



Advancing Construction Industry Diversity: A Pilot Study of the East Central Area Building Trades Council

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Author's Bio

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EXECUTIVE SUMMARY

The importance of the construction trades and apprenticeship programs as a unique and unparalleled pathway into middle class job opportunities for non-college graduates, inspired the Project for Middle Class Renewal in the Labor Education Program (LEP) at the University of Illinois' School of Labor and Employment Relations to invite building trades' apprenticeship programs to participate in a pilot diversity study.

The study, *Advancing Construction Industry Diversity: A Pilot Study of the East Central Area Building Trades Council* was designed to determine not only levels of access and involvement in the apprentice building trades by minority and female workers, but also to recommend practices that would enhance inclusivity in the industry. The goal was to address the question of how to make the "apprentice-able" construction trades the preferred labor force for both white and non-white workers.

In response to the request for participation in the study ten unionized building trades affiliated with the East Central Illinois Building Trade Council agreed to participate. No non-union apprenticeship program operated by the non-union Associated Builders and Contractors (ABC) chose to participate.

The need for equal access to employment in the construction industry is underscored by both the estimated growth in employment opportunities and the challenge to recruiting enough skilled workers. Over the next decade, construction industry job growth is projected to expand by 12.4 percent in Illinois - twice the pace of the overall state economy.

Based on our study findings and cognizant that 14.5% of East Central Area Building Trade apprentices were people of color and female, we recommend that the following eight (8) measures be adopted to increase diversity participation in apprenticeship programs in the construction industry:

1. Outreach

It is recommended that along with general public notifications, apprentice programs develop a strategic outreach plan to women and minority populations.

2. Increasing the Eligible Pool of Apprentice Applicants

Pre-apprenticeship programs have proven to be a helpful strategy to prepare and connect people, especially those who are low-income, minority and female, to construction careers.

3. Assessment

To address the possibility of a demographic similarity effect the apprentice committees should insure that their interview panels include women and minority representation.

4. Mentoring, Tutoring and Counseling

To help apprentices avoid feeling overwhelmed training programs could assign mentors and retention counselors to apprentices.

5. Classroom Instructors and Instruction

An additional way to address apprentices' academic challenges is to hire academic subject area teachers.

6. Teacher-Student Role Modeling

Hiring women and minority journeymen to teach would provide female and minority apprentices with a constructive and positive role model.

7. Diversity Education

This diversity education needs to be different than the familiar lawsuit avoidance approach customarily undertaken.

8. Diversity Oversight

The job of making sure that diversity plans move forward and are not blocked by intransigence, foot dragging, irrelevant explanations, unexamined biases or ignorance is the job of a dedicated person or leadership team.

I. Introduction

Recognizing the importance of the construction trades and apprenticeship programs as a unique and unparalleled pathway into middle class job opportunities for non-college graduates, the Project for Middle Class Renewal in the Labor Education Program (LEP) at the University of Illinois' School of Labor and Employment Relations invited building trades' apprenticeship programs to participate in a pilot diversity study.

The study was designed to determine not only levels of access and involvement in the apprentice building trades by minority and female workers, but also to recommend practices that would enhance inclusivity in the industry. The goal was to address the question of how to make the "apprentice-able" construction trades the preferred labor force for both white and non-white workers. While our study focused on the apprenticeship training experience we recognize that the employer bears heavy responsibility for employing a workforce that genuinely represents the diversity of the population. As the authors of a study on women in the trades bluntly state, the "construction worksite is where the rubber meets the road on this issue. Construction contractors - the employers of record on construction sites - have the legal responsibility for increasing the numbers of women [and minorities] on the job and providing workplaces free of discrimination, harassment, and coercion" (Moir, Thompson and Kelleher 2011). This study however does not examine employer hiring or recruitment practices.

In response to the request for participation in the study ten unionized building trades affiliated with the East Central Illinois Building Trade Council agreed to participate.¹ No non-union apprenticeship program operated by the non-union Associated Builders and Contractors (ABC) chose to participate. The ABC's non-participation however had no discernable impact on the study's findings. Studies and state and federal records indicate that non-union apprentice programs make up a miniscule number of the apprentices trades in Illinois (Bruno and Manzo 2016). Studies also reveal that in Illinois and in other states people of color and female participation in non-union programs is substantially lower than in joint apprenticeship training (JAT) programs. A national study found that 80 percent of female apprentices participated in union-sponsored programs, while nearly three-quarters of people of color apprentices enrolled in joint programs (Mulligan-Hansel et al. 2013).

Consequently, this study's findings represent not only the exclusive records of the JAT programs, but almost certainly the conditions of the state's only genuine and viable apprentice training programs.

¹ There are 18 affiliates of the council.

The importance of equal access to employment in the construction industry is underscored by both the estimated growth in employment opportunities and the challenge to recruiting enough skilled workers.

Over the next decade, construction industry job growth is projected to expand by 12.4 percent in Illinois - twice the pace of the overall state economy (Bruno and Manzo 2016). But in a 2015 survey by the Associated General Contractors of America (AGC 2015), 64 percent of contractors in Illinois report difficulty in finding workers to fill these construction occupations and 36 percent expect it to become more difficult.

II. Workforce Diversity in America and Illinois

Since the passage of the 1964 Civil Rights Act, American society, institutions and workplaces have become more racially, ethnically and gender diverse. Increased inclusivity has also been broadly popular with a majority of Americans. The idea of equal opportunity remains a foundational value for Americans.

But diversity is not only a moral imperative. It's good for building a strong economy. Businesses that embrace the nation's changing demographics are better able to find the best and the brightest talent needed to compete in an increasingly competitive economy. Employers who embrace diversity realize above average gains in workforce productivity and job performance. On a boarder societal level a workforce that includes women, racial and ethnic minorities, and lesbian, gay, bisexual, and transgender (LGBT) individuals invigorates economic growth (Forbes 2011; Barsh and Lee 2012).

Approximately 99,945,000 (64 percent) of the labor force is non-Hispanic white, while 24,679,000 (16 percent) are Hispanic and 18,758,000 (12 percent) are African American. Another 8,202,000 (5 percent) are Asian. Demographers have noted the unambiguous changing nature of the American population and workforce. It is estimated that between 2000 and 2050 new immigrants and their children will account for 83 percent of the growth in the working-age population.

The gender mix has also undergone a dramatic shift. In 1950 women represented only 29.6 percent of the nation's workforce. Currently women account for 47 percent of the labor force and by 2020 the number of women in the workforce is expected to increase another 6.2 percent. If trends continue, by 2020 women's participation rate in the labor force is expected for the first time in the country's history to be greater than that of men.

In addition to the growing presence of people of color and women into the labor force approximately 1 million LGBT individuals work in the public sector. Another 7 million LGBT workers are in the private sector. According to the Williams Institute, LGBT workers make up 6.28 percent of the workforce.

