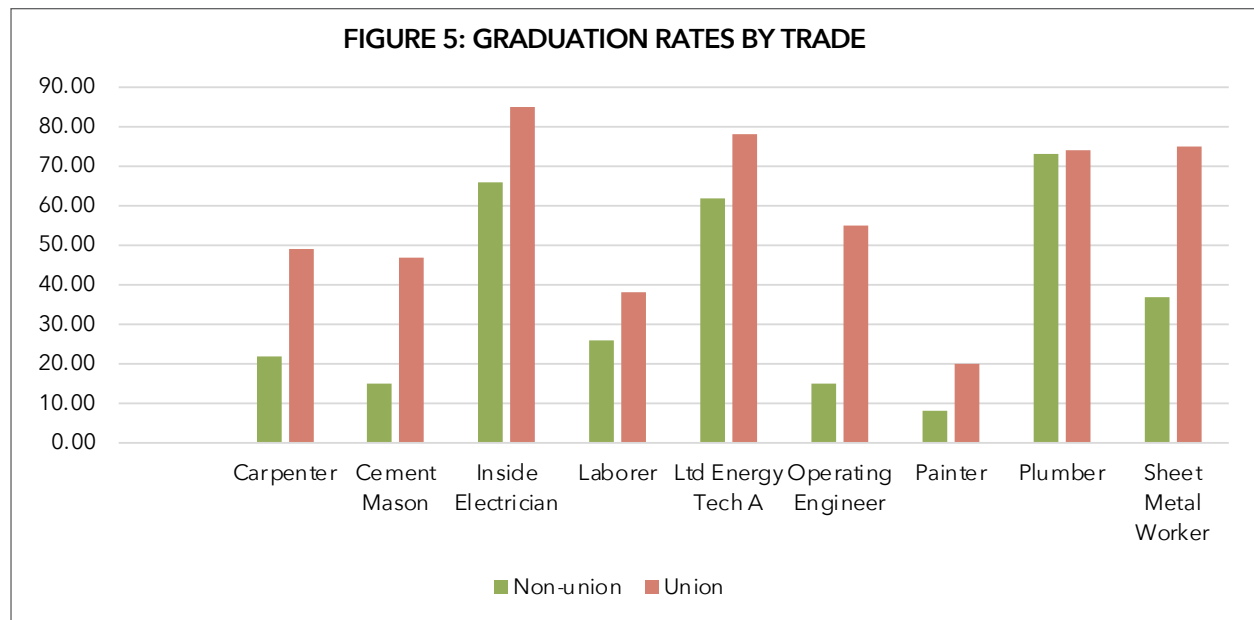
within trades rather than across all trades. In order to compare differences in graduation rates between union and non-union programs, we analyzed the nine parallel trades in the data: Carpenters, Cement Masons, Inside Electricians, Energy Technicians, Operating Engineers, Painters, Plumbers, and Sheet Metal Workers.