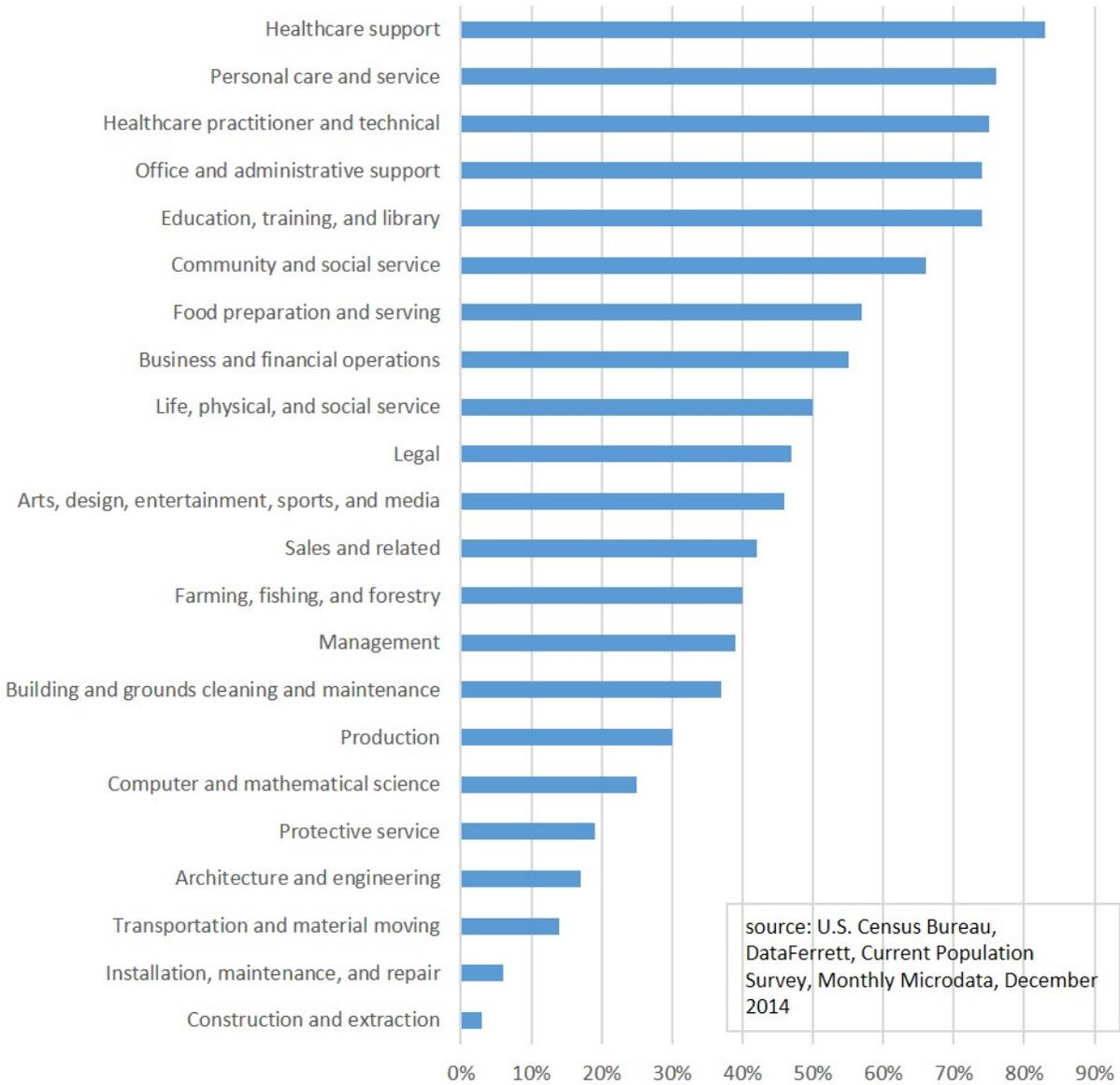
The nation's business owners have also become more diverse. According to the Census Bureau, people of color own 22.1 percent of all U.S. businesses. Women own more than a quarter of all businesses (28.8 percent), and according to the National Gay and Lesbian Chamber of Commerce, LGBT individuals own approximately 1.4 million businesses.

Unfortunately, one major area where diversity is badly lacking is in America's Fortune 500 executive boardrooms. Only 4.2 percent of CEO's are people of color. Women fare even worse; just 3.6 percent of the nation's largest corporate heads are female (Burns, Barton, and Kerby, July 2012).

Despite the increased diversity of the overall workforce there are professions and industries that remain hard to breach for women and minorities. For example, data from the U.S. Census reveals that 81 percent of lawyers are white and only 7 percent of partners at law firms are blacks, Hispanics, Asians, or Native Americans. The lack of racial diversity has also been the subject of criticism in the tech sector. While top tech companies are open to Asian Americans, less than 2 percent of the staff at companies such as Google, Microsoft, and Facebook is black. And minority representation is hardly any better in a host of other substantial occupational fields like health care and education.

Women on the other hand often account for more than half of professional employees (see chart below) like psychologist, registered nurses, education administrators, teachers, tax examiners and financial managers (Lam, 2016; AFL-CIO 2015; Women's Bureau 2010). Contrarily, women are overrepresented in the low-wage workforce, like personal care and healthcare support positions. These are jobs that are less likely to offer benefits and more likely to be associated with high rates of employee turnover (Albelda 2009).

Percent of professional women by occupation group, December 2014



In some occupational fields the lack of diversity is extreme. The Census Bureau has identified 33 occupations where *nine out of ten* workers are white, including airline pilots, veterinarians, speech pathologist, paramedics, architects, sales representatives, managers, and directors of religious activities. For both people of color and women many of the least accessible occupations are skilled construction jobs, such as electricians and carpenters. In 2014, women were less than 10 percent of those employed in the construction industry, and only half of them worked in trade occupations. In 2011, black workers accounted for only 8.4% of workers in the construction industry (Thompson 2012; DOL 2012).

Representation of women, black, Latino and other ethnic groups in the construction trades in Illinois mirrors national trends. There are roughly 214,300 total employees in the state's construction industry. The industry accounted for 3.6% of the state's proportional shares of employment. In 2014, women held just 6.1% of craft jobs while black and Hispanic workers made up 8% and 18% respectively of construction trade occupations (IDES 2016).

III. Construction Industry Apprenticeship Programs

Registered apprenticeships are in training programs that help construction employers in Illinois find skilled workers that are in high demand. They offer both structured, on-the-job training and certified classroom instruction tailored to the needs of employers. By developing skills and human capital, apprenticeship programs create pathways to middle-class careers for workers. As of 2016 there are 10,811 active apprentices in Illinois participating in a construction-based program (Bruno and Manzo 2016).

In 1937, Congress created the formal system of registered apprenticeship through the National Apprenticeship Act. Under this system, apprenticeship programs must meet state and federal standards for completers to become certified. Apprenticeship requirements are often competency- and time-based. Apprenticeships typically last about four years, but can range between one and six years. Nearly all registered apprenticeship programs are funded and operated by private entities. Employers, joint labor-management groups, and unions all sponsor programs, covering on-the-job and tuition costs. Participating apprentices get the opportunity to "earn while they learn."

The fastest-growing trades in Illinois' construction industry require at least 3 years of apprenticeship training. While no education or training regimen is completely free of cost, the investment in apprenticeship time is very valuable. The annual income gain from participating in an Illinois registered apprenticeship program is \$3,442 on average, or \$119,850 in additional income over the course of the worker's career (Bruno and Manzo 2016). In 2015 the national median hourly earnings for all construction workers was \$29.84, well above the \$17.40 median for all occupations (Bureau of Labor Statistics 2015). In the Illinois jurisdictions covered in this report unionized sheet metal workers earn from \$33.19 to \$35.74 per hour. Electricians in the same region earn \$37.26. Research has demonstrated that apprenticeship training in the construction industry makes construction workers safer, more productive, and creates stable middle-class jobs in an otherwise turbulent labor market (Philips, 2015a).

By any measure, however, progress has been minimal for women and people of color in the construction industry. Access to apprenticeships is a powerful pipeline into the trades and higher earning jobs, but only 2.2% of apprentices in the construction trades are women and an estimated 15% are minority (National Women's Law Center 2014). Joint union-employer programs are doing much of the minority and female training where it is occurring at all.

Explanations for why there has been little if any improvement in diversifying employment in the building trades have ranged from minority constituency disinterest and unpreparedness, to apprenticeship program and employer discrimination. While participation in the joint unionized sector has been characterized by an ugly history of exclusion, nonunion employers have been (and continue to be) even less inclusive. In Illinois women and people of color accounted for 3,277 of the apprentices participating in joint-labor management construction industry programs. Only 46 nonunion apprentices are nonwhite and female (Bruno and Manzo 2016).

IV. Study Measures

Participating trades were asked to submit data in as many of the following areas as possible:

1. Geographic boundaries
2. Work jurisdiction
3. Membership size
4. Racial/ethnic/gender makeup of current membership
5. Number of apprentices in each of the past 10 years
6. Current number of apprentices
7. Racial/ethnic/gender makeup of apprentices over the past 10 years
8. Racial/ethnic/gender makeup of current apprentices
9. Retention rate of apprentices
10. Number of instructors
11. Race and gender of instructors

Data on school enrollment were the same metrics that the registered programs are required to be annually submitted to the U.S. Department of Labor Employment and Training Administration (DOLETA). Programs are required to complete a state “Minority and Female Building Trades” survey. The survey breaks down apprentice demographics into the following categories: “Male,” “Female,” “Unknown,” American Indian/Alaska Native, “Asian,” “Black/African American,” “Hispanic/Latino,” “Native Hawaiian or Pacific Islander,” White,” “Other,” and “Unknown.” Where we use the term “minority” we are including all nonwhite males. The DOLETA does not require disaggregating the categories “female” or “male” by race.

For our study, however, we presented data based on what the apprenticeship programs made available to us. Data record keeping and labeling varied by trade. Eight trades for example, broke down apprentices into black and white females, while others simply used “female” as a category. None delineated female by “Latino.” Consequently, for narrative purposes we reported data in the following categories: “white male,” “black male,” “Latino male,” “all female,” and “other (every male who is not white, black or Latino).” In choosing an undifferentiated “female” designation however, we recognize that it reduces the “female” category to a one-dimensional

classification and prohibits the ability of our analysis to investigate the true effects of race and gender on apprenticeship opportunities in the construction industry.

Additionally, apprenticeship programs were solicited about the types of outreach and recruitment practices they used to attract minority and female applicants. Programs were also asked to describe their application, intake and enrollment process.

Finally, a survey of apprentices was administered to assess the training and one-the-job experiences of all apprentices. Questions pertaining to racial and sexual discrimination and/or harassment were included in the questionnaire.

The report presented below first details findings from data on the apprentice programs along with union membership data. A discussion of the program’s outreach, recruitment, intake and enrollment process occurs next. The following section summarizes results from the apprenticeship survey. A final section provides recommendations on practices for increasing minority and female program enrollment and retention.

V. Study Findings

As of 2015, there were 702 apprentices enrolled in the ten participating building trade apprentice schools in the East Central Area Building Trades. Collectively, 14.5% (n = 102) of apprentices were female and minority. Black males accounted for 7%, Latino male for 2.6% and female students for 5.2% of the total enrollment. The proportion of female/minority enrollment ranged from a low of 0 (i.e., Glaziers) to 27% (i.e., Laborers). Five trades had no female apprentices while the Operating Engineers had the highest number (n = 21). Black enrollment was highest among the Carpenters (n = 26) and the Carpenters and the Laborers each had 6 Latino male apprentices (see Table 1).

TABLE 1. EAST CENTRAL ILLINOIS APPRENTICE DEMOGRAPHICS, 2015

TRADE	BLACK MALE	ALL FEMALE	LATINO MALE	WHITE MALE/Other*	% FEMALE/MINORITY	TOTAL
<i>Carpenters</i>	26	8	6	260	13.3%	
<i>Cement Masons</i>	2	0	1	13	18.5%	
<i>Pipefitters</i>	4	1	1	29	20%	
<i>Glaziers</i>	0	0	0	5	0%	
<i>Electricians</i>	1	0	0	16	6.2%	
<i>Iron Workers</i>	0	0	0	39	0%	
<i>Laborers</i>	9	5	6	75	21%	
<i>Painters</i>	0	1	0	10	10%	
<i>Operating Engineers</i>	3	21	3	107	25.2%	
<i>Sheet Metal Workers</i>	3	0	1	46	8.6%	
TOTAL	48	36**	18	600	14.5%	

**In some cases there were Pacific Islanders and/or Native Indians. In no case were there more than 2 of either. **There were 3 black females. Data submitted by union locals.*

One perspective on the numbers and percentages of minority apprentices is to compare them to the primary training age minority population of the counties within the jurisdiction of the programs. The primary training age represents the most likely population that would make up a pool of possible apprentices. Based on the average age of apprentices the primary training age group is people between 18-39 years. For comparison purposes Champaign and Vermillion Counties are the most appropriate jurisdictions to examine because they have a far larger total and minority population. Champaign for example has 208,861 residents and 19% are minority. Vermillion's population is 79,282 with minorities making up an 18.5% share (Census Bureau, 2015). Across much of the east central region, African American populations are under 1%.

According to the U.S. Census Bureau, in 2015 there were 3,250 black residents living in Champaign County between the ages of 18-39, accounting for 1.6% of the total county population. Black residents represent 13.1% of the overall population in Champaign County. The Hispanic/Latino primary training age population amounted to 1.3% of the county population (5.7% of the total) and women within the prime training years accounted for 36% of the county population.²

The enrollment figures for apprentices is related to the number of school applicants. Data from six trades provided the number of applications for either 2014 or 2015.³ From the reporting trades, apprenticeship applicants from white males (n = 768) widely outpaced the combined female and minority applicants (n = 209). Approximately 21.6% of the total applicants for the reporting trades covering the years 2014 and 2015 were non-white males (see Table 2).

TABLE 2. EAST CENTRAL ILLINOIS BUILDING TRADE

² The age grouping used for females was 20-39 based on a 2012 statistical portrait of Champaign County (www.ccrpc.org/wp-content/uploads/2015/02/SA2012.pdf). One factor in interpreting the percentage of females between the ages of 20-39 is that the University of Illinois is a major employer within the county. According to a 2011 United Way Community Report, 6% of the county's population works at the University (www.uwayhelps.org/sites/uwayhelps.org/.../2011_community_report_with_sources).

³ The percentage of applicants is taken from two trades in 2014 and then two different trades in 2015 and thus isn't a representative sample of what the breakdown of applicants was in any one year.

APPRENTICE SCHOOL APPLICANTS 2014, 2015

TRADES	ALL FEMALE	MINORITY (MALE)	WHITE MALE
<i>Carpenters*</i>	6	68	223
<i>Pipefitters**</i>	21	22	98
<i>Electricians*</i>	3	9	44
<i>Operating Engineers**</i>	6	5	122
<i>Plumbers/Pipefitters**</i>	3	24	98
<i>Laborers**</i>	33	59	171
TOTAL	72	139	756

***2014; **2015**

After a student has applied for the training applicants are required, among other measures, to take a proficiency test. In order to be accepted into the programs prospective students must score high enough to pass the exam. While only one trade provided data on tests takers and pass rates, they do give us a sense of how well different groups perform. In the case of Trade “A” we have results from 2010-2014. There is a wide disparity between the raw number of female and minority, and white male test takers, but relative comparability on the percentage of each group that passed the test. For example, over the five year period minority applicants had a 32.5% pass rate; white males did only slightly better at 34.5%. However, only one out of four female test takers passed the exam (see Table 3).

TABLE 3. EAST CENTRAL ILLINOIS BUILDING TRADE “A” TESTS TAKERS AND PASS RATES

YEAR	MINORITY	PASSED/%	FEMALE	PASSED/%	WHITE MALE	PASSED/%
2014	68	24/35.2%	6	1/16.6%	223	117/52.4%
2013	94	30/31.9%	36	9/25%	359	112/31.1%
2012	43	14/32.5%	16	5/31.2%	169	59/34.9%
2011	100	32/32%	30	7/23.3%	539	152/28.2%
2010	2	0/0%	2	1/50%	27	15/55.5%
TOTAL	307	100/32.5%	90	23/25.5%	1,317	455/34.5%

Once enrolled in a trade apprenticeship program the demographics of the instructional staff is important to student performance. Consequently, in addition to the race and gender of apprentices, programs also provided a breakdown of demographics of their school instructors. Instructor race and gender were examined because educational research reveals that where minority and female students – adults included - have examples of classroom teachers who look like them, the learning environment is more inspiring. Based on the trades that reported information, five of the 46 instructors were either female or minority. None were black (see Table 4).

TABLE 4. DEMOGRAPHIC OF EAST CENTRAL ILLINOIS BUILDING TRADES APPRENTICE INSTRUCTORS

TRADE	BLACK MALE	ALL FEMALE	LATINO MALE	WHITE MALE
Carpenters	0	0	0	4
Cement Masons	NA	NA	NA	NA
Pipefitters				
Glaziers	0	0	0	1
Electricians	0	0	0	8
Iron Workers	0	3	0	9
Laborers	0	1	1	13
Painters	0	0	0	1
Operating Engineers	0	0	0	5
Sheet Metal Workers	NA	NA	NA	NA
TOTAL	0	4	1	41
PERCENT	0%	9.7%	2.4%	82%

Finally, membership in the building trade unions, which along with their unionized employers jointly administer the training programs, reveals a wide dispersion of female and minority representation. At the low end is Glazier Local LU 1168 with no female/minority members, while the Laborers LU 703 has the largest proportion at 17.6% (n = 92). As a percentage of the total membership, females and minorities account for one in ten (n = 610) workers. Membership among the minority subgroups is as follows: black males-4.6%, Latino males-1.7% and females-3.7% (see Table 5). It is worth noting here that race and gender breakdowns of membership was inconsistently reported. A few unions provided demographic data, while a number only reported total membership.