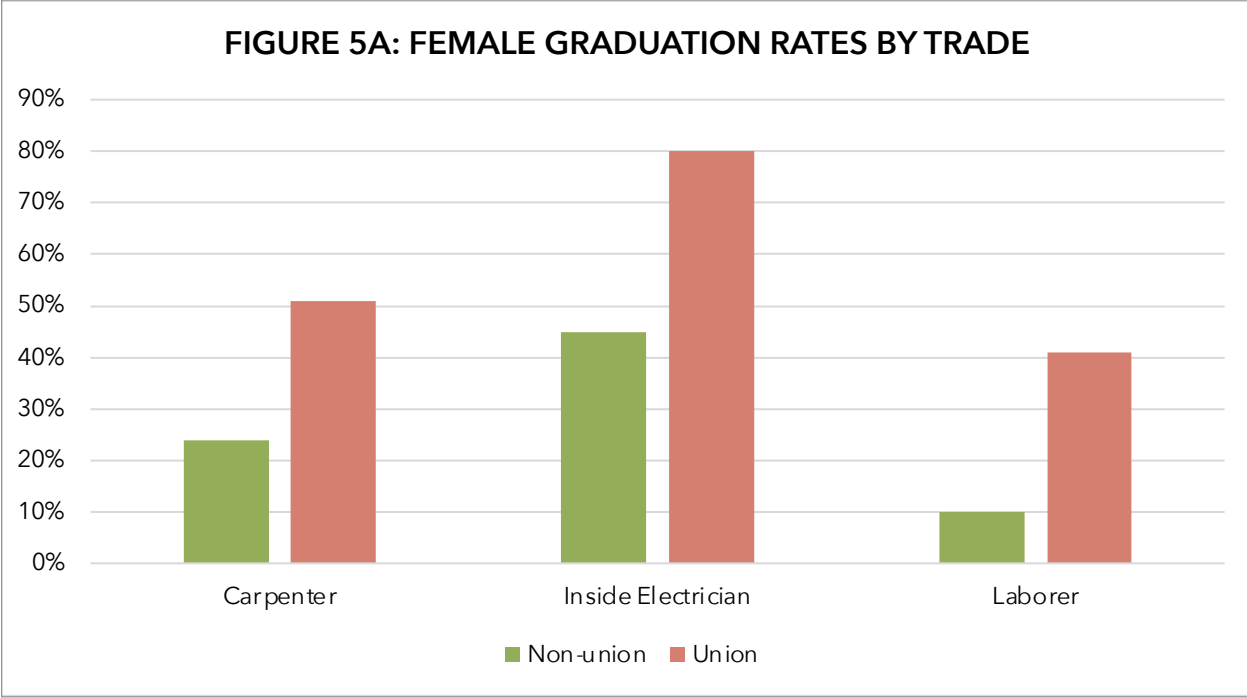
Across these trades, union programs graduate a higher proportion of apprentices than non-union programs (see Figure 5). Unions had a graduation rate of 58% while non-union programs had a graduation rate of 36%

As shown in Figure 5A, union programs graduate a higher proportion of women than non-union programs do in all trades where there are comparable programs. For these comparisons, we have limited ourselves to programs which had 20 or more apprentices enrolled from each gender and racial/ethnic group.

Similarly, as shown in Figure 5B, union programs tend to graduate a much higher proportion of their apprentices of color than non-union programs. Figures 5, 5A, and 5B show the percent of workers who were registered between 2011-2015 and who graduated between 2011-2020 among parallel union and non-union programs.

These figures show that gender and racial/ethnic disparities in graduation rates are largely the result of disparities in graduation between union and non-union programs. As the data show, being enrolled in a union program results in much higher graduation rates especially for women and BIPOC.



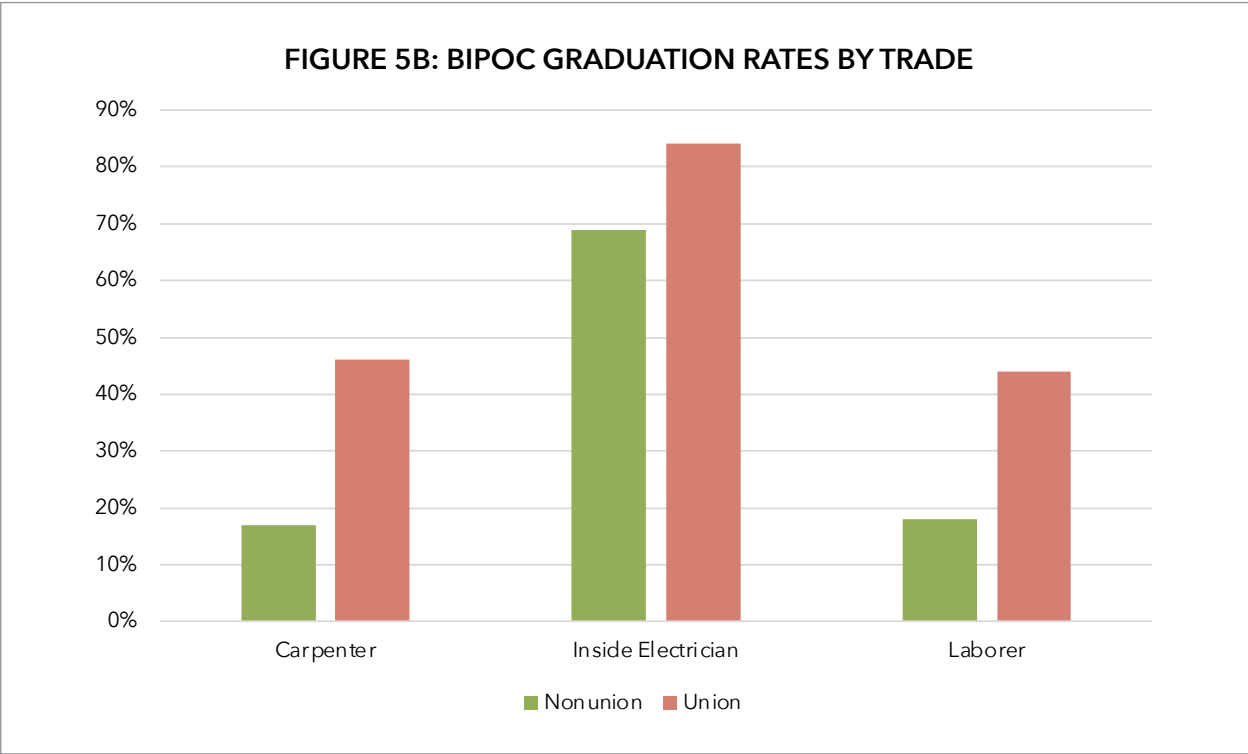


We also ran logistic regressions to determine the average likelihood of graduation by racial/ethnic group and gender. Because graduation rates can vary from trade to trade, running a logistic regression that holds trade constant can be a helpful measure to assess gender and racial/ethnic equity.

Based on the data, on average, women apprentices were 16% less likely to complete an apprenticeship as compared to men, holding trade constant.³² Results show that, on average, being a person of color as compared to a white apprentice is associated with an approximately 35% lower chance of completing an apprenticeship, holding trade constant.³³ Black workers faced the highest barriers to completing an apprenticeship program. Black apprentices were 55% less likely to complete an apprenticeship as compared to white apprentices, holding trade constant.³⁴

However, these industry-wide data mask dramatic differences between union and non-union apprenticeship programs. Holding trade constant, BIPOC workers in a union program had a 20% greater likelihood of completing their program compared to workers of color in non-unionized apprenticeships.³⁵ Even more substantially, women in unions experienced a 70% greater likelihood, on average, of completing their program compared to women who were in non-unionized apprenticeships.

These findings highlight the persistent barriers for women and workers of color, particularly for Black workers, to complete apprenticeship programs, and require industry-wide changes. In many cases, the inability to complete a program results from structural inequalities. For example, arranging childcare may keep parents, especially mothers, from being able to find the hours necessary to move through the program. Research shows that for women in particular, a lack of meaningful tasks and sexism experienced at the worksite slows down progress and leaves women with lower quality training compared to men, making it more difficult to advance through the program.³⁶ Other inequities experienced by women and workers of color can be working fewer hours, not being part of core crews (the contrac-



tor’s permanent workforce), and on-the-job harassment. In general, apprentices may also experience difficulty completing their programs as a result of financial hardships associated with regular periods of unemployment in the construction industry.³⁷

These results show that institutions like unions play an important role in mitigating labor market inequalities. The stark race and gender differences in graduation rates in non-union apprenticeship programs show that institutions such as unions reduce gender and race discrimination.

Time to Completion

Of apprentices who completed their programs, 44% were enrolled for 3 years or less. The average time to graduate for apprentices who enrolled between 2011 and 2015 was 3.8 years.