TABLE 5. EAST CENTRAL ILLINOIS BUILDING TRADE UNION MEMBERSHIP, 2015

UNIONS	BLACK MALE	ALL FEMALE	LATINO MALE	WHITE MALE	TOTAL*	% FEMALE/MINORITY(a)
Carpenters LU 243	126**	24	19**	800	969	17.4%
Plasterers Cement Masons LU 143	5	4	4	449	462	2.8%
UA (Pipefitters) LU 149	13	7	0	462	482	4.1%
Glaziers LU 1168	0**	0**	0**	98	98	0%
IBEW LU 601 (Electricians)	19	8	5	354	386	8.2%
Iron Workers LU 380	5	1	0	167	173***	3.4%
LIUNA (Laborers) LU 703	36	31	25	431	523****	17.6%(b)
Painters DC LU 58	6	5	0	145	156	7.2%
Operating Engineers LU 847	30**	151**	38**	1,920	2,139	10.2%
Sheet Metal Workers LU 218	40**	0**	13**	617	670	8%
TOTAL	280	226	104	5,443	6,058(b)	10%

*Includes actives and retirees; **Estimated based on apprenticeship demographics; ***There were 5 "other" minorities; ****Includes 75 with no race/gender specified; (a) Includes black, Hispanic/Latino and female; (b) Includes only specified race and gender

VI. Survey Results

As part of this pilot study apprentices were asked to voluntarily complete a 36-item survey. The purpose of the survey was to better understand how apprentices felt they had been treated as a member of the apprenticeship program. Questions were organized into the following categories: (1) the trade of the apprenticeship program and status of the apprentice; (2) how an apprentice felt they had been treated in the apprenticeship-training program; (3) how an apprentice felt they had been treated on-the-job; (4) challenges to participating in the apprentice program; and (5) demographics and family composition. Within the sections covering the school and on-the-job experience, apprentices were asked about occurrences of sexual or racial harassment and/or discrimination. For most questions respondents were asked to choose from an ordinal closed-item list such as “Never,” “Rarely,” “Occasionally,” “Most of the time,” “Very often,” or “Always.”

Written hard-copy surveys were distributed and completed at the participating apprentice schools and at union meetings called exclusively for apprentices. An LEP representative administered, directly collected, and analyzed the surveys. Respondents were drawn from nine of the ten trades/unions providing data for this report (see Table 6) and first year apprentices were a third of the participants (see Table 7).⁴

TABLE 6. TRADE OF SURVEY RESPONDENTS

PERCENT	Trade
1.8%	Plasterer/Cement mason
35.1%	Electrician
8.2%	Laborer
15.2%	Operating engineer
13.5%	Painter
16.3%	Pipe fitter-Plumber
8.2%	Sheet metal worker
1.2%	Other (n=2)

TABLE 7. YEAR OF APPRENTICESHIP

YEAR	PERCENT
1	30.6%
2	13.5%
3	19.4%
4	21.2%
5	12.4%
6	1.2%

⁴ The carpenters, glaziers and iron workers did not complete surveys.

There were 170 completed surveys from a pool of 663 apprentices, which amounted to a 26% response rate. Corresponding to the actual gender and racial mix of apprentices, respondents were overwhelmingly male (94%) and white (88%). Black (n = 10) and Latino (n =2) apprentices made up 8% of the non-white respondents. As is required of any enrolled apprentice 100% of the survey participants had at least a high school diploma or equivalent, with more than a quarter (26.5%) earning an associate's degree or greater. Nearly 55% of survey participants were between the age of 25-34 and another 23.8% fell between 35-44 years of age. Apprentices under 25 amounted to 16.7% of respondents.⁵

Statistical regression tests to determine the relationship between race and/or gender and other variables was not possible because there were so few minority and female respondents.

The scarcity of minority and female apprentices is indicative of how apprentices became aware of the apprentice school opportunity. More than eight out of ten (84.1%) survey participants became aware of the school they were attending from "family or friends." Economists have pointed out that relying on an intimate network of people who are familiar with economic opportunities is a primary explanation for how a limited number of are distributed. While apprentice school applicants have to be qualified to enter the program, because the trades have been and are predominantly made up of white males, the number of minority and female applicants will always be comparatively small. The "birds of a feather flock together" dynamic insures a small representation of women and minorities. Consider that only 1.4% learned about the programs from a high school counselor, or that only 1.2% knew via a pre-apprentice training, or just 4.1% was alerted from a newspaper advertisement.

The importance of awareness in getting access to training can be appreciated by examining the comparable rate in which applicants passed the eligibility test. Assume for a moment that at any given time all qualified applicants are admitted. If for example, as many minorities had applied to trade "A" (Table 2) as did white students (see Table 2), based on the test passage rate indicated in Table 2 and assuming no other disqualifiers, from 2010-2015 there would have been 346 additional minority apprentices.⁶ The results would have been a near equal number of white (n = 455) and nonwhite (n = 446) apprentices. Using the same calculation, an additional 327 women would have enrolled creating a far more balanced male (58%) female (42%) distribution.⁷

Once in the programs apprentices near universally "always" felt "comfortable" and indicated that they were treated "respectfully" and "equally" both in the school and on-the-job. There were no differences in how white male, minority and women apprentices felt about the training

⁵ The average age of craft union members ranged from electricians at 27 to painters at 52.

⁶ Based on a 32.5% test-passing rate, if 1,317 (the white number) minorities had taken the test instead of only 307, then 446 would have passed, instead of 100 – an increase of 346.

⁷ Based on a 25.5% test-passing rate, if 1,317 women had taken the test instead of only 90, then 350 would have passed, instead of 23 – an increase if 327.

experience. Additionally, more than nine out of ten respondents answered that they had never experienced sexual or racial harassment or discrimination either at the school or at work.⁸

While a training and work environment free of harassment and discrimination are very important factors in reducing the number of apprentices who will drop out, there are other structural challenges to program completion. According to respondents, the two most difficult barriers to completion are financial (21.5%) and managing the needs of family with training/work responsibilities (21.9%). An additional 10.9% of respondents indicated that they had child care issues which likely contributed to the number of apprentices struggling with a work-life balance. Nearly 80% revealed that they had confronted at least one of the challenges listed on the survey (see Table 8). More than half of respondents are parents (57.9%) and 22.2% are the sole providers of their children. The mean age of the children was slightly more than 5 years. There was however no statistical relationship between any of the responses and the race or gender of the apprentices.

TABLE 8. CHALLENGES FACED IN PROGRAM PARTICIPATION

PERCENT	CHALLENGE
10.9%	Child care issues
3.2%	Academic skills
4.0%	Transportation
21.5%	Financial
21.9%	Juggling family-work-school responsibilities
1.6%	Substance abuse
4.5%	Unfriendly workplace
0.8%	Feel unwelcome at school
1.6%	Lack of overall program support
29.1%	None of the above
0.8%	Other

⁸ Surveys of women and minorities with statistically significant sample sizes have routinely found complaints of inhospitable schools or workplaces. Female and African-American apprentices also report feeling isolated, overtly scrutinized and overlooked at work (see Susan Moir, Meryl Thomson and Christa Kelleher. *Unfinished Business: Building Equality for Women in the Construction Trades*, University of Massachusetts Boston ScholarWorks at UMass Boston, Labor Resource Center Publications, 2011).

VII. Program Recruitment

While family and social networks have a disproportionate impact on apprenticeship school enrollments, most trades do engage in an extensive community recruitment drive to attract minority and female applicants. It is not uncommon for example, for individual trades to establish partnerships with local community-based-organizations, churches and schools. Each trade will choose its own strategy but within the East Central Illinois Building Trades Council, as in other construction union bodies, there are many common outreach practices. It would be too unwieldy to site the full universe of activities. Below however is a brief and selective list of the outreach categories that is reflective of the kind of outreach practices that is typical of apprentice programs.