Overall, women took slightly longer to graduate compared with men; the average tenure for women who enrolled between 2011-2015 and completed their programs was 3.9 years compared to 3.8 years for men. The time to completion was comparable for white and BIPOC apprentices, at 3.8 years. Taking a closer look at one highly enrolled-in trade, Carpenters, important racial disparities in time to completion emerge between non-union and union apprenticeship programs.

According to the Associated General Contractors Oregon-Columbia Chapter, it typically takes apprentices about four years to become a journey-level carpenter.³⁸ For workers who enrolled between 2011-2015, apprentices in union programs completed in an average of 3.2 years, while non-union apprentices completed in an average of 4 years.

Unions play an important role in reducing gender and race discrimination. Without institutions like unions, the persistent barriers faced by women and workers of color will continue to shape labor market outcomes.

Carpenter apprenticeships also had particularly high enrollment. In non-union Carpenter apprenticeship programs, men graduated within an average of 4.03 years while women graduated more slightly more quickly, in an average of 3.8 years. Again, we must be cautious when drawing conclusions because of the small number of apprentices in specific subgroups. White workers typically graduated in 3.78 years, while workers of color typically graduated in 4.46 years in non-union programs. Though there were only three Black workers enrolled in non-union Carpenter programs, they each took five years before graduating, a year longer than average. Of all apprentices enrolled in non-union Carpenter apprenticeship programs, those who took 3 years or less were all white, while those who took five years, or more were all BIPOC.

In union Carpenter apprenticeship programs, where average completion time in the data is 3.21 years, men graduated after an average of 3.16 years, compared to 3.64 years for women. White apprentices completed the program after an average of 3.29 years, compared to 3.03 years for workers of color in union Carpenter apprenticeship programs.



Photo: Dawn Jones Redstone, Oregon Tradeswomen, Inc.

SEPARATION RATES

While graduation rates offer an important lens for analyzing gender and racial equity in construction apprenticeship programs, separation rates can also highlight many of the barriers women and workers of color encounter in this industry. Separation can happen voluntarily, when apprentices leave the program, or involuntarily, when they have their apprenticeship contract terminated.

Apprentices may voluntarily leave the program for a number of reasons, the most common being financial challenges, lack of consistent work, harassment and discrimination, lack of mentorship and training, difficulty of work, and cost and time away from home resulting from travel to worksites.³⁹ Separated white women in particular amass fewer training hours than their white male counterparts, which may, at least in part, explain women's dropout rates.⁴⁰

Between 2011-2020, 6,756 (38%) apprentices who had enrolled in programs in the greater Portland area had terminated contracts. The data shows that apprentices who separated from their program make up an equal proportion of non-union programs compared to union programs, at approximately 38%.

Apprentices of color separated more frequently than white apprentices. While workers of color comprise 26% of the apprentices in the data, they made up 31% of all separations. In comparison, white apprentices were 74% of the total and 69% of the separations. Women were 9% of all separations and 8% of total apprentices.

Of all women, 41% separated from their apprenticeships, compared to 37% of men. An even greater proportion of BIPOC separated apprentices (44%) compared to white apprentices (35%).



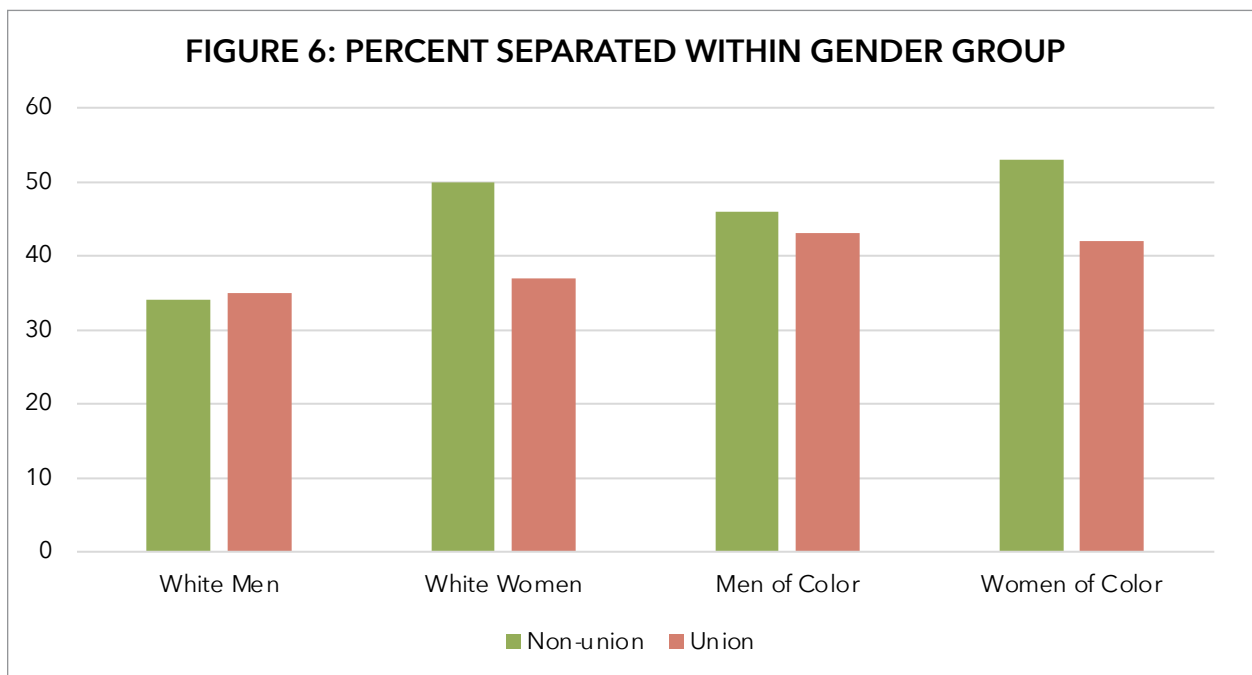
Photo: Oregon State Building and Construction Trades Council (OSBCTC)

When examining the difference between union and non-union programs, clear gender and racial/ethnic disparities are apparent. A smaller proportion of women separated in union programs (38%) compared to non-union programs (51%). Similarly, a smaller proportion of people of color separated in union programs (43%) than non-union programs (47%).

As shown in Figure 6, smaller proportions of women of color, men of color, and especially white women separated in union programs compared to non-union programs. Compared to all racial/ethnic groups, Black apprentices in both union and non-union programs experienced the highest proportion of separations, though the proportion was slightly higher in non-union programs. Higher proportions of Indigenous and Latinx workers separated across union and non-union programs, compared to white workers, as well.

With the exception of Indigenous apprentices, non-union programs had higher rates of separation among workers of color enrolled in their programs than in union programs. Again, we ran logistic regressions to determine the average likelihood of separation by racial/ethnic group and gender.⁴¹ BIPOC apprentices were approximately 41% more likely to separate as compared to white apprentices, holding trade constant. Black apprentices faced particular barriers as evidenced by separation rates. Separations were 159% more likely for black apprentices compared to white apprentices, holding trade constant. This may reflect the fact that 17 of 23 trades that had above-average separation rates also had above-average concentrations of BIPOC apprentices.

Apprentices of color had a higher likelihood of separation than their white counterparts within non-union programs compared to union programs. Within union programs, BIPOC apprentices were 37% more likely to separate than white apprentices. In comparison, in non-union programs, BIPOC apprentices were 56% more likely to experience a separation than white apprentices.⁴²



Separations during Probationary Period

Separations most commonly occur during the first year or two of an apprenticeship program (approximately 76% of all separations—see Table 3).