Junior High and High Schools

Schools are popular sites of engagement. Young people who have not graduated are not yet eligible for apprentice programs, but the trades have determined that it's important to make young people aware at an early age of the advantages of a career in the construction crafts. Thus, attendance at high school and building trades sponsored construction trades expos and career nights are popular. Even 8th grade students are addressed. The UA LU 149 for instance, participated in an "Education for Employment" middle school career conference at the I-Hotel and Conference Center in Champaign. Approximately 2,000 eighth graders from central Illinois attended. Laborers 703 conducts between 25-30 career days statewide each year and often include tours of their teaching facilities.

High schools are also often the site of "hands on" learning events where young people get a chance to handle tools. Exposure to skilled craft work is also extended to off-site locations. Again, the UA LU 149 organized a two week construction class open to all Champaign Unit 4 High school students. Part of the engagement with Unit 4 included speaking about apprentice and career opportunities within the Champaign-Urbana (CU) Scholars program. The Glaziers operate a "Homework Hangout"

Another school-based area where the trades have raised awareness is through the "Education for Employment (EFE)" program. EFE is a k-12 cooperative introducing students to opportunities in technical education and career preparation. The building trades have a relationship with this program because it is way that they can work together with the schools to promote technical and vocational education. The Champaign-Urbana Cradle 2 Career initiative is yet another educational advocacy group where the trades can communicate a message about the benefits of apprenticeship programs.

Joint programs, like the one administered by the Painters District Council 58, also used Parkland Community College to educate about careers in the construction trades. Numerous trades, including the cement masons, painters, electricians, plumbers and pipefitters, ironworkers,

laborers, carpenters and equipment operators participate in a pre-apprenticeship highway construction training program at Parkland that is widely marketed by the college.

Trade involvement with school-based technical education often goes beyond speaking engagements and teaching classes. It is not uncommon for the trades to make financial donations to schools to purchase supplies and equipment.

Community Outreach

The trades were ubiquitous at community events focused on employment opportunities. Each participating trade in this study for instance, had a presence at the 2015 Pathway to Building Trades Apprenticeship Informational Fair sponsored by the Illinois Legislative Black Caucus and the Illinois, AFL-CIO. The event occurred multiple times at different locations around the state.

Outreach to churches and minority and female organizations is also very common. For example, the Iron Workers 380 directly engages with the following organizations: Champaign County NAACP, Courage Connection (a women's transition program), Fellowship Baptist District Association, Stone Creek Church, Restoration Urban Ministries, Salvation Army, Citizens with Convictions, Thrifty Nickel, and the Urban League.

Print and Radio Media

A common outlet for communication about apprentice schools and construction careers are newspapers and radio.

Advertisements about apprenticeship training regularly appear in local newspapers. For example the following are media outlets where the Masons and Plasters 143 advertise: the *News Gazette* (Champaign), *Southern Illinoisan* (Carbondale), *Mt. Vernon Register News* (Mt. Vernon), *Olney Daily Mail* (Olney), *Daily Republican Register* (Mt. Carmel) and the *Effingham Daily News* (Effingham). The Laborers 703 training program runs semi-annual newspaper ads and once a year sends a targeted announcement about entering the apprentice ship program to minority organizations.

Some trades also utilize area radio programs. The Steve Jay Radio Sports and Outdoor Show has been one radio site for building trade leaders and apprentice school coordinators to discuss topics such as apprenticeship applications, economic growth, project labor agreements, and progress on current jobs.

The collective outreach efforts of the trades has drawn a pool of applicants and apprentices from a wide number of counties. Only the laborers program, provided data on where the applicants resided, but it was indicative of where minority recruitment was concentrated. In 2015 the largest percentage of applicants originated from Champaign (47%) and Vermillion County (32%). Importantly, Champaign accounted for 89% of the black male applicants and half of all the other female/Latino applicants combined. In fact, over a six year period (2009-2015) only five other counties out of 13, excluding Vermilion, provided a single black applicant. And in those cases, 1

or 2 black applicants resided in no more than two or three counties each year. Over the same period female applicants lived in twice as many counties, but they too always came from two or three counties each year.

VIII. Program Assessment

Attracting applicants to the apprenticeship programs is the first step in genuinely diversifying the construction industry workforce. The second step is to determine who is eligible for training.

The applicant requirements are largely standard for all of the trades and usually include two primary steps.⁹ Step one typically requires that applicants meet a set of minimum descriptive characteristics. They must be 17 or 18 years of age, be a high school graduate or equivalent, physically capable of performing the essential functions of the trade, live within the craft jurisdiction, possess a valid driver's license, and pass a drug test. Construction work commonly occurs for different contractors and requires that workers travel to job sites at multiple locations. Therefore trades, like the iron workers, notify applicants that they "must be available to work in a 150 mile radius of Champaign."¹⁰ Additionally, in some cases applicants cannot have a criminal record that would preclude them from working on public sector jobs (i.e., schools) without restriction.

Step two involves the candidate earning a minimum score on one or more written aptitude tests, completing an oral interview and providing 2-3 letters of references attesting to the applicants work history.¹¹ Some trades, like the glaziers and carpenters, prefer to see a letter from a union contractor in the field who would be willing to employ the applicant.¹² Some trades, like the electricians, also require proof that the applicant has at taken at least one year of high school or post high school Algebra.¹³ There are some trades which require that applicants show a birth certificate and a social security card. Candidate applications are customarily accompanied by a \$20 or \$25 non-refundable administrative fee.

The timing and frequency of the assessments vary depending on the assessed needs for apprentices in a particular craft. From 2005-2015 LIUNA (laborers) Local 703 has given their test

⁹ An exception to the common application outlined above is the painters' trade. Painters Council District 58 provides a 5-day trial to first see if the applicant is an apprentice, Journeyman, or is not fit to work in the trade.

¹⁰ Information provided by International Association of Bridge, Structural, Ornamental, and Reinforcing Iron Workers, Local Union 380.

¹¹ There are also programs which attempt to accommodate foreign born and educated workers. For example, if a candidate has a transcript from another country, he or she may have their home embassy verify in writing that it is equivalent to U.S. high school standards. In place of a driver's license a state issued I.D card can also be submitted.

¹² This is typically referred to as a "Letter of Intent."

¹³ The electricians actually require evidence that the applicant earned a grade of "C" or better in an algebra class.

to 1,839 applicants. Tests on average have been given eight times a year in eight separate months. The electrician (IBEW 601) test is given three times a year.

Assuming that school candidates meet the minimum requirements, allocation of the available apprenticeship slots is predicated on the applicants test scores and work history. Tests scores are a primary measure of who get accepted. Each trade determines which tests are appropriate. The laborers utilize a six part exam that covers safety, math and general education questions. The electricians, for example, administer the NJATC/AIR examination consisting of algebra and reading comprehension.¹⁴ Two sample electrician's exam questions that tests an applicant's ability to solve problems using algebra are written below:¹⁵

Consider the following formula: $A = B + 3(4 - C)$. If B equals 5 and C equals 2, what is the value of A?

- a. 7
- b. 11
- c. 12
- d. 17

Consider the following pattern of numbers: 110, 112, 107, 109, 104. What is the next number in the pattern?

- a. 97
- b. 99
- c. 106
- d. 109

One of the more common tests is administered by GAN Human Resources Associates. The testing organization had provided apprentice testing programs for more than fifty apprenticeship programs in Illinois and the United States for at least the past 25 years. The GAN tests have been reviewed and found compliant with federal law by the Equal Employment Opportunity Commission and Department of Labor.¹⁶

¹⁴ The National Joint Apprenticeship and Training Committee (NJATC) joined with the International Brotherhood of Electrical Workers (IBEW) and National Electrical Contractors Association (NECA) to form the Electrical Training Alliance. Together, they developed the Electrician Aptitude Test for apprenticeships.

¹⁵ Answers are A and C.