Table 3: Percent of apprentices separated within years of tenure

# Years Enrolled	# Separated	% of all Separations
0	2,077	31%
1	3,070	45%
2	982	15%
3	418	6%
4	156	2%
5	36	1%
6	15	0%
7	2	0%
Total	6,756	100%

Probationary periods are those in which apprentices can be terminated for any reason. The length of such periods varies from program to program, though probationary periods are most commonly the first year of employment or 25 percent of the length of the program. After the probationary period, apprentices are no longer at-will employees, and can only be terminated as a result of “good cause.”⁴³ However, the problems that lead to lower graduation rates for women and workers of color - including the burden of managing family responsibilities during a period of erratic work hours, high commuting costs and the increased difficulty of forming relationships with employers that result in steady work - may cause more women and workers of color to voluntarily quit their apprenticeships within the first year, which would also contribute to a higher probationary period termination rate.

BIPOC apprentices had a higher rate of separation during their probationary period than did white workers. Despite making up only 26% of all apprentices, workers of color accounted for 39% of all workers who separated during their probationary period. While less than 2% of all white apprentices were terminated during their probationary period, 4% of Indigenous workers, 2.5% of Asian-American workers, 4% of Black workers, and 4% of Latinx workers separated during their probationary period. Women accounted for 11% of all separations during the probationary period, despite making up only 8% of all apprentices. Men, on the other hand, were slightly underrepresented among workers who separated during the probationary period: men accounted for 92% of all apprentices, but just 89% of all apprentices who separated during their probationary period.

Table 4 provides data on apprentices terminated during the probationary period by gender and race/ethnicity.

Table 4: Apprentices Separated in Probationary Period by Gender and Race/Ethnicity

Gender and Racial/Ethnic Group	Number	% of Total	Separations during PP	% Separated during PP	Separations after PP	% Separated after PP
<i>Men</i>	16,450	92%	425	89%	5,717	91%
Indigenous	522	3%	21	4%	193	3%
Asian-American	393	2%	11	2%	115	2%
Black/African American	876	5%	37	8%	481	8%
Latino	2,557	14%	99	21%	953	15%
Native Hawaiian	4	0%	0	0%	0	0%
Pacific Islander	5	0%	0	0%	0	0%
White	12,093	67%	257	54%	3,975	63%
<i>Women</i>	1,512	8%	55	11%	559	9%
Indigenous	85	0%	5	1%	34	1%
Asian-American	39	0%	0	0%	14	0%
Black/African American	119	1%	6	1%	61	1%
Latino	155	1%	8	2%	47	1%
White	1,114	6%	36	8%	403	6%
<i>Non-Binary</i>	2	0%	0	0%	0	0%
White	2	0%	0	0%	0	0%
Total	17,964	100%	480	100%	6,276	100%

These data do not provide information on the reason for separations. Separations may have been the result of an employer decision or could be the result of workers voluntarily leaving the field. Despite common perceptions that apprenticeship success is a result of hard work, it's important to remember that barriers such as lack of pre-existing trade-specific knowledge or skills; difficulty developing relationships with other apprentices, journey-level workers, or supervisors; lack of mentorship; and the challenge of acquiring sufficient hours have been particularly acute for women and people of color. This may provide some insights into the higher separation rates for women and BIPOC.⁴⁴

WAGES

Compared to many other jobs, construction trades and apprenticeship programs offer strong pathways into well-paying, middle-class careers. During an apprenticeship program, apprentices' wage rates are set as a percentage of journey-level wages, with that percentage increasing according to the number of hours completed in the apprenticeship program. Pay also varies according to trade, and within trades as a result of being in a union or non-union program.

Below is an examination of wage differentiation between union/non-union programs and by gender and race/ethnicity. Wages refer to the starting wage for a journey-level worker (the wage the worker will make once completing the apprenticeship program).⁴⁵

Once apprentices reached journey-level status, wages ranged from \$21 per hour to \$56 per hour, with an average of \$38 per hour. The most common wage was \$40.32 per hour. Comparing only trades where there were union and non-union equivalents, unions paid at journey-level status an average of \$37 per hour, while non-union apprenticeships paid a journey-level status worker an average of \$31 per hour.



Photo: Dawn Jones Redstone, Oregon Tradeswomen, Inc.