¹⁶ Established in 1998, GAN Human Resources Associates, Inc. according to documentation provided to the apprentice school programs is "dedicated to helping people increase their chances of vocational and avocational success and satisfaction. The GAN Aptitude Battery was developed based on a job analysis of the skills and abilities required for performance in school and on the job. The tests administered by GAN Human Resources Associates for apprentice selection are reliable and valid and are appropriate for selection in these programs. These tests have been developed and validated solely for use with the apprenticeship programs."

Apprentices in the East Central Area, like other Illinois applicants, will take the GAN Aptitude Test Battery which measures basic math, reading, spatial skills and mechanical ability. The test is monitored by a GAN proctor in a designated testing room with a maximum number of students (i.e., 30-50). Including instructions and the collection of test materials, GAN testing takes approximately 2.5 hours. Each applicant will receive a numerical score in each category. Some trades, like the equipment operators will also require a series of hands-on tests which are separately evaluated. To help applicants prepare for the test trades like the Plumbers and Pipefitters have developed a study guide that can be purchased for a nominal fee.

In addition to the aptitude and hands-on tests, applicants usually participate in an oral interview.¹⁷ In the interview candidates are asked open ended questions to determine the person's work fit, likely success in the program, and work and personal history. Questions are particular to the trade but often probe at the following areas: "Why are you applying for our apprenticeship program?" "Why do you feel like an apprenticeship is an appealing way to learn?" "What are some positives things an employer would say about you?" "Why should we choose you?" and "How would you handle situation X?" Each answer is then assigned a score based on the quality of the reply. The UA 149 interview assessment provides a useful template. Below is how the joint program assigns points to the answers of each questions.

Unanswered = 0 points

Poorly Answered = 1-2 points

Fair = 3-6 points

Good 7-8 points

Excellent = 9-10 points

Interviewers typically include a panel that can range from three to eight people who each assign a point score to each interviewee. The interviewers typically include some mix of contractors, school coordinators, instructors, journeymen and union representatives in the trade.¹⁸

Once the applicant has completed both the aptitude tests and the oral exam his or her scores are combined. In most cases a weight of approximately 65-70% is assigned to the aptitude test and 30-35% to the interview. However, weights can be more equally distributed so that the test and interview count roughly for the same amount. An overall passing score is then established and applicants are ranked based on their respective scores. Achieving a passing score however does not insure acceptance into the program. Depending on the number of openings in the school at any given time the number of enrollees will vary. In this scenario only the highest scorers will

¹⁷ Some programs however only permit applicants who scored above a threshold (e.g., 75% or higher out of 100%) on the GAN test to advance to the oral interview.

¹⁸ The masons and plasters have an apprenticeship committee of eight with an equal number of contractors and union representatives, but it is not clear if this committee conducts interviews.

gain acceptance. For example, if there are 25 openings the top 25 scorers will be accepted in descending order beginning with the highest score.

Those “eligible applicants” (i.e., earned a passing score) who are not chosen for entrance into the apprenticeship are commonly placed in a “pool” for a minimum of at least two years. For the next two years eligible but not chosen applicants will be included in all subsequent selection procedures. In addition, applicants who were not interviewed because they lacked the basic qualifications (i.e., not a high school graduate) can be reconsidered once they correct any deficiencies in their application. They also receive a notification explaining why their application has been rejected.

IX. Education and Work Schedule

According to the U.S. Department of Labor enrolled apprentices complete a probationary period of up to one year or 25 percent of the length of the apprenticeship, whichever is less. The initial year functions as an important trail period to allow the apprenticeship sponsor to determine the apprentice’s probability of completing his or her training. One study found that 46 percent of the construction apprenticeship agreements entered into between 2006 and 2007 were cancelled. More than half (57%) of the apprentices who failed to complete did so within the first 24 months (Helmer and Altstadt 2013). Only a few programs covered in this study provided appropriate data on completion rates. Although where they did differences among groups appeared large. The operating engineers reported that from 2005-2015 white male completion rates varied annually from 27% to 60%, while black male completion was never greater than 3%. Latino and women had 5-6% completion rates. In this case however the number of minority and female apprentices was very small and in some years there were only white male apprentices. One other trade, the IBEW 601 claimed 100% completion of all apprentices from 2005-2015.

An apprentice who navigates the probationary period will take an assortment of classes. The duration of the apprentice trainings and the organization of the class schedules over multiple years varies according to the skills needed to be become a journeyman in the trade. Programs featured in this study required three (e.g., operating engineers) to five years (e.g., electricians) of training. Depending on the trade, apprentices would need to complete from 432 (e.g., masons) to 1,200 (e.g., plumbers and pipefitters) hours of classroom studies. Classroom instruction ranged from twice a week evening sessions over months ten months (e.g., iron workers) to eleven consecutive weeks of full day schooling (e.g., electricians). In addition to classroom time, apprentices will accumulate from 3,000 (e.g., laborers) to 8,500 (e.g., plumbers and pipefitters)

hours of on-the-job experience before completing the program and earning their journeyman status.¹⁹

When in class, apprentices will take a combination of trade-related math and science and skill-based courses. Every apprentice will also complete a 30-hour Occupational Health and Safety Administration course. Joint union-employer school curriculums are not only rigorously calibrated to learning the craft, but heavily oriented toward worker safety. For illustrative purposes, below (Table 9-10) are the first and second year course schedules for apprentice plumbers and pipefitters, and the initial year for the glaziers training program (Table 11).

TABLE 9. 1st YEAR UA 149 PLUMBERS and PIPEFITTERS COURSES	
COURSE	HOURS
Job Safety & Health Use & Care of Tools	8
Labor History and Standards For Excellence	8
Soldering and Brazing	40
Oxy-Fuel Cutting/SMAW	24
Welding	72
Principles of Rigging	40
Pipe, Fittings, Valves, Supports, and Fasteners	24
Drawing & Interpretation	48
TOTAL	264

TABLE 10. 2nd YEAR UA 149 PLUMBERS and PIPEFITTERS COURSES	
COURSE	HOURS
Trade Related Mathematics	48
Trade Related Science	48
Piping Systems Layout	40
Advanced Drawing	32
Basic Electricity	40
SMAW Welding	48
TOTAL	256

¹⁹ Despite the involvement of women in the construction industry, the trades have universally retained the male gendered “journeyman” to refer to craft worker who have graduated from approved apprenticeship programs.

TABLE 11. 1st YEAR GLAZIERS COURSES	
COURSE	HOURS
IUPAT History	4
Sexual Harassment	4
Basic Mathematics and Measurements	4
Fractions, Decimals, Percents, and Angles I	6
Fractions, Decima1s, Percents, and Angles II	2
Personal Finance	2
First Aid/CPR/AED	6
Hand and Power Tool Safety Awareness	8
Student Scaffold Awareness/Safe Work	4
Student Ariel Lifts	8
OSHA	30
Drug and Alcohol Addiction Awareness	4
Safe Work Practices	4
Shop Machinery Safety Awareness	6
Swing Stage	6
Math for the Glazing Trade	4
Hand Tools for the Glazier Glass	8
Glass Cutting and Fabrication	12
Setting Blocks, Spacers, Tapes, Gaskets	8
Insulated and High Performance Glass	16
Glass Replacement and Putty Glazing	8
TOTAL	160

X. Recommendations

The importance of insuring that there are no explicit or unintended barriers to access to construction apprenticeship programs inspires our analysis of the of the East Central Area Building Trades efforts to enroll a diversified applicant pool. Based on our assessment of the data provided we offer recommendations. These recommendations cover aspects of program outreach to class instruction.

1. Outreach

It is recommended that along with general public notifications, apprentice programs develop a strategic outreach plan to women and minority populations.

Enrolling a larger proportion of women and minorities requires substantially increasing the number of applicants. Current outreach activities are numerous and in-person participation at school events with a minority population is a good way to develop partnerships with adults who can provide counsel to young men and women about careers in the building trades. Bringing high school students to apprentice schools and allowing opportunities for hands-on activities is also a valuable strategy for introducing young people to the tools of the trade. Important as high school-based approaches are to stimulating an interest in construction work, they are strictly oriented to high school students not currently or only marginally in the workforce. They do not reach older adults - 18 to 35 years of age - who are of primary working age.