After running a linear regression that held status, tenure, union, and license constant, data showed that BIPOC workers are enrolled in apprenticeship programs that are associated with a \$1.60 per hour lower average wage than white workers.⁴⁶ Black workers are enrolled in apprenticeship programs that are associated with a \$2.47 per hour lower average wage than white workers.⁴⁷ Latinx workers are enrolled in apprenticeship programs that are associated with a \$1.83 per hour lower average wage than white workers.⁴⁸

Thirty-one percent of non-union apprentices are enrolled in programs with an average hourly wage of \$40 per hour or higher, compared to 60% of all union apprenticeship programs.

46% of all women in union apprenticeship programs are enrolled in trades with an average hourly wage of \$40 or higher, compared to 19% of all women in non-union programs.

Similarly, while only 20% of BIPOC workers in non-union programs are enrolled in trades with an average hourly wage of \$40 or higher, 55% of BIPOC in union programs are enrolled in trades with an average hourly wage of \$40 or higher.

Women in union apprenticeships were almost 2.5 times more likely to make at least \$40 per hour compared to women in non-union appren-

ticeships. BIPOC union apprentices were nearly three times more likely to make at least \$40 an hour compared to their non-union counterparts.

While only 20% of BIPOC in non-union programs are enrolled in trades with an average hourly wage of \$40 or higher, 55% of BIPOC in union programs are enrolled in such high-wage trades.

The data also show that in union programs women and workers of color were distributed more or less evenly across apprenticeship programs, whereas in non-union programs, more women of color were concentrated in programs leading to lower-wage occupations.

CONCLUSION AND RECOMMENDATIONS

This report analyzed data from the Oregon Bureau of Labor and Industries on construction apprenticeship enrollment, graduation, separation, and wage rates for apprentices in the greater Portland area. Comparing differences in union and non-union programs, and differences in completion rates across gender and racial/ethnic lines, the data show that union apprenticeship programs enroll a more diverse population of apprentices, and produce better outcomes for women, Black, Indigenous and people of color than do non-union apprenticeship programs. However, both the union and non-union sides of the construction industry must continue to bolster efforts to recruit and retain historically underrepresented workers.

Researchers in Oregon have proposed a number of recommendations to improve the recruitment and retention of women, Black, Indigenous, and people of color in construction apprenticeships.⁴⁹

These include:

- **Recruitment**
 - Assess current recruitment practices, including outreach strategies, makeup of the recruiting team, gendered language, and statements of commitment to diversity included in job postings, and the success rates of women and applicants of color.
- **Mentorship**
 - Establish mentorship programs in each apprenticeship program, ensuring mentors are trained for that role and that each woman and/or apprentice of color is paired with a trained mentor. Designate an ombudsperson specifically to mediate issues of equity, discrimination, or harassment and provide assistance and support to women and BIPOC.
- **Equitable Access to Work Hours**
 - Limit the amount of time apprentices spend on projects that require long hours, are far from

home, do not provide opportunities for skill-building, or entail schedules that conflict with family responsibilities.

- Develop project thresholds that require contractors to distribute a minimum number of hours to women and BIPOC apprentices. The Construction Career Pathways Project suggests the following thresholds:
 - A minimum of 20% of total work hours in each apprenticeable trade shall be performed by state registered apprentices.
 - A minimum of 14% of total work hours shall be performed by women and women-identified persons – both journey and apprentice-level workers.
 - A minimum of 25% total work hours shall be performed by persons of color – both journey and apprentice level workers.
- Establish flexible work hours
- **Establish Anti-Harassment Workplace Policies and Practices**
 - Incorporate anti-harassment training into apprenticeship training programs.
- **Support Outside of Work**
 - Provide financial support for gas, travel and childcare.
 - Develop a hardship fund
 - Provide pregnancy and maternity leave.
 - Provide childcare during courses, or classes that accommodate schedules of single parents.

While quantitative data can provide important information about trade and industry-level inequities, continued research is needed on the factors that reproduce these disparities – including the quality of training, on-the-job bias and discrimination, opportunities for networking and relationship building, task assignments, and access to childcare.