Despite many school-based initiatives there appears to be an over reliance on largely passive communication techniques, like placing newspaper advertisements, running radio spots and sending printed notices to community organizations. These notifications are one-dimensional and do not allow for engagement with prospective recruits. They deliver a message but do little to start a conversation about a career choice poorly understood with an under-represented population.

Additionally, unless the media outlet has a targeted minority audience it is not likely to be effective. Placing ads in community newspapers with little or no minority population does not maximize the programs outreach to a minority pool. The objective is to find trusted media forms that are attentive to potential minority applicants.

Also, while public and organizational notices are necessary to comply with Affirmative Action reporting obligations, there is no evidence that simply placing an advertisement or sending a notice to an organization generates any minority applicant interest or produces minority applications. In an industry where family and social networks are the primary - if not the only genuine - training and employment referral technique, it is unlikely that public notices will increase minority and female applicant traffic.

It is recommended that along with general public notifications, apprentice programs collectively develop a strategic outreach plan to women and minority populations. To do this effectively the trades should invite female, black and Latino community leaders to be part of a task force or outreach committee dedicated to developing a recruitment plan.

The plan should be concentrated on person-to-person contacts between apprentice school representatives and community members of the task force, and targeted female and minority recruits.

The objective of a diversity outreach plan is to minimize the reliance of a family and friends referral system that disadvantages women and minorities who make up a minuscule percentage of apprentices. One example of a task force and plan is the “Peoria Area Diversity in Employment Action Team,” created as a joint effort by the West Central Illinois Building and Construction Trades Council, the Greater Peoria Contractors and Suppliers Association, and the NAACP.

Beginning in the summer of 2013 the parties solicited the assistance of an independent facilitator and developed a comprehensive strategic plan “for broader inclusion of minority populations in the building trades in Peoria, Illinois and surrounding areas (PADEAT 2014).” The committee engaged in several planning sessions which included a recognition of several hard truths:

- “The Building Trades careers are not well-known throughout the Community.”
- “There is a misconception that the Building Trades provide little more than a 2nd-tier opportunity.”
- “Within some areas of Minority Communities, there is the perception that the Trades are not open to Minority participation.”

There was consensus that these realities functioned as “weaknesses” that threatened the industry’s ability to create “a well-prepared, well-trained, diverse union construction workforce that reflects our community.” According to the parties “The first meeting did not go very well. There was a certain level of distrust and defensiveness between the African-American community leaders and the union leaders.”²⁰ But after more than a year of outreach the program has achieved some impressive gains. PADEAT endeavored to raise the number of qualified minority applicants by a modest 5%. The actual number for 2015 was approximately 20% and minority enrollments increased 20.5%.

Second, the parties need to trust one another and develop a true partnership. In this instance, both the trade unions and the African-American leadership were distrustful at first. The parties sat across the table from one another. Today, friendships have been formed, the meetings have become collegial and collaborative, and the partners are working together on other community issues not related to construction.

The elements of an East Central Area diversity plan will reflect local conditions, but should include all stakeholders, be centrally administered, include goals and assessments, assign organizational responsibility for diversity, be an action plan, establish a timeline and be formalized. The benefit of investing in a strategic plan is that it will transform apprentice

²⁰ Quote taken from the International City/County Management Association Program, Excellence Award narrative about the Peoria Area Diversity in Employment Action Team written by Patrick Urich, Peoria City Manager, March 9, 2016.

recruitment from a passive to an interactive form and allow the industry to take an affirmative position on diversity instead of primarily relying on network referrals.

2. Increasing the Eligible Pool of Apprentice Applicants

Pre-apprenticeship programs have proven to be a helpful strategy to prepare and connect people, especially those who are low-income, minority and female, to construction careers.

The size of the eligible applicant pool is often reduced due to candidates' weak math and writing skills, and unfamiliarity with the demands of an apprenticeship program.²¹ Accordingly, pre-apprenticeship programs have proven to be a helpful strategy to prepare and connect people, especially those who are low-income, minority and female, to construction careers. Typically, pre-apprenticeship programs offer math, basic skills remediation, hands-on experience, and most importantly, apprenticeship test preparation. The objective of pre-apprenticeship trainings is to help applicants become eligible candidates for trade programs. They are intentional about reaching individuals who would not otherwise come to an apprenticeship program qualified for entry. Where they have been used people of color and women are often beneficiaries of the trainings. There are many pre-apprentice models. Unions and employers sponsor some jointly, while others are administered by community colleges, non-profits or community organizations.

An example of a large, well-funded, and successful nonprofit pre-apprenticeship program for women is Chicago Women in Trades.²² The organization is well situated to assist the building trades and the contractors across Illinois to develop pre-apprenticeship programs that will increase female employment in the construction industry.

One successful community model is the Chicago-based *Career-Readiness Program* operated by the St. Paul Church of God in Christ Community Development Ministries (SPCDM), Inc. Since its inception SPCDM has successfully placed 173 "transitioned" applicants into United States Department of Labor approved apprenticeships and other related industries. Its training program is designed to prepare students to pass apprenticeship examinations and conduct effective interviews (www.stpaulcdm.org). Experienced instructors with building trade experience and subject area experts, like math

²¹ It is also worth noting that educational research has found that despite leaving high school as prepared as boys to pursue careers in science, technology, engineering, and mathematics, women are underrepresented in these fields (see Catherine Hill, Christianne Corbett, and Andresse St. Rose, *Why So Few? Women in Science, Technology, Engineering, and Mathematics*, American Association of University Women, 2010 at <https://www.aauw.org/.../Why-So-Few-Women>). This may have the effect of self-selecting a lot of women out of a career in construction due to social biases.

²² For more information about Chicago Women in Trades see <http://chicagowomenintrades2.org/>.

instructors, are hired to teach in an intensive 12-week program. The program is independently managed and funded with private donations.

The SPCDM is an attractive model for pre-apprentice training because its requirements for entry and success mirror what the USDOL demands of apprenticeship programs. In other words, a graduate from the pre-apprentice program should be an eligible apprenticeship school applicant. In a database of 71 students that completed the training from 2009-2011, African-American men made up 83% (n = 59) of the graduates (Latino at 7%, women at 5.6%).

3. Assessment

To address the possibility of a demographic similarity effect the apprentice committees should insure that their interview panels include women and minority representation.

Standards for enrollment in apprenticeship programs must remain high to insure that the schools are providing an unparalleled level of excellence. An aspect of the applicant assessment process that could be minimally altered and increase diversity eligibility without reducing standards is the interview process. While it was not possible with the data provided to discern what if any impact the interview process had on otherwise eligible applicants (i.e., scored well on the aptitude test), research on interview bias demonstrates that who is doing the interviewing may affect the performance and evaluation of the interviewee.

Some research shows that an interviewee *may* be more likely to be judged as having done well in answering questions, if he or she is being interviewed by someone who is the same race, gender or age (McCarthy, Iddekinge and Campion 2010). The “demographic similarity” effect predicts that a close correspondence between applicants and interviewers will lead to higher levels of interpersonal attraction and possibly result in more favorable outcomes for similar applicants.

Here is a way to understand the theory in the context of an apprentice applicant. In the case of female and minority apprentice applicant, it is unlikely that a person of color or a woman is interviewing the person. Since a panel is typically used it would not be uncommon for a Latino, black, or female to be interviewed by a committee of all white men. The scenario is potentially problematic for two reasons.

First, interviewing can be intimidating for any applicant. In fact, program coordinators recognize the anxiety that applicants have when approaching the interview. Some trades, like the electricians, provide helpful hints about how to dress for the interview, the appropriate tone of voice, and how extensively to answer questions (“enough but too much”). They implicitly understand that an interview is part performance and depending

on the setting, the stage can be more or less inviting. This is where having people who do the interview resemble the applicant matters. For instance, it would not be unreasonable for a young black female to feel *increased* anxiety by having to answer questions from an interview panel made up of four older white men. Certainly a young white male would also feel some tension, but it would be a natural product of being interviewed. The key here is on increased stress. In this scenario the panel of only white males would likely add – unintentionally – to the minority applicant’s stress level and perhaps handicap his or her performance.

In addition to how the demographic mismatch of applicant and interviewer may affect the performance of the applicant, there is the possibility of an interaction effect on the interviewers. Again consider the young black female applicant and the older white male interviewers. The demographic dissimilarity may cause interviewers to treat the applicant differently than they would a white male, resulting in negative applicant reactions. Interviewing, unlike aptitude assessments, is a very nuanced and subjective way to evaluate a person. The concern is that the interviewers will implicitly use demographic variables, such as gender and race, to determine how to interpret and evaluate the applicant’s responses.

The outcome would be doubly bad. The applicant would “earn” a lower score and may not be enrolled, and the school would reject a candidate who under slightly different conditions would have turned out to be a high quality apprentice. The interview setting should be designed so that no irrelevant factors impede the assessment. Interviews should also be conducted in a neutral way so that there are no implicit biases.

To address the possibility of a demographic similarity effect the apprentice committees should insure that their interview panels and ultimately the selection committee include women and minority representation. The preferred representation should come from female and minority journeymen. But if such representation cannot be drawn from the trade itself, the most likely source would be from the diversity task force.

4. Mentoring, Tutoring and Counseling

To help apprentices avoid feeling overwhelmed training programs could assign mentors and retention counselors to apprentices.

Once any applicant is enrolled the apprentice school’s incentive is on having every apprentice complete her or his training. In Illinois an average of \$ is invested per year in the training of each union apprentice (Bruno and Manzo 2016). The cost of a “cancelled” apprentice is a burden for the contractors and the trade union. However, research has shown that completion rates often hover around 50% (Helmer and Altstadt 2013). While

a much higher percentage of union apprentices compared to nonunion are successful, cancelled rates for women and minorities are higher than for white males.

Its important to note that to be successful in a building trade apprentice program it is essential that apprentices have a personal commitment to a career in construction, a strong work ethic, and desire to learn. No amount of intervention can help an apprentice who is not prepared to invest time and sweat in learning the trade. But even the most committed individual may face real hurdles to success.

One of the major factors in apprentice non-completion is the difficulty in mastering the required math skills. A very viable approach to reducing dropouts is to provide apprentices with math tutors. By focusing on a student's math weakness the school can prevent a skill deficiency born out of either natural endowments or poor prior schooling from being a life-long barrier to a middle class income. Partnerships with community colleges and public schools could prove beneficial in accessing math tutors.

But subject area mastery is not the only factor threatening apprentice completion. As our survey noted eight out of ten apprentices experience the challenge of juggling family, work and school responsibilities. To help apprentices avoid feeling overwhelmed training programs could assign mentors and retention counselors to apprentices.

Mentors are experienced journeymen who take responsibility for helping apprentices navigate the demands of the training and the trade. It is expected that journeymen will provide guidance to apprentices while on-the-job and this construct would simply be extended to a more general oversight of the apprentices' training.

Retention counselors help to mitigate obstacles faced by apprentices such as child-care, financial and transportation barriers. Apprentices attend group and one-on-one sessions with the retention counselor and stay in contact through telephone and email. Counselors for example, convene group meetings addressing topics such as employer expectations, hazing on the job site, the most common ways to get fired and the construction career ladder. The idea here is that apprentices have someone to listen to their problems and encourage them to continue pursuing their studies and career ambitions.

5. Classroom Instructors and Instruction

An additional way to address apprentices' academic challenges is to hire academic subject area teachers.

As noted above apprentices may have limited basic math and reading skills and need additional remediation to succeed. An additional way to address apprentices' academic challenges is to hire academic subject area teachers. While many of the trades provide extensive teacher training the typical apprentice school instructor is a journeyman who was never trained as a teacher. Now training can support the acquisition of trade-related teaching skills (i.e., how to teach someone how to wire), but the ability to help apprentices

learn math may likewise require hiring a content expert. In this case, the need for the apprentices to be proficient at math or writing may require that individuals, who both understand the content and know how to teach, instruct the courses.

6. Teacher-Student Role Modeling

Hiring women and minority journeymen to teach would provide female and minority apprentices with a constructive and positive role model.

All of the building trade programs have successfully trained women and people of color who have become experienced at their craft. But apprenticeship schools underutilize female, black or Latino instructors. There are currently only four female, one Latino and no black instructors in the programs represented in this study. Education research has revealed that race-congruent teachers in reading and math did correlate with statistically significant increases in student performance levels (Egalite, Kisida and Winters; Dee 2003). Studies have further found that lower-performing black and white students appear to particularly benefit from being assigned to a race-congruent teacher. A role-model effect also extends to teacher-student gender correspondence (Bettinger and Long 2005; Ehrenberg, Goldhaber and Brewer 1995).

Hiring women and minority journeymen to teach would provide female and minority apprentices with a constructive and positive role model. It would also signal to under-represented groups that the trade and school are open and welcoming to minorities and women.

7. Diversity Education

This diversity education needs to be different than the familiar lawsuit avoidance approach customarily undertaken.

A review of best diversity practices recommends that unions should embrace and insist on (where needed with signatory contractors) quality diversity education from apprenticeship programs to leadership development. This diversity education needs to be different than the familiar lawsuit avoidance approach customarily undertaken. Among the volumes of articles, studies, papers, and books that have been written about workforce diversity many have shed a bright light on “what works, when and why” (Bell and Kravitz 2008). Advocates for greater racial and gender inclusion in the workforce have addressed the *research–practice gap* or “the gap between the practices that research implies would be best and the practices that are actually employed in the field.” There is no single model that works and many fail, but training programs that produce increases in diversity employment do more than preempt legal action and increase racial and gender sensitivity (Dobbin and Kalev 2016).

8. Diversity Oversight

The job of making sure that diversity plans move forward and are not blocked by

intransigence, foot dragging, irrelevant explanations, unexamined biases or ignorance is the job of a dedicated person or leadership team.

Producing real advancement in workforce diversity requires multiple interventions. Each individual step is valuable in its own right. However, none of the separate measures will produce an increase in women and minority workers on construction sites unless the diversity program has genuine, forceful and focused leadership. The job of making sure that diversity plans move forward and are not blocked by intransigence, foot dragging, irrelevant explanations, unexamined biases or ignorance is the job of a dedicated person or leadership team. The task demands more than inspiring labor leaders who tackle diversity issues as an adjunct to their numerous other duties. As Moir et al (2011) have stated, “Monitoring for equal employment opportunity must be clearly defined, not combined with other responsibilities and staffed by trained and qualified individuals.”

As previously noted employers are critical gatekeepers to access to a career in the construction industry. But since this report focuses on how organized labor can better represent a diversity workforce that is the preferred option for women and minorities our recommendations for leadership are directed toward trade unions.

Construction unions are well situated to advance diversity goals in the industry. Building on the values of ensuring worker rights and access to work, unions provide the institutional apparatus that could facilitate women and minority entry into the industry. The incentives to increase female and minority participation are numerous; the large projected labor shortage in the construction industry, the growing importance of women’s earnings to middle class families the diversification of the American population, legal enforcement of civil right laws, and the use of race and gender issues as a cover for an anti-union political ideology.

XI. Conclusion

While construction workforce diversity remains elusive acceptance of its need has never been

more robust. Labor leaders throughout the East Central Area Building Trades Council endorsed the desire to train and employ a workforce that represented the middle class aspirations of all workers. Each of their trades has attempted to increase female and minority participation. Indeed, the joint apprenticeship programs are the only institutions in Illinois making a genuine effort to train and employ women and minorities in construction of any noticeable size. Apprentice school coordinators and labor leaders acknowledge that today's and importantly, tomorrow's construction labor force will not resemble their "father's labor movement." They rightly resent politically motivated accusations of personal racism and sexism. They also correctly point out that contractors are responsible for hiring and often oppose collective bargaining requirements to employ additional apprentices. Efforts to support diversity training, like pre-apprenticeships, are also often unpopular with employers.

This report was solicited by the East Central Area Building Trades Council to understand how they could better recruit, assess, enroll, educate, support and employ more women and people of color. While the report's findings and recommendations offer plenty to consider, it is the voluntary embrace of change embodied by the participating apprentice school and labor leaders that represents the most hopeful sign that workforce diversity can be achieved.

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