As unions continue to be leaders in the recruitment and retention of women and Black, Indigenous, and people of color, state officials should look to union apprenticeship programs for opportunities to improve gender and racial equity in construction work.

About the Author

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About LERC

Since its inception in 1977, the Labor Education and Research Center (LERC) at the University of Oregon has been dedicated to the presence of a strong, inclusive union movement as an integral element of a just and democratic society. By integrating education, research, and public service, LERC helps to ensure that workers have the skills and support that they need to participate meaningfully in their workplaces and communities. LERC faculty conduct applied research and consult in areas such as labor sector analysis, curriculum development, labor standards and employment policy, race and gender equity in the workplace, and worker health and safety.⁵⁰

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Appendix I: Construction Apprenticeship Programs in the Greater Portland Area, 2011-2020

Non-union Programs	Union-Programs
Bricklayer/Masonry	Bricklayer
Carpenter	Carpenter
Cement Mason	Caulker
Environmental Control System Servicer/Installer	Cement Mason
Inside Electrician	Drywall Finisher
Laborer	Elevator Mechanic
Limited Energy Technician Class A	Exterior Interior Specialist
Limited Energy Technician Class B	Finisher
Operating Engineer	Firestop Containment
Painter	Floor Coverer
Plumber	Glazier
Sheet Metal Worker	Heat/Frost Insulator
Sign Maker-Erector	Heavy Duty Repairer
Sprinkler Fitter	Industrial Maintenance Mechanic
Tile Trades Finisher	Inside Electrician
Tile Trades Setter	Ironworker
	Laborer
	Limited Energy Technician Class A
	Limited Energy Technician PDX
	Limited Residential Electrician
	Marble Setter
	Millwright
	Operating Engineer
	Painter
	Pile Driver
	Plasterer
	Plumber
	Roofer
	Scaffold Erector
	Sheet Metal Worker
	Sheet Metal Worker Systems Technician
	Steamfitter HVAC/R
	Steamfitter/LEB
	Technical Engineer
	Terrazzo Worker
	Tilesetter
	Traffic Painter

ENDNOTES

- 1 With the exception of Indigenous apprentices. While the number of Indigenous apprentices were too small to do robust regression analyses, we wanted to be sure to highlight that the data reflects that this group of workers appears to face particular barriers in both union and non-union programs.
 - 2 Wages refer to the starting-level wage for journey-workers in their trade
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- 25 Based on Larry Williams' analysis for BOLI of Bureau of Labor Statistics unemployment rates and BOLI apprenticeship enrollment figures 1998-2020.
- 26 This includes the majority of programs statewide, and therefore is an underestimate of statewide enrollment figures.
- 27 This number includes apprentices who were actively enrolled, completed, suspended, or were terminated between 2011 - 2020.
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- 31 Byrd, B. 2009. Ibid.
- 32 This was statistically significant with a $p < 0.001$
- 33 This was statistically significant with a $p < 0.001$
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- 41 The calculation of statistical likelihood yields a different number than simply comparing the difference between overall separation rates for different groups of apprentices, partly because the statistical measure controls for differences in each specific trade.
- 42 These results were statistically significant with a $P > 0.000$
- 43 Termination for good cause may include, but is not limited to, failure to report to work, nonattendance at related training, failure to submit work progress reports and lack of response to committee citations as stated in the 2019 Oregon Statutes Chapter 660: Apprenticeships and Training; Workforce Development https://www.oregonlegislature.gov/bills_laws/ors/ors660.html
- 44 Kelly, M, L. et al. 2015. Ibid.
- 45 I want to acknowledge that there may be many reasons (which are outside the scope of this report) why women and workers of color enter different trades and apprenticeship programs.

46 We ran several regression models with different control variables and found similar strong results. Here we include a control for license, as licensed trades are associated with higher average wages.

47 This was statistically significant with a $P > 0.000$

48 This was statistically significant with a $P > 0.000$

49 <https://www.oregonmetro.gov/sites/default/files/2019/11/04/construction-career-pathways-regional-framework-20190901.pdf>

